

# EXHIBIT 15 FILED UNDER SEAL

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1	IN THE CIRCUIT COURT	1	stereological, and neuropathic
2	TWENTIETH JUDICIAL CIRCUIT	2	studies on potential effects of
3 4	ST. CLAIR COUNTY, ILLINOIS 000-	3	paraquat in the substantia nigra
5	DIANA HOFFMANN. )	4	pars compacta and striatum of
	individually and as )	5	male C57B/6J mice
6	Independent Administrator)	6	Exhibit 143 Dietary administration of 1585
7	of the Estate of THOMAS ) R. HOFFMANN, Deceased, )	7	paraquat for 13 weeks does not
,	et al.,	8	result in a loss of dopaminergic
8	)	9	neurons in the substantia nigra
9	Plaintiffs, )	10	of C57BL/6J mice
9	vs. ) No. 17-L-517	11	
10	) The state of the		Exhibit 144 Excerpt from the deposition of 1611
1.1	SYNGENTA CROP )	12	Richard Smeyne, page 321, line 18
11	PROTECTION, LLC, et al., )	13	through page 327, line 14
12	Defendants. )	14	Exhibit 145 Excerpt of video from the 1613
	)	15	deposition of Richard Smeyne
13 14	VIDEO-RECORDED VIDEOCONFERENCE	16	Exhibit 146 Paraquat Health Science Team 1628
15	DEPOSITION OF	17	Minutes, October 2, 2013
16	PHILIP BOTHAM, Ph.D.	18	Exhibit 147 Genetic Dissection of Strain 1639
17	Volume 6 (Pages 1421-1683)	19	Dependent Paraquat-Induced
18 19	January 5, 2021	20	Neurodegeneration in the
20	3diladiy 5, 2021	21	Substantia Nigra Pars Compacta
21		22	Exhibit 148 Assessment of the Effects of MPTP 1644
22 23	(Beginning at 4:39 a.m.)	23	and Paraquat on Dopaminergic
24		24	Neurons and Microglia in the
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2		2	Substantia Nigra Pars Compacts of C57BL/6 Mice
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1	IN THE CIRCUIT COURT	1	FOR THE DEFENDANT CHEVRON PHILLIPS CHEMICAL COMPANY
2	TWENTIETH JUDICIAL CIRCUIT	2	LP:
3		3	
	ST. CLAIR COUNTY, ILLINOIS		Joseph Orlet, Esq. (via videoconference)
4	-000-	4	Jennifer Cecil, Esq. (via videoconference)
5	DIANA HOFFMANN, )		Husch Blackwell, LLP
	individually and as )	5	190 Carondelet Piaza, Suite 600
6	Independent Administrator)		St. Louis, MO 63105
	of the Estate of THOMAS )	6	(314)480-1500
7	·	"	joseph.orlet@huschblackwell.com
'	R. HOFFMANN, Deceased, et)	7	Joseph.onet@ndschblackwell.com
	al., )	8	
В	)		and
	Plaintiffs, )	9	Mark Smith, Esq. (vla videoconference)
9	1		Husch Blackwell, LLP
	vs. ) No. 17-L-517	10	736 Georgia Avenue, Suite 300
	VS. ) 110. 17-E-517		Chattenooga, TN 37402
10	)	11	(423)755-2667
	SYNGENTA CROP )		mark.smith@huschblackwell.com
11	PROTECTION, LLC, et al., )	12	
	)	13	FOR THE DEFENDANT GROWMARK, INC.:
12	Defendants. )	14	Anthony Hopp, Esq. (via videoconference)
	Deterioria. 1		Steptoe & Johnson, LLP
		15	633 West Fifth Street, Suite 1900
13		-	Los Angeles, CA 90071
	-000-	16	(213)439-9455
14		1 .	ahopp@steptoe.com
15	VIDEO-RECORDED VIDEOCONFERENCE DEPOSITION	17	алоррегороской
		18	FOR THE DEFENDANT WILLDLIN CLUE.
16	OF PHILIP BOTHAM, Ph.D., produced, sworn, and		FOR THE DEFENDANT WILBUR ELLIS:
17	examined on Tuesday, January 5, 2021, taken on	19	Gerhardt Zacher, Esq. (via videoconference)
18	behalf of the Plaintiffs, with the witness appearing	l	Gordon & Rees, LLP
19	from Jealott's Hill, England, before RENEE COMBS	20	101 West Broadway, Unit 2000
20	QUINBY, a Certified Court Reporter (MO) #1291,		San Diego, CA 92101
		21	(619)232-7703
21	Certifled Shorthand Reporter (IL) #084-004867,		gzacher@grsm.com
22	Certified Shorthand Reporter (CA) #11867, Registered	22	-
23	. , , , =		ALSO PRESENT: Nichole Graham
23 24	Diplomate Reporter, and a Certified Realtime Reporter.	23 24	ALSO PRESENT: Nichole Graham
	Diplomate Reporter, and a Certified Realtime	23	ALSO PRESENT: Nichole Graham Page 1428
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1	Diplomate Reporter, and a Certified Realtime Reporter.  Page 1426	23 24	Page 1428 THE VIDEOGRAPHER:
1 2	Diplomate Reporter, and a Certified Realtime Reporter.  Page 1426  APPEARANCES	23	Page 1428 THE VIDEOGRAPHER: Shaun Steele (via videoconference)
1 2 3	Diplomate Reporter, and a Certified Realtime Reporter.  Page 1426  APPEARANCES  FOR THE PLAINTIFFS:	23 24 1 2	Page 1428 THE VIDEOGRAPHER: Shaun Steele (via videoconference) Alaris Litigation Services
1 2	Diplomate Reporter, and a Certified Realtime Reporter.  Page 1426  APPEARANCES	23 24	Page 1428 THE VIDEOGRAPHER: Shaun Steele (via videoconference)
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1 2 3 4	Diplomate Reporter, and a Certified Realtime Reporter.  Page 1426  A P P E A R A N C E S  FOR THE PLAINTIFFS: Stephen Tillery, Esq. (via videoconference) Rosemary Fiorillo, Esq. (via videoconference) Korein Tillery One US Bank Plaza, 36th Floor	1 2 3 4 5 5	Page 1428 THE VIDEOGRAPHER: Shaun Steele (via videoconference) Alaris Litigation Services 711 North 11th Street St. Louis, MO 63101
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1 2 3 4 5	Diplomate Reporter, and a Certified Realtime Reporter.  Page 1426  A P P E A R A N C E S  FOR THE PLAINTIFFS: Stephen Tillery, Esq. (via videoconference) Rosemary Fiorillo, Esq. (via videoconference) Korein Tillery One US Bank Plaza, 36th Floor St. Louis, MO 63101 (314)241-4844	1 2 3 4 5 6	Page 1428 THE VIDEOGRAPHER: Shaun Steele (via videoconference) Alaris Litigation Services 711 North 11th Street St. Louis, MO 63101 (800)280-3376 COURT REPORTER: Renee Combs Quinby, RDR, CRR Missouri CCR #1291
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1 2 3 4 5 6 7 8 9	Diplomate Reporter, and a Certified Realtime Reporter.  Page 1426  APPEARANCES  FOR THE PLAINTIFFS: Stephen Tillery, Esq. (via videoconference) Rosemary Fiorillo, Esq. (via videoconference) Korein Tillery One US Bank Plaza, 36th Floor St. Louis, MO 63101 (314)241-4844 stillery@koreintillery.com	1 2 3 4 5 6	Page 1428 THE VIDEOGRAPHER: Shaun Steele (via videoconference) Alaris Litigation Services 711 North 11th Street St. Louis, MO 63101 (800)280-3376 COURT REPORTER: Renee Combs Quinby, RDR, CRR Missouri CCR #1291 Illinois CSR #084-004867 Celifornia CSR #11867 Arkansas CSR #821
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2 (Pages 1425 to 1428)

	Page 1429		Page 1431
1	000	1	remotely. Counsel further acknowledge that I will
2	IT IS HEREBY STIPULATED AND AGREED by and	2	not be administering the oath in person but am doing
3	between counsel for the Plaintiffs and counsel for	3	so remotely.
4	the Defendants that this deposition may be taken in	4	The parties and counsel consent to this
5	machine shorthand by RENEE COMBS QUINBY, a Certified	5	arrangement and walve any objections to this manner
6	Court Reporter and Notary Public, and afterwards	6	of proceeding.
7	transcribed into typewriting and the signature not	7	Counsel, please indicate your agreement
8	waived by agreement of counsel and consent of the	8	verbally on the record by stating your name and that
9	witness.	9	you stipulate to these terms, after which I will
10	000	10	swear in the witness and we may begin.
11	PROCEEDINGS 4:39 a.m.	11	MR. TILLERY: This is Steve Tillery on
12	THE VIDEOGRAPHER: We are on the	12	behalf of plaintiffs. We stipulate and agree to
13	record. Today's date is January 5th, 2021, and the	13	these terms.
14	time is 4:39 a.m. This is the video-recorded	14	MR. NARESH: Ragan Naresh for Syngenta.
15	deposition of Philip Botham, Volume 6, in the matter	15	We also agree to the terms.
16	of Diana Hoffmann, et al., versus Syngenta Crop	16	MR. ORLET: Joe Orlet for Chevron. So
17	Protection, LLC, et al., Case Number 17-L-517 in the	17	stipulated.
18	Circult Court, 20th Judicial Circuit, St. Clair	18	MR. HOPP: Tony Hopp for Growmark. So
19	County, Illinois.	19	stipulated.
20	This deposition is being held at remote	20	MR. ZACHER: Gerhardt Zacher,
21	locations. The reporter's name is Renee Quinby. My	21	Wilbur Ellis Company, agreed.
22	name is Shaun Steele. I'm the certified legal	22	PHILIP BOTHAM, PH.D.,
23	videographer. We are with Alaris Litigation	23	of lawful age, having been first duly sworn to
24	Services.	24	testify to the truth, the whole truth, and nothing
	Page <b>14</b> 30		Page 1432
1	Would the attorneys present please	1	but the truth in the case aforesaid, deposes and
2	introduce themselves and the partles they represent.	2	says in reply to oral interrogatories propounded as
3	MR. TILLERY: For the plaintiffs,	3	follows, to-wit:
4	Steve Tillery of the law firm of Koreln Tillery.	4	000
5	MR. NARESH: For Syngenta,	5	EXAMINATION
6	Ragan Naresh, Kirkland & Ellis.	6	BY MR. TILLERY:
7	MR. ORLET: For Chevron, Joe Orlet.	7	Q. Dr. Botham, you're giving this
8	MR. HOPP: For Growmark, Tony Hopp.	8	deposition, your end of it, from what location, sir?
9	THE VIDEOGRAPHER: Would the court	9	A. I'm in Charles Hill in England.
10	reporter please	10	Q. Okay. And I'm In St. Louis, and we'll
11	MR. ZACHER: Wilbur Ellis Company,	11	be taking this remotely. You understand the rules
12	Gerhardt Zacher.	12	that we've discussed previously apply here as well.
13	THE VIDEOGRAPHER: Anyone else? Would	13	Okay?
14	the court reporter please read the stipulation and	14	A. (Nods head.)
15	swear in the witness.	15	Q. And now –
16	THE REPORTER: This is Renee Quinby. I	16	A. Okay.
	am a Certified Court Reporter. This deposition is	17	Q. Yeah. Do you have information available
17	being taken remotely, and those participating in	18	to you or the ability to pull documents up on eDepoze
17 18		19	for this deposition?
	these proceedings today are attending via		
18	these proceedings today are attending via videoconference with the witness appearing from	20	A. Yes. I've eDepoze I have eDepoze
18 19		l	A Yes. I've eDepoze — I have eDepoze open and live and available.
18 19 20	videoconference with the witness appearing from	20	· · · · · · · · · · · · · · · · · · ·
18 19 20 21	videoconference with the witness appearing from England.	20 21	open and live and available.

	Page 1433		Page 1435
1	Q. All right. So this is actually another	1	actually paraquat toxicity more broadly. And I and
2	volume of the deposition and a continuation starting	2	some colleagues review those monthly lists and look
3	on page 1421 of your dep, and also we start here with	3	up some specific papers as to when we feel it's
4	the sequential numbering of your exhibits. So the	4	appropriate.
5	first exhibit we use will be called 134. Okay?	5	Q. How long have you been working with the
6	A. (Nods head.)	6	monitoring company, the external company in place to
7	Q. Do you have any questions about the	7	assist you in monitoring worldwide literature?
8	procedure?	8	A. I think the external contract has
9	(Reporter clarification.)	9	certainly been in place for at least five years.
10	(Off the record discussion.)	10	Q. And prior to that how did you do this?
11	BY MR. TILLERY:	11	<ul> <li>A. It was done through our own internal</li> </ul>
12	<ul> <li>Q. So do you have any questions about the</li> </ul>	12	resources.
13	procedures?	13	<ul> <li>Q. Did you have an assigned scientist or</li> </ul>
14	<ul> <li>A. No. I have no questions at this stage.</li> </ul>	14	person involved to monitor this?
15	<ul> <li>Q. And then my next question to you was</li> </ul>	15	<ul> <li>A. It was less formal than it is now, and</li> </ul>
16	since June of 2020, what additional work have you	16	we tended to do that within a team. So a number of
17	undertaken in connection with this case to prepare	17	individuals would do that.
18	yourself for this deposition?	18	<ul> <li>Q. So how many people would, for example,</li> </ul>
19	<ul> <li>A. Yes. I've been provided with copies of</li> </ul>	19	monitor studies concerning the neurotoxicity of
20	a number of expert reports, which I have read; also	20	paraquat?
21	some transcripts of depositions of experts, which	21	<ul> <li>At the moment we have four people who</li> </ul>
22	I've also read through. I've reminded myself of my	22	specifically look at that including myself.
23	previous input to this process.	23	Q. Who are those four?
24	So I've reread my own deposition	24	A. So that's myself. It would be
		-	
	Page 1434		Page 1436
1 .	Page 1434		Page 1436
1	transcripts and, of course, continued to keep up to	1	Dr. Andy Cook. It would be Dr. Dan Minnema, and
2	transcripts and, of course, continued to keep up to date with the literature on the subject of paraquat	2	Dr. Andy Cook. It would be Dr. Dan Minnema, and Dr. Haitian Lu, who has joined the team fairly
2	transcripts and, of course, continued to keep up to date with the literature on the subject of paraquat and Parkinson's disease.	2 3	Dr. Andy Cook. It would be Dr. Dan Minnema, and Dr. Haitian Lu, who has joined the team fairly recently.
2 3 4	transcripts and, of course, continued to keep up to date with the literature on the subject of paraquat and Parkinson's disease.  Q. What literature have you seen that's	2 3 4	Dr. Andy Cook. It would be Dr. Dan Minnema, and Dr. Haitian Lu, who has joined the team fairly recently.  Q. And where did he join from?
2 3 4 5	transcripts and, of course, continued to keep up to date with the literature on the subject of paraquat and Parkinson's disease.  Q. What literature have you seen that's come out since June that relates to any of the issues	2 3 4 5	Dr. Andy Cook. It would be Dr. Dan Minnema, and Dr. Haitian Lu, who has joined the team fairly recently.  Q. And where did he join from? A. He joined the company from another
2 3 4 5 6	transcripts and, of course, continued to keep up to date with the literature on the subject of paraquat and Parkinson's disease.  Q. What literature have you seen that's come out since June that relates to any of the Issues we've discussed? Not necessarily in detail but just	2 3 4 5 6	Dr. Andy Cook. It would be Dr. Dan Minnema, and Dr. Haitian Lu, who has joined the team fairly recently.  Q. And where dld he join from?  A. He joined the company from another organization, another company, around about a year
2 3 4 5 6 7	transcripts and, of course, continued to keep up to date with the literature on the subject of paraquat and Parkinson's disease.  Q. What literature have you seen that's come out since June that relates to any of the Issues we've discussed? Not necessarily in detail but just the topic of the literature.	2 3 4 5	Dr. Andy Cook. It would be Dr. Dan Minnema, and Dr. Haitian Lu, who has joined the team fairly recently.  Q. And where did he join from?  A. He joined the company from another organization, another company, around about a year ago, I think.
2 3 4 5 6	transcripts and, of course, continued to keep up to date with the literature on the subject of paraquat and Parkinson's disease.  Q. What literature have you seen that's come out since June that relates to any of the issues we've discussed? Not necessarily in detail but just the topic of the literature.  A. Well, we — we always have done it	2 3 4 5 6 7	Dr. Andy Cook. It would be Dr. Dan Minnema, and Dr. Haitian Lu, who has joined the team fairly recently.  Q. And where did he Join from?  A. He joined the company from another organization, another company, around about a year ago, I think.  Q. Okay. Have you read — strike that.
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	transcripts and, of course, continued to keep up to date with the literature on the subject of paraquat and Parkinson's disease.  Q. What literature have you seen that's come out since June that relates to any of the Issues we've discussed? Not necessarily in detail but just the topic of the literature.  A. Well, we — we always have done it through regular monitoring of the literature, and it continues to be quite a big body of literature.  There have been a few important papers, including a new epidemiology paper which I've particularly focused on. But it's been a pretty broad reading of — to make sure that I'm as up to date as possible.  Q. And the regular monitoring you've talked to me about in the past, is there a formalized method at Syngenta for monitoring this, or is it done by area of interest by the scientists?  A. We do have a formal process. So we engage an external company to look at the literature	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Dr. Andy Cook. It would be Dr. Dan Minnema, and Dr. Haitian Lu, who has joined the team fairly recently.  Q. And where dld he Join from?  A. He joined the company from another organization, another company, around about a year ago, I think.  Q. Okay. Have you read — strike that.  Which depositions have you read?  A. I've read the depositions of the Syngenta experts that were — that provided reports.  Q. Okay. Were there any, to your knowledge, that were omitted, or dld you try at least to read every deposition of every witness taken by the plaintiffs in the case?  A. I read those depositions which were particularly relevant to the issues of safety, and I read those in more detail, certainly. So I didn't read absolutely every one in detail.  Q. Do you have a list of the ones you read?  A. I would have to — to check my notes to

	Page 1437		Page 1439
1	point.	1	engaged in.
2	Q. Okay. You have the notes with you,	2	Q. And how long has that process been in
3	though, right?	3	place?
4	A. I have notes here in the office with	4	A. Well, the health science team as it's
5	me, yes.	5	now constituted really started back in 2008, and it
6	Q. Did you read, for example, the	6	has evolved over time. There are now fewer peopl
7	deposition of Dr. Smeyne?	7	who are involved in the first instance. So It's
8	A. No. Dr. Smeyne? I've not read that	8	been going in really in one form or another for
9	one.	9	12 years now.
10	Q. Okay. All right. Okay. What else have	10	Q. And who is on the health science team
11	you done besides reading depositions and the	11	today?
12	plaintiffs' reports?	12	A. So it's myself, Andy Cook,
13	A. And keeping up to date with the	13	Dan Minnema
14	literature, as I said.	14	Q. Haitlan Lu. Are there –
15		15	
15 16	Q. Going forward.	16	A. Haitian Lu, yes.     Aren't there other people?
	A. Well, I've continued to lead the	-	
L 7	paraquat health science team, which we've talked	17	A. Yes. And one other person,
18	about in my previous depositions.	18	Alex Stevens. And he has been the – one of the
L 9	We have regular monthly conference	19	lead scientists on the pharmacokinetic papers. So
20	calls where we have been finalizing some of the	20	he's been called up to the team in the last year or
21	research work that we have been doing, including	21	so.
22	some final publications, and also discussing some of	22	Q. And do you meet monthly?
23	the literature findings that we've been talking	23	<ul> <li>A. Approximately monthly we'll have a</li> </ul>
24	about a few minutes ago.	24	conference call.
	Page <b>143</b> 8		Page 1440
1	Page 1438 Q. Has your –	1	Page 1440 Q. How long do these meetings last?
1 2		1 2	
	Q. Has your —	I	Q. How long do these meetings last?
2	Q. Has your – (Reporter clarification.)	2	<ul><li>Q. How long do these meetings last?</li><li>A. Between one to two hours.</li></ul>
2	Q. Has your —  (Reporter clarification.)  BY MR. TILLERY:	2	<ul><li>Q. How long do these meetings last?</li><li>A. Between one to two hours.</li><li>Q. Okay. And are you the chairman or head</li></ul>
2 3 4	Q. Has your — (Reporter clarification.) BY MR. TILLERY: Q. Strike that.	2 3 4	<ul><li>Q. How long do these meetings last?</li><li>A. Between one to two hours.</li><li>Q. Okay. And are you the chairman or head of that group?</li></ul>
2 3 4 5	Q. Has your — (Reporter clarification.)  BY MR. TILLERY:  Q. Strike that.  Has your pharmacokinetic study been published?	2 3 4 5	<ul> <li>Q. How long do these meetings last?</li> <li>A. Between one to two hours.</li> <li>Q. Okay. And are you the chairman or head of that group?</li> <li>A. Yes. I'm the chairman, and I still</li> </ul>
2 3 4 5 6	Q. Has your — (Reporter clarification.)  BY MR. TILLERY:  Q. Strike that. Has your pharmacokinetic study been published?  A. It has been accepted for publication	2 3 4 5 6	<ul> <li>Q. How long do these meetings last?</li> <li>A. Between one to two hours.</li> <li>Q. Okay. And are you the chairman or head of that group?</li> <li>A. Yes. I'm the chairman, and I still lead the health science team.</li> <li>Q. Okay. All right. Our very first</li> </ul>
2 3 4 5 6 7	Q. Has your — (Reporter clarification.) BY MR. TILLERY: Q. Strike that. Has your pharmacokinetic study been published? A. It has been accepted for publication subject to some modifications, which we have now	2 3 4 5 6 7	<ul> <li>Q. How long do these meetings last?</li> <li>A. Between one to two hours.</li> <li>Q. Okay. And are you the chairman or head of that group?</li> <li>A. Yes. I'm the chairman, and I still lead the health science team.</li> <li>Q. Okay. All right. Our very first exhibit we're going to talk about today is</li> </ul>
2 3 4 5 6 7 8 9	Q. Has your — (Reporter clarification.) BY MR. TILLERY: Q. Strike that. Has your pharmacokinetic study been published? A. It has been accepted for publication subject to some modifications, which we have now made.	2 3 4 5 6 7 8	Q. How long do these meetings last?  A. Between one to two hours.  Q. Okay. And are you the chairman or head of that group?  A. Yes. I'm the chairman, and I still lead the health science team.  Q. Okay. All right. Our very first exhibit we're going to talk about today is Exhibit 134. Okay?
2 3 4 5 6 7 8 9	Q. Has your — (Reporter clarification.) BY MR. TILLERY: Q. Strike that. Has your pharmacokinetic study been published? A. It has been accepted for publication subject to some modifications, which we have now made. Q. Okay. And where is that? What	2 3 4 5 6 7 8 9	Q. How long do these meetings last?  A. Between one to two hours.  Q. Okay. And are you the chairman or head of that group?  A. Yes. I'm the chairman, and I still lead the health science team.  Q. Okay. All right. Our very first exhibit we're going to talk about today is Exhibit 134. Okay?  (Exhibit 134 was identified
2 3 4 5 6 7 8 9	Q. Has your — (Reporter clarification.) BY MR. TILLERY: Q. Strike that. Has your pharmacokinetic study been published? A. It has been accepted for publication subject to some modifications, which we have now made. Q. Okay. And where is that? What publication?	2 3 4 5 6 7 8 9 10	Q. How long do these meetings last?  A. Between one to two hours.  Q. Okay. And are you the chairman or head of that group?  A. Yes. I'm the chairman, and I still lead the health science team.  Q. Okay. All right. Our very first exhibit we're going to talk about today is Exhibit 134. Okay?  (Exhibit 134 was identified for the record.)
2 3 4 5 6 7 8 9 10	Q. Has your — (Reporter clarification.) BY MR. TILLERY: Q. Strike that. Has your pharmacokinetic study been published? A. It has been accepted for publication subject to some modifications, which we have now made. Q. Okay. And where is that? What publication? A. I would just need to go back and	2 3 4 5 6 7 8 9 10 11	Q. How long do these meetings last?  A. Between one to two hours.  Q. Okay. And are you the chairman or head of that group?  A. Yes. I'm the chairman, and I still lead the health science team.  Q. Okay. All right. Our very first exhibit we're going to talk about today is Exhibit 134. Okay?  (Exhibit 134 was identified for the record.)  BY MR. TILLERY:
2 3 4 5 6 7 8 9 10 11 12	Q. Has your — (Reporter clarification.) BY MR. TILLERY: Q. Strike that. Has your pharmacokinetic study been published? A. It has been accepted for publication subject to some modifications, which we have now made. Q. Okay. And where is that? What publication? A. I would just need to go back and double-check. I believe it's Regulatory	2 3 4 5 6 7 8 9 10 11 12 13	<ul> <li>Q. How long do these meetings last?</li> <li>A. Between one to two hours.</li> <li>Q. Okay. And are you the chairman or head of that group?</li> <li>A. Yes. I'm the chairman, and I still lead the health science team.</li> <li>Q. Okay. All right. Our very first exhibit we're going to talk about today is Exhibit 134. Okay? <ul> <li>(Exhibit 134 was identified for the record.)</li> <li>BY MR. TILLERY:</li> <li>Q. And I want you to take a look at this</li> </ul> </li> </ul>
2 3 4 5 6 7 8 9 10 11 12 13	Q. Has your — (Reporter clarification.) BY MR. TILLERY: Q. Strike that. Has your pharmacokinetic study been published? A. It has been accepted for publication subject to some modifications, which we have now made. Q. Okay. And where is that? What publication? A. I would just need to go back and double-check. I believe it's Regulatory Toxicology & Pharmacology, but I would just like to	2 3 4 5 6 7 8 9 10 11 12 13 14	Q. How long do these meetings last?  A. Between one to two hours.  Q. Okay. And are you the chairman or head of that group?  A. Yes. I'm the chairman, and I still lead the health science team.  Q. Okay. All right. Our very first exhibit we're going to talk about today is Exhibit 134. Okay?  (Exhibit 134 was identified for the record.)  BY MR. TILLERY:  Q. And I want you to take a look at this exhibit, make sure that your eDepoze is working, and
2 3 4 5 6 7 8 9 110 111 112 113	Q. Has your — (Reporter clarification.) BY MR. TILLERY: Q. Strike that. Has your pharmacokinetic study been published? A. It has been accepted for publication subject to some modifications, which we have now made. Q. Okay. And where is that? What publication? A. I would just need to go back and double-check. I believe it's Regulatory Toxicology & Pharmacology, but I would just like to double-check that that's where it's finally landed.	2 3 4 5 6 7 8 9 10 11 12 13 14 15	Q. How long do these meetings last?  A. Between one to two hours.  Q. Okay. And are you the chairman or head of that group?  A. Yes. I'm the chairman, and I still lead the health science team.  Q. Okay. All right. Our very first exhibit we're going to talk about today is Exhibit 134. Okay?  (Exhibit 134 was identified for the record.)  BY MR. TILLERY:  Q. And I want you to take a look at this exhibit, make sure that your eDepoze is working, and that you can look at this.
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### Page 1441 Page 1443 1 you need to spend time with a document or exhibit 1 A. Sorry. Would you repeat that question? 2 and make sure that you've read it adequately to 2 Q. Yes. Is there something in between? 3 satisfy yourself that you can answer my questions, 3 How long is a chronic study? A. A chronic study would generally - in 4 just ask for additional time to do so. 4 5 5 A. Okay. The eDepoze is working so I can the rodent, a chronic study would generally be б 18 months to two years. In a nonrodent, the chronic see the report. 6 7 Q. All right. And why don't you just take 7 study would be 12 months. 8 a second to familiarize yourself with that. And some 8 Q. Has Syngenta ever performed a long-term 9 of it, it's - we'll refer to this as the "Chivers 9 paraquat neurotoxicity study to your knowledge? 10 Report, 2006 Guideline Study." 10 A. No. The long-term chronic studies that we've conducted have been the guideline studies in 11 A. Okay. I've refamiliarized myself with 11 12 the first part of that including the summary. 12 rodents and nonrodents, which include an element of 13 Honestly, it's a very big report; so I suggest we 13 assessing neurotoxicity but not to the extent that 14 try to focus where you would like to. 14 is required in the specific neurotoxicity study 15 Q. Right. I don't think that it will be 15 we're talking about now. 16 necessary for you to get into the details based upon 16 Q. And just so we're clear for the record, 17 my questions. Okay? 17 then - excuse me. I'm sorry - Syngenta has never 18 A. Fine. 18 undertaken any neurotoxicity studies longer than Q. So Exhibit 134, for the record, is a 19 19 90 days for the observation of specific neurotoxicity 20 study entitled "Paraquat Subchronic Neurotoxicity 20 end points; is that correct? 21 Study In the Rat," correct? 21 A. That's correct, yes. 22 22 Q. All right. Now, let's put this study in A Correct 23 Q. And this is a subchronic neurotoxicity 23 perspective time-wise in terms of the deposition and 24 study that the EPA required Syngenta to perform, 24 those who look at and hear your deposition later. Page 1442 Page 1444 1 right? 1 This guideline study that we've marked 2 2 as Plaintiffs' Deposition Exhibit Number 134 A. That is correct. 3 3 Q. In terms of specific neurotoxicity actually took place fairly soon, within a year or so, of Dr. Louise Marks doing her C57 black mouse 4 studies, not studies where, you know, clinical signs 4 5 might have been evaluated but a specific neurotox 5 studies, correct? 6 study, to your knowledge, was this the very first 6 A. Yes, that is correct. 7 neurotox study undertaken by Syngenta for the EPA at 7 Q. As a matter of fact, even though she had 8 8 their direction? completed her studies and had her study results, her A. This was certainly the first 9 9 studies had not yet been written up into study 10 10 reports until June of 2007, correct? neurotoxicity study done in accordance with the EPA 11 auidelines on neurotoxicity studies 11 A. That is correct, yes. 12 Q. In other words, this was the first time 12 Q. But she had actually done the studies on 13 13 the C57 black mouse starting in 2003 or 2004 and that you'd been asked to do a study that the EPA 14 focused specifically on neurotoxicity, correct? 14 finishing in 2005, right? 15 A. That is correct. 15 A. Yes. That is my - my understanding. Q. All right, "Subchronic" means it was a 16 16 Q. All right. So by June of 2006, Syngenta 17 90-day study, right? 17 already knew the results of three paraquat 18 A. That is right. 18 neurotoxicity studies performed by Dr. Louise Marks; 19 Q. A long-term study would be one that was 19 is that right? 2.0 four months or longer, is that right? 20 21 21 Q. Now, we've previously discussed in great A. Long-term studies are generally of 22 18 months to two-year duration. 22 detail the scientific studies and the results that 23 Q. Is there an interval period of time for 23 Louise Marks obtained, right? 24 24 A. We have. a study?

	Page 1445		Page 1447
1	Q. All right. Those are the ones that we	1	Q. Could you – could you slowly and
2	discussed where she had one result from her first	2	clearly read that into the record, that section,
3	study, and then once she trained in	3	paragraph 4?
4	Dr. Dino DiMonte's laboratory and started using	4	I don't think this is being captured;
5	automated stereology equipment instead of manual	5	so we have to take our time today and make sure that
6	equipment, she found in each of the three follow-up	6	we document what is appearing on the eDepoze screen.
7	studies that paraquat caused a statistically	7	Okay?
8	significant loss of dopaminergic neurons in the	8	A. So on the page 17 that I've got in
9	substantia nigra, correct?	9	front of me, paragraph paragraph 4 starts, "It is
10	A. That is correct.	10	also assumed that"
11	Q. And, again, I think we've spoken of this	11	Q. Yes. That's the – that's the
12	earlier in this deposition, but the loss of	12	provision, please.
13	dopaminergic neurons is one of the hallmark	13	A. Okay. So I'll read on.
14	pathologic signs of Parkinson's disease, right?	14	"It is also assumed that, in the
15	A. It is.	15	absence of data to the contrary, the most sensitive
16	Q. Now, if we can go if you'd pull up	16	species is used to estimate human risk. This is
17	Exhibit 135, please, which is the next one.	17	based on the assumption that humans are as sensitive
18	(Exhibit 135 was identified	18	as the most sensitive animal species tested. This
19	for the record.)	19	·
20	BY MR. TILLERY:	20	provides a conservative estimate of sensitivity for
21	Q. We're going to come back to this study		added protection to the public. As with other
22	that's up now, Dr. Botham, but I want to ask you some	21	noncancer end points, it is assumed that there is a
23	questions about some guidelines.	22	nonlinear dose response relationship for
24	A. Okay.	23	neurotoxicants. Although there may be a threshold
		24	for neurotoxic effects, these are often difficult to
	Page 1446		Page <b>1448</b>
1	Q. If you could just familiarize yourself	1	determine empirically. Therefore, a nonlinear
2	with this particular document, Exhibit 135 is	2	relationship is assumed to exist for
3	entitled "Guidelines for Neurotoxicity Risk	3	neurotoxicants."
4	Assessment," isn't it?	4	Q. This provision had been published for
5	A. I'm just opening this now. And, yes, I	5	eight years from the time Syngenta did its 2006
6	can confirm that.	6	guideline studies with the rat, correct?
7	Q. And it was published on May 14th, 1998,	7	A. Correct.
8	in the Federal Register, right?	8	Q. And at that time Syngenta knew from the
9	A. Yes, that's correct.	9	Dr. Marks studies that the C57 black mouse was
10	Q. And I'm sure that Syngenta knew all	10	sensitive to paraquat exposure and consistently
11	about this provisions of this neurotoxicity risk	11	showed evidence of dopaminergic cell loss in the
	assessment document at the time it came out, right?	12	midbrain following exposure.
12	assessment document at the time it came out, rights	1 12	madram following exposure:
12 13	MR. NARESH: Objection as to	13	Is that a fair statement?
	_	1	<b>.</b>
13	MR. NARESH: Objection as to	13	Is that a fair statement?
13 14	MR. NARESH: Objection as to foundation.	13 14	Is that a fair statement?  A. Yes.   – that is fair.
13 14 15	MR. NARESH: Objection as to foundation.  THE WITNESS: Yes. We would have known	13 14 15 16	Is that a fair statement?  A. Yes.   – that is fair.  Q. Okay. And despite this knowledge,  Syngenta never told the EPA and other regulators or
13 14 15 16	MR. NARESH: Objection as to foundation.  THE WITNESS: Yes. We would have known that.  BY MR. TILLERY:	13 14 15 16 17	Is that a fair statement?  A. Yes.   – that is fair.  Q. Okay. And despite this knowledge,  Syngenta never told the EPA and other regulators or the general scientific community of Dr. Marks'
13 14 15 16 17	MR. NARESH: Objection as to foundation.  THE WITNESS: Yes. We would have known that.  BY MR. TILLERY:  Q. All right. Now, if you'd go to page —	13 14 15 16 17 18	Is that a fair statement?  A. Yes.   – that is fair.  Q. Okay. And despite this knowledge,  Syngenta never told the EPA and other regulators or the general scientific community of Dr. Marks' findings in 2006, correct?
13 14 15 16	MR. NARESH: Objection as to foundation.  THE WITNESS: Yes. We would have known that.  BY MR. TILLERY:  Q. All right. Now, if you'd go to page — I believe it's — is it 17?	13 14 15 16 17 18 19	Is that a fair statement?  A. Yes.   – that is fair.  Q. Okay. And despite this knowledge,  Syngenta never told the EPA and other regulators or the general scientific community of Dr. Marks' findings in 2006, correct?  A. That's not quite correct.   think, as
13 14 15 16 17 18 19 20	MR. NARESH: Objection as to foundation.  THE WITNESS: Yes. We would have known that.  BY MR. TILLERY:  Q. All right. Now, if you'd go to page – I believe it's – is it 17?  If you'd go to page 17 of the document,	13 14 15 16 17 18 19 20	Is that a fair statement?  A. Yes.   - that is fair.  Q. Okay. And despite this knowledge,  Syngenta never told the EPA and other regulators or the general scientific community of Dr. Marks' findings in 2006, correct?  A. That's not quite correct.   think, as we've discussed before, we did discuss that the
13 14 15 16 17 18 19 20 21	MR. NARESH: Objection as to foundation.  THE WITNESS: Yes. We would have known that.  BY MR. TILLERY:  Q. All right. Now, if you'd go to page — I believe it's — is it 17?  If you'd go to page 17 of the document, the lower left-hand corner has a page reference.	13 14 15 16 17 18 19 20 21	Is that a fair statement?  A. Yes.   - that is fair.  Q. Okay. And despite this knowledge,  Syngenta never told the EPA and other regulators or the general scientific community of Dr. Marks' findings in 2006, correct?  A. That's not quite correct.   think, as we've discussed before, we did discuss that the work of Dr. Marks, for example, with
13 14 15 16 17 18 19 20	MR. NARESH: Objection as to foundation.  THE WITNESS: Yes. We would have known that.  BY MR. TILLERY:  Q. All right. Now, if you'd go to page – I believe it's – is it 17?  If you'd go to page 17 of the document,	13 14 15 16 17 18 19 20	Is that a fair statement?  A. Yes.   - that is fair.  Q. Okay. And despite this knowledge,  Syngenta never told the EPA and other regulators or the general scientific community of Dr. Marks' findings in 2006, correct?  A. That's not quite correct.   think, as we've discussed before, we did discuss that the

### Page 1449 Page 1451 1 A. He was, yes. But we did speak to him 1 Q. Okay. Who was involved in considering 2 2 at a time prior to him being a consultant. that? 3 Q. So -- but did you, for example, send 3 A. If anybody would have been involved, it 4 these Marks studies to the EPA until last December? 4 would have perhaps been our regulatory colleagues in 5 A. No. We did not send those to the EPA. 5 the United States, but I am not aware if that -- if 6 Q. Okay. And did you publish those in the 6 that indeed did occur. 7 7 public literature where scientists from around the Q. But you are aware that the people at 8 8 Jealott's Hill and other laboratories for Syngenta world could view them, read them, the same way you 9 9 read studies every month? around the world were aware of this provision of the 10 A. Again, as we've said before, the 10 EPA's guidelines for neurotoxicity risk assessment dated May 14th, 1998, correct? 11 inItial work of Dr. Marks was presented at the 11 12 A. Correct. scientific meeting. 12 Q. Okay. So they knew you were supposed to 13 Q. Right. That one was because it was 13 14 negative. Remember? 14 use the most sensitive laboratory animal that you 1.5 A. The reason why it was presented was not 15 could find to the - to the chemical, the study, 16 because it was negative. It was presented because 16 17 17 MR. NARESH: Mischaracterizes the that was the information we had at the time, and we 18 wanted to discuss with others why we may have got a 18 document. negative result compared to the positive result that 19 19 THE WITNESS: Correct. 20 20 BY MR. TILL FRY: other researchers had found. 21 Q. Okay. And you actually did a 21 Q. Okay. So after the rat study was done 22 presentation at a neurotoxicity seminar or a 22 by Dr. -- by Chivers and the results published and 23 presentation group, right? 23 the results were made aware of, no one from Syngenta, 24 A. That's correct. 24 including the test author Chivers, ever indicated Page 1450 Page 1452 Q. And when her studies were corrected and 1 1 that you had discovered at Syngenta a more sensitive laboratory animal in terms of paraquat exposure, 2 she came back and found that she had been using a 2 3 piece of equipment that wasn't sensitive enough, the 3 correct? 4 manual technique, and started using an automated 4 A. That, I think, is not quite how I would 5 technique, she got three studies in a row with the 5 put it in terms of whether indeed you could say that the mouse was more sensitive in terms of the end 6 same type of findings, dldn't she? 6 7 A. She did. 7 points, which are required in this guideline 8 Q. And did you go back to that same 8 neurotoxicity study. neurological groups and seminars in the following Q. Did anyone call the EPA and say, "You 9 9 10 years and present those three studies? 10 know, even though we didn't get the same results in A. No, we did not. 11 the rat study, we had just finished some C57 mouse 1.1 12 Q. Okay. And did you call the EPA and send 12 studies and three in a row showed neurotoxicity"? 13 13 Did you do that? 14 A. No. we did not. A. No, we did not do that. 14 15 Q. Did you publish them in general - in 15 Q. All right. Did that ever come up as a the general literature? 16 topic? Was it ever discussed? 16 17 No, we did not. 17 A. As I said a few minutes ago, I'm not Q. Okay. After the rat guidelines study 18 aware that such a discussion did take place. I 18 19 was done that we've pulled up here as Exhibit 134, 19 certainly don't recall me getting involved in such a 20 did it occur to you that you should follow this 20 discussion. 21 section and tell the EPA about the Marks black mouse 21 Q. Okay. Let's go to Exhibit 136. 22 studles? 22 (Exhibit 136 was identified A. No. That was not a consideration that 23 for the record.) 23 I was certainly involved in, in considering, no. 24 2.4

		1	
	Page 1453		Page 1455
1	BY MR. TILLERY:	1	the numbers are given — "is not reproducible in the
2	Q. So she's pulling up on eDepoze another	2	rat. This finding suggests the effects observed may
3	exhibit for us to look at, and if you'd open this.	3	be species and/or strain specific."
4	And for the record, this is Exhibit 136. Okay?	4	Q. Now, if we kind of break this down to
5	And take a look at this document as	5	make sure that what you read is fully understood by
6	well, Dr. Botham.	6	the people who look at your deposition later, this
7	MR. NARESH: Stephen, for the record,	7	was the reference to the Sprague Dawley rat studies,
8	is this the same as a previously introduced version	8	the same kind of animals done in the guideline
9	of the Marks study?	9	studies, correct?
10	MR. TILLERY: I don't think so, I	10	A. Yes.
11	don't believe this one is. This is a rat study that	11	Q. Okay. So the guideline studies were
12	she did in 2006.	12	undertaken using exactly the same test animal as
13	THE WITNESS: Okay. I can see this.	13	Dr. Louise Marks used when she tried to follow up
14	I'm just reading the first part of it.	14	from her C57 mouse studies, correct?
15	BY MR. TILLERY:	15	A. That's right.
16	Q. Yeah. If you can just familiarize	16	Q. All right. And here it references a -
17	yourself with it so – where you remember the study.	17	three separate studies: One is XM7258. One is
18	A. Okay. I've read the summary; so I	18	XM7371, and one is XM7480. Those are the research
19	think that probably would be fine for now.	19	reports that we have previously marked and admitted
20	Q. All right. So in strike that.	20	as exhibits in this deposition, correct?
21	In 2006 Dr. Louise Marks performed	21	A. Correct.
22	another study, and this one involved rats, correct?	22	Q. Those are the ones that showed a 20 to
23	A. That's correct.	23	25 percent loss of dopaminergic cells in the brains,
24	Q. And I think we discussed this back in	24	the substantia nigra portion of the brain, of the C57
	Page <b>14</b> 54		Page 1456
1		1	Page 1456
1 2	February that she, in fact, had done this study, but	1 2	
l	February that she, in fact, had done this study, but we didn't spend much time on it.	1	black mouse, correct?  A. Correct.
2	February that she, in fact, had done this study, but	2	black mouse, correct?  A. Correct.  Q. So what Dr. Marks is saying here is that
2 3	February that she, in fact, had done this study, but we didn't spend much time on it.  Do you remember that?	2 3	black mouse, correct?  A. Correct.
2 3 4	February that she, in fact, had done this study, but we didn't spend much time on it.  Do you remember that?  A. Yes. We didn't focus on this one.	2 3 4	black mouse, correct?  A. Correct.  Q. So what Dr. Marks is saying here is that the 25 – 20 to 25 percent cell loss observed in the
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	Page 1457		Page 1459
1	that background for all the different parameters	1	MR. NARESH: Hold on.
2	that you have to assess in a guideline toxicity	2	MR. TILLERY: We're getting a lot of
3	study In the mouse because we had no experience of	3	feedback.
4	using the mouse in the guideline studies.	4	THE VIDEOGRAPHER: Everybody hang on a
5	Q. But you did. You did have experience	5	second. I think that's what Renee was getting ready
6	using the C57 mouse in the studies that Dr. Marks had	6	to say. I'm not sure whose end it's coming from. I
7	just completed, right?	7	can't really tell.
8	A. Indeed with a very specific focus on	8	(Discussion off the record.)
9	the pathology in the brain and not more widely with	9	BY MR. TILLERY:
10	respect to how you might assess neurotoxicity.	10	Q. Whether or not you had done the specific
11	Q. But actually didn't you use basically	11	study prior to the initiation of Chivers, you had
12	the same study parameters as she used in the C57	12	completed the C57 mouse studies by Dr. Marks, hadn't
13	mouse when you did the 2006 guideline study from the	13	you?
14	EPA with the rat?	14	A. Yes.
15	A. The guideline study requires you to	15	Q. And you knew what those results were
16	look much more broadly at the potential effects on	16	likely to be. She had repeated the first positive
17	the nervous system, so looking at pathology,	17	finding in two subsequent tests changing her test
18	neuropathology, not just in the substantia nigra but	18	parameters but using paraquat and ended up with
19	other parts of the brain, the peripheral nervous	19	generally the same confirmatory results, didn't she?
20	system, and also particularly focusing on whether	20	A. Yes.
21	there are any clinical expressions of neurotoxicity	21	Q. And you told me you found nothing
22	in the behavior of the rat.	22	technologically wrong with any of her studies; isn't
23	Q. But you can also assess clinical	23	that correct?
24	observations in a mouse as well, can't you?	24	A. That is correct.
	Page 1458		Page 1460
1	A. You can. But understanding the	1	Q. All right. So it wasn't due to some
-			G. All right. So it washt tade to some
2	variability, the natural variability, does require	2	error committed by her. You knew that these study
2	variability, the natural variability, does require you to do a lot of – of work before doing a full –	2	
		1	error committed by her. You knew that these study
3	you to do a lot of – of work before doing a full	3	error committed by her. You knew that these study animals, the C57 black mice, would show the same
3 4	you to do a lot of – of work before doing a full – a full guldeline study. And we had not done any	3 4	error committed by her. You knew that these study animals, the C57 black mice, would show the same results if you did the same neurotox studies again,
3 4 5	you to do a lot of — of work before doing a full — a full guideline study. And we had not done any such work using the mouse.	3 4 5	error committed by her. You knew that these study animals, the C57 black mice, would show the same results if you dld the same neurotox studies again, right?
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3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	you to do a lot of — of work before doing a full — a full guldeline study. And we had not done any such work using the mouse.  We had focused on the rat because that is the — the normal species that the EPA would expect to be tested.  Q. But didn't you know at the time she completed her rat studies in the work she'd done that, if you repeated the same test, you were likely to get a same result, right?  A. The test that we're talking about, I mean, they — I can't give you an exact chronology. But the — the rat study that Dr. Marks did and the guideline study that Dr. Chivers did were at approximately the same time, and I'm not quite sure	3 4 5 6 7 8 9 10 11 12 13 14 15 16	error committed by her. You knew that these study animals, the C57 black mice, would show the same results if you did the same neurotox studies again, right?  A. Yes, that's correct.  Q. And replicability is very important in science, isn't it, sir?  A. It is.  Q. So if different laboratories at different times for different mice come back with the same results, that sort of establishes the premise of the study, doesn't it?  A. It does.  Q. All right. The EPA was requiring  Syngenta to conduct the 2006 guideline study because there had been an association in the literature
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	you to do a lot of — of work before doing a full — a full guideline study. And we had not done any such work using the mouse.  We had focused on the rat because that is the — the normal species that the EPA would expect to be tested.  Q. But didn't you know at the time she completed her rat studies in the work she'd done that, if you repeated the same test, you were likely to get a same result, right?  A. The test that we're talking about, I mean, they — I can't give you an exact chronology. But the — the rat study that Dr. Marks did and the guideline study that Dr. Chivers did were at approximately the same time, and I'm not quite sure precisely when they were done relative to each	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	error committed by her. You knew that these study animals, the C57 black mice, would show the same results if you did the same neurotox studies again, right?  A. Yes, that's correct.  Q. And replicability is very important in science, isn't it, sir?  A. It is.  Q. So if different laboratories at different times for different mice come back with the same results, that sort of establishes the premise of the study, doesn't it?  A. It does.  Q. All right. The EPA was requiring  Syngenta to conduct the 2006 guideline study because there had been an association in the literature between paraquat and Parkinson's disease, correct?
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	you to do a lot of — of work before doing a full — a full guideline study. And we had not done any such work using the mouse.  We had focused on the rat because that is the — the normal species that the EPA would expect to be tested.  Q. But didn't you know at the time she completed her rat studies in the work she'd done that, if you repeated the same test, you were likely to get a same result, right?  A. The test that we're talking about, I mean, they — I can't give you an exact chronology. But the — the rat study that Dr. Marks did and the guideline study that Dr. Chivers did were at approximately the same time, and I'm not quite sure precisely when they were done relative to each other.	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	error committed by her. You knew that these study animals, the C57 black mice, would show the same results if you did the same neurotox studies again, right?  A. Yes, that's correct.  Q. And replicability is very important in science, isn't it, sir?  A. It is.  Q. So if different laboratories at different times for different mice come back with the same results, that sort of establishes the premise of the study, doesn't it?  A. It does.  Q. All right. The EPA was requiring  Syngenta to conduct the 2006 guideline study because there had been an association in the literature between paraquat and Parkinson's disease, correct?  A. I don't believe that that is
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	you to do a lot of — of work before doing a full — a full guideline study. And we had not done any such work using the mouse.  We had focused on the rat because that is the — the normal species that the EPA would expect to be tested.  Q. But didn't you know at the time she completed her rat studies in the work she'd done that, if you repeated the same test, you were likely to get a same result, right?  A. The test that we're talking about, I mean, they — I can't give you an exact chronology. But the — the rat study that Dr. Marks did and the guideline study that Dr. Chivers did were at approximately the same time, and I'm not quite sure precisely when they were done relative to each other.  Q. But you did — C57 black mouse study,	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	error committed by her. You knew that these study animals, the C57 black mice, would show the same results if you did the same neurotox studies again, right?  A. Yes, that's correct.  Q. And replicability is very important in science, isn't it, sir?  A. It is.  Q. So if different laboratories at different times for different mice come back with the same results, that sort of establishes the premise of the study, doesn't it?  A. It does.  Q. All right. The EPA was requiring  Syngenta to conduct the 2006 guideline study because there had been an association in the literature between paraquat and Parkinson's disease, correct?  A. I don't believe that that is necessarily correct. The EPA were requiring
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	you to do a lot of — of work before doing a full — a full guldeline study. And we had not done any such work using the mouse.  We had focused on the rat because that is the — the normal species that the EPA would expect to be tested.  Q. But didn't you know at the time she completed her rat studies in the work she'd done that, if you repeated the same test, you were likely to get a same result, right?  A. The test that we're talking about, I mean, they — I can't give you an exact chronology. But the — the rat study that Dr. Marks did and the guideline study that Dr. Chivers did were at approximately the same time, and I'm not quite sure precisely when they were done relative to each other.  Q. But you did — C57 black mouse study, didn't you?	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	error committed by her. You knew that these study animals, the C57 black mice, would show the same results if you did the same neurotox studies again, right?  A. Yes, that's correct.  Q. And replicability is very important in science, isn't it, sir?  A. It is.  Q. So if different laboratories at different times for different mice come back with the same results, that sort of establishes the premise of the study, doesn't it?  A. It does.  Q. All right. The EPA was requiring  Syngenta to conduct the 2006 guideline study because there had been an association in the literature between paraquat and Parkinson's disease, correct?  A. I don't believe that that is necessarily correct. The EPA were requiring registrants to conduct adult neurotoxicity studies,

	Page <b>14</b> 61		Page 1463
1	was not conducted specifically because of the	1	I agree some of them were at some point
2	allegations of Parkinson's disease.	2	consultants, but a number of scientists that we
3	Q. Were those allegations included in that	3	spoke to in that period were not consultants. They
4	series of reasons for why they wanted the studies?	4	were coming in to talk to us about Parkinson's
5	MR. NARESH: Objection. Foundation.	5	disease and about the potential of chemicals to
6	THE WITNESS: I don't know.	6	cause Parkinson's disease. And at no point dld we
7	BY MR. TILLERY:	7	ask them to sign confidentiality agreements to not
8	Q. Okay. Syngenta, however, never told the	8	talk about our research.
9	EPA or the public scientific community that	9	Q. Actually, you did exactly that with
10	Dr. Marks' studies replicated the scientific	10	Dr. DiMonte, didn't you?
11	literature and proved that paraquat exposure in the	11	A. Well
12	C57 black mouse would cause strong evidence of	12	Q. You're aware that counsel representing
13	neurotoxicity of paraquat at that time, did they?	13	you has produced to us a nondisclosure agreement for
14	MR. NARESH: Objection. Asked and	14	Dr. DiMonte with Syngenta. You're aware of that,
15	answered. Calls for a legal conclusion.	15	right?
16	THE WITNESS: We did not inform the EPA	16	A. I as I said, I was making the
17	at that time. That is correct.	17	distinction between consultants and other experts.
18	BY MR. TILLERY:	18	And my point was that we were not trying to say to
19	Q. And you didn't inform the public health	19	every expert that they needed to maintain
20	community at – in a general way through publication	20	confidentiality.
21	means the same way you're informed monthly when you	21	Q. But we can agree the best way to get the
22	read studies, correct?	22	word out around the world – scientists who speak
23	MR. NARESH: Same objections.	23	multiple languages, different people in different
24	THE WITNESS: Not entirely correct. As	24	schools, universities, cities throughout the world –
24	THE WITHESS. Not entirely contect. As	2 4	Schools, aniversities, class anoughout the world
	Page 1462		Page 1464
1	I said earlier, we did share that with the	1	is to publish the results, correct?
2	scientific community at the neurotoxicity scientific	2	MR. NARESH: Objection. Asked and
3	meeting.	I .	
_	meeting.	3	answered multiple times.
4	BY MR. TILLERY:	4	answered multiple times.  THE WITNESS: The the Important
	•	1	•
4	BY MR. TILLERY:	4	THE WITNESS: The the Important point here is that we were not denying the results
<b>4</b> 5	BY MR. TILLERY: Q. You showed one study, and that study had	4 5	THE WITNESS: The the Important
<b>4</b> 5 6	BY MR. TILLERY:  Q. You showed one study, and that study had negative results. That's the one you shared, right?	4 5 6	THE WITNESS: The the Important point here is that we were not denying the results of other research in the public domain which we were
4 5 6 7	BY MR. TILLERY:  Q. You showed one study, and that study had negative results. That's the one you shared, right?  A. We did. But then we went on to do	4 5 6 7	THE WITNESS: The the Important point here is that we were not denying the results of other research in the public domain which we were at that time confirming in the Marks studies.
4 5 6 7 8 9	BY MR. TILLERY:  Q. You showed one study, and that study had negative results. That's the one you shared, right?  A. We did. But then we went on to do to discuss our subsequent studies, the ones that did	4 5 6 7 8	THE WITNESS: The the Important point here is that we were not denying the results of other research in the public domain which we were at that time confirming in the Marks studies.  And, actually, to get published that
4 5 6 7 8 9	BY MR. TILLERY:  Q. You showed one study, and that study had negative results. That's the one you shared, right?  A. We did. But then we went on to do to discuss our subsequent studies, the ones that did show a positive effect, with scientists outside of	4 5 6 7 8 9	THE WITNESS: The the Important point here is that we were not denying the results of other research in the public domain which we were at that time confirming in the Marks studies. And, actually, to get published that simple replication of results which are also in the
4 5 6 7 8 9 10	BY MR. TILLERY:  Q. You showed one study, and that study had negative results. That's the one you shared, right?  A. We did. But then we went on to do— to discuss our subsequent studies, the ones that did show a positive effect, with scientists outside of the company, including Professor DiMonte.	4 5 6 7 8 9	THE WITNESS: The the Important point here is that we were not denying the results of other research in the public domain which we were at that time confirming in the Marks studies.  And, actually, to get published that simple replication of results which are also in the public domain is not necessarily that easy.  Journals will not always accept studies which simply
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4 5 6 7 8 9 10 11 12 13 14	BY MR. TILLERY:  Q. You showed one study, and that study had negative results. That's the one you shared, right?  A. We did. But then we went on to do— to discuss our subsequent studies, the ones that did show a positive effect, with scientists outside of the company, including Professor DiMonte.  Q. Who else did you share the results with besides Dr. DiMonte who had become a consultant with your company?  A. Other external experts who were included in paraquat health science team meetings at	4 5 6 7 8 9 10 11 12 13 14	THE WITNESS: The the Important point here is that we were not denying the results of other research in the public domain which we were at that time confirming in the Marks studies.  And, actually, to get published that simple replication of results which are also in the public domain is not necessarily that easy.  Journals will not always accept studies which simply say what is already known.  BY MR. TILLERY: Q. So your statement you're making strike that.
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4 5 6 7 8 9 10 11 12 13 14 15 16 17	BY MR. TILLERY:  Q. You showed one study, and that study had negative results. That's the one you shared, right?  A. We did. But then we went on to do— to discuss our subsequent studies, the ones that did show a positive effect, with scientists outside of the company, including Professor DiMonte.  Q. Who else did you share the results with besides Dr. DiMonte who had become a consultant with your company?  A. Other external experts who were included in paraquat health science team meetings at that time.  Q. Right. Yeah. So who were those people who were not in some way a paid consultant and under	4 5 6 7 8 9 10 11 12 13 14 15 16 17	THE WITNESS: The the Important point here is that we were not denying the results of other research in the public domain which we were at that time confirming in the Marks studies.  And, actually, to get published that simple replication of results which are also in the public domain is not necessarily that easy. Journals will not always accept studies which simply say what is already known.  BY MR. TILLERY: Q. So your statement you're making strike that. Did you MR. TILLERY: Renee, did we get a lot of feedback here still?
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	BY MR. TILLERY:  Q. You showed one study, and that study had negative results. That's the one you shared, right?  A. We did. But then we went on to do—to discuss our subsequent studies, the ones that did show a positive effect, with scientists outside of the company, including Professor DiMonte.  Q. Who else did you share the results with besides Dr. DiMonte who had become a consultant with your company?  A. Other external experts who were included in paraquat health science team meetings at that time.  Q. Right. Yeah. So who were those people who were not in some way a paid consultant and under an obligation to maintain the confidentiality of the	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	THE WITNESS: The the Important point here is that we were not denying the results of other research in the public domain which we were at that time confirming in the Marks studies.  And, actually, to get published that simple replication of results which are also in the public domain is not necessarily that easy.  Journals will not always accept studies which simply say what is already known.  BY MR. TILLERY:  Q. So your statement you're making strike that.  Did you  MR. TILLERY: Renee, did we get a lot of feedback here still?  THE REPORTER: Yes.
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	BY MR. TILLERY:  Q. You showed one study, and that study had negative results. That's the one you shared, right?  A. We did. But then we went on to do—to discuss our subsequent studies, the ones that did show a positive effect, with scientists outside of the company, including Professor DiMonte.  Q. Who else did you share the results with besides Dr. DiMonte who had become a consultant with your company?  A. Other external experts who were included in paraquat health science team meetings at that time.  Q. Right. Yeah. So who were those people who were not in some way a paid consultant and under an obligation to maintain the confidentiality of the scientific disclosures?	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	THE WITNESS: The the Important point here is that we were not denying the results of other research in the public domain which we were at that time confirming in the Marks studies.  And, actually, to get published that simple replication of results which are also in the public domain is not necessarily that easy.  Journals will not always accept studies which simply say what is already known.  BY MR. TILLERY:  Q. So your statement you're making strike that.  Did you  MR. TILLERY: Renee, did we get a lot of feedback here still?  THE REPORTER: Yes.  MR. TILLERY: Okay. Well, let's go off
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	BY MR. TILLERY:  Q. You showed one study, and that study had negative results. That's the one you shared, right?  A. We did. But then we went on to do—to discuss our subsequent studies, the ones that did show a positive effect, with scientists outside of the company, including Professor DiMonte.  Q. Who else did you share the results with besides Dr. DiMonte who had become a consultant with your company?  A. Other external experts who were included in paraquat health science team meetings at that time.  Q. Right. Yeah. So who were those people who were not in some way a paid consultant and under an obligation to maintain the confidentiality of the scientific disclosures?  A. Well, there were quite a significant	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	THE WITNESS: The the Important point here is that we were not denying the results of other research in the public domain which we were at that time confirming in the Marks studies.  And, actually, to get published that simple replication of results which are also in the public domain is not necessarily that easy. Journals will not always accept studies which simply say what is already known.  BY MR. TILLERY:  Q. So your statement you're making strike that.  Did you  MR. TILLERY: Renee, did we get a lot of feedback here still?  THE REPORTER: Yes.  MR. TILLERY: Okay. Well, let's go off the record.
4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	BY MR. TILLERY:  Q. You showed one study, and that study had negative results. That's the one you shared, right?  A. We did. But then we went on to do—to discuss our subsequent studies, the ones that did show a positive effect, with scientists outside of the company, including Professor DiMonte.  Q. Who else did you share the results with besides Dr. DiMonte who had become a consultant with your company?  A. Other external experts who were included in paraquat health science team meetings at that time.  Q. Right. Yeah. So who were those people who were not in some way a paid consultant and under an obligation to maintain the confidentiality of the scientific disclosures?  A. Well, there were quite a significant number of people who were involved in our	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	THE WITNESS: The the Important point here is that we were not denying the results of other research in the public domain which we were at that time confirming in the Marks studies.  And, actually, to get published that simple replication of results which are also in the public domain is not necessarily that easy.  Journals will not always accept studies which simply say what is already known.  BY MR. TILLERY:  Q. So your statement you're making strike that.  Did you  MR. TILLERY: Renee, did we get a lot of feedback here still?  THE REPORTER: Yes.  MR. TILLERY: Okay. Well, let's go off the record.  THE VIDEOGRAPHER: We're going off the
4 5 6 7 8 9 10 11	BY MR. TILLERY:  Q. You showed one study, and that study had negative results. That's the one you shared, right?  A. We did. But then we went on to do—to discuss our subsequent studies, the ones that did show a positive effect, with scientists outside of the company, including Professor DiMonte.  Q. Who else did you share the results with besides Dr. DiMonte who had become a consultant with your company?  A. Other external experts who were included in paraquat health science team meetings at that time.  Q. Right. Yeah. So who were those people who were not in some way a paid consultant and under an obligation to maintain the confidentiality of the scientific disclosures?  A. Well, there were quite a significant	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	THE WITNESS: The the Important point here is that we were not denying the results of other research in the public domain which we were at that time confirming in the Marks studies.  And, actually, to get published that simple replication of results which are also in the public domain is not necessarily that easy.  Journals will not always accept studies which simply say what is already known.  BY MR. TILLERY:  Q. So your statement you're making strike that.  Did you  MR. TILLERY: Renee, did we get a lot of feedback here still?  THE REPORTER: Yes.  MR. TILLERY: Okay. Well, let's go off the record.

11 (Pages 1461 to 1464)

	Page 1465		Page 1467
1	(Recess taken.)	1	running the program running the program that
2	THE VIDEOGRAPHER: We're going back on	2	Dr. DiMonte went to, correct, in Germany?
3	the record. The time is 5:38. This begins Media	3	A. That's right.
4	Unit Number 2.	4	Q. All right. Was also consultant to
5	BY MR. TILLERY:	5	Syngenta, right?
6	Q. Dr. Botham, you acknowledge that	6	A. For a shorter period, yes.
7	excuse me. Strike that.	7	Q. Okay. So why don't you tell me the
8	Dr. Botham, you acknowledge that	8	scientists who were not consultants because all three
9	Dr. Dino DiMonte was the subject of a nondisclosure	9	of these people were from your own records.
10	agreement with Syngenta.	10	Tell me the ones who were not
11	Who else did Syngenta have such	11	consultants who you were using in your analysis of
12	nondisclosure agreements with?	12	the potential neurotoxicity effects of paraquat
13	A. I can't comment in terms of a	13	from, say, the 2006 to 2011 time frame besides these
14	comprehensive list; so because I was never	14	people?
15	involved in setting those agreements up myself. So	15	A. Well, that's where I would need to
16	I wouldn't want to give a list which was not	16	refer back to, for example, the minutes of our
17	accurate.	17	health science team meetings because the record
18	Q. Well, in terms of the people who were	18	there would show that there are a number of invited
19	consulting with Syngenta about issues relating to the	19	guests that came to talk to us about their own
20	potential neurotoxicity of paraquat, you know who	20	research.
21	those people were, right?	21	I mean, an example one example,
22	A. Yes, indeed.	22	Professor Joan Abbott from London. I don't believe
23	Q. All right. Who were they?	23	that she was a consultant. She was invited because
24	A. So that would be people –	24	of her work and her understanding of the blood-brain
	Page 1466		Page 1468
1	Page 1466  MR. NARESH: Dr. Botham, I'm I'm	1	Page 1468 barrler.
1 2	_	1 2	_
l	MR. NARESH: Dr. Botham, I'm I'm		barrier.
2	MR. NARESH: Dr. Botham, I'm I'm sorry to interrupt.	2	barrier. Q. Right. She couldn't let me start
2 3	MR. NARESH: Dr. Botham, I'm I'm sorry to interrupt.  Could you make that time frame a little	2	barrier.  Q. Right. She couldn't let me start over because we got a lot of feedback on that.
2 3 4	MR. NARESH: Dr. Botham, I'm I'm sorry to interrupt.  Could you make that time frame a little bit more clear, Steve, in your question? We've been	2 3 4	barrler.  Q. Right. She couldn't let me start over because we got a lot of feedback on that. She came to you initially in June of
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	Page 1469		Page <b>147</b> 1
1	BY MR. TILLERY:	1	assuming facts not in evidence and containing lawyer
2	Q. And we went over the – the Joan Abbott	2	argument.
3	blood-brain barrier presentation in this dep before,	3	THE WITNESS: No, I don't recall having
4	didn't we?	4	seen them.
5	A. We did.	5	BY MR. TILLERY:
6	Q. All right. And that was the	6	Q. All right. Let's go back if you can.
7	presentation you're talking about when she was an	7	There's a back button on your eDepoze. We're going
8	invited guest the first time, right?	8	to go back to number 134, which is the exhibit we
9	A. That's right.	9	started with, your first one.
10	Q. And she was paid an honorarium for	10	A. Yes. Excuse me. I'm - I've just
11	appearing, right?	11	seen – only just noticed, I'm sorry, that I've been
12	A. Again, I can't confirm that.	12	thrown out of eDepoze. So you just need to give me
13	Q. All right. Now, tell me of all these	13	a few minutes to get back into it.
14	people you say that you invited in and told, which	14	Q. Okay. That's fine. Do you want to go
15	one of them ever published any of the three studies	15	off the record to do this?
16	that Dr. Louise Marks did which confirmed	16	MR. TILLERY: Let's go off the record
17	neurotoxicity of paraquat in the C57 black mouse?	17	while he does that.
18	A. I don't really understand why any of	18	THE VIDEOGRAPHER: We're going off the
19	them would have published work which was not their	19	record. The time is 5:47. This ends Media Unit
20	own.	20	Number 2.
21	Q. Well, you're thinking of publication in	21	(Discussion off the record.)
22	terms of formal publication in a journal.	22	THE VIDEOGRAPHER: We're going back on
23	I'm saying did any of them cite to it	23	the record. The time is 5:47. This begins Media
24	in any of their own published works to your	24	Unit Number 3.
	Page 1470		Page 1472
1	knowledge?	1	BY MR. TILLERY:
2	A. I can't comment on that. I'm not aware	2	Q. And you have identified in your eDepoze
3	of whether they did or they did not.	3	Plaintiffs' Deposition Exhibit 134 once more, right,
4	Q. Well, let me ask you this: In all of	4	sir?
5	the years you've been doing these assessments of	5	A. I have, yes.
6	scientific literature, have you ever seen any of	6	Q. All right. Now, let me direct your
7	these three Marks studies confirming the	7	attention to the "Executive Summary" ending, I think,
8	neurotoxicity of - of paraquat in the C57 mouse	8	on – let's see. It's – ours is – the Bates number
9	referenced in any journal – scientific journal	9	is 762. It's the justification for test selection.
10	articles?	10	If you go through this, I'm trying to direct you to
11	A. No. And It would be very unlikely that	11	the "Executive Summary" of the study. Actually, it's
	that would be the case because those – as you have	12	page 11 of the study.
12			
12 13	pointed out, those Marks studies were not published.	13	A. Yes, I'm there.
	pointed out, those Marks studies were not published.  And the – nor were they speaking – a journal would	13 14	
13	•	1	A. Yes, I'm there.     Q. Okay. So we're clear on what this study did, paraquat was fed to rats in their diet for at
13 14	And the – nor were they speaking – a journal would	14	Q. Okay. So we're clear on what this study
13 14 15	And the – nor were they speaking – a journal would only allow you to cite published work.	14 15	Q. Okay. So we're clear on what this study dld, paraquat was fed to rats in their dlet for at
13 14 15 16	And the – nor were they speaking – a journal would only allow you to cite published work.  Q. So I move to strike your answer as unresponsive. Let's start over.	14 15 16	Q. Okay. So we're clear on what this study dld, paraquat was fed to rats in their diet for at least 90 consecutive days, right?  A. That's correct.
13 14 15 16 17	And the – nor were they speaking – a journal would only allow you to cite published work.  Q. So I move to strike your answer as unresponsive. Let's start over.  In all the years that you've been doing	14 15 16 17 18	<ul> <li>Q. Okay. So we're clear on what this study dld, paraquat was fed to rats in their diet for at least 90 consecutive days, right?</li> <li>A. That's correct.</li> <li>Q. Okay. And the the administration of</li> </ul>
13 14 15 16 17 18	And the – nor were they speaking – a journal would only allow you to cite published work.  Q. So I move to strike your answer as unresponsive. Let's start over.  In all the years that you've been doing these assessments of scientific literature, have you	14 15 16 17 18 19	<ul> <li>Q. Okay. So we're clear on what this study did, paraquat was fed to rats in their diet for at least 90 consecutive days, right?</li> <li>A. That's correct.</li> <li>Q. Okay. And the the administration of paraquat to the animals was not by IP injection. It</li> </ul>
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### Page 1473 Page 1475 1 Do you remember that? 1 bloodstream? 2 2 A. Ido. A. Well, if it were technically feasible 3 Q. All right. Now, when you have a route 3 to put exactly the same amount of paraguat into the 4 of exposure of Ingestion, do you find that to be as Δ diet as compared to an intraperitoneal injection, 5 efficient in terms of the percentage of the chemical 5 that's another question. But if you were, then it 6 that enters the bloodstream as administration through 6 is more likely that you would see, at least for a 7 7 other means, for example, IP Injection? time, higher levels of paraquat in the bloodstream 8 A. I wouldn't use the word "efficient," as 8 from an intraperitoneal injection. 9 you always find different routes of administration 9 Q. Now, let's -- for purposes of this 10 will produce different blood levels of -- of any 10 discussion, let's go through and find out why in your 11 chemicals that you administer to animals. 11 view you think that the ingestion of this results in 12 12 Q. Okay. Well, how does the administration less uptake in the bloodstream. 13 through dietary intake in a rat compare to 13 Why - what is the physiology of 14 IP injection of a rat? mammalian species that causes less of it to enter 14 1.5 A. Well, the kinetics are very different 15 the bloodstream from ingestion? 16 because you'll - you have to go through the 16 A. Well, first of all, it's put into the 17 absorption of paraquat from the gastrointestinal 17 diet; so the paraquat will be mixed with the 18 tract in order for the substance to get into the 18 different dietary constituents that you feed to the 19 bloodstream Intraperitoneally. Then there is a 19 rats. So that in Itself may mean that some of the 20 tendency for substances like paraquat to get to the 20 paraquat doesn't get absorbed. It will simply come 21 bloodstream more quickly. 21 out, excreted. That which is able to be absorbed 22 Q. And in higher levels, right? 22 has to cross from the stomach Into the blood supply, A. And that can result in higher levels. 23 23 and then the blood supply will take the paraquat (Reporter clarification.) 24 24 around the various tissues of the body. Page 1474 Page 1476 1 BY MR. TILLERY: 1 Intraperitoneal ingestion bypasses some 2 Q. We're having more trouble with this. 2 of that, including the effective diet. And so 3 3 All right. So the question - let me start over if I that's the reason why there's a greater potential 4 4 for a higher concentration in the bloodstream for a 5 5 We were in the middle of discussing the Issue of the routes of exposure for the rats in the 6 Q. And in terms of the differences in 6 7 7 study. This was a dietary study, right? percentage that would reach the bloodstream when 8 A. That's correct. 8 you're mixing it in a food source for dietary intake 9 Q. And an IP injection study would be the 9 versus IP, does Syngenta have a working hypothesis of 1.0 use of a hypodermic needle injecting a very specific 10 the percentage comparison between the two routes of amount into the peritoneum of the test animal, right? 11 exposure? 11 12 A. That's correct. 1.2 A. Well, we've certainly done kinetic 13 Q. All right. And when you did that, as 13 studies comparing the -- how much paraquat gets into 14 14 you said, you would have - I use the word the bloodstream from the two different routes of 15 "efficient." What word would you use in terms of 15 exposure that you're describing, and we've published getting a level into the bloodstream from the amount 16 that work. 16 17 Q. Okay. Do you happen to remember what 17 dosed? Let's just say - let's make sure we're on 18 the difference is? 18 the same page. If you take the same amount of chemical 19 19 A. No. I'd have to go back and look at 20 and put it into an available food source for the 20 the publications to give you the real numbers. 21 rat, and it's paraquat we're testing, you take that 21 Q. Who was the principal investigator on 22 same exact amount and inject it into the rat, into 22 those studies? 23 the peritoneum. Now, tell me in your opinion how 23 A. Well, the intraperitoneal Ingestion 24 the amounts differ in terms of what enters the route was the kinetics that were included in our

	Page 1477		Page 1479
1	2013 Breckenridge paper, and the dietary study was	1	Q. Move to strike your answer as
2	published under Minnema, et al., I think, in 2014.	2	unresponsive.
3	Q. Are those the two studies that you think	3	Syngenta did not measure the levels of
4	answer these questions?	4	dopamine in the striatum, did they?
5	A. They are, yes.	5	MR. NARESH: Objection. Asked and
6	Q. Okay. Are there any others you can	6	answered.
7	think of?	7	THE WITNESS: Correct.
8	A. Those are – those are the principal	8	BY MR. TILLERY:
9	ones where we did the most thorough analysis of	9	Q. Okay. Syngenta did not measure levels
L 0	the of the kinetics.	10	of dopamine metabolites in the striatum, did they?
11	<ul> <li>Q. Okay. Now, the doses used in the</li> </ul>	11	A. We did not
12	subchronic neurotoxicity study in the rat in 2006,	12	Q. Syngenta did not investigate whether
L 3	the so-called Chivers study, were 15, 50, or 150	13	there was an upregulation of alpha-synuclein in the
4	parts per million, correct?	14	test animals, did they?
L 5	A. Correct.	15	A. We dld not and, again, for the same
. 6	Q. The study detailed clinical	16	reason ( indicated a few minutes ago.
.7	observations, including quantitative assessments of	17	Q. But my question is did you or did you
. 8	landing foot splay, sensory perception, and muscle	18	not investigate whether there was an upregulation of
9	weakness, correct?	19	alpha-synuclein in that study?
20	A. Correct.	20	A. We did not.
21	Q. Those would be considered	21	Q. Okay. You didn't test for the
22	neurobehavioral effects, right?	22	parameters that might have shown a positive result,
23	A. If there were changes, yes.	23	right?
2.4	Q. They would be considered some evidence	24	MR. NARESH: Objection to that.
	Page 1478		Page 1480
1	of neurotoxicity if there were changes, right?	1	THE WITNESS: That's not fully
2	A. That's correct.	1 .	
_		2	accurate. The – the parameters that are required
3	Q. Body weights and food consumption were	3	accurate. The – the parameters that are required in this test, as you just read out, include some
3 4	Q. Body weights and food consumption were measured weekly, right?	1	·
		3	in this test, as you just read out, include some
4	measured weekly, right?	3 4	in this test, as you just read out, include some Important clinical observations where, if there was
4	measured weekly, right?  A. Yes.	3 4 5	in this test, as you just read out, include some Important clinical observations where, if there was pathologically significant neurotoxicity, you would
4 5 6	measured weekly, right?  A. Yes.  Q. The brain was weighed, right?	3 4 5 6	in this test, as you just read out, include some important clinical observations where, if there was pathologically significant neurotoxicity, you would expect to see changes in those behaviors.
4 5 6 7	measured weekly, right?  A. Yes.  Q. The brain was welghed, right?  A. Yes.	3 4 5 6 7	in this test, as you just read out, include some important clinical observations where, if there was pathologically significant neurotoxicity, you would expect to see changes in those behaviors.  BY MR. TILLERY:
4 5 6 7 8	measured weekly, right?  A. Yes.  Q. The brain was welghed, right?  A. Yes.  Q. Nervous system tissues were removed and	3 4 5 6 7 8	in this test, as you just read out, include some Important clinical observations where, if there was pathologically significant neurotoxicity, you would expect to see changes in those behaviors.  BY MR. TILLERY:  Q. Okay. But you didn't do an analysis of
4 5 6 7 8 9	measured weekly, right?  A. Yes.  Q. The brain was welghed, right?  A. Yes.  Q. Nervous system tissues were removed and analyzed microscopically as well, right?	3 4 5 6 7 8	in this test, as you just read out, include some important clinical observations where, if there was pathologically significant neurotoxicity, you would expect to see changes in those behaviors.  BY MR. TILLERY:  Q. Okay. But you didn't do an analysis of the upregulation of alpha-synuclein. You didn't
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4 5 6 7 8 9 0 .1 2 3 4 5 6 6 .7 8 8 9 8 9 8 8 9 8 8 8 8 8 8 8 8 8 8 8	measured weekly, right?  A. Yes. Q. The brain was welghed, right? A. Yes. Q. Nervous system tissues were removed and analyzed microscopically as well, right? A. Yes. Q. The study found neurobehavioral tests and neuropathological examination of the central and peripheral nervous system showed no effects from the paraquat exposure, correct? A. That's correct. Q. But in the study, Syngenta did not measure the loss of dopaminergic neurons in the substantia nigra of the rat, did they?	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	in this test, as you just read out, include some important clinical observations where, if there was pathologically significant neurotoxicity, you would expect to see changes in those behaviors.  BY MR. TILLERY:  Q. Okay. But you didn't do an analysis of the upregulation of alpha-synuciein. You didn't measure levels of dopamine metabolites. You didn't measure dopamine in the striatum. You didn't measure dopaminergic neurons.  There was nothing preventing the people who conducted the Chivers study from doing that in the rat to complete the study, was there?  MR. NARESH: Objection. Compound.  THE WITNESS: Other than that they were not a guideline requirement and actually could have
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	Page 1481		Page 1483
	_		
1	measurements of that sort, would have wanted to be	1	A. Correct.
2	assured that we had the the expertise, the	2	Q. Who would have made that decision to
3	background, the understanding of those parameters in	3	Include that language?
4	this model, in the rat model. And so they may well	4	A. That would be the study director.
5	have questioned the study on that basis.	5	Q. And who was that?
6	Q. Has – has the EPA ever questioned	6	A. Dr. Chivers.
7	Syngenta's ability, scientific ability, to conduct a	7	Q. Okay. So Dr. Chivers made the
8	test of a laboratory animal?	8	determination to use this species based upon the fact
9	MR. NARESH: Objection. Scope.	9	that it was the generally recommended test animal for
10	THE WITNESS: Now, are you referring	10	the assessment of neurotoxicity, right?
11	specifically to neurotoxicity studies?	11	A. Not just that. I think the second
12	BY MR. TILLERY:	12	sentence is also important. The rat was used the
13	Q. Yes.	13	strain of rat that we used because I think, as I
14	A. No. Because we have conducted them	14	said in previous questions this morning, because of
15	according to the guideline.	15	the background data, our understanding of that
16	Q. So I move to strike your answer as	16	model, and being able to interpret any findings.
17	unresponsive.	17	Q. But you already knew at that time that
18	Has the EPA ever questioned Syngenta's	18	if you did this study for the EPA guideline and used
19	ability to conduct a neurotoxicity laboratory animal	19	the C57 mouse, you were going to have to report that
20	study?	20	It caused death to dopaminergic neurons in the
21	A. Not that I'm aware of.	21	substantla nigra portion of the mouse, right? You
22	Q. Okay. You had a trained stereologist	22	knew that?
23	available in your laboratory in the person of	23	A. If we had used the mouse and we'd seen
24	Dr. Louise Marks at the time the study was done,	24	that effect, of course.
	Page 1482		Page <b>1484</b>
1	Page 1482	1	Page 1484  Q. Well, is there any reason to believe
1 2		1 2	
	didn't you?	1	Q. Well, is there any reason to believe
2	didn't you?  A. We did, yes.	2	Q. Well, is there any reason to believe that after Dr. Marks had been trained on the correct
2 3	didn't you?  A. We did, yes.  Q. Was she asked to do any stereology work	2 3	Q. Well, is there any reason to believe that after Dr. Marks had been trained on the correct use of the equipment and got three consistent results
2 3 4	didn't you?  A. We did, yes.  Q. Was she asked to do any stereology work in the Chivers study?	2 3 4	Q. Well, is there any reason to believe that after Dr. Marks had been trained on the correct use of the equipment and got three consistent results in the C57 mouse, is there any question in your
2 3 4 5	didn't you?  A. We did, yes.  Q. Was she asked to do any stereology work in the Chivers study?  A. I don't know whether that question was	2 3 4 5	Q. Well, is there any reason to believe that after Dr. Marks had been trained on the correct use of the equipment and got three consistent results in the C57 mouse, is there any question in your scientific mind and analysis that you would have
2 3 4 5 6	didn't you?  A. We did, yes.  Q. Was she asked to do any stereology work in the Chivers study?  A. I don't know whether that question was asked. I suspect not, but I wouldn't have	2 3 4 5 6	Q. Well, is there any reason to believe that after Dr. Marks had been trained on the correct use of the equipment and got three consistent results in the C57 mouse, is there any question in your scientific mind and analysis that you would have gotten exactly the same result again?
2 3 4 5 6 7	didn't you?  A. We did, yes.  Q. Was she asked to do any stereology work in the Chivers study?  A. I don't know whether that question was asked. I suspect not, but I wouldn't have definitive evidence of that.	2 3 4 5 6 7	Q. Well, is there any reason to believe that after Dr. Marks had been trained on the correct use of the equipment and got three consistent results in the C57 mouse, is there any question in your scientific mind and analysis that you would have gotten exactly the same result again?  A. Well, you have to also bear in mind
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2 3 4 5 6 7 8 9 10 11	didn't you?  A. We did, yes.  Q. Was she asked to do any stereology work in the Chivers study?  A. I don't know whether that question was asked. I suspect not, but I wouldn't have definitive evidence of that.  Q. Is there any evidence in anything you've ever read that anybody suggested that maybe you want to look at the rats for your own personal analysis at Syngenta?  A. I wasn't directly involved in those	2 3 4 5 6 7 8 9 10 11	Q. Well, is there any reason to believe that after Dr. Marks had been trained on the correct use of the equipment and got three consistent results in the C57 mouse, is there any question in your scientific mind and analysis that you would have gotten exactly the same result again?  A. Well, you have to also bear in mind that this guideline says that, under normal circumstances, you will you would use the oral or dietary route of exposure, not intraperitoneal injection. So had we used the mouse with dietary exposure, we may not have seen the effect.
2 3 4 5 6 7 8 9 10 11 12 13	A. We did, yes.  Q. Was she asked to do any stereology work in the Chivers study?  A. I don't know whether that question was asked. I suspect not, but I wouldn't have definitive evidence of that.  Q. Is there any evidence in anything you've ever read that anybody suggested that maybe you want to look at the rats for your own personal analysis at Syngenta?  A. I wasn't directly involved in those in that study; so I'm not aware personally of any	2 3 4 5 6 7 8 9 10 11 12 13	Q. Well, is there any reason to believe that after Dr. Marks had been trained on the correct use of the equipment and got three consistent results in the C57 mouse, is there any question in your scientific mind and analysis that you would have gotten exactly the same result again?  A. Well, you have to also bear in mind that this guideline says that, under normal circumstances, you will you would use the oral or dietary route of exposure, not intraperitoneal injection. So had we used the mouse with dietary exposure, we may not have seen the effect.  Q. Okay. So you're saying the same result
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	didn't you?  A. We did, yes.  Q. Was she asked to do any stereology work in the Chivers study?  A. I don't know whether that question was asked. I suspect not, but I wouldn't have definitive evidence of that.  Q. Is there any evidence in anything you've ever read that anybody suggested that maybe you want to look at the rats for your own personal analysis at Syngenta?  A. I wasn't directly involved in those in that study; so I'm not aware personally of any such conversation.  Q. Okay. Now, let's go to paragraph 2.3. It's page 12, the very next page.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Q. Well, is there any reason to believe that after Dr. Marks had been trained on the correct use of the equipment and got three consistent results in the C57 mouse, is there any question in your scientific mind and analysis that you would have gotten exactly the same result again?  A. Well, you have to also bear in mind that this guideline says that, under normal circumstances, you will you would use the oral or dietary route of exposure, not intraperitoneal injection. So had we used the mouse with dietary exposure, we may not have seen the effect.  Q. Okay. So you're saying the same result would work conversely with the rat?  You think if you would have used something other than dietary in introduction of
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	A. We did, yes.  Q. Was she asked to do any stereology work in the Chivers study?  A. I don't know whether that question was asked. I suspect not, but I wouldn't have definitive evidence of that.  Q. Is there any evidence in anything you've ever read that anybody suggested that maybe you want to look at the rats for your own personal analysis at Syngenta?  A. I wasn't directly involved in those in that study; so I'm not aware personally of any such conversation.  Q. Okay. Now, let's go to paragraph 2.3. It's page 12, the very next page.  A. Okay.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Q. Well, is there any reason to believe that after Dr. Marks had been trained on the correct use of the equipment and got three consistent results in the C57 mouse, is there any question in your scientific mind and analysis that you would have gotten exactly the same result again?  A. Well, you have to also bear in mind that this guideline says that, under normal circumstances, you will you would use the oral or dietary route of exposure, not intraperitoneal injection. So had we used the mouse with dietary exposure, we may not have seen the effect.  Q. Okay. So you're saying the same result would work conversely with the rat?  You think if you would have used something other than dietary in introduction of paraquat that you might have gotten a positive
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	A. We did, yes. Q. Was she asked to do any stereology work in the Chivers study? A. I don't know whether that question was asked. I suspect not, but I wouldn't have definitive evidence of that. Q. Is there any evidence in anything you've ever read that anybody suggested that maybe you want to look at the rats for your own personal analysis at Syngenta? A. I wasn't directly involved in those in that study; so I'm not aware personally of any such conversation. Q. Okay. Now, let's go to paragraph 2.3. It's page 12, the very next page. A. Okay. Q. And the heading of that is "Justification for Test Selection."	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	Q. Well, is there any reason to believe that after Dr. Marks had been trained on the correct use of the equipment and got three consistent results in the C57 mouse, is there any question in your scientific mind and analysis that you would have gotten exactly the same result again?  A. Well, you have to also bear in mind that this guideline says that, under normal circumstances, you will you would use the oral or dietary route of exposure, not intraperitoneal injection. So had we used the mouse with dietary exposure, we may not have seen the effect.  Q. Okay. So you're saying the same result would work conversely with the rat?  You think if you would have used something other than dietary in introduction of paraquat that you might have gotten a positive result as well?  A. Was your question would we have got a
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	A. We did, yes. Q. Was she asked to do any stereology work in the Chivers study? A. I don't know whether that question was asked. I suspect not, but I wouldn't have definitive evidence of that. Q. Is there any evidence in anything you've ever read that anybody suggested that maybe you want to look at the rats for your own personal analysis at Syngenta? A. I wasn't directly Involved In those in that study; so I'm not aware personally of any such conversation. Q. Okay. Now, let's go to paragraph 2.3. It's page 12, the very next page. A. Okay. Q. And the heading of that is "Justification for Test Selection." Do you see that?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Q. Well, is there any reason to believe that after Dr. Marks had been trained on the correct use of the equipment and got three consistent results in the C57 mouse, is there any question in your scientific mind and analysis that you would have gotten exactly the same result again?  A. Well, you have to also bear in mind that this guideline says that, under normal circumstances, you will you would use the oral or dietary route of exposure, not intraperitoneal injection. So had we used the mouse with dietary exposure, we may not have seen the effect.  Q. Okay. So you're saying the same result would work conversely with the rat?  You think if you would have used something other than dietary in introduction of paraquat that you might have gotten a positive result as well?  A. Was your question would we have got a positive result had we used a different an
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A. We did, yes. Q. Was she asked to do any stereology work in the Chivers study? A. I don't know whether that question was asked. I suspect not, but I wouldn't have definitive evidence of that. Q. Is there any evidence in anything you've ever read that anybody suggested that maybe you want to look at the rats for your own personal analysis at Syngenta? A. I wasn't directly involved in those in that study; so I'm not aware personally of any such conversation. Q. Okay. Now, let's go to paragraph 2.3. It's page 12, the very next page. A. Okay. Q. And the heading of that is "Justification for Test Selection." Do you see that? A. I do.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q. Well, is there any reason to believe that after Dr. Marks had been trained on the correct use of the equipment and got three consistent results in the C57 mouse, is there any question in your scientific mind and analysis that you would have gotten exactly the same result again?  A. Well, you have to also bear in mind that this guideline says that, under normal circumstances, you will you would use the oral or dietary route of exposure, not intraperitoneal injection. So had we used the mouse with dietary exposure, we may not have seen the effect.  Q. Okay. So you're saying the same result would work conversely with the rat?  You think if you would have used something other than dietary in introduction of paraquat that you might have gotten a positive result as well?  A. Was your question would we have got a positive result had we used a different an ingestion route in the rat?

Page 1485	5 Page 148
1 taking a couple of the rats and giving them IP	<ol> <li>exposed to paraquat through oral ingestion.</li> </ol>
2 injections of paraquat instead of the dietary and	2 MR. NARESH: Object as compound.
3 just see if it made a difference? Did you do that?	3 Go ahead.
4 A. No. Because this test was being done	4 THE WITNESS: Under normal
5 in accordance with EPA guidelines for whom the risk	5 circumstances you wouldn't expect an applicator to
6 assessment was critical. And as we've just read,	6 be exposed to paraquat using – through the oral
7 the the relevance of the route to possible human	7 route unless they were contaminated around their
8 exposure is important; hence, the use of the oral	8 mouth. But, no, normally speaking, that would not
9 dletary route.	9 be relevant for an operator.
10 Q. Is there any reason that you can't	10 BY MR. TILLERY:
11 conduct any study you want to conduct? I mean,	11 Q. All right. And the relevant exposure
Dr. Marks' work was not required by any regulatory	12 would be what?
13 body, was it?	13 A. Either dermal or sometimes by
MR. NARESH: Objection. Compound.	14 inhalation.
15 THE WITNESS: No, it wasn't. That's	15 Q. And "inhalation," by that you mean where
16 because we were trying to understand the – the	16 the people are breathing. When they're applying it,
17 certain findings in the public research.	there's mist in the air. They breathe this in. Or
18 BY MR. TILLERY:	when they're mixing or loading it, they breathe it in
19 Q. Right. So there's no reason you	19 through their nose. It goes down there into their
20 couldn't have done a rat study by IP injection,	20 lungs and goes through the alveolar structures into
right? There's no prohibition on Syngenta doing such	21 their bloodstream, right?
22 studies. You could have done it if you had wanted	22 MR. NARESH: Objection to form.
23 to, correct?	23 Compound.
24 A. Well, we could have done it if we had	24 THE WITNESS: Yes.
	3
Page 1486	Page 148
1 wanted to, but as I said, the expectation of the EPA	1 MR. NARESH: And assumes facts not in
2 for this type of guideline study is that you should	2 evidence.
3 use a relevant exposure route for humans.	3 THE WITNESS: That that can - that
<ol> <li>Q. Right. What I'm asking you, if you</li> </ol>	4 Is a potential exposure route.
5 would answer me clearly, please, sir, is had Syngenta	5 BY MR. TILLERY:
6 wanted to conduct their own studies irrespective of	6 Q. All right. And that, of course, is a
7 the requirements of any regulatory body worldwide,	7 completely different route than the oral ingestion
8 they could have gone into the laboratories, ordered	8 route, right?
9 up the animals, and done the study and checked for	9 A. It is.
10 results, correct?	10 Q. Applicators of paraquat would be those
11 A. Well, we did do research studies in the	11 people who would have the most direct exposure in the
A. Well, we did do research studies in the rat. You've pointed to the study by Marks earlier	people who would have the most direct exposure in the usual sense in the use of this chemical, correct?
12 rat. You've pointed to the study by Marks earlier	
rat. You've pointed to the study by Marks earlier on, for example.	usual sense in the use of this chemical, correct?
12 rat. You've pointed to the study by Marks earlier 13 on, for example. 14 Q. Okay. So you clearly could have done	<ul> <li>usual sense in the use of this chemical, correct?</li> <li>A. That is correct.</li> </ul>
<ul> <li>rat. You've pointed to the study by Marks earlier</li> <li>on, for example.</li> <li>Q. Okay. So you clearly could have done</li> <li>that had you wanted to?</li> </ul>	<ul> <li>usual sense in the use of this chemical, correct?</li> <li>A. That is correct.</li> <li>Q. And I think you've told me before in the</li> </ul>
<ul> <li>rat. You've pointed to the study by Marks earlier</li> <li>on, for example.</li> <li>Q. Okay. So you clearly could have done</li> <li>that had you wanted to?</li> </ul>	<ul> <li>usual sense in the use of this chemical, correct?</li> <li>A. That is correct.</li> <li>Q. And I think you've told me before in the</li> <li>same deposition that, in your view, the most likely</li> </ul>
<ul> <li>rat. You've pointed to the study by Marks earlier</li> <li>on, for example.</li> <li>Q. Okay. So you clearly could have done</li> <li>that had you wanted to?</li> <li>A. Technically speaking, of course.</li> </ul>	<ul> <li>usual sense in the use of this chemical, correct?</li> <li>A. That is correct.</li> <li>Q. And I think you've told me before in the</li> <li>same deposition that, in your view, the most likely</li> <li>route of exposure is – to applicators is inhalation,</li> </ul>
12 rat. You've pointed to the study by Marks earlier 13 on, for example. 14 Q. Okay. So you clearly could have done 15 that had you wanted to? 16 A. Technically speaking, of course. 17 Q. Yes. Now, tell me the circumstances 18 where humans would – strike that.	<ul> <li>usual sense in the use of this chemical, correct?</li> <li>A. That is correct.</li> <li>Q. And I think you've told me before in the</li> <li>same deposition that, in your view, the most likely</li> <li>route of exposure is – to applicators is inhalation,</li> <li>correct?</li> </ul>
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rat. You've pointed to the study by Marks earlier on, for example.  Q. Okay. So you clearly could have done that had you wanted to?  A. Technically speaking, of course. Q. Yes. Now, tell me the circumstances where humans would – strike that.  Tell me the circumstances where the usual application of paraquat as you understand that application to take place. And I'm thinking about	12 usual sense in the use of this chemical, correct?  A. That is correct.  Q. And I think you've told me before in the same deposition that, in your view, the most likely route of exposure is – to applicators is inhalation, correct?  A. I don't know if I said that because I know, for example, also dermal exposure is also likely.  Q. Okay. So "dermal exposure" meaning
rat. You've pointed to the study by Marks earlier on, for example.  Q. Okay. So you clearly could have done that had you wanted to? A. Technically speaking, of course. Q. Yes. Now, tell me the circumstances where humans would – strike that.  Tell me the circumstances where the usual applicator of paraquat as you understand that	12 usual sense in the use of this chemical, correct?  A. That is correct.  Q. And I think you've told me before in the same deposition that, in your view, the most likely route of exposure is — to applicators is inhalation, correct?  A. I don't know if I said that because I know, for example, also dermal exposure is also likely.

	Page 1489		Page 149
1	Q. Okay. But in this study, the route of	1	isn't one that would normally be used in order to
2	exposure was an oral ingestion, right?	2	understand actual risk to exposed humans.
3	A. That's right.	3	Q. Did you raise that objection yourself?
4	Q. And when Marks did her rat study in	4	A. It wasn't an objection as such. It was
5	2006, what was the means by which she got paraquat	5	because we were faced with the reality that the
6	Into the rat? Did she use ingestion?	6	public research had used that mode of applicator
7	A. You'll just need to to quickly	7	of administration. And so we didn't think it was
8	remind me. You showed that in a previous exhibit,	8	necessarily relevant, but it was important
9	the Marks 2006 study.	9	nevertheless in order for us to get a better
10	Q. Right. The rat –	10	understanding of what was happening.
11	MR. NARESH: Dr. Botham, if you feel	11	Q. Now, if you'd turn to page 14 under
12	like you need to look at the exhibit	12	Section 3.4.1 of the exhibit – the last exhibit
13	THE WITNESS: Yes. I do, yes.	13	which Is 134.
14	BY MR. TILLERY:	14	MR, NARESH: We're back to Chevers
15	Q. Why don't you do that, sir.	15	Chivers?
16	A. Yes. I'll need to do that, I think.	16	MR. TILLERY: Yes.
17	Q. Why don't you confirm what Syngenta	17	THE WITNESS: Okay. Tell me again
18	used chose to use as the means by which paraquat	18	which page you want me to go to?
19	was introduced into the lab animals in her rat study.	19	BY MR. TILLERY:
20	A. Yes. I'm just going to that now.	20	Q. Page 14.
21		21	· • •
22	MR. NARESH: I'll object to the characterization of the question.	1	A. My eDepoze has temporarily lost the
	·	22	ability to give me page numbers but okay. Now
23	But it's Exhibit 136, Dr. Botham, if	23	it's come back up again.
24	you'd like to take a look.	24	Yes. Page 14. I'm there. Thank you.
	Page <b>14</b> 90		Page 1492
1	THE WITNESS: Yep. Thank you.	1	Q. The rats in this strike that.
2	Yes. So this was intraperitoneal	2	The rats in the study were 42 days old
3	Ingestion.	3	at the start of the study, right?
	BY MR. TILLERY:		A. That's correct.
4	<del>- 1                                   </del>	4	A. Mais conect.
4 5	Q. They didn't use – she – strike that.	5	Q. Approximately what age in humans does
-			
5	Q. They didn't use - she - strike that.	5	Q. Approximately what age in humans does
5	Q. They didn't use – she – strike that.  She did not use dietary intake, did	5	Q. Approximately what age in humans does that correspond with?
5 6 7	Q. They didn't use – she – strike that.  She did not use dietary intake, did she?	5 6 7	Q. Approximately what age in humans does that correspond with?  A. Well, the life span of a rat is between
5 6 7 8	<ul><li>Q. They didn't use – she – strike that.</li><li>She did not use dietary intake, did she?</li><li>A. No, not in this study.</li></ul>	5 6 7 8	Q. Approximately what age in humans does that correspond with?  A. Well, the life span of a rat is between two to three years, so 700-plus days. So, you know,
5 6 7 8	<ul> <li>Q. They didn't use – she – strike that.</li> <li>She did not use dietary intake, did</li> <li>she?</li> <li>A. No, not in this study.</li> <li>Q. She used IP ingestion, right?</li> </ul>	5 6 7 8 9	Q. Approximately what age in humans does that correspond with?  A. Well, the life span of a rat is between two to three years, so 700-plus days. So, you know, a quick mental calculation, that would be obviously
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5 6 7 8 9 10	<ul> <li>Q. They didn't use – she – strike that.</li> <li>She did not use dietary intake, did</li> <li>she?</li> <li>A. No, not in this study.</li> <li>Q. She used IP ingestion, right?</li> <li>A. Correct.</li> <li>Q. Did she ever use dietary intake on any</li> </ul>	5 6 7 8 9 10	Q. Approximately what age in humans does that correspond with?  A. Well, the life span of a rat is between two to three years, so 700-plus days. So, you know, a quick mental calculation, that would be obviously a young – a child to young adult.  Q. It would be probably a preteen human,
5 6 7 8 9 10 11	<ul> <li>Q. They didn't use – she – strike that.</li> <li>She did not use dietary intake, did</li> <li>she?</li> <li>A. No, not in this study.</li> <li>Q. She used IP ingestion, right?</li> <li>A. Correct.</li> <li>Q. Did she ever use dietary intake on any</li> <li>of her paraquat toxicity studies?</li> <li>A. I don't believe so, no.</li> </ul>	5 6 7 8 9 10 11	Q. Approximately what age in humans does that correspond with?  A. Well, the life span of a rat is between two to three years, so 700-plus days. So, you know, a quick mental calculation, that would be obviously a young – a child to young adult.  Q. It would be probably a preteen human, wouldn't it?
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5 6 7 8 9 10 11 12 13 14	<ul> <li>Q. They didn't use – she – strike that. She did not use dietary intake, did</li> <li>she?</li> <li>A. No, not in this study.</li> <li>Q. She used IP ingestion, right?</li> <li>A. Correct.</li> <li>Q. Did she ever use dietary intake on any</li> <li>of her paraquat toxicity studies?</li> <li>A. I don't believe so, no.</li> <li>Q. She always used IP ingestion, right?</li> <li>A. Yes. Because, again, we were trying to</li> </ul>	5 6 7 8 9 10 11 12 13 14 15	Q. Approximately what age in humans does that correspond with?  A. Well, the life span of a rat is between two to three years, so 700-plus days. So, you know, a quick mental calculation, that would be obviously a young — a child to young adult.  Q. It would be probably a preteen human, wouldn't it?  A. Yeah. At the start of dosing, that's true.  Q. All right. And the study lasted
5 6 7 8 9 10 11 12 13 14 15	<ul> <li>Q. They didn't use – she – strike that. She did not use dietary intake, did</li> <li>she?</li> <li>A. No, not in this study.</li> <li>Q. She used IP Ingestion, right?</li> <li>A. Correct.</li> <li>Q. Did she ever use dietary intake on any</li> <li>of her paraquat toxicity studies?</li> <li>A. I don't believe so, no.</li> <li>Q. She always used IP ingestion, right?</li> <li>A. Yes. Because, again, we were trying to</li> <li>see whether we could replicate or understand the</li> </ul>	5 6 7 8 9 10 11 12 13 14 15 16	Q. Approximately what age in humans does that correspond with?  A. Well, the life span of a rat is between two to three years, so 700-plus days. So, you know, a quick mental calculation, that would be obviously a young – a child to young adult.  Q. It would be probably a preteen human, wouldn't it?  A. Yeah. At the start of dosing, that's true.  Q. All right. And the study lasted 90 days, right?
5 6 7 8 9 10 11 12 13 14 15 16 17	Q. They didn't use – she – strike that. She did not use dietary intake, did she?  A. No, not in this study. Q. She used IP ingestion, right? A. Correct. Q. Did she ever use dietary intake on any of her paraquat toxicity studies? A. I don't believe so, no. Q. She always used IP ingestion, right? A. Yes. Because, again, we were trying to see whether we could replicate or understand the public research which had used that route of	5 6 7 8 9 10 11 12 13 14 15 16 17	Q. Approximately what age in humans does that correspond with?  A. Well, the life span of a rat is between two to three years, so 700-plus days. So, you know, a quick mental calculation, that would be obviously a young — a child to young adult.  Q. It would be probably a preteen human, wouldn't it?  A. Yeah. At the start of dosing, that's true.  Q. All right. And the study lasted 90 days, right?  A. Correct.
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5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Q. They didn't use – she – strike that. She did not use dietary intake, did she?  A. No, not in this study. Q. She used IP ingestion, right? A. Correct. Q. Did she ever use dietary intake on any of her paraquat toxicity studies? A. I don't believe so, no. Q. She always used IP ingestion, right? A. Yes. Because, again, we were trying to see whether we could replicate or understand the public research which had used that route of administration. Q. Did anybody at that time voice any opinion about the legitimacy of using IP ingestion as	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Q. Approximately what age in humans does that correspond with?  A. Well, the life span of a rat is between two to three years, so 700-plus days. So, you know, a quick mental calculation, that would be obviously a young — a child to young adult.  Q. It would be probably a preteen human, wouldn't it?  A. Yeah. At the start of dosing, that's true.  Q. All right. And the study lasted 90 days, right?  A. Correct.  Q. So on the very last day of the study, the rats were approximately 132 days old, right?  A. That's right, yes.
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q. They didn't use — she — strike that. She did not use dietary intake, did she?  A. No, not in this study. Q. She used IP ingestion, right? A. Correct. Q. Did she ever use dietary intake on any of her paraquat toxicity studies? A. I don't believe so, no. Q. She always used IP ingestion, right? A. Yes. Because, again, we were trying to see whether we could replicate or understand the public research which had used that route of administration. Q. Did anybody at that time voice any opinion about the legitimacy of using IP ingestion as the means of introduction — introducing the chemical	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q. Approximately what age in humans does that correspond with?  A. Well, the life span of a rat is between two to three years, so 700-plus days. So, you know, a quick mental calculation, that would be obviously a young — a child to young adult.  Q. It would be probably a preteen human, wouldn't it?  A. Yeah. At the start of dosing, that's true.  Q. All right. And the study lasted 90 days, right?  A. Correct. Q. So on the very last day of the study, the rats were approximately 132 days old, right?  A. That's right, yes. Q. About four and a half months old, right?
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Q. They didn't use – she – strike that. She did not use dietary intake, did she?  A. No, not in this study. Q. She used IP Ingestion, right? A. Correct. Q. Did she ever use dietary intake on any of her paraquat toxicity studies? A. I don't believe so, no. Q. She always used IP ingestion, right? A. Yes. Because, again, we were trying to see whether we could replicate or understand the public research which had used that route of administration. Q. Did anybody at that time voice any opinion about the legitimacy of using IP ingestion as the means of introduction – introducing the chemical into the laboratory animal?	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Q. Approximately what age in humans does that correspond with?  A. Well, the life span of a rat is between two to three years, so 700-plus days. So, you know, a quick mental calculation, that would be obviously a young — a child to young adult.  Q. It would be probably a preteen human, wouldn't it?  A. Yeah. At the start of dosing, that's true.  Q. All right. And the study lasted 90 days, right?  A. Correct. Q. So on the very last day of the study, the rats were approximately 132 days old, right?  A. That's right, yes. Q. About four and a half months old, right? A. That's right.
5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q. They didn't use — she — strike that. She did not use dietary intake, did she?  A. No, not in this study. Q. She used IP ingestion, right? A. Correct. Q. Did she ever use dietary intake on any of her paraquat toxicity studies? A. I don't believe so, no. Q. She always used IP ingestion, right? A. Yes. Because, again, we were trying to see whether we could replicate or understand the public research which had used that route of administration. Q. Did anybody at that time voice any opinion about the legitimacy of using IP ingestion as the means of introduction — introducing the chemical	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q. Approximately what age in humans does that correspond with?  A. Well, the life span of a rat is between two to three years, so 700-plus days. So, you know, a quick mental calculation, that would be obviously a young — a child to young adult.  Q. It would be probably a preteen human, wouldn't it?  A. Yeah. At the start of dosing, that's true.  Q. All right. And the study lasted 90 days, right?  A. Correct. Q. So on the very last day of the study, the rats were approximately 132 days old, right?  A. That's right, yes. Q. About four and a half months old, right?

	Page <b>14</b> 93		Page 149!
1	would be in correspondence to humans.	1	studies are not focusing on the potential for
2	<ol> <li>Well, it would be around about 20s,</li> </ol>	2	Parkinson's pathology. They're looking for
3	mid-20s, mid-to-late 20s.	3	neurotoxicity much more broadly.
4	Q. Okay. Now, in terms of onset of	4	Q. Okay. But other than the guideline
5	Parkinson's disease in humans, what is your	5	studies and other than anything that you were told to
6	understanding of the average age of onset of the	6	follow by the EPA, anything else?
7	disease?	7	If you were doing your own studies,
8	A. My understanding is that's around about	8	there's nothing that would prohibit or prevent
9	65 years of age.	9	Syngenta from using older test animals, correct?
. 0	Q. Okay. And yet in your animals at the	10	A. There are no practical reasons why that
.1	latest period of time, they would have been in the	11	couldn't be done, certainly.
.2	mid-20s right? – in a corresponding age?	12	Q. Right. Now, in this study that we're
. 3	A. Yes. That's correct.	13	we have as Exhibit 134 up for view, if you go to
. 4	Q. Okay. How many people with Parkinson's	14	Section 4.9.3, it says, "There were no
. 5	disease onset that's not genetically related have you	15	treatment-related" –
.6	ever heard of who have developed Parkinson's disease	16	MR. NARESH: Hang on. That's quite a
.7	by age 20?	17	bit ahead. Can you give us a page number?
. 8	A. It would not generally happen, be	18	MR. TILLERY: Yeah.
. 9	expected to happen.	19	THE WITNESS: I'm getting there.
20	Q. It just simply wouldn't happen, would	20	MR. TILLERY: It's page 23.
21	It?	21	THE WITNESS: Yes. I'm there.
22		22	
	A. No, it would not	1	BY MR. TILLERY:
23	Q. And why is that?	23	<ul> <li>Q. It says, "There were no treatment-related microscopic findings," and it</li> </ul>
24	A. Well, because Parkinson's disease is a	24	treatmenterelated microscopic midnigs, and it
	Page <b>14</b> 94		Page 149
		1	
1	disease of age, and loss of cells in the substantla	1	references Table 16, right?
1 2	disease of age, and loss of cells in the substantla nigra is something that happens in everybody to an	1 2	
	-	1	references Table 16, right?
2	nigra is something that happens in everybody to an	2	references Table 16, right?  A. It does.
2	nigra is something that happens in everybody to an extent as you grow old.	2 3	references Table 16, right?  A. It does.  Q. The incidence of demyelination or nerve fiber degeneration in the control and high-dose
2 3 4	nigra is something that happens in everybody to an extent as you grow old.  Q. And when you add neurotoxin, which takes	2 3 4	references Table 16, right?  A. It does.  Q. The incidence of demyelination or nerve fiber degeneration in the control and high-dose
2 3 4 5	nigra is something that happens in everybody to an extent as you grow old.  Q. And when you add neurotoxin, which takes other dopaminergic cells out of the functioning	2 3 4 5	references Table 16, right?  A. It does.  Q. The incidence of demyelination or nerve fiber degeneration in the control and high-dose groups were considered spontaneous and not related to
2 3 4 5	nigra is something that happens in everybody to an extent as you grow old.  Q. And when you add neurotoxin, which takes other dopaminergic cells out of the functioning range, you end up with the onset of one of the	2 3 4 5 6	references Table 16, right?  A. It does.  Q. The incidence of demyelination or nerve fiber degeneration in the control and high-dose groups were considered spontaneous and not related to treatment, right?
2 3 4 5 6 7	nigra is something that happens in everybody to an extent as you grow old.  Q. And when you add neurotoxin, which takes other dopaminergic cells out of the functioning range, you end up with the onset of one of the hallmark symptoms of Parkinson's disease. And that's	2 3 4 5 6 7	references Table 16, right?  A. It does.  Q. The incidence of demyelination or nerve fiber degeneration in the control and high-dose groups were considered spontaneous and not related to treatment, right?  A. That's right.
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2 3 4 5 6 7 8 9 L0	nigra is something that happens in everybody to an extent as you grow old.  Q. And when you add neurotoxin, which takes other dopaminergic cells out of the functioning range, you end up with the onset of one of the hallmark symptoms of Parkinson's disease. And that's the absence of motor control, correct?  A. Yes. Indeed, some toxins we know do that.	2 3 4 5 6 7 8 9	references Table 16, right?  A. It does.  Q. The incidence of demyelination or nerve fiber degeneration in the control and high-dose groups were considered spontaneous and not related to treatment, right?  A. That's right.  Q. And that's because you had roughly the same number of demyelination findings in the control group as you had in the test group, right?
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	nigra is something that happens in everybody to an extent as you grow old.  Q. And when you add neurotoxin, which takes other dopaminergic cells out of the functioning range, you end up with the onset of one of the hallmark symptoms of Parkinson's disease. And that's the absence of motor control, correct?  A. Yes. Indeed, some toxins we know do that.  Q. But you don't see that in 20-year-olds, do you?  A. No, we don't.  Q. Have you ever read any piece of literature anywhere which showed from exposure to a chemical that any person had the onset of Parkinson's disease in their 20s?  A. No.  Q. Okay. Nothing would prohibit you at Syngenta from using older animals as test subjects,	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	references Table 16, right?  A. It does.  Q. The incidence of demyelination or nerve fiber degeneration in the control and high-dose groups were considered spontaneous and not related to treatment, right?  A. That's right.  Q. And that's because you had roughly the same number of demyelination findings in the control group as you had in the test group, right?  A. That's right.  Q. So you couldn't draw any conclusion from the demyelination either way because it appeared in your test – in your control animals, right?  A. Well, you could fairly conclusively imagine that that showed that it was, as it says here, a spontaneous finding not related to treatment.  Q. Right. Okay. Now, if you'd turn to Table 16. I think that's page 104. If you can go
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	nigra is something that happens in everybody to an extent as you grow old.  Q. And when you add neurotoxin, which takes other dopaminergic cells out of the functioning range, you end up with the onset of one of the hallmark symptoms of Parkinson's disease. And that's the absence of motor control, correct?  A. Yes. Indeed, some toxins we know do that.  Q. But you don't see that in 20-year-olds, do you?  A. No, we don't.  Q. Have you ever read any piece of literature anywhere which showed from exposure to a chemical that any person had the onset of Parkinson's disease in their 20s?  A. No.  Q. Okay. Nothing would prohibit you at Syngenta from using older animals as test subjects, would it?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	references Table 16, right?  A. It does.  Q. The incidence of demyelination or nerve fiber degeneration in the control and high-dose groups were considered spontaneous and not related to treatment, right?  A. That's right.  Q. And that's because you had roughly the same number of demyelination findings in the control group as you had in the test group, right?  A. That's right.  Q. So you couldn't draw any conclusion from the demyelination either way because it appeared in your test — in your control animals, right?  A. Well, you could fairly conclusively imagine that that showed that it was, as it says here, a spontaneous finding not related to treatment.  Q. Right. Okay. Now, if you'd turn to Table 16. I think that's page 104. If you can go there. Tell me when you're there, sir.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	nigra is something that happens in everybody to an extent as you grow old.  Q. And when you add neurotoxin, which takes other dopaminergic cells out of the functioning range, you end up with the onset of one of the hallmark symptoms of Parkinson's disease. And that's the absence of motor control, correct?  A. Yes. Indeed, some toxins we know do that.  Q. But you don't see that in 20-year-olds, do you?  A. No, we don't.  Q. Have you ever read any piece of literature anywhere which showed from exposure to a chemical that any person had the onset of Parkinson's disease in their 20s?  A. No.  Q. Okay. Nothing would prohibit you at Syngenta from using older animals as test subjects,	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	references Table 16, right?  A. It does.  Q. The incidence of demyelination or nerve fiber degeneration in the control and high-dose groups were considered spontaneous and not related to treatment, right?  A. That's right.  Q. And that's because you had roughly the same number of demyelination findings in the control group as you had in the test group, right?  A. That's right.  Q. So you couldn't draw any conclusion from the demyelination either way because it appeared in your test – in your control animals, right?  A. Well, you could fairly conclusively imagine that that showed that it was, as it says here, a spontaneous finding not related to treatment.  Q. Right. Okay. Now, if you'd turn to Table 16. I think that's page 104. If you can go

	Page <b>14</b> 97		Page 1499
1	Q. There actually is. In the lower corner,	1	Q. Okay. So you had in the control
2	it says "Pages." If you click on that and then just	2	group – you see the findings that were made in the
3	type in the page number.	3	control group? They received no paraquat, right?
4	A. Oh, right.	4	A. Correct.
5	<ul> <li>Q. It will take you directly to that page.</li> </ul>	5	Q. And then if you skip all the way over to
6	A. I will do that. Which page number,	6	the 150 PPM range, you see that level, right? In all
7	please?	7	these categories - distal tibial nerve, eye,
8	Q. It would be page 104.	8	proximal sciatic nerve, proximal tibial nerve. Do
9	A. Thank you.	9	you see those?
10	Q. Take a look at that table, please. It's	10	A. Yes.
11	entitled "The Intergroup Comparison of Microscopic	11	Q. They show - they show findings. And
12	Findings."	12	those – comparing those to the 150 range, right?
.3	A. Okay. Yes, I'm there.	13	A. Yes.
4	Q. And if you look at the zero PPM column,	14	Q. And then in the middle - 15 and 50 -
5	those are the control animals, aren't they?	15	zero findings. And you're saying that's due to
6	A. That's correct.	16	biology? When the control group roughly parallels
7	Q. Okay. And then there's another column,	17	the 150 group, you're saying that's biology?
8	15 PPM, right?	18	A. Well, that's one explanation.
.9	A. That's right.	19	would – I would need to just double-check by
20	Q. How many animals were in that category?	20	reading the report in full, which I don't have –
1	A. Twelve.	21	have time to do, as to whether those were – were
2	Q. And then there's a 50 PPM dosing group,	22	actually – those observations were made in the –
3	right?	23	in the 15 and 50 PPM.
4	A. Correct.	24	I think this indicates that they were
	Page 1498		Page 1500
1	Page 1498  Q. And there were 12 animals in that group?	1	
	_	1 2	Page 1500
2	Q. And there were 12 animals in that group?	1	Page 1500 looked for, but we'd need some time – you didn't
1 2 3 4	<ul><li>Q. And there were 12 animals in that group?</li><li>A. That's right.</li></ul>	2	Page 1500  looked for, but we'd need some time — you didn't necessarily always look at all the dose groups. So
2	<ul><li>Q. And there were 12 animals in that group?</li><li>A. That's right.</li><li>Q. Okay. And then there's a 150, right?</li></ul>	2 3	Page 1500  looked for, but we'd need some time — you didn't necessarily always look at all the dose groups. So that would need to be double-checked.
3 4	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> </ul>	2 3 4	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they
2 3 4 5	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can,</li> </ul>	2 3 4 5	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply – that they didn't even look for them, right?
2 3 4 5 6	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings</li> </ul>	2 3 4 5 6	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply – that they didn't even look for them, right?  A. That's – that's possible. But I
2 3 4 5 6 7	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings under the 15 and 30 PPM dosing groups?</li> </ul>	2 3 4 5 6 7	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply – that they didn't even look for them, right?  A. That's – that's possible. But I – but the fact that it says naught would suggest
2 3 4 5 6 7 8	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings under the 15 and 30 PPM dosing groups?</li> <li>A. No. I think you mean 50, not 30.</li> </ul>	2 3 4 5 6 7 8	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply – that they didn't even look for them, right?  A. That's – that's possible. But I – but the fact that it says naught would suggest otherwise, but that is something that would require
2 3 4 5 6 7 8 9	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings under the 15 and 30 PPM dosing groups?</li> <li>A. No. I think you mean 50, not 30.</li> <li>Q. Fifty. That's exactly right. Fifteen</li> </ul>	2 3 4 5 6 7 8	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply – that they didn't even look for them, right?  A. That's – that's possible. But I – but the fact that it says naught would suggest otherwise, but that is something that would require a thorough reading of the report.
2 3 4 5 6 7 8 9	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings under the 15 and 30 PPM dosing groups?</li> <li>A. No. I think you mean 50, not 30.</li> <li>Q. Fifty. That's exactly right. Fifteen and 50. Do you see that?</li> </ul>	2 3 4 5 6 7 8 9	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply – that they didn't even look for them, right?  A. That's – that's possible. But I – but the fact that it says naught would suggest otherwise, but that is something that would require a thorough reading of the report.  Q. And as you sit here today for your
2 3 4 5 6 7 8 9 L0 L1	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings under the 15 and 30 PPM dosing groups?</li> <li>A. No. I think you mean 50, not 30.</li> <li>Q. Fifty. That's exactly right. Fifteen and 50. Do you see that?</li> <li>A. I do.</li> </ul>	2 3 4 5 6 7 8 9 10	Page 1500  looked for, but we'd need some time — you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply — that they didn't even look for them, right?  A. That's — that's possible. But I — but the fact that it says naught would suggest otherwise, but that is something that would require a thorough reading of the report.  Q. And as you sit here today for your deposition, you're unable to tell me why the control
2 3 4 5 6 7 8	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings under the 15 and 30 PPM dosing groups?</li> <li>A. No. I think you mean 50, not 30.</li> <li>Q. Fifty. That's exactly right. Fifteen and 50. Do you see that?</li> <li>A. I do.</li> <li>Q. Why were there no findings in those</li> </ul>	2 3 4 5 6 7 8 9 10 11	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply – that they didn't even look for them, right?  A. That's – that's possible. But I – but the fact that it says naught would suggest otherwise, but that is something that would require a thorough reading of the report.  Q. And as you sit here today for your deposition, you're unable to tell me why the control group has numbers which correspond very closely to
2 3 4 5 6 7 8 9 L0 L1 L2 L3	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings under the 15 and 30 PPM dosing groups?</li> <li>A. No. I think you mean 50, not 30.</li> <li>Q. Fifty. That's exactly right. Fifteen and 50. Do you see that?</li> <li>A. I do.</li> <li>Q. Why were there no findings in those columns?</li> </ul>	2 3 4 5 6 7 8 9 10 11 12 13	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply – that they didn't even look for them, right?  A. That's – that's possible. But I – but the fact that it says naught would suggest otherwise, but that is something that would require a thorough reading of the report.  Q. And as you sit here today for your deposition, you're unable to tell me why the control group has numbers which correspond very closely to the 150 PPM group but that the intermediate or the
2 3 4 5 6 7 8 9 10 11 12 13	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings under the 15 and 30 PPM dosing groups?</li> <li>A. No. I think you mean 50, not 30.</li> <li>Q. Fifty. That's exactly right. Fifteen and 50. Do you see that?</li> <li>A. I do.</li> <li>Q. Why were there no findings in those columns?</li> <li>A. Well, it's an interesting observation.</li> </ul>	2 3 4 5 6 7 8 9 10 11 12 13	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply – that they didn't even look for them, right?  A. That's – that's possible. But I – but the fact that it says naught would suggest otherwise, but that is something that would require a thorough reading of the report.  Q. And as you sit here today for your deposition, you're unable to tell me why the control group has numbers which correspond very closely to the 150 PPM group but that the intermediate or the intervals of 15 and 50 parts per million show
2 3 4 5 6 7 8 9 LO L1 L1 L2 L3 L4	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings under the 15 and 30 PPM dosing groups?</li> <li>A. No. I think you mean 50, not 30.</li> <li>Q. Fifty. That's exactly right. Fifteen and 50. Do you see that?</li> <li>A. I do.</li> <li>Q. Why were there no findings in those columns?</li> <li>A. Well, it's an Interesting observation. The – you might have expected that you</li> </ul>	2 3 4 5 6 7 8 9 10 11 12 13 14	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply – that they didn't even look for them, right?  A. That's – that's possible. But I – but the fact that it says naught would suggest otherwise, but that is something that would require a thorough reading of the report.  Q. And as you sit here today for your deposition, you're unable to tell me why the control group has numbers which correspond very closely to the 150 PPM group but that the intermediate or the intervals of 15 and 50 parts per million show absolutely zeros in every category, right?
2 3 4 5 6 7 8 9 0 .1 .2 .3 .4 .5 .6 .7	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings under the 15 and 30 PPM dosing groups?</li> <li>A. No. I think you mean 50, not 30.</li> <li>Q. Fifty. That's exactly right. Fifteen and 50. Do you see that?</li> <li>A. I do.</li> <li>Q. Why were there no findings in those columns?</li> <li>A. Well, it's an Interesting observation. The – you might have expected that you would see such findings in those animals also, but</li> </ul>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply – that they didn't even look for them, right?  A. That's – that's possible. But I – but the fact that it says naught would suggest otherwise, but that is something that would require a thorough reading of the report.  Q. And as you sit here today for your deposition, you're unable to tell me why the control group has numbers which correspond very closely to the 150 PPM group but that the intermediate or the intervals of 15 and 50 parts per million show absolutely zeros in every category, right?  A. Other than the potential explanation
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings under the 15 and 30 PPM dosing groups?</li> <li>A. No. I think you mean 50, not 30.</li> <li>Q. Fifty. That's exactly right. Fifteen and 50. Do you see that?</li> <li>A. I do.</li> <li>Q. Why were there no findings in those columns?</li> <li>A. Well, it's an Interesting observation.  The – you might have expected that you would see such findings in those animals also, but this is – this is blology. Sometimes you do see</li> </ul>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Page 1500  looked for, but we'd need some time — you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply — that they didn't even look for them, right?  A. That's — that's possible. But I — but the fact that it says naught would suggest otherwise, but that is something that would require a thorough reading of the report.  Q. And as you sit here today for your deposition, you're unable to tell me why the control group has numbers which correspond very closely to the 150 PPM group but that the intermediate or the intervals of 15 and 50 parts per million show absolutely zeros in every category, right?  A. Other than the potential explanation I've just given.
2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 6 7 8 9 9 0 0 1 1 2 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1 8 1	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings under the 15 and 30 PPM dosing groups?</li> <li>A. No. I think you mean 50, not 30.</li> <li>Q. Fifty. That's exactly right. Fifteen and 50. Do you see that?</li> <li>A. I do.</li> <li>Q. Why were there no findings in those columns?</li> <li>A. Well, it's an interesting observation.  The – you might have expected that you would see such findings in those animals also, but this is – this is blology. Sometimes you do see this.</li> </ul>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply – that they didn't even look for them, right?  A. That's – that's possible. But I – but the fact that it says naught would suggest otherwise, but that is something that would require a thorough reading of the report.  Q. And as you sit here today for your deposition, you're unable to tell me why the control group has numbers which correspond very closely to the 150 PPM group but that the intermediate or the intervals of 15 and 50 parts per million show absolutely zeros in every category, right?  A. Other than the potential explanation l've just given.  Q. And you don't know whether that's
2 3 4 5 6 7 8 9 10 11 12 13 14	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings under the 15 and 30 PPM dosing groups?</li> <li>A. No. I think you mean 50, not 30.</li> <li>Q. Fifty. That's exactly right. Fifteen and 50. Do you see that?</li> <li>A. I do.</li> <li>Q. Why were there no findings in those columns?</li> <li>A. Well, it's an interesting observation.  The – you might have expected that you would see such findings in those animals also, but this is – this is blology. Sometimes you do see this.</li> <li>Q. Okay. So you see nothing untoward with</li> </ul>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply – that they didn't even look for them, right?  A. That's – that's possible. But I – but the fact that it says naught would suggest otherwise, but that is something that would require a thorough reading of the report.  Q. And as you sit here today for your deposition, you're unable to tell me why the control group has numbers which correspond very closely to the 150 PPM group but that the intermediate or the intervals of 15 and 50 parts per million show absolutely zeros in every category, right?  A. Other than the potential explanation l've just given.  Q. And you don't know whether that's correct or not, do you?
2 3 4 5 6 7 8 9 LO L1 L2 L3 L4 L5 L6 L7 L8 L9 L9 L9 L9 L9 L9 L9 L9 L9 L9 L9 L9 L9	<ul> <li>Q. And there were 12 animals in that group?</li> <li>A. That's right.</li> <li>Q. Okay. And then there's a 150, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings under the 15 and 30 PPM dosing groups?</li> <li>A. No. I think you mean 50, not 30.</li> <li>Q. Fifty. That's exactly right. Fifteen and 50. Do you see that?</li> <li>A. I do.</li> <li>Q. Why were there no findings in those columns?</li> <li>A. Well, it's an Interesting observation.  The – you might have expected that you would see such findings in those animals also, but this is – this is biology. Sometimes you do see this.</li> <li>Q. Okay. So you see nothing untoward with your test at all, right?</li> </ul>	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply – that they didn't even look for them, right?  A. That's – that's possible. But I – but the fact that it says naught would suggest otherwise, but that is something that would require a thorough reading of the report.  Q. And as you sit here today for your deposition, you're unable to tell me why the control group has numbers which correspond very closely to the 150 PPM group but that the intermediate or the intervals of 15 and 50 parts per million show absolutely zeros in every category, right?  A. Other than the potential explanation l've just given.  Q. And you don't know whether that's correct or not, do you?  A. No. But I would be able to check that
2 3 4 5 6 7 8 9	Q. And there were 12 animals in that group? A. That's right. Q. Okay. And then there's a 150, right? A. That's right. Q. Okay. Now, do you see? If you can, look at those numbers. And do you see the findings under the 15 and 30 PPM dosing groups? A. No. I think you mean 50, not 30. Q. Fifty. That's exactly right. Fifteen and 50. Do you see that? A. I do. Q. Why were there no findings in those columns? A. Well, it's an Interesting observation. The – you might have expected that you would see such findings in those animals also, but this is – this is biology. Sometimes you do see this. Q. Okay. So you see nothing untoward with your test at all, right? A. Well, no, because the – the ones –	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Page 1500  looked for, but we'd need some time – you didn't necessarily always look at all the dose groups. So that would need to be double-checked.  Q. So one explanation could be that they simply – that they didn't even look for them, right?  A. That's – that's possible. But I – but the fact that it says naught would suggest otherwise, but that is something that would require a thorough reading of the report.  Q. And as you sit here today for your deposition, you're unable to tell me why the control group has numbers which correspond very closely to the 150 PPM group but that the intermediate or the intervals of 15 and 50 parts per million show absolutely zeros in every category, right?  A. Other than the potential explanation l've just given.  Q. And you don't know whether that's correct or not, do you?  A. No. But I would be able to check that if I read the – this – this report in detail.

	Page 1501		Page 150
1	phenomenon and that It Just by happenchance that was	1	Q. It's a guideline study, right?
2	the case.	2	A. It is another guideline study.
3	Q. Well, why don't you explain that	3	Q. Now, if you turn to the top of page 11
4	biological phenomenon to the court and jury how the	4	of this document
5	control group with no exposure has roughly the same	5	A. Okay.
6	as a 150 parts per million dietary disclosure –	6	Q. There's a reference to "Study design,"
7	exposure and yet the 15 and 50 part per million has	7	right?
8	zeros, all zeros. Explain that to me.	8	A. Yes.
9	A. I think it would be only wise for me to	9	Q. The rats were administered oral doses of
0	give a detailed explanation of that after I've had a	10	zero for control, right?
l	chance to read the report in full.	11	A. Yes.
2	Q. Okay. So right now that's not an	1.2	Q. Twenty-five, 75, or 250 milligrams per
3	explanation you're able to give. Would that be a	13	kllogram of weight, paraquat technical. And they
1	fair statement?	14	were observed for a period of 14 days, right?
5	A. i think thet's - that's that's	15	A. Yes.
5	right. And I think it would be important to - to	16	Q. If you continue on, on the – that same
,	do a proper analysis of that.	17	page 11, the report says, "There was no
3	Q. Okay. Let's go to the next exhibit,	18	treatment-related clinical observations," right?
)	which is 137.	19	A. Yes.
)	(Exhibit 137 was identified	20	Q. At page 11, the report says, *There were
	for the record.)	21	no effects on brain weight and no neuropathology
2	BY MR. TILLERY:	22	250 milligrams per kllogram," right?
}	Q. And if you would look at this document	23	A. Yes.
	for the attorneys on this deposition, this is	24	Q. So there were no treatment-related
	Page 1502	l	Faue 150
1	Syncente PO 00224255 I direct your attention to	1	
	Syngenta PQ-00224355. I direct your attention to	1 2	effects at 25 milligrams paraquat technical either,
2	page 1. It's a 542-page document, and this is	2	effects at 25 milligrams paraquat technical either, right?
2	page 1. It's a 542-page document, and this is entitled "Paraquat Technical paraquat tech — Acute	2	effects at 25 milligrams paraquat technical either, right?  A. Yes.
? }	page 1. It's a 542-page document, and this is entitled "Paraquat Technical paraquat tech — Acute Neurotoxicity Study in Rats." The reference number	2 3 4	effects at 25 milligrams paraquat technical either, right?  A. Yes.  Q. Syngenta in this study did not measure
2 3 1 5	page 1. It's a 542-page document, and this is entitled "Paraquat Technical paraquat tech — Acute Neurotoxicity Study in Rats." The reference number is AR7536. It's a regulatory report. It's dated	2 3 4 5	effects at 25 milligrams paraquat technical either, right?  A. Yes.  Q. Syngenta in this study did not measure the loss of dopaminergic neurons in the substantia
2 3 1 5	page 1. It's a 542-page document, and this is entitled "Paraquat Technical paraquat tech — Acute Neurotoxicity Study in Rats." The reference number is AR7536. It's a regulatory report. It's dated June 8th, 2006, and the author was Mrs. A. Brammer.	2 3 4 5 6	effects at 25 milligrams paraquat technical either, right?  A. Yes.  Q. Syngenta in this study did not measure the loss of dopaminergic neurons in the substantia nigra in the rats, did they?
2 3 4 5	page 1. It's a 542-page document, and this is entitled "Paraquat Technical paraquat tech — Acute Neurotoxicity Study in Rats." The reference number is AR7536. It's a regulatory report. It's dated June 8th, 2006, and the author was Mrs. A. Brammer.  A. Correct.	2 3 4 5 6 7	effects at 25 milligrams paraquat technical either, right?  A. Yes.  Q. Syngenta in this study did not measure the loss of dopaminergic neurons in the substantia nigra in the rats, did they?  A. No, they did not.
L 2 3 4 5 7 3	page 1. It's a 542-page document, and this is entitled "Paraquat Technical paraquat tech — Acute Neurotoxicity Study in Rats." The reference number is AR7536. It's a regulatory report. It's dated June 8th, 2006, and the author was Mrs. A. Brammer.  A. Correct.  Q. Do you know Mrs. Brammer?	2 3 4 5 6 7 8	effects at 25 milligrams paraquat technical either, right?  A. Yes.  Q. Syngenta in this study did not measure the loss of dopaminergic neurons in the substantia nigra in the rats, did they?  A. No, they did not.  Q. Syngenta didn't measure the levels of
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2 3 3 4 5 5 7 7 3 3 9 9 9 9	page 1. It's a 542-page document, and this is entitled "Paraquat Technical paraquat tech — Acute Neurotoxicity Study in Rats." The reference number is AR7536. It's a regulatory report. It's dated June 8th, 2006, and the author was Mrs. A. Brammer.  A. Correct.  Q. Do you know Mrs. Brammer?  A. I do.  Q. And is she a Ph.D.?	2 3 4 5 6 7 8 9	effects at 25 milligrams paraquat technical either, right?  A. Yes.  Q. Syngenta in this study did not measure the loss of dopaminergic neurons in the substantia nigra in the rats, did they?  A. No, they did not.  Q. Syngenta didn't measure the levels of dopamine in the striatum of the brain of the rat, did it?
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2 3 3 4 4 7 7 7 8 3 8 9 9 9 9 9 1 1 1 1 1 2 2 2 3 8 3 8 9 9 9 9 9 9 1 1 1 1 1 1 2 2 2 3 8 3 8 9 9 9 9 9 1 3 1 3 1 3 1 3 3 8 3 8 3 8 3 8 3 8 3 8	page 1. It's a 542-page document, and this is entitled "Paraquat Technical paraquat tech — Acute Neurotoxicity Study in Rats." The reference number is AR7536. It's a regulatory report. It's dated June 8th, 2006, and the author was Mrs. A. Brammer.  A. Correct.  Q. Do you know Mrs. Brammer?  A. I do.  Q. And is she a Ph.D.?  A. No, she's not.  Q. What about Chivers? Is Chivers a Ph.D.?  A. Yes. Dr. Chivers was a Ph.D.	2 3 4 5 6 7 8 9 10 11 12 13	effects at 25 milligrams paraquat technical either, right?  A. Yes.  Q. Syngenta in this study did not measure the loss of dopaminergic neurons in the substantia nigra in the rats, did they?  A. No, they did not.  Q. Syngenta didn't measure the levels of dopamine in the striatum of the brain of the rat, did it?  A. No.  Q. Syngenta didn't measure the levels of dopamine metabolites in the striatum, did it?
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22 33 31 11 55 55 77 73 33 34 11 55 55 55 56 56 57 77 77 78 78 78 78 78 78 78 78 78 78 78	page 1. It's a 542-page document, and this is entitled "Paraquat Technical paraquat tech — Acute Neurotoxicity Study in Rats." The reference number is AR7536. It's a regulatory report. It's dated June 8th, 2006, and the author was Mrs. A. Brammer.  A. Correct.  Q. Do you know Mrs. Brammer?  A. I do.  Q. And is she a Ph.D.?  A. No, she's not.  Q. What about Chivers? Is Chivers a Ph.D.?  A. Yes. Dr. Chivers was a Ph.D.  Q. Okay. Now, what was the purpose of this study? Not in terms of who asked for it, but what was — what were you testing?	2 3 4 5 6 7 8 9 10 11 12 13 14 15	effects at 25 milligrams paraquat technical either, right?  A. Yes.  Q. Syngenta in this study did not measure the loss of dopaminergic neurons in the substantia nigra in the rats, did they?  A. No, they did not.  Q. Syngenta didn't measure the levels of dopamine in the striatum of the brain of the rat, did it?  A. No.  Q. Syngenta didn't measure the levels of dopamine metabolites in the striatum, did it?  A. No.  Q. Syngenta scientists didn't investigate whether there was an upregulation of alpha-synucleic
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	page 1. It's a 542-page document, and this is entitled "Paraquat Technical paraquat tech — Acute Neurotoxicity Study in Rats." The reference number is AR7536. It's a regulatory report. It's dated June 8th, 2006, and the author was Mrs. A. Brammer.  A. Correct.  Q. Do you know Mrs. Brammer?  A. I do.  Q. And is she a Ph.D.?  A. No, she's not.  Q. What about Chivers? Is Chivers a Ph.D.?  A. Yes. Dr. Chivers was a Ph.D.  Q. Okay. Now, what was the purpose of this study? Not in terms of who asked for it, but what was — what were you testing?  A. So this is to assess the potential for neurotoxicity with a — an acute dose rather than the 90-day dosing that we talked about before; so normally that would mean a single dose.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	right?  A. Yes.  Q. Syngenta in this study dld not measure the loss of dopaminergic neurons in the substantia nigra in the rats, dld they?  A. No, they dld not.  Q. Syngenta dldn't measure the levels of dopamine in the striatum of the brain of the rat, dld it?  A. No.  Q. Syngenta dldn't measure the levels of dopamine metabolites in the striatum, dld it?  A. No.  Q. Syngenta scientists didn't investigate whether there was an upregulation of alpha-synucleir in the Sprague Dawley rats of this study, did they?  A. No. And, again, for all the reasons I mentioned earlier. It's these were not guideline requirements.

	Page 1505	Page 150
1	doesn't tell us anything about the long-term effects	1 Q. So it would be – it would be – June of
2	of chronic low-dose exposure to paraquat.	2 2012 would be the first – earliest date that you or
3	Would you agree with that?	3 anybody else learned of this from – from the – any
4	A. I would agree because that was not the	4 source?
5	purpose of the study.	5 A. I believe so, yes.
6	Q. Okay.	6 Q. Okay. And after an investigation, two
7	MR. TILLERY: I am switching to a new	7 studies and one scientific investigator were
8	topic; so let's take four- or five-minute break.	8 determined to be involved, correct?
9	Okay?	9 A. That's right,
. 0	THE VIDEOGRAPHER: We're going off the	10 Q. The investigator was
.1	record. The time is 6:29. This ends Media Unit	11 Dr. Mona Thiruchelvam, right?
2	Number 3.	12 A. That's correct.
.3	(Recess taken.)	13 Q. No other scientist was implicated in
. 4	THE VIDEOGRAPHER: We're going back on	14 that research misconduct as far as you know, correct?
.5	the record. The time is 6:35. This begins Media	15 A. There was nobody no other scientist
. 6	Unit Number 4.	16 was mentioned in that ORI report.
. 7	BY MR, TILLERY:	17 Q. Okay. And would you agree that,
. /		
. 9	Q. So, Dr. Botham, you first learned of	
.9	issues with possible falsification of some paraquat	doubt on the work of Dr. Thiruchelvam, that does not
	research by Dr. Thiruchelvam in July 2012, correct?	20 remove the fact that other researchers made similar
21	A. That date sounds about right, yes.	21 findings, including with respect to paraquat alone,
22	Q. Okay. And If we could go to Exhibit 138	22 right?
23	at this time. Pull that up and look at it.	23 A. That's correct. Yes.
24	(Exhibit 138 was Identified	24 Q. Now I'm going to show you Exhibit
	Page 1506	Page 150
1	for the record.)	1 Number 139.
2	BY MR. TILLERY:	2 (Exhibit 139 was identified
3	Q. This was a document that was produced to	3 for the record.)
4	us by your counsel. It was marked as Syngenta	4 BY MR. TILLERY:
5	PQ-31528525, and I'm looking at page 1 of that	5 Q. And please take a look at that. This is
6	document.	6 a list of five studies,
7	Do you see that?	7 A. Okay, Got it.
8	A. I do.	8 Q. These are studies you have looked at,
9	Q. Okay. And this is a document dated	9 read, or analyzed at some point in time in the past,
.0		10 correct?
	July 13, 2012, correct?  A. Correct.	
.1		·
.2	Q. And this is a document where you first	
.3	notified Syngenta's paraquat health science team of	13 Would you mind just explaining what
	this fact in a memo, right?	14 this document is, Steve?
	A. That's correct.	15 MR. TILLERY: It's taken directly out
5		16 of one of your reports word for word of a
5	Q. And to your knowledge was anyone at	
. 4 5 . 6 . 7	Syngenta ever aware of this issue with	17 Dr. John Whysner. It's the last page of his report.
5	, , ,	18 THE WITNESS: Well, I'm not familiar
5 . 6 . 7	Syngenta ever aware of this issue with	
5 .6 .7	Syngenta ever aware of this issue with Dr. Thiruchelvam's scientific misconduct before July	18 THE WITNESS: Well, I'm not familiar
5 .6 .7 .8	Syngenta ever aware of this issue with Dr. Thiruchelvam's scientific misconduct before July of 2012?	18 THE WITNESS: Well, I'm not familiar 19 with that particular report.
5 6 7 8 9	Syngenta ever aware of this issue with  Dr. Thiruchelvam's scientific misconduct before July of 2012?  A. Then I believe that it as this	18 THE WITNESS: Well, I'm not familiar 19 with that particular report. 20 BY MR. TILLERY:
5 6 7 8 9 0	Syngenta ever aware of this issue with  Dr. Thiruchelvam's scientific misconduct before July of 2012?  A. Then I believe that it as this document suggests, that it was the previous month,	18 THE WITNESS: Well, I'm not familiar 19 with that particular report. 20 BY MR. TILLERY: 21 Q. Yes. I know that. But I'm talking

22 (Pages 1505 to 1508)

	Page 1509		Page 151
1	fraud of any kind with respect to any of these five	1	to show that paraquat is not associated with
2	studies that you know of?	2	Parkinson's disease?
3	MR. NARESH: I'll object to the scope.	3	A. No. It doesn't rely on it, and Indeed
4	THE WITNESS: No. I'm not aware that	4	the title describes this was more focused on
5	anybody would claim fraud for these studies.	5	parkinsonism, parkinsonian syndromes, not
6	BY MR. TILLERY:	6	specifically on ParkInson's disease. And the two
7	Q. Whether fraud or any impropriety	7	are different.
8	whatsoever?	8	Q. Right. It may short-circuit our
9	MR. NARESH: Same objection.	9	analysis is why I'm asking.
10	THE WITNESS: Certainly, nothing that	10	To your knowledge, has Syngenta ever
11	is in the public domain.	11	looked at this document or this study as any proof
12	BY MR. TILLERY:	12	or evidence whatsoever that Parkinson's disease is
13	Q. Okay. Has any journal ever asked any of	13	not associated with exposure to paraquat?
14	these studies be withdrawn or retracted -	14	MR. NARESH: I'll object to the extent
15	MR. NARESH: Same objection.	15	it calls for an expert conclusion.
16	BY MR. TILLERY:	16	THE WITNESS: Well, as I've just
17	Q to your knowledge?	17	indicated, because it's focusing on – particularly
18	A. I I don't know the answer to that	18	on parkinsonism, which is the effects seen with
19	question.	19	MPTP, this was more appropriate in terms of
20	Q. Do you have any personal knowledge of	20	answering the question "is paraquat potentially
21	any kind that any of these five studies were tainted	21	going to cause the same issues as MPTP does?" which
22	in any way by any misconduct?	22	Is mostly rapid onset parkinsonism.
23	A. No. I've got no direct evidence for	23	BY MR. TILLERY:
24	that.	24	Q. So really the study was to determine
	Page 1510		Page 1512
1	Q. Okay. And this is Exhibit 140, we're	1	
		1 +	whether parkinsonism, number one, would be caused by
2	going to pull up next.	2	whether parkinsonism, number one, would be caused by paraquat, right?
2 3	going to pull up next. (Exhibit 140 was identified	1	-
		2	paraquat, right?
3	(Exhibit 140 was identified	2	paraquat, right?  A. Right.
3 4	(Exhibit 140 was identified for the record.)	2 3 4	paraquat, right?  A. Right.  Q. And then the secondary component was not
3 4 5	(Exhibit 140 was identified for the record.) THE WITNESS: Nothing has come through,	2 3 4 5	paraquat, right?  A. Right.  Q. And then the secondary component was not just parkinsonism, but would the method by which this
3 4 5 6	(Exhibit 140 was identified for the record.)  THE WITNESS: Nothing has come through, I'm afraid.	2 3 4 5 6	paraquat, right?  A. Right.  Q. And then the secondary component was not just parkinsonism, but would the method by which this occurred in terms of point in time be consistent with
3 4 5 6 7	(Exhibit 140 was identified for the record.)  THE WITNESS: Nothing has come through, I'm afraid.  BY MR. TILLERY:	2 3 4 5 6 7	paraquat, right?  A. Right.  Q. And then the secondary component was not just parkinsonism, but would the method by which this occurred in terms of point in time be consistent with MPTP, right?
3 4 5 6 7 8	(Exhibit 140 was identified for the record.)  THE WITNESS: Nothing has come through, I'm afraid.  BY MR. TILLERY:  Q. For me either. There it is.	2 3 4 5 6 7 8	paraquat, right?  A. Right.  Q. And then the secondary component was not just parkinsonism, but would the method by which this occurred in terms of point in time be consistent with MPTP, right?  A. That's right. That's one major feature
3 4 5 6 7 8 9	(Exhibit 140 was identified for the record.)  THE WITNESS: Nothing has come through, I'm afraid.  BY MR. TILLERY: Q. For me either. There it is. A. Okay. I can see that now.	2 3 4 5 6 7 8	paraquat, right?  A. Right.  Q. And then the secondary component was not just parkinsonism, but would the method by which this occurred in terms of point in time be consistent with MPTP, right?  A. That's right. That's one major feature of this paper.
3 4 5 6 7 8 9	(Exhibit 140 was identified for the record.)  THE WITNESS: Nothing has come through, I'm afraid.  BY MR. TILLERY:  Q. For me either. There it is.  A. Okay. I can see that now.  Q. Okay. There we go.	2 3 4 5 6 7 8 9	paraquat, right?  A. Right.  Q. And then the secondary component was not just parkinsonism, but would the method by which this occurred in terms of point in time be consistent with MPTP, right?  A. That's right. That's one major feature of this paper.  Q. All right. It wasn't, as you understood
3 4 5 6 7 8 9 10	(Exhibit 140 was identified for the record.)  THE WITNESS: Nothing has come through, I'm afraid.  BY MR. TILLERY:  Q. For me either. There it is.  A. Okay. I can see that now.  Q. Okay. There we go.  All right. This document is entitled	2 3 4 5 6 7 8 9 10	paraquat, right?  A. Right.  Q. And then the secondary component was not just parkinsonism, but would the method by which this occurred in terms of point in time be consistent with MPTP, right?  A. That's right. That's one major feature of this paper.  Q. All right. It wasn't, as you understood it, to make any kind of determination as to whether
3 4 5 6 7 8 9 10 11	(Exhibit 140 was identified for the record.)  THE WITNESS: Nothing has come through, I'm afraid.  BY MR. TILLERY:  Q. For me either. There it is.  A. Okay. I can see that now.  Q. Okay. There we go.  All right. This document is entitled  "Systemic" – strike that.	2 3 4 5 6 7 8 9 10 11	paraquat, right?  A. Right.  Q. And then the secondary component was not just parkinsonism, but would the method by which this occurred in terms of point in time be consistent with MPTP, right?  A. That's right. That's one major feature of this paper.  Q. All right. It wasn't, as you understood it, to make any kind of determination as to whether or not paraquat caused Parkinson's disease?
3 4 5 6 7 8 9 10 11 12	(Exhibit 140 was identified for the record.)  THE WITNESS: Nothing has come through, I'm afraid.  BY MR. TILLERY:  Q. For me either. There it is.  A. Okay. I can see that now.  Q. Okay. There we go.  All right. This document is entitled  "Systemic" – strike that.  This document is entitled "Systematic	2 3 4 5 6 7 8 9 10 11 12 13	paraquat, right?  A. Right.  Q. And then the secondary component was not just parkinsonism, but would the method by which this occurred in terms of point in time be consistent with MPTP, right?  A. That's right. That's one major feature of this paper.  Q. All right. It wasn't, as you understood it, to make any kind of determination as to whether or not paraquat caused Parkinson's disease?  A. No. I believe that the authors were
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3 4 5 6 7 8 9 10 11 12 13 14 15 16	(Exhibit 140 was identified for the record.)  THE WITNESS: Nothing has come through, I'm afraid.  BY MR. TILLERY:  Q. For me either. There it is.  A. Okay. I can see that now.  Q. Okay. There we go.  All right. This document is entitled "Systemic" – strike that.  This document is entitled "Systematic Review of parkinsonian Syndromes in Short- and Long-Term Survivors of Paraquat Poisoning."  Do you see that?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	paraquat, right?  A. Right.  Q. And then the secondary component was not just parkinsonism, but would the method by which this occurred in terms of point in time be consistent with MPTP, right?  A. That's right. That's one major feature of this paper.  Q. All right. It wasn't, as you understood it, to make any kind of determination as to whether or not paraquat caused Parkinson's disease?  A. No. I believe that the authors were not trying to make any claims around Parkinson's disease. I think, as I've read this paper again myself recently, that it mostly talks about
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3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	(Exhibit 140 was identified for the record.)  THE WITNESS: Nothing has come through, I'm afraid.  BY MR. TILLERY:  Q. For me either. There it is.  A. Okay. I can see that now.  Q. Okay. There we go.  All right. This document is entitled "Systemic" – strike that.  This document is entitled "Systematic Revlew of parkinsonian Syndromes in Short- and Long-Term Survivors of Paraquat Poisoning."  Do you see that?  A. I do.  Q. It's Exhibit 14. The authors are Jeffrey Brent, M.D., and Tammi L. Schaeffer, DO,	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	paraquat, right?  A. Right.  Q. And then the secondary component was not just parkinsonism, but would the method by which this occurred in terms of point in time be consistent with MPTP, right?  A. That's right. That's one major feature of this paper.  Q. All right. It wasn't, as you understood it, to make any kind of determination as to whether or not paraquat caused Parkinson's disease?  A. No. I believe that the authors were not trying to make any claims around Parkinson's disease. I think, as I've read this paper again myself recently, that it mostly talks about parkinsonism.  Q. Okay. Was Dr. Brent a paid consultant to Syngenta regarding the topic of the manuscript?
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	(Exhibit 140 was identified for the record.)  THE WITNESS: Nothing has come through, I'm afraid.  BY MR. TILLERY:  Q. For me either. There it is.  A. Okay. I can see that now.  Q. Okay. There we go.  All right. This document is entitled "Systemic" – strike that.  This document is entitled "Systematic Review of parkinsonian Syndromes in Short- and Long-Term Survivors of Paraquat Poisoning."  Do you see that?  A. I do.  Q. It's Exhibit 14. The authors are  Jeffrey Brent, M.D., and Tammi L. Schaeffer, DO, right?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	paraquat, right?  A. Right.  Q. And then the secondary component was not just parkinsonism, but would the method by which this occurred in terms of point in time be consistent with MPTP, right?  A. That's right. That's one major feature of this paper.  Q. All right. It wasn't, as you understood it, to make any kind of determination as to whether or not paraquat caused Parkinson's disease?  A. No. I believe that the authors were not trying to make any claims around Parkinson's disease. I think, as I've read this paper again myself recently, that it mostly talks about parkinsonism.  Q. Okay. Was Dr. Brent a paid consultant to Syngenta regarding the topic of the manuscript?  A. He may have been. That's a that's
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	(Exhibit 140 was identified for the record.)  THE WITNESS: Nothing has come through, I'm afraid.  BY MR. TILLERY:  Q. For me either. There it is.  A. Okay. I can see that now.  Q. Okay. There we go.  All right. This document is entitled "Systemic" – strike that.  This document is entitled "Systematic Review of parkinsonian Syndromes in Short- and Long-Term Survivors of Paraquat Poisoning."  Do you see that?  A. I do.  Q. It's Exhibit 14. The authors are  Jeffrey Brent, M.D., and Tammi L. Schaeffer, DO, right?  A. Yes.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A. Right.  Q. And then the secondary component was not Just parkinsonism, but would the method by which this occurred in terms of point in time be consistent with MPTP, right?  A. That's right. That's one major feature of this paper.  Q. All right. It wasn't, as you understood it, to make any kind of determination as to whether or not paraquat caused Parkinson's disease?  A. No. I believe that the authors were not trying to make any claims around Parkinson's disease. I think, as I've read this paper again myself recently, that it mostly talks about parkinsonism.  Q. Okay. Was Dr. Brent a paid consultant to Syngenta regarding the topic of the manuscript?  A. He may have been. That's a—that's something, again, I would need to check.

	Page 1513		Page 1515
1	right?	1	Q. Ali right.
2	"Dr. Brent has served as a paid	2	MR. TILLERY: Would you like at this
3	consultant to Syngenta Corporation regarding the	3	point to take a lunch break for you, sir? Would
4	topic of this manuscript." Is that correct?	4	that be appropriate?
5	A. That's correct. So that's that's	5	THE WITNESS: I think that would be
6	what I was looking for, yep.	6	very helpful. Thank you.
7	Q. All right. So let's see if we can be	7	MR. TILLERY: All right, We'll do
8	consistent and clear that the objective of the study	8	that. How long would you like? A half an hour?
9	was to assess whether high-dose paraquat exposure was	9	THE WITNESS: That that should be
10	associated with the development of parkinsonism, not	10	fine. Thank you.
11	Parkinson's disease, right?	11	MR. TILLERY: All right. We'll come
12	A. That was –	12	back at our time what time is it now? We'll come
13	MR. NARESH: Objection.	13	back at about 20 after the hour. Okay?
14	THE WITNESS: That was I'm sorry.	14	THE WITNESS: Very good.
15	Yes. That was the major focus. But	15	MR. TILLERY: All right. Thank you.
16	obviously, as the paper says, then there was	16	THE VIDEOGRAPHER: We're going off the
17	certainly reference to Parkinson's disease and	17	record. The time is 6:48. This ends Media Unit
18	whether this may also cast doubt on the relationship	18	Number 4.
19	with Parkinson's disease, but the main focus was	19	(Recess taken.)
20	parkinsonism.	20	THE VIDEOGRAPHER: We're going back on
21	BY MR. TILLERY:	21	the record. The time is 7:23. This begins Media
22	Q. Well, that's really where I'm going	22	Unit Number 5.
23	because to the extent that it does cast doubt on that	23	BY MR. TILLERY:
24	relationship, I want you to answer some questions.	24	Q. Dr. Botham, we were in the process of
	Page 1514		Page 1516
1	Okay?	1	discussing Plaintiffs' Deposition Exhibit Number 140,
2	A. Okay.	2	and I'll refer to it simply as "the Brent study."
3	Q. Do you think that this paper casts doubt	3	You'll know what that means, right?
4	on that association between Parkinson's disease and	4	A. I do.
5	paraquat?	5	Q. All right. Now, as we indicated, the
6	A. It's another just another part of	6	objective of the study was to assess whether
7	the weight of evidence.	7	high-dose paraquat exposure was associated with the
8	In and of Itself, I think it would be	8	development of parkinsonism, correct?
9	difficult to conclude that this analysis rules out	9	A. That's correct.
10	the possibility that paraquat could cause	10	Q. The study was not intended to tell us
11	Parkinson's disease.	11	anything about chronic low-dose oxidative (audio
12	Q. And why is that?	12	difficulties).
13	A. Because the the way in which the	13	(Discussion off the record.)
14	data were assembled was looking at clinical signs in	14	BY MR. TILLERY:
	a relatively short period after acute poisoning.	15	Q. Starting over. The study was not
15	Q. And you know that the onset oftentimes	16	intended to tell us anything about chronic low-dose
			occupational exposure to paraquat, correct?
16		1 17	
16 17	is many, many years later, right?  A. That's right.	17 18	A. Correct.
16 17 18	is many, many years later, right?	18	
16 17 18 19	is many, many years later, right?  A. That's right.	18 19	Q. MPTP – strike that. I'm getting a lot
16 17 18 19 20	is many, many years later, right?  A. That's right.  Q. And as a result of that with delayed onset and with focusing on people who were evaluated	18 19 20	Q. MPTP – strike that. I'm getting a lot of feedback. I'm sorry.
16 17 18 19 20 21	is many, many years later, right?  A. That's right.  Q. And as a result of that with delayed onset and with focusing on people who were evaluated within ten years of their exposure, you don't take	18 19 20 21	MPTP – strike that. I'm getting a lot of feedback. I'm sorry.  MPTP is a known neurotoxicant that can
15 16 17 18 19 20 21 22 23	is many, many years later, right?  A. That's right.  Q. And as a result of that with delayed onset and with focusing on people who were evaluated	18 19 20	Q. MPTP – strike that. I'm getting a lot of feedback. I'm sorry.

### Page 1519 1 MPP+ causes parkinsonism in people, correct? 1 Would that be a premise or hypothesis that you would 2 2 A. Yes. In some people who - who have explore as it's framed? A. Well, Inasmuch as we know that MPTP is 3 injected themselves. 3 4 Q. And paraquat has a similar chemical 4 metabolized to MPP+, which is more similar to 5 structure to MPTP, correct? 5 paraquat, it's not unreasonable as a hypothesis even 6 A. It looks on paper to be similar; but, 6 though, as I say, you could have been a little bit 7 in fact, the chemical properties of MPTP and 7 clearer about the way in which that was written. 8 paraquat are very different. 8 Q. Well, based upon the hypothesis that 9 Q. As a matter of fact, the way in which 9 people exposed to a high dose of paraguat would 10 develop parkinsonian symptoms like those who consume they react, the way in which they transfer across the 10 blood-brain barrier, the way in which they have an 11 11 MPP+, Brent assessed acute paraquat poisoning cases, 12 immediate effect, the way the parts of the brain they 12 affect are different, aren't they? 13 1.3 A. He did. 14 A. Yeah, MPTP certainly has a very 14 Q. And I think in an earlier part of this 15 different property in terms of its ability to cross 15 deposition, you Indicated that Syngenta supplied 16 membranes, for example, compared to paraquat. And, 16 Information from their database to assist in the 17 therefore, it may not be unexpected that It has 17 process, correct? 18 different effects. 18 A. Yes. We did. ves. Q. Now, if you wouldn't mind, if you could 19 19 Q. And you did that from a database that 2.0 go to the first page of Exhibit 140, and if you look 20 you had of people who had Ingested paraquat, right? 21 at the second column. 21 That's correct. 22 Do you see that in the third paragraph? 22 Q. And we're going to talk about those 23 A. Okav. 23 databases that you reference later. But the - the Q. And the author says there, "Given their 24 24 fact is, is that you've been keeping at Syngenta a Page 1518 Page 1520 1 very close structural similarity, if paraquat does database of exposures, right? 1 2 cause PD, it would be expected that it would almost 2 A. We've got a database of what we call 3 3 "adverse health incidents" that have been reported certainly do so in a manner similar to MPTP, and 4 4 rapid onset parkinsonism should, therefore, occur through, for example, National Poison Centers. 5 5 following high-dose paraquat exposure." Q. And how long has that been up - In 6 Do you see that? 6 process? 7 7 A. I do. A. Well, in its current state, since 8 Q. The hypothesis tested in this study, 8 around about 2003, although prior to that, we 9 therefore, is that high-dose paraquat exposure 9 were -- we were collecting information in a similar 10 sufficient to cause significant systemic human 10 but not -- not identical manner. 11 toxicity would be associated with the emergence of 11 Q. As a metter of fact, information was being collected by Chevron Itself, wasn't it, back in 12 features of parkinsonism. 12 13 Do you agree with that premise? 13 the 1960s and '70s? A. Well, to the extent that It does depend 14 MR. NARESH: Objection. Foundation. 14 15 also on the fact that whilst there is similarities, 15 THE WITNESS: Yeah. I mean, I don't 16 as this says, that that is not necessarily 16 know that for sure. I've seen a few Indications 17 similarity which extends to the properties, the 17 that might have been the case, but I don't know 18 actual toxicity or kinetics of the two. They could 18 exactly how Chevron was doing that. be different. BY MR. TILLERY: 19 19 20 So I would say that this is broadly 20 Q. For how many years has Syngenta or a 21 right, but it could be -- it could be put -- it 21 predecessor entity been collecting this data about 22 could be modified to make it clearer. 2.2 adverse health effects from exposure and Ingestion to 23 Q. And so would you - just so we're clear: 23 paraquat? 24 Would you endorse that statement without change? 24 A. Well, as I've just said, the current

	Page 1521		Page 1523
1	mechanism with the adverse health incident database	1	Number 5.
2	goes back to 2003, and I know that information was	2	MR. TILLERY: Actually
3	being collected before then. I can't give you an	3	THE VIDEOGRAPHER: One moment. Okay.
4	exact date range for that, but certainly quite a few	4	Go ahead.
5	years prior to 2003, we would have been collecting	5	(Discussion off the record.)
6	information.	6	THE VIDEOGRAPHER: We're going back on
7	Q. Wouldn't you certainly have been	7	the record. The time is 7:34. This begins Media
8	collecting it in the United States after ICI started	8	Unit Number 6.
9	selling the product directly and distributing it?	9	BY MR. TILLERY:
10	A. In the United States, there was a	10	Q. The two pathologic hallmarks of
11	system called Prosar, which was – It's very similar	11	Parkinson's disease are loss of dopaminergic neurons
12	to the adverse health incident database that I've	12	in the substantia nigra and Lewy body deposits
13	been describing where we, again, were reliant on	13	comprised primarily of a protein called
14	doctors, poison centers, giving us information on	14	"alpha-synucieln," correct?
15	acute toxicity toxicity or poisoning.	15	MR. NARESH: Objection. Asked and
16	Q. What was Prosar?	16	answered.
17	A. Prosar was another database,	17	THE WITNESS: Those are two of the
18	essentially, similar to the adverse health incident	18	hallmarks, yes.
19	database.	19	BY MR. TILLERY:
20	Q. Who housed or managed that database?	20	Q. So this study proceeded on the
21	A. That would be I'm not quite sure	21	assumption that MPTP and paraquat Impact humans in
22	exactly what their title was, but it was basically	22	basically the same way, correct?
23	some product stewardship professionals in the	23	A. With respect to parkin
24	U.Sbased team.	24	parkinsonism, which is not the same as Parkinson's
	Page 1522		Page 1524
1	Q. Were they working for Syngenta?	1	disease.
2	A. Yes, they were.	2	Q. Right. And if the assumption turned out
3	Q. And in what office?	3	to be wrong, the entire study would become
4	A. They would be in the Greensboro office.	4	Irrelevant, right?
5	Q. Okay. Do you know who those people	5	A. Well, It's not necessarily right to say
6	were?	6	irrelevant. I think, as I said before, this is all
7	A. I wouldn't be able to give you names	7	part of weight of evidence which is trying to be
8	off the top of my head right now, no. I would be	8	assembled to determine the likelihood that paraquat
9	guessing if I gave you names today.	9	may be causing Parkinson's disease.
9 10	guessing if I gave you names today.  Q. Okay. Well, would you check on that and	9	may be causing Parkinson's disease.  Q. Okay. Excuse me a second, sir.
		1	_
10	Q. Okay. Well, would you check on that and	10	Q. Okay. Excuse me a second, sir.
10 11	Q. Okay. Well, would you check on that and give those names to me tomorrow, please? And I'll	10	Q. Okay. Excuse me a second, sir.  Actually, if you go to page 4 of the
10 11 12	Q. Okay. Well, would you check on that and give those names to me tomorrow, please? And I'll withhold any questions on the databases until	10 11 12	Q. Okay. Excuse me a second, sir.  Actually, if you go to page 4 of the exhibit. Tell me when you're there.
10 11 12 13	Q. Okay. Well, would you check on that and give those names to me tomorrow, please? And I'll withhold any questions on the databases until tomorrow.	10 11 12 13	Q. Okay. Excuse me a second, sir.  Actually, if you go to page 4 of the exhibit. Tell me when you're there.  A. I'm on page 4, yes.
10 11 12 13 14	Q. Okay. Well, would you check on that and give those names to me tomorrow, please? And I'll withhold any questions on the databases until tomorrow.  MR. NARESH: Steve, If there are other	10 11 12 13 14	Q. Okay. Excuse me a second, sir.  Actually, if you go to page 4 of the exhibit. Tell me when you're there.  A. I'm on page 4, yes.  Q. All right. And if you would look over
10 11 12 13 14 15	Q. Okay. Well, would you check on that and give those names to me tomorrow, please? And I'll withhold any questions on the databases until tomorrow.  MR. NARESH: Steve, If there are other things you'd like him to look into, I understand you	10 11 12 13 14 15	<ul> <li>Q. Okay. Excuse me a second, sir.</li> <li>Actually, if you go to page 4 of the exhibit. Tell me when you're there.</li> <li>A. I'm on page 4, yes.</li> <li>Q. All right. And if you would look over into the second column it would be the</li> </ul>
10 11 12 13 14 15	Q. Okay. Well, would you check on that and give those names to me tomorrow, please? And I'll withhold any questions on the databases until tomorrow.  MR. NARESH: Steve, If there are other things you'd like him to look into, I understand you want to hold the substantive questions. But if	10 11 12 13 14 15	<ul> <li>Q. Okay. Excuse me a second, sir.</li> <li>Actually, if you go to page 4 of the exhibit. Tell me when you're there.</li> <li>A. I'm on page 4, yes.</li> <li>Q. All right. And if you would look over into the second column it would be the —</li> <li>A. Yep. Okay.</li> </ul>
10 11 12 13 14 15 16	Q. Okay. Well, would you check on that and give those names to me tomorrow, please? And I'll withhold any questions on the databases until tomorrow.  MR. NARESH: Steve, If there are other things you'd like him to look into, I understand you want to hold the substantive questions. But if there are other things you'd like him to look into	10 11 12 13 14 15 16 17	<ul> <li>Q. Okay. Excuse me a second, sir.     Actually, if you go to page 4 of the exhibit. Tell me when you're there.     A. I'm on page 4, yes.     Q. All right. And if you would look over into the second column it would be the     A. Yep. Okay.     Q. The sixth paragraph. When the authors</li> </ul>
10 11 12 13 14 15 16 17	Q. Okay. Well, would you check on that and give those names to me tomorrow, please? And I'll withhold any questions on the databases until tomorrow.  MR. NARESH: Steve, If there are other things you'd like him to look into, I understand you want to hold the substantive questions. But if there are other things you'd like him to look into on that issue, It's probably worth asking those	10 11 12 13 14 15 16 17	Q. Okay. Excuse me a second, sir.  Actually, if you go to page 4 of the exhibit. Tell me when you're there.  A. I'm on page 4, yes.  Q. All right. And if you would look over into the second column it would be the  A. Yep. Okay.  Q. The sixth paragraph. When the authors say, "The paradigm upon which this experimental
10 11 12 13 14 15 16 17 18	Q. Okay. Well, would you check on that and give those names to me tomorrow, please? And I'll withhold any questions on the databases until tomorrow.  MR. NARESH: Steve, If there are other things you'd like him to look into, I understand you want to hold the substantive questions. But if there are other things you'd like him to look into on that issue, It's probably worth asking those questions now so he can try to arm himself with	10 11 12 13 14 15 16 17 18	Q. Okay. Excuse me a second, sir.  Actually, if you go to page 4 of the exhibit. Tell me when you're there.  A. I'm on page 4, yes.  Q. All right. And if you would look over into the second column it would be the —  A. Yep. Okay.  Q. The sixth paragraph. When the authors say, "The paradigm upon which this experimental approach rests assumes that if paraquat were a cause
10 11 12 13 14 15 16 17 18 19 20	Q. Okay. Well, would you check on that and give those names to me tomorrow, please? And I'll withhold any questions on the databases until tomorrow.  MR. NARESH: Steve, If there are other things you'd like him to look into, I understand you want to hold the substantive questions. But if there are other things you'd like him to look into on that issue, It's probably worth asking those questions now so he can try to arm himself with answers for tomorrow.	10 11 12 13 14 15 16 17 18 19 20	Q. Okay. Excuse me a second, sir.  Actually, if you go to page 4 of the exhibit. Tell me when you're there.  A. I'm on page 4, yes.  Q. All right. And if you would look over Into the second column it would be the —  A. Yep. Okay.  Q. The sixth paragraph. When the authors say, "The paradigm upon which this experimental approach rests assumes that if paraquat were a cause of Parkinson's disease, it would act in a manner
10 11 12 13 14 15 16 17 18 19 20 21	Q. Okay. Well, would you check on that and give those names to me tomorrow, please? And I'll withhold any questions on the databases until tomorrow.  MR. NARESH: Steve, If there are other things you'd like him to look into, I understand you want to hold the substantive questions. But if there are other things you'd like him to look into on that issue, It's probably worth asking those questions now so he can try to arm himself with answers for tomorrow.  MR. TILLERY: Yeah. Actually, off the	10 11 12 13 14 15 16 17 18 19 20 21	Q. Okay. Excuse me a second, sir. Actually, if you go to page 4 of the exhibit. Tell me when you're there. A. I'm on page 4, yes. Q. All right. And if you would look over into the second column it would be the — A. Yep. Okay. Q. The sixth paragraph. When the authors say, "The paradigm upon which this experimental approach rests assumes that if paraquat were a cause of Parkinson's disease, it would act in a manner similar to that of MPTP. However, it is possible

	Page 1525		Page 152
1	Do you see that?	1	Q. So not only have you not done any such
2	A. Yes.	2	research, you would disagree with that notion,
3	Q. Do you agree with that from this study?	3	correct?
4	A. Yes. That's really what we've just	4	A. The evidence would suggest that it's
5	been saying.	5	not. The two the two behave differently.
6	Q. All right. Paraquat and MPTP reproduce	6	Q. And that is, just so we're clear on the
7	some features of Parkinson's disease in experimental	7	record, paraquat is neither a substrate nor inhibitor
8	animals. Would you agree?	8	of DAT, correct?
9	A. Yes, that's correct.	9	A. That's our understanding.
10	Q. Scientists have document – documented	10	Q. Are you aware – I'm going to refer you
11	that the toxic metabolite of MPTP and MPP+ is	11	to a particular chemical compound H dehydrorotenone.
12	transported into dopamine neurons through the	12	Are you familiar with that?
13	dopamine transporter, correct?	13	A. I'm familiar with rotenone, yes.
L 4	MR. NARESH: Object as calling for an	14	Q. All right. Are you aware that in vivo
		15	
15	expert opinion.		exposure to MPTP but not paraquat inhibits binding of
L 6	And, Steve, can I have a standing	16	H dehydrorotenone in complex 1 in brain mitochondria?
L 7	objection on this line of questioning, or shall I	17	A. I can't bring to mind the precise
L 8	continue objecting?	18	experiments where that has been shown.
L 9	MR. TILLERY: Yes. Yes, you can.	19	Q. Do you know that MPP+ is an effective
20	THE WITNESS: So the answer to the	20	inhibitor of complex 1 activity in isolated brain
21	question is, yes, that's the way in which MPP+ is	21	mitochondria while paraquat exhibits weak inhibitory
22	believed to transfer across membranes.	22	effects only at millimolar – millimolar
23	BY MR. TILLERY:	23	concentrations?
2 4	Q. Based upon its structural chemical	24	MR. NARESH: I just want to say I'll
	Page 1526		Page 1528
1	similarity to MPP+, it's been proposed that paraquat	1	object to this line of questioning on the scope
2	exerts selective dopaminergic toxicity through the	2	grounds as well.
	transport by the dopamine transporter and subsequent	3	May I have that as a standing basis for
	Inhibition of mitochondrial complex 1, correct?	4	this line?
5	A. That's how MPP+ works.	5	MR. TILLERY: Yes, You yes, you can
6	Q. Right. And	6	have it.
7	A. That's not how paraguat works.	7	Q. Go ahead. sir.
8	Q. And you say it works differently, right?	8	•
9	A. I do.	9	A. Yes. I'm more aware of that, and
-			that's why I was saying that MPP+ and paraquat ma
10	Q. Okay. Have you ever seen a scientific	10	look more similar and act – and be more similar
	study finding that paraquat is either a substrate or	11	chemically, but they do not behave in the same way
	an inhibitor of the dopamine transport?	12	for example, in terms of mitochondrial effect.
L3	A. We believe that paraquat is not a	13	Q. And that undermines the entire premise
	substrate for the dopamine receptor.	14	of the Brent study, doesn't lt?
L 5	Q. Have you – strike that.	15	A. No, not necessarily. I think the
	Have you or anyone else at Syngenta	16	premise is still that if you argue that MPTP or MPP+
	published any research which has found that paraquat	17	could nevertheless act in other ways similarly to
16		18	paraquat that you such a study as Brent put
16 17	is either a substrate or an inhibitor of DAT?		
16 17	is either a substrate or an inhibitor of DAT?  A. No. We we have worked for	19	together might have found that. But, you know, this
16 17 18 19		19 20	together might have found that. But, you know, this is clearly why I use the term "welghted evidence"
16 17 18 19	A. No. We we have worked for		
16 17 18 19 20	A. No. We we have worked for example, we've collaborated, as we said earlier,	20	is clearly why I use the term "welghted evidence"
16 17 18 19 20 21	A. No. We we have worked for example, we've collaborated, as we said earlier, with Professor Joan Abbott, who, I believe, has	20 21	rather than "definitive proof."

	Page 1529		Page 153
1 <b>t</b>	that is different than MPTP, correct?	1	case definition including significant differences in
2	A. There's certainly evidence that shows	2	the measures of toxicity, didn't they?
3 t	that, yes.	3	A. Right.
4	Q. So what scientific studies, to your	4	Q. And he references in his study a –
5 <b>k</b>	knowledge, was Brent relying on for the conclusion	5	vague references to authors' extensive files on
6 <b>t</b>	that if paraquat causes Parkinson's disease, it does	6	paraquat.
	so in a manner similar to that of MPTP?	7	Do you know that? He references that.
8	A. Well, he was not starting his	8	In fact, the files that he got came from Syngenta,
9 <b>h</b>	hypothesis from the level of detail of mechanistic	9	didn't they?
	similarities or differences. He was starting from	10	A. You need to point me where to where
	what a significant body of literature which was	11	that – that is said.
	making the claim that paraquat and MPTP may be	12	Q. Well, actually, I think it's on page 2
	may act similarly or be very similar in their	13	of the study. And if you want to see where he says
		14	it, it's in the very first sentence of page 2. It
4 г 5	properties.	15	carries over at the bottom of page 1. "Secondly,
	Q. So the direct answer to my question is	16	
	ne wasn't relying on any study, was he?	17	publications were retrieved from the authors'
7	A. He wasn't relying on a particular study	1	extensive files on paraquat."
	to – to do this analysis, no.	18	Do you see that?
9	Q. Right. MPTP exposure gives parkinsonian	19	A. Yes, I can see that.
0 <b>s</b>	symptoms but does not lead to the development of Lewy	20	Q. And actually he got the files from you,
1 <b>b</b>	podies, does It?	21	didn't he?
2	A. I believe that's true. And that may be	22	MR. NARESH: Objection. Foundation.
3 b	pecause people have not been able to to look at	23	THE WITNESS: Yes, I guess so. I'm not
!4 ti	hat in more detail because that's maybe something	24	precisely sure what he means by "files" there,
	Page 1530		Page 153
1 t	that could occur long after exposure.	1	however.
2	Q. In a latent period many years later?	2	BY MR. TILLERY:
3	A. Correct.	3	Q. Yeah. But the information he got came
4	Q. So if paraquat acted in humans just like	4	from your database, right?
5 <b>N</b>	MPTP, one could only conclude that paraquat causes	5	A. That would be my assumption.
6 p	parkinsonian symptoms and not Parkinson's disease,	6	Q. Right. Well, that's what you told me
7 r	right?	7	earlier in this deposition that after your meeting or
8	A. Yes. And that Indeed is what I believe	8	as part of your meeting in Atlanta in 2009, it was
9 <b>b</b>	both Brent and myself are saying.	9	decided to undertake the Brent study.
0	Q. Parkinson's disease can be clinically	10	Do you remember that part of your
	diagnosed only when about 60 to 75, 80 percent of the	11	testimony?
	dopaminergic neurons in the brain have died or	12	A. Yes. Ido, yeah.
	stopped producing dopamine. Would you agree?	13	Q. All right. And what was designed was to
4	A. Yes. In that's right.	14	use Syngenta's database to supply Information to –
		1	
5	Q. And that's when the motor symptoms	15	to Dr. Brent to do this study, right?
	pecome apparent, right? Motor symptoms of	16	A. Indeed, which is why I'm supposing that
6 <b>b</b>	Parkinson's disease, right?	17	"files" means access to that database.
6 <b>b</b>	A T! 41 - 1	18	Q. Right. So what he – what he didn't say
6 <b>b</b> 7 <b>P</b> 8	A. That's correct.		
6 <b>b</b> 7 <b>P</b> 8	Q. So high-dose paraquat poisoning would	19	
6 <b>b</b> 7 <b>P</b> 8 9 0 <b>h</b>	Q. So high-dose paraquat poisoning would nave to kill 60 to 80 percent of the dopamine neurons	20	A. Unless it says it somewhere else.
6 <b>b</b> 7 <b>P</b> 8 9 0 <b>h</b> 1 <b>q</b>	Q. So high-dose paraquat poisoning would nave to kill 60 to 80 percent of the dopamine neurons quickly to cause Parkinson's motor symptoms, right?	20 21	<ul><li>A. Unless it says it somewhere else.</li><li>Q. You don't see it there anywhere, do you?</li></ul>
6 b 7 F 8 9 0 h 1 q 2	Q. So high-dose paraquat poisoning would have to kill 60 to 80 percent of the dopamine neurons quickly to cause Parkinson's motor symptoms, right?  A. Yes, probably.	20 21 22	A. Unless it says it somewhere else.
6 b 7 P 8 9 0 h 1 q 2	Q. So high-dose paraquat poisoning would nave to kill 60 to 80 percent of the dopamine neurons quickly to cause Parkinson's motor symptoms, right?	20 21	Q. You don't see it there anywhere, do you?

	Page 1533		Page 153
Ĺ	BY MR. TILLERY:	1	the database as far as you know, correct?
2	Q. Absolutely. If you want to take your	2	A. Correct.
3	time, you can do it. If you can see it, direct me to	3	Q. Publications were from 17 different
1	it because I was never able to see where he got his	4	languages, weren't they? That's what he says in the
5	information from Syngenta and Phil Botham.	5	report?
6	A. Yeah. I'm just checking that.	6	A. That's right, yes.
7	No. I can't see any reference to that.	7	Q. Okay. And these had to be translated
3	I mean, he does acknowledge that Syngenta didn't	8	into English, right?
9	have any relevant analysis, but by indication, you	9	A. Yes.
)	could say that that was saying that Syngenta did	10	Q. He didn't say how that happened, right?
_	have a role in supplying him with information. But	11	A. No, he did not.
2	it's an implication.	12	Q. This study, as we've said, was one that
}	Q. Okay. So where in – are you reading	13	was decided on in your meeting which was largely in
, !	that it says Syngenta had a role in giving him	14	defense of paraquat in 2009 in Atlanta, Georgia,
	information?	15	correct?
	A. No. I'm sorry. I'm reading from the	16	A. Yes, that's my recollection.
	bottom of page 1, the footnote, where it said that	17	Q. Now, let's go back to this exhibit.
		18	
3	Dr. Brent was a paid consultant. And it says, "The	19	Fully published cases in medical or
)	manuscript was solely written by the authors.		scientific journals were included, he says, right?
•	Syngenta Corporation had no role in the data	20	A. Where are you now looking, please?
	analysis presented herein or in the production of	21	Q. It's actually in the it's page 2 of
	this manuscript."	22	the document.
	Q. Okay. And that, to me, sounds like he's	23	A. Yeah. Under "Inclusion and exclusion
	saying that Syngenta had nothing to do with this	24	criteria"?
	Page 1534		Page 153
	other than paying him?	1	Q. That's correct.
	A. I don't know that he's that's what	2	A. Yeah. Okay. Yes, I can see that.
	he was meant he was meaning through this. I	3	Q. All right. And clinical information was
	think he was much more meaning to say that we did	4	assessed for one of four cardinal features of
	not Influence the conclusions of this study.	5	parkinsonism, right?
	Q. So what it means is that you gave him	6	A. Yes.
	the data, right?	7	Q. And he used bradykinesia, postural
	A. Yeah. We don't we absolutely gave	8	stability, rigidity, and tremor, right?
	him the data.	9	A. Correct
	Q. All right. And –	10	Q. And then he developed in Table 1, if you
	A. Some of let's say some of the data,	11	look there, a criteria for fulfilling the case
	not all of the data.	12	definition of paraquat poisoning, right?
	Q. Okay. And look at the bottom of page 1,	13	A. Yes, that's correct.
	second column, "Secondly, publications were retrieved	14	Q. And if you look, the cases included by
	from the authors' extensive files on paraguat,"	15	the authors had to be neuroevaluable, a word I hadn't
;	right?	16	heard before. Neuroevaluable, meaning that
,	A. Yes.	17	descriptions had to be included which indicated that
	A. Tes.     Q. That's what he said?	18	an assessment of neurological symptoms had been don
		19	ether Initially or at follow-up after recovery,
)	Okay. He doesn't say Syngenta, does	20	
	he?	1	right?
	A. No.	21 22	A. Yes. That's my understanding of
		1 77	what – how that term was used.
	Q. Okay. The publications found through	1	
2 3	the research were were reviewed for clinical	23	Q. Okay. Classifications were survive,
2		1	

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1	short-term lived between 15 and 30 days, right?	1	kind of informed judgment on that, on that number.
2	Those were his categories? That's page 2.	2	BY MR. TILLERY:
3	A. Yes.	3	Q. Would you - would you at least believe
4	Q. So long-term survivors included people	4	it exceeds 10,000 people who have died from ingesting
5	who died after 30 days, right?	5	it?
6	A. Yes, that's right.	6	MR. NARESH: Same objection. Asking
7	Q. And cases were assessed by physicians	7	for speculation.
8	who were board-certified in toxicology, right?	8	THE WITNESS: Yes. It's speculation
9	A. Yeah. It mentions that before. So it	9	but not unreasonable to say it would be greater than
10	actually says in the further up on page 2, "All	10	10,000.
11	articles were reviewed by physicians with	11	BY MR. TILLERY:
12	board-certified status in medical toxicology."	12	Q. All right. Now, from your analysis of
13	Q. In toxicology?	13	this study, did the authors report how long any of
14	A. Medical toxicology, yeah.	14	these so-called long-term survivors lived and how
15	Q. And let me ask you something. How many	15	long after poison – the poisoning event they were
16	toxicologists have you ever heard of treating	16	neurologically evaluated?
17	Parkinson's patients?	17	A. Well, my understanding is that that
18	A. Toxicologists would not be allowed to	18	information was, as far as possible, collected.
19	treat Parkinson's patients.	19	Obviously, they were reliant, however, on the
20	Q. They would not be able to legally treat	20	Information as it was available rather than
21	a Parkinson's patient, would they?	21	necessarily interviewing the the individuals
22	A. No. That's right.	22	concerned.
23	Q. And they could never diagnose them,	23	Q. And the reason is, is because they
24	legally, could they?	24	didn't actually come in contact with the individuals
		-	
	Page 1538		Page 1540
1	<ul> <li>A. Not legally in terms of treatment and</li> </ul>	1	concerned. They were relying upon somebody else's
2	so on, yes.	2	reports done over a course of many years, right?
3	<ul> <li>Q. As a matter of fact, neurologists and</li> </ul>	3	A. Indeed, yes.
4	movement disorder specialists are the ones who	4	Q. Okay. So they never listed that
5	diagnose and treat Parkinson's patients, correct?	5	information about how long any of these so-called
6	A. Yes, that's correct.	6	long-term survivors live and how long after the
7	<ul> <li>Q. Have you ever in your life heard of a</li> </ul>	7	poisoning event they were neurologically evaluated
8	tavianta interestina a Parkinannia diagna antiont?		
	toxicologist treating a Parkinson's disease patient?	8	because they didn't have the information, correct?
9	A. No, I've not heard of that.	9	A. If they didn't have the information,
			·
9	A. No, I've not heard of that.  Q. Now, 83 patients out of all the thousands looking through your database, it looks	9 10 11	A. If they didn't have the information, they couldn't do that, certainly.     Q. Right. Do you know how the authors
9 10	<ul><li>A. No, I've not heard of that.</li><li>Q. Now, 83 patients out of all the</li></ul>	9 10 11 12	A. If they didn't have the information, they couldn't do that, certainly.     Q. Right. Do you know how the authors confirmed whether all of these patients' health
9 10 11	A. No, I've not heard of that.  Q. Now, 83 patients out of all the thousands looking through your database, it looks	9 10 11 12 13	A. If they didn't have the information, they couldn't do that, certainly.     Q. Right. Do you know how the authors confirmed whether all of these patients' health outcomes were reported by experts who were even able
9 10 11 12 13 14	A. No, I've not heard of that.  Q. Now, 83 patients out of all the thousands looking through your database, it looks like there's in one of the databases I looked at yesterday we're going to talk about these at greater length tomorrow – it looks like there are	9 10 11 12 13 14	A. If they didn't have the information, they couldn't do that, certainly.  Q. Right. Do you know how the authors confirmed whether all of these patients' health outcomes were reported by experts who were even able to recognize signs of parkinsonism?
9 10 11 12 13 14 15	A. No, I've not heard of that.  Q. Now, 83 patients out of all the thousands looking through your database, it looks like there's in one of the databases I looked at yesterday we're going to talk about these at greater length tomorrow it looks like there are about 3,700 dead people from their ingestion of	9 10 11 12 13 14 15	A. If they didn't have the information, they couldn't do that, certainly.  Q. Right. Do you know how the authors confirmed whether all of these patients' health outcomes were reported by experts who were even able to recognize signs of parkinsonism?  A. Well, as I said, the paper indicates
9 10 11 12 13 14 15	A. No, I've not heard of that.  Q. Now, 83 patients out of all the thousands looking through your database, it looks like there's in one of the databases I looked at yesterday we're going to talk about these at greater length tomorrow — it looks like there are about 3,700 dead people from their ingestion of paraquat. And that only starts in the early 2000s	9 10 11 12 13 14 15	A. If they didn't have the information, they couldn't do that, certainly.  Q. Right. Do you know how the authors confirmed whether all of these patients' health outcomes were reported by experts who were even able to recognize signs of parkinsonism?  A. Well, as I said, the paper indicates that a group of people who are medical toxicologists
9 10 11 12 13 14 15	A. No, I've not heard of that.  Q. Now, 83 patients out of all the thousands looking through your database, it looks like there's in one of the databases I looked at yesterday we're going to talk about these at greater length tomorrow it looks like there are about 3,700 dead people from their ingestion of	9 10 11 12 13 14 15 16	A. If they didn't have the information, they couldn't do that, certainly.  Q. Right. Do you know how the authors confirmed whether all of these patients' health outcomes were reported by experts who were even able to recognize signs of parkinsonism?  A. Well, as I said, the paper indicates
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9 10 11 12 13 14 15 16 17	A. No, I've not heard of that.  Q. Now, 83 patients out of all the thousands looking through your database, it looks like there's in one of the databases I looked at yesterday we're going to talk about these at greater length tomorrow — it looks like there are about 3,700 dead people from their ingestion of paraquat. And that only starts in the early 2000s and leaves out the preceding 35 years.  How many would you guess have died from	9 10 11 12 13 14 15 16 17 18	A. If they didn't have the information, they couldn't do that, certainly.  Q. Right. Do you know how the authors confirmed whether all of these patients' health outcomes were reported by experts who were even able to recognize signs of parkinsonism?  A. Well, as I said, the paper indicates that a group of people who are medical toxicologists were involved in supporting Professor Brent and his coauthor with this. So they, I guess, would have
9 10 11 12 13 14 15 16 17 18	A. No, I've not heard of that.  Q. Now, 83 patients out of all the thousands looking through your database, it looks like there's in one of the databases I looked at yesterday we're going to talk about these at greater length tomorrow – it looks like there are about 3,700 dead people from their ingestion of paraquat. And that only starts in the early 2000s and leaves out the preceding 35 years.  How many would you guess have died from this chemical from either intentionally or intently	9 10 11 12 13 14 15 16 17 18	A. If they didn't have the information, they couldn't do that, certainly.  Q. Right. Do you know how the authors confirmed whether all of these patients' health outcomes were reported by experts who were even able to recognize signs of parkinsonism?  A. Well, as I said, the paper indicates that a group of people who are medical toxicologists were involved in supporting Professor Brent and his coauthor with this. So they, I guess, would have sufficient knowledge of the normal symptoms of
9 10 11 12 13 14 15 16 17 18 19 20	A. No, I've not heard of that.  Q. Now, 83 patients out of all the thousands looking through your database, it looks like there's in one of the databases I looked at yesterday we're going to talk about these at greater length tomorrow it looks like there are about 3,700 dead people from their ingestion of paraquat. And that only starts in the early 2000s and leaves out the preceding 35 years.  How many would you guess have died from this chemical from either intentionally or intently ingesting it?	9 10 11 12 13 14 15 16 17 18 19 20	A. If they didn't have the information, they couldn't do that, certainly.  Q. Right. Do you know how the authors confirmed whether all of these patients' health outcomes were reported by experts who were even able to recognize signs of parkinsonism?  A. Well, as I said, the paper indicates that a group of people who are medical toxicologists were involved in supporting Professor Brent and his coauthor with this. So they, I guess, would have sufficient knowledge of the normal symptoms of Parkinson's disease to — or parkinsonism to look
9 10 11 12 13 14 15 16 17 18 19 20 21	A. No, I've not heard of that.  Q. Now, 83 patients out of all the thousands looking through your database, it looks like there's in one of the databases I looked at yesterday we're going to talk about these at greater length tomorrow it looks like there are about 3,700 dead people from their ingestion of paraquat. And that only starts in the early 2000s and leaves out the preceding 35 years.  How many would you guess have died from this chemical from either intentionally or intently ingesting it?  MR. NARESH: Objection. Scope. Calls	9 10 11 12 13 14 15 16 17 18 19 20 21	A. If they didn't have the information, they couldn't do that, certainly.  Q. Right. Do you know how the authors confirmed whether all of these patients' health outcomes were reported by experts who were even able to recognize signs of parkinsonism?  A. Well, as I said, the paper indicates that a group of people who are medical toxicologists were involved in supporting Professor Brent and his coauthor with this. So they, I guess, would have sufficient knowledge of the normal symptoms of Parkinson's disease to – or parkinsonism to look out for.

### Page 1543 Page 1541 1 parkinsonism that's on the level of a movement 1 Syngenta? 2 disorder specialist who is a neurologist, are you, 2 A. Some of that information was data from 3 3 Syngenta, as we've been saying, and others were in 4 A. There was no attempt here to -- to say 4 the public domain so I understand it. 5 there was a definite diagnosis of - of Parkinson's 5 Q. Would you agree that no mention of 6 disease, certainly. 6 parkinsonism symptoms in a published report may 7 It was an attempt to look for some of 7 simply mean that no neurologic evaluations had been 8 the clinical signs that would be associated largely 8 conducted as this review refers to neuroevaluable 9 with parkinsonism. 9 poisoning patients and not patients who actually were 10 Q. How did the authors even confirm whether 10 neurologically examined? 11 neurologic exams had ever been conducted? 11 A. What this paper is able to show is 12 A. They, again, were reliant on the 12 that, within some of the limitations that we've been 13 documentation for each case; so -13 discussing, there were no clear or obvious signs of 14 Q. Now, where is - where is that 14 parkinsonism recorded no matter how that was done in 15 15 the individuals that were included in this analysis. documentation? 16 A. That would be in the databases that --16 And that's what neuro-analyzable 17 or the files that they had access to. And some of 17 meant -- that there was enough information for them 18 those were from Syngenta, as we've discussed. 18 to come to a judgment. Nobody was saying that was a 19 Others were from elsewhere as is indicated in the --19 definitive diagnosis. 20 20 Q. Yeah. I unfortunately have to move to strike that answer as not responsive to my question. 21 Q. And where are those files? Where were 21 22 they? Where - were they made available for review 22 One more time, sir. Would you agree 23 23 that no mention of parkinsonism symptoms in a 24 MR. NARESH: Objection. Foundation. 24 published report may simply mean that no neurologic Page 1542 Page 1544 1 THE WITNESS: I mean, again, the detail 1 evaluations had been conducted as this refers to 2 of how that information was made available to them, 2 neuroevaluable poisoning patients and not patients 3 3 I can't comment on; but, yes, they would have been who actually were neurologically examined? 4 given physical paper files or access to other 4 A. The Information that was available was 5 information as - as needed. 5 sufficient for them to determine that there had been 6 BY MR. TILLERY: 6 a neuro evaluation. 7 Q. I - your - I think we're missing each 7 Q. Okay. So you're saying the fact that 8 other. You're talking about how they conducted the 8 they were evaluable means they were evaluated? 9 9 A. They were evaluated as far as the 10 10 information available allowed. What I'm saying is how does one who 11 comes along behind them verify whether or not the 11 Q. Okay. These patients averaged 22 years 12 analysis that they were relying upon was accurate? 12 of age, right? 13 13 A. Yes. They don't list the studies. They don't list the 14 data. It's not anywhere referenced for anybody 14 Q. Okay. And we've already been through 15 15 later to see, is it? this, but you've told me that the average onset of 16 A. No. That's a fair comment. I mean, 16 Parkinson's symptoms -- of Parkinson's disease is in 17 they were entirely reliant on the Information they 17 the 60, perhaps mid-60s, correct? 18 had available. 18 A. That's correct. But, again, this was 19 Q. Okay. But nobody else behind them can 19 about parkinsonism, which can happen in younger 20 verify their results because the data isn't available 20 21 21 for them, right? Q. The longest post-poisoning follow-up was 22 A. Well, the data exists; so it could be 22 ten years, right? 23 23 A. Yes. made available if it was requested. 24 24 Q. Okay. Would it be available to - to Q. These authors expected that the

	Page 1545		Page 154
1	parkinsonism would occur within a short time after	1	team laterally. And before that, product safety
2	poisoning, right?	2	division team.
3	A. Finality –	3	Q. Was he a member of the executive
4	MR. NARESH: Objection. Foundation.	4	committee at any time?
5	MR. TILLERY: Sorry?	5	A. No, never.
6	MR. NARESH: Objection. Foundation.	6	Q. Okay. Who did he report to, to your
7	Go ahead.	7	knowledge?
8	THE WITNESS: Finality with MPTP, you	8	A. For most of the time, when he was head
.9	would expect to see symptoms in short in a short	9	of safety and regulatory, to Gerardo Ramos.
10	time.	10	Q. And who was Gerardo Ramos?
11	BY MR. TILLERY:	11	A. He was the head of R&D.
12	Q. Didn't they actually contradict this	12	Q. For the whole company?
13	assumption in their discussion stating that paraquat	13	A. For the whole company, yes.
14	neurotoxicity is distinct from that of MPTP and	14	Q. All right. Let's look at this exhibit
15	rotenone and then cite the Richardson, et al., paper?	15	if we can. And here there's a reference to a person
16	Have you looked at that?	16	named Mirva, and the last name is spelled
17	A. Yeah. Let's just go back and look just	17	H-e-j-j-a-o-u-i. How do you pronounce that?
18	where you're referring.	18	A. I think it's Hejjaoui.
19	Q. It's in the "Discussion" section.	19	Q. Hejjaoui. Do you know who she is?
20	A. Uh-huh. So Just point me to the words	20	A. I have forgotten who she was, actually.
21	that you're looking at there, please.	21	Q. What was her job?
22	Q. Okay. Let me see if I can find it.	22	A. That, I can't remember. I'm sorry.
23	Well, if we both start reading the	23	Q. Okay. Well, let's look through this.
24	"Discussion" section, we'll -	24	And he had — "he," Dr. Herti, had sent this paper,
	Page 1546		Page 1548
1	-	1	
1 2	A. Yeah. I'm doing that.	1 2	Page 1548  Brent; and he also sent the Breckenridge paper to this person, Mirva Hejjaoui. Okay? Is that right?
2	A. Yeah. I'm doing that.     Q. We may have to come back to this later,		Brent; and he also sent the Breckenridge paper to
	A. Yeah. I'm doing that.     Q. We may have to come back to this later, sir.	2	Brent; and he also sent the Breckenridge paper to this person, Mirva Hejjaoui. Okay? Is that right?
2	A. Yeah. I'm doing that.  Q. We may have to come back to this later,  sir.  A. Okay.	2	Brent; and he also sent the Breckenridge paper to this person, Mirva Hejjaoui. Okay? Is that right?  A. Yes, And I can see now where she
2 3 4	<ul> <li>A. Yeah. I'm doing that.</li> <li>Q. We may have to come back to this later,</li> <li>sir.</li> <li>A. Okay.</li> <li>Q. Okay. Because I can't seem to put my</li> </ul>	2 3 4	Brent; and he also sent the Breckenridge paper to this person, Mirva Hejjaoui. Okay? Is that right?  A. Yes. And I can see now where she fitted in. So yes.
2 3 4 5	<ul> <li>A. Yeah. I'm doing that.</li> <li>Q. We may have to come back to this later,</li> <li>sir.</li> <li>A. Okay.</li> <li>Q. Okay. Because I can't seem to put my</li> <li>finger on it.</li> </ul>	2 3 4 5	Brent; and he also sent the Breckenridge paper to this person, Mirva Hejjaoui. Okay? Is that right?  A. Yes. And I can see now where she fitted in. So yes.  Q. All right.
2 3 4 5 6	<ul> <li>A. Yeah. I'm doing that.</li> <li>Q. We may have to come back to this later,</li> <li>sir.</li> <li>A. Okay.</li> <li>Q. Okay. Because I can't seem to put my</li> </ul>	2 3 4 5	Brent; and he also sent the Breckenridge paper to this person, Mirva Hejjaoui. Okay? Is that right?  A. Yes, And I can see now where she fitted in. So yes.  Q. All right.  A. I'm following you.
2 3 4 5 6 7	<ul> <li>A. Yeah. I'm doing that.</li> <li>Q. We may have to come back to this later,</li> <li>sir.</li> <li>A. Okay.</li> <li>Q. Okay. Because I can't seem to put my</li> <li>finger on it.</li> <li>Let's go to Exhibit 141.</li> </ul>	2 3 4 5 6 7	Brent; and he also sent the Breckenridge paper to this person, Mirva Hejjaoui. Okay? Is that right?  A. Yes. And I can see now where she fitted in. So yes.  Q. All right.  A. I'm following you.  Q. And who does he send that September 2013
2 3 4 5 6 7 8	A. Yeah. I'm doing that. Q. We may have to come back to this later, sir. A. Okay. Q. Okay. Because I can't seem to put my finger on it. Let's go to Exhibit 141. (Exhibit 141 was identified	2 3 4 5 6 7 8	Brent; and he also sent the Breckenridge paper to this person, Mirva Hejjaoui. Okay? Is that right?  A. Yes. And I can see now where she fitted in. So yes.  Q. All right.  A. I'm following you.  Q. And who does he send that September 2013 email to? Dr. Herti?
2 3 4 5 6 7 8 9	A. Yeah. I'm doing that. Q. We may have to come back to this later, sir. A. Okay. Q. Okay. Because I can't seem to put my finger on it. Let's go to Exhibit 141. (Exhibit 141 was identified for the record.)	2 3 4 5 6 7 8	Brent; and he also sent the Breckenridge paper to this person, Mirva Hejjaoui. Okay? Is that right?  A. Yes. And I can see now where she fitted in. So yes.  Q. All right.  A. I'm following you.  Q. And who does he send that September 2013 email to? Dr. Herti?  A. To Charles Breckenridge and myself.
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2 3 4 5 6 7 8 9 10 11 12	A. Yeah. I'm doing that. Q. We may have to come back to this later, sir. A. Okay. Q. Okay. Because I can't seem to put my finger on it. Let's go to Exhibit 141. (Exhibit 141 was identified for the record.) BY MR. TILLERY: Q. Who is Peter Hertl while this is being pulled up? A. Peter Hertl used to be an employee of	2 3 4 5 6 7 8 9 10 11 12 13	Brent; and he also sent the Breckenridge paper to this person, Mirva Hejjaoui. Okay? Is that right?  A. Yes. And I can see now where she fitted in. So yes.  Q. All right.  A. I'm following you.  Q. And who does he send that September 201: email to? Dr. Herti?  A. To Charles Breckenridge and myself.  Q. He sent It to you. Okay. And he said, "I shared the Brent and Breck paper with Mirva. Her background is In PD research, ETH Lausanne."  What's that mean?
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2 3 4 5 6 7 8 9 10 11 12 13 14 15	A. Yeah. I'm doing that. Q. We may have to come back to this later, sir. A. Okay. Q. Okay. Because I can't seem to put my finger on it. Let's go to Exhibit 141. (Exhibit 141 was identified for the record.) BY MR. TILLERY: Q. Who is Peter Hertl while this is being pulled up? A. Peter Hertl used to be an employee of Syngenta. Laterally, he was the head of product safety and product registration globally. And	2 3 4 5 6 7 8 9 10 11 12 13 14 15	Brent; and he also sent the Breckenridge paper to this person, Mirva Hejjaoui. Okay? Is that right?  A. Yes. And I can see now where she fitted in. So yes.  Q. All right.  A. I'm following you.  Q. And who does he send that September 2013 email to? Dr. Herti?  A. To Charles Breckenridge and myself.  Q. He sent It to you. Okay. And he said,  "I shared the Brent and Breck paper with Mirva. Her background is In PD research, ETH Lausanne."  What's that mean?  A. Well, PD research is Parkinson's disease research. And ETH Lausanne, If I remember
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	A. Yeah. I'm doing that. Q. We may have to come back to this later, sir. A. Okay. Q. Okay. Because I can't seem to put my finger on it. Let's go to Exhibit 141. (Exhibit 141 was identified for the record.) BY MR. TILLERY: Q. Who is Peter Hertl while this is being pulled up? A. Peter Hertl used to be an employee of Syngenta. Laterally, he was the head of product safety and product registration globally. And before that, he held positions in in product	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Brent; and he also sent the Breckenridge paper to this person, Mirva Hejjaoui. Okay? Is that right?  A. Yes. And I can see now where she fitted in. So yes.  Q. All right.  A. I'm following you.  Q. And who does he send that September 2013 email to? Dr. Herti?  A. To Charles Breckenridge and myself.  Q. He sent It to you. Okay. And he said, "I shared the Brent and Breck paper with Mirva. Her background is in PD research, ETH Lausanne."  What's that mean?  A. Well, PD research is Parkinson's disease research. And ETH Lausanne, If I remember correctly, is a research organization in Lausanne,
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	A. Yeah. I'm doing that. Q. We may have to come back to this later, sir. A. Okay. Q. Okay. Because I can't seem to put my finger on it. Let's go to Exhibit 141. (Exhibit 141 was identified for the record.) BY MR. TILLERY: Q. Who is Peter Hertl while this is being pulled up? A. Peter Hertl used to be an employee of Syngenta. Laterally, he was the head of product safety and product registration globally. And before that, he held positions in in product safety. Q. And his – his job or authority extended to all parts of Syngenta AG's affiliated companies worldwide, correct?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Brent; and he also sent the Breckenridge paper to this person, Mirva Hejjaoui. Okay? Is that right?  A. Yes. And I can see now where she fitted in. So yes.  Q. All right.  A. I'm following you.  Q. And who does he send that September 201: email to? Dr. Hert!?  A. To Charles Breckenridge and myself.  Q. He sent it to you. Okay. And he said, "I shared the Brent and Breck paper with Mirva. Her background is in PD research, ETH Lausanne."  What's that mean?  A. Well, PD research is Parkinson's disease research. And ETH Lausanne, if I remember correctly, is a research organization in Lausanne, which I think is in Switzerland.  Q. Right. And he — and he says to you in this email dated September 10th, 2013, you and Dr. Charles Breckenridge. He says, "She recently
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A. Yeah. I'm doing that. Q. We may have to come back to this later, sir. A. Okay. Q. Okay. Because I can't seem to put my finger on it. Let's go to Exhibit 141. (Exhibit 141 was identified for the record.) BY MR. TILLERY: Q. Who is Peter Hertl while this is being pulled up? A. Peter Hertl used to be an employee of Syngenta. Laterally, he was the head of product safety and product registration globally. And before that, he held positions in in product safety. Q. And his – his job or authority extended to all parts of Syngenta AG's affiliated companies worldwide, correct? A. That's correct.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Brent; and he also sent the Breckenridge paper to this person, Mirva Hejjaoui. Okay? Is that right?  A. Yes. And I can see now where she fitted in. So yes.  Q. All right.  A. I'm following you.  Q. And who does he send that September 2013 email to? Dr. Herti?  A. To Charles Breckenridge and myself.  Q. He sent it to you. Okay. And he said,  "I shared the Brent and Breck paper with Mirva. Her background is in PD research, ETH Lausanne."  What's that mean?  A. Well, PD research is Parkinson's disease research. And ETH Lausanne, if I remember correctly, is a research organization in Lausanne, which I think is in Switzerland.  Q. Right. And he — and he says to you in this email dated September 10th, 2013, you and Dr. Charles Breckenridge. He says, "She recently joined our seeds group as operational support

Page 1	1549 Page 155
1 A. Yes. That would be In Basel.	1 things. But it's more to do with the the context
<ol> <li>Q. Okay. I was interested to know what</li> </ol>	2 of those questions and whether they are actually
3 critique points could be brought out by individuals	s 3 criticisms or actually observations which we are
4 familiar with the subject area; πamely, Parkinson's	s 4 well aware of and have been taking into
5 disease research," right? That's what you took fro	om 5 consideration.
6 that statement, correct?	6 Q. Well, let's go through them. Okay?
7 A. Correct.	7 So she says in the very — "The papers
8 Q. "I followed these two up with the Widnes	s Investigated were not cited," right?
9 paper."	9 A. In the Brent paper, yes. Yes.
10 Do you see that?	10 Q. The papers weren't cited that they're
11 A. Yes, I do.	11 relying on. That was her big first criticism.
12 Q. "I followed up with her on her critique	12 Then she said, "No cases other than
13 points.*	intoxication by oral Ingestion were Investigated,"
14 And then he said, "I don't need a	14 right?
15 reaction from your side." In other words, you don'	-
16 need to send anything back. "Just FYI." Just for	
17 your information, correct?	Parkinson's disease symptoms (bradykinesia, tremor at
18 A. Correct.	18 rest, rigidity, postural instability) with those
19 Q. And he says, "Signed, Peter," right?	19 patients as they were in a coma state or
20 A. Okay.	20 unconscious."
21 Q. Now, five days before, he had received a	
22 response from Mirva Hejjaoui, right?	22 A. Yes. And that's true for those
23 A. Yes.	23 patients who were in that state; but, of course, not
2.4 Q. And what does the "CHVS" mean behind	
Page 1	1550 Page 155
_	
name under the — on the email?	1 Q. So –
2 A. CHVS is the company way of designating	2 A. Not all the cases were in a coma -
3 location. CH being the two letters for Switzerland,	3 Q. Yeah. But how many of those 83 were in
4 right, and BS being Basel.	4 that state?
5 Q. So she was working at the headquarters	5 A. I don't have that number immediately at
of Syngenta AG in Basel, Switzerland, wasn't she?	6 hand.
7 A. She was.	7 Q. Can you look at that study and figure it
8 Q. All right. And she said to him, *Dear	8 out?
9 Peter. Thank you for sending the paper. Please fin	
10 my comments on the papers you have sent previou	usly," 10 time to look it up.
	11 Q. Okay. So without studying it, you can't
11 right?	1
11 right? 12 A. Yes.	12 answer my question, right?
_	<ul><li>12 answer my question, right?</li><li>13 A. No, I can't.</li></ul>
12 A. Yes. 13 Q. All right. And he was asking for her to	
12 A. Yes. 13 Q. All right. And he was asking for her to	13 A. No, I can't.
12 A. Yes.  13 Q. All right. And he was asking for her to 14 give her assessments of this paper, right? 15 A. Yes.	13 A. No, I can't. 14 Q. Okay. Without access to the papers
A. Yes.  Q. All right. And he was asking for her to give her assessments of this paper, right?  A. Yes.  Q. And she had some criticisms of this	13 A. No, I can't.  14 Q. Okay. Without access to the papers  15 investigated, how would any subsequent researcher
A. Yes.  Q. All right. And he was asking for her to give her assessments of this paper, right?  A. Yes.  Q. And she had some criticisms of this study, didn't she?	13 A. No, I can't.  14 Q. Okay. Without access to the papers  15 investigated, how would any subsequent researcher  16 verify if this study had been done honestly?
A. Yes.  Q. All right. And he was asking for her to give her assessments of this paper, right?  A. Yes.  Q. And she had some criticisms of this study, didn't she?  A. Indeed, yes, and that's some of those	13 A. No, I can't. 14 Q. Okay. Without access to the papers 15 investigated, how would any subsequent researcher 16 verify if this study had been done honestly? 17 A. Well, they would need to get access to
A. Yes.  Q. All right. And he was asking for her to give her assessments of this paper, right?  A. Yes.  Q. And she had some criticisms of this study, didn't she?  A. Indeed, yes, and that's some of those we've already been talking about.	A. No, I can't.  Q. Okay. Without access to the papers investigated, how would any subsequent researcher verify if this study had been done honestly?  A. Well, they would need to get access to the same information which, as I said, if it were
A. Yes.  Q. All right. And he was asking for her to give her assessments of this paper, right?  A. Yes.  Q. And she had some criticisms of this study, didn't she?  A. Indeed, yes, and that's some of those we've already been talking about.  Q. Right. Did you disagree, before we go	A. No, I can't.  Q. Okay. Without access to the papers investigated, how would any subsequent researcher verify if this study had been done honestly?  A. Well, they would need to get access to the same information which, as I said, if it were requested, I'm sure would be made available.
A. Yes.  Q. All right. And he was asking for her to give her assessments of this paper, right?  A. Yes.  Q. And she had some criticisms of this study, didn't she?  A. Indeed, yes, and that's some of those we've already been talking about.  Q. Right. Did you disagree, before we go through these, with any of her criticisms?	A. No, I can't.  Q. Okay. Without access to the papers investigated, how would any subsequent researcher verify if this study had been done honestly?  A. Well, they would need to get access to the same information which, as I said, if it were requested, I'm sure would be made available.  Q. Okay. So the answer to my question
A. Yes.  Q. All right. And he was asking for her to give her assessments of this paper, right?  A. Yes.  Q. And she had some criticisms of this study, didn't she?  A. Indeed, yes, and that's some of those we've already been talking about.  Q. Right. Did you disagree, before we go through these, with any of her criticisms?	A. No, I can't.  Q. Okay. Without access to the papers investigated, how would any subsequent researcher verify if this study had been done honestly?  A. Well, they would need to get access to the same information which, as I said, if it were requested, I'm sure would be made available.  Q. Okay. So the answer to my question would be without access to the papers investigated

	Page 1553		Page 155
had I	been done honestly, would they?	1	Q. Okay. And then she says, "It's not
	A. Yes. Of course, you would need access	2	convincing to evaluate the results of other studies
to the	at information.	3	since there was no access to the raw data or
	Q. Right. Another criticism is that no	4	follow-up. That wasn't possible."
case	s other than intoxication by oral ingestion were	5	Isn't that what she said?
Inves	stigated, right?	6	A. Well, I think it's saying the same
	A. Yes.	7	thing that, yes, you can't necessarily corroborate
	Q. No – no possibility to assess	8	if you don't have access to the raw data, and also
	Inson's disease symptoms. We talked about that	9	no significant longer term follow-up was done. That
	use the condition of the patients.	10	was not within the parameters of this study.
	And also	11	Q. So all this study tells us is that high
	A. Yes.	12	doses of paraquat poisoning do not cause parkinsonism
	Q the authors dld not want to consider	13	in the same way that MPTP does, right?
	other hypothesis other than that paraquat and	14	A. That is the most significant finding of
•	P have the same mode of action, and they did not	15	this paper, correct.
	ent arguments to back this up.	16	Q. What other finding do you think it gives
hies	Is that what she says?	17	us besides that finding?
	A. Yes. And that's the discussion we were	18	
		19	A. Well, it suggests that potentially
	ng not too long ago this morning that paraquat	20	paraquat and MPTP are not the same.
	MPTP may Indeed not have the same mode of		Q. Okay. Now, on that same exhibit if you
actio		21	look at the bottom, there's a reference to a paper by
	Q. And she puts another comment about the	22	Breckenridge. Do you see that?
	er of – Brent paper, "Clear Indication of PQ	23	A. Ido.
toxic	ıty."	24	Q. So this same person, Mirva Hejjaoui,
	Page <b>1</b> 554		Page 155
	What does that mean?	1	commented on a paper that had been done by
1	A. Well, again, this is one of the things	2	Breckenridge, right?
that I	would need to get more of an understanding of	3	A. That's right.
the c	ontext. So I'm not I can't – I can't	4	Q. And that paper was done in what year?
really	put words into her mouth as to what she meant	5	2012 or '13?
by thi	s.	6	
			A. It was published in 2013.
-	. Well, when you got this email, did you	7	A. It was published in 2013.     Q. Okay. And apparently Peter Hertl sent
	Well, when you got this email, did you  nd ask what she meant?		Q. Okay. And apparently Peter Herti sent
call a	· ·	7	Q. Okay. And apparently Peter Herti sent the Breckenridge paper to Mirva Hejjaoui for her
call a	nd ask what she meant? A. I didn't do that. I don't know whether	7 8 9	Q. Okay. And apparently Peter Herti sent the Breckenridge paper to Mirva Hejjaoui for her evaluation and consideration of it, right?
cali a / Dr. H	nd ask what she meant? A. I didn't do that. I don't know whether ertl asked that.	7 8	Q. Okay. And apparently Peter Hertl sent the Breckenridge paper to Mirva Hejjaoul for her evaluation and consideration of it, right?  A. Yes.
call a Dr. H	nd ask what she meant? A. I didn't do that. I don't know whether ertl asked that. Q. Did Dr. Breckenridge do that?	7 8 9 10 11	Q. Okay. And apparently Peter Herti sent the Breckenridge paper to Mirva Hejjaoui for her evaluation and consideration of it, right?  A. Yes.  Q. And you were coauthor of that
call a Dr. H	nd ask what she meant? A. I didn't do that. I don't know whether ertl asked that. D. Did Dr. Breckenridge do that? A. I don't know.	7 8 9 10 11 12	<ul> <li>Q. Okay. And apparently Peter Herti sent</li> <li>the Breckenridge paper to Mirva Hejjaoui for her</li> <li>evaluation and consideration of it, right?</li> <li>A. Yes.</li> <li>Q. And you were coauthor of that</li> <li>Breckenridge paper, weren't you?</li> </ul>
call a	nd ask what she meant? A. I didn't do that. I don't know whether ertl asked that. D. Did Dr. Breckenridge do that? A. I don't know. D. Was there any follow-up discussion after	7 8 9 10 11 12 13	Q. Okay. And apparently Peter Herti sent the Breckenridge paper to Mirva Hejjaoui for her evaluation and consideration of it, right? A. Yes. Q. And you were coauthor of that Breckenridge paper, weren't you? A. I was.
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call a disconnection of the second control o	and ask what she meant? A. I didn't do that. I don't know whether ertl asked that. D. Did Dr. Breckenridge do that? A. I don't know. D. Was there any follow-up discussion after ecomments were made by an expert in Parkinson's se research? A. I honestly don't remember whether there such a follow-up. D. That is you, Phil Botham, GBJH, right? A. It Is. But as Peter Hertl himself the wasn't looking for a reaction from our as it were. They It is conceivable that we	7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q. Okay. And apparently Peter Hertl sent the Breckenridge paper to Mirva Hejjaoui for her evaluation and consideration of it, right?  A. Yes. Q. And you were coauthor of that Breckenridge paper, weren't you? A. I was. Q. And what did she say here? "Different protocols were used for paraquat and MPTP administration (different age of mice, different concentrations, and different injection frequency)."  Now, what did you understand the significance of those comments to mean with respect to the Breckenridge study?  A. Well, I think this is a good example of

Page 1557	Page 15
1 This was not meant to be a comparison	1 results were observed from the literature concerning
2 of paraquat with MPTP. MPTP was used in order to be	2 PT – PQ – paraquat-Induced TH+ neuron reduction
3 able to show that the methodologies we used like the	3 but there's no elaboration on the possible causes of
4 stereology which we've talked about frequently	4 the discrepancy," right?
5 actually was able to detect a an effect with	5 <b>A.</b> Yes.
6 something which should have caused the effect;	6 Q. So in other words, she was saying that
7 namely, MPTP.	7 the public literature got different results than you
8 Q. Okay. So you did that because you had	8 reported, but there was no effort to explain why
9 knowledge of and accepted of acceptance of the	9 those different results were obtained, right?
0 fact that MPTP or MPP+ was a known neurotoxin, right?	10 A. Yes. And, again, context is important.
A. Yes. In terms of substantla nigra	So at the time of publishing
2 pathology.	12 Breckenridge, we were still not entirely clear why
3 Q. In terms of substantia nigra pathology,	13 there was that discrepancy, but we went we didn'
4 you knew it was a given that that could be used as a	allow the research period to stop at that point.
5 control. That was the one of the bases for that	15 Q. Right.
6 2013 Breckenridge study, right?	16 A. We went off –
7 A. That's correct.	17 Q study, right?
8 Q. All right. Now, if we go down the list,	18 A. – did further work
9 It says, "Paraquat was shown to cross the blood-brain	19 (Simultaneous speech
barrier in a concentration twice as high as was found	1 ' '
1	
2 symptoms of PD patients is olfactory dysfunction. It	22 MR. TILLERY: Okay. Sorry. Let's take
would have been interesting to check that and do	23 a it's been an hour. Let's take a three- or
4 behavioral studies on the mice."	24 four-minute break, and then we'll come back. Okay
Page 1558	Page 150
1 Do you see that comment?	1 THE WITNESS: Okay.
2 <b>A. Yes.</b>	2 MR. TILLERY: And we'll start the
3 Q. Do you agree that one of the first	3 we'll start the Breckenridge study. Okay?
4 nonmotor symptoms of Parkinson's disease is olfactory	4 THE WITNESS: Okay.
5 dysfunction?	5 THE VIDEOGRAPHER: We're going off the
6 A M III III 6 11 11	
<ul> <li>A. Yes. It's it's frequently reported</li> </ul>	6 record. The time is 8:22. This ends Media Unit
	6 record. The time is 8:22. This ends Media Unit 7 Number 6.
to be a premotor symptom.  Q. It's in the – it's in the prodromal	6 record. The time is 8:22. This ends Media Unit 7 Number 6. 8 (Recess taken.)
<ul> <li>to be a premotor symptom.</li> <li>Q. It's In the – it's In the prodromal</li> <li>phase of the</li> </ul>	6 record. The time is 8:22. This ends Media Unit 7 Number 6. 8 (Recess taken.) 9 THE VIDEOGRAPHER: We're going back or
to be a premotor symptom.  Q. It's In the — it's In the prodromal phase of the  A. Yes.	6 record. The time is 8:22. This ends Media Unit 7 Number 6. 8 (Recess taken.) 9 THE VIDEOGRAPHER: We're going back of 10 the record. The time is 8:35. This begins Media
to be a premotor symptom.  Q. It's in the — It's in the prodromal phase of the A. Yes.  Q disease, correct?	6 record. The time is 8:22. This ends Media Unit 7 Number 6. 8 (Recess taken.) 9 THE VIDEOGRAPHER: We're going back of 10 the record. The time is 8:35. This begins Media 11 Unit Number 7.
to be a premotor symptom.  Q. It's in the — It's in the prodromal phase of the A. Yes.  Q disease, correct? A. Yes.	record. The time is 8:22. This ends Media Unit Number 6.  (Recess taken.) THE VIDEOGRAPHER: We're going back of the record. The time is 8:35. This begins Media Unit Number 7.  BY MR. TILLERY:
to be a premotor symptom.  Q. It's in the – it's in the prodromal phase of the A. Yes. Q disease, correct? A. Yes. Q. Okay. And It says, "Paraquat was shown	record. The time is 8:22. This ends Media Unit Number 6.  (Recess taken.) THE VIDEOGRAPHER: We're going back of the record. The time is 8:35. This begins Media Unit Number 7.  BY MR. TILLERY:  O. Before our last break, you mentioned the
to be a premotor symptom.  Q. It's in the — it's in the prodromal phase of the A. Yes. Q disease, correct? A. Yes. Q. Okay. And it says, "Paraquat was shown to cross the blood-brain barrier, and a concentration	record. The time is 8:22. This ends Media Unit  Number 6.  (Recess taken.)  THE VIDEOGRAPHER: We're going back of the record. The time is 8:35. This begins Media Unit Number 7.  BY MR. TILLERY:  Q. Before our last break, you mentioned the Smeyne study. You said, *Particularly the Smeyne
to be a premotor symptom.  Q. It's In the — it's In the prodromal phase of the A. Yes. Q disease, correct? A. Yes. Q. Okay. And It says, "Paraquat was shown to cross the blood-brain barrier, and a concentration twice as high was found in the olfactory bulb."	record. The time is 8:22. This ends Media Unit  Number 6.  (Recess taken.)  THE VIDEOGRAPHER: We're going back of the record. The time is 8:35. This begins Media Unit Number 7.  BY MR. TILLERY:  Q. Before our last break, you mentioned the Smeyne study. You said, "Particularly the Smeyne study."
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to be a premotor symptom.  Q. It's In the — it's In the prodromal phase of the A. Yes. Q disease, correct? A. Yes. Q. Okay. And It says, "Paraquat was shown to cross the blood-brain barrier, and a concentration twice as high was found in the olfactory bulb." Do you remember that in the Breckenridge study? A. Well, I'd need to go back and look again at the fine detail in Breckenridge. I think, as I sald earlier today, that Breckenridge publication did include kinetics as well as	record. The time is 8:22. This ends Media Unit Number 6.  (Recess taken.)  THE VIDEOGRAPHER: We're going back of the record. The time is 8:35. This begins Media Unit Number 7.  BY MR. TILLERY:  G. Before our last break, you mentioned the Smeyne study. You said, "Particularly the Smeyne study."  I was going to ask you to explain why that particular study in particular was important to you?  A. Yes. Well, in the Smeyne study, we were really trying to make even clearer what this mouse model was telling us and understanding at time.
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to be a premotor symptom.  Q. It's In the — it's In the prodromal phase of the A. Yes. Q disease, correct? A. Yes. Q. Okay. And It says, "Paraquat was shown to cross the blood-brain barrier, and a concentration twice as high was found in the olfactory bulb." Do you remember that in the Breckenridge study? A. Well, I'd need to go back and look again at the fine detail in Breckenridge. I think, as I sald earlier today, that Breckenridge publication did include kinetics as well as	record. The time is 8:22. This ends Media Unit Number 6.  (Recess taken.)  THE VIDEOGRAPHER: We're going back of the record. The time is 8:35. This begins Media Unit Number 7.  BY MR. TILLERY:  G. Before our last break, you mentioned the Smeyne study. You said, "Particularly the Smeyne study."  I was going to ask you to explain why that particular study in particular was important to you?  A. Yes. Well, in the Smeyne study, we were really trying to make even clearer what this mouse model was telling us and understanding at time.

	Page <b>1</b> 561		Page 1563
1	in the substantla nigra; whereas, we were unable to	1	Q. And then there's Jeffrey Wolf. And it
2	consistently find that effect with all the work we	2	says he was Experimental Pathology Laboratories
3	did.	3	EPL Laboratories, in Virginia, right?
4	So we looked at a number of those	4	A. Yes.
5	variables the mouse strain, the time of dosing,	5	Q. And what was his job?
6	and lab housing conditions and so on. So that	6	A. He was the second principal pathologist
7	coupled with some of the reasons that we gave in the	7	that I was referring to.
8	Breckenridge paper were – we're trying to do	8	Q. Okay. Then there's Dan Zadory, and he
9	what – what was suggested in that letter from the	9	is listed at EPL Laboratories. What was his job?
10	Syngenta employee in Basel to understand why – what	10	A. Yeah. He worked for Jeff Wolf. So he
1.1	might be going on to explain the differences.	11	was the person who did a lot of the detailed lab
12	Q. Okay. Well, let's look at Plaintiffs'	12	pathology.
13	Deposition Exhibit Number 142, please.	13	Q. Okay. Did he do the stereology work in
14	(Exhibit 142 was identified	14	the case?
15	for the record.)	15	A. Correct.
16	THE WITNESS: Okay. That's come	16	Q. Okay. And he did the stereology in the
17	through for me. Thank you.	17	Smeyne study, and he did the stereology in the
18	BY MR. TILLERY:	18	Minnema study as well, right?
19	Q. Can you Identify this exhibit?	19	A. That's right.
20	A. Yes. This is a copy of the	20	Q. Okay. And then there's Mellssa Beck.
21	Breckenridge publication that we've been	21	And what was her role?
22	discussing the publication in 2013 in the Journal	22	A. She worked for WIL Research Labs.
23	NeuroToxicology.	23	
24	Q. And it's called "Pharmacokinetic,	24	So we — we obviously had people looking after the dosing and housing animals.
	Page 1562		Page 156
1	Page 1562  Neurochemical, Stereological, and Neuropathological	1	Page 156
1 2		1 2	
	Neurochemical, Stereological, and Neuropathological		Q. And James Mathews – what was his job?
2	Neurochemical, Stereological, and Neuropathological Studies on Potential Effects of Paraquat in the	2	Q. And James Mathews – what was his job?  A. James – now, I can't remember exactly
2	Neurochemical, Stereological, and Neuropathological Studies on Potential Effects of Paraquat in the Substantia Nigra Pars Compacta and Striatum of Male	2 3	Q. And James Mathews – what was his job?  A. James – now, I can't remember exactly what James did. He was at RTI International. So
2 3 4	Neurochemical, Stereological, and Neuropathological Studies on Potential Effects of Paraquat in the Substantia Nigra Pars Compacta and Striatum of Male C57BL/6J Mice," right?	2 3 4	Q. And James Mathews – what was his job?  A. James – now, I can't remember exactly what James did. He was at RTI International. So I'd have to double-check exactly what his role was.
2 3 4 5	Neurochemical, Stereological, and Neuropathological Studies on Potential Effects of Paraquat in the Substantia Nigra Pars Compacta and Striatum of Male C57BL/6J Mice,* right?  A. That's correct.	2 3 4 5	Q. And James Mathews – what was his job? A. James – now, I can't remember exactly what James did. He was at RTI International. So I'd have to double-check exactly what his role was. Q. Okay. And there's Merrill Tisdel. She
2 3 4 5	Neurochemical, Stereological, and Neuropathological Studies on Potential Effects of Paraquat in the Substantia Nigra Pars Compacta and Striatum of Male C57BL/6J Mice," right?  A. That's correct. Q. And we have as the principal	2 3 4 5 6	Q. And James Mathews – what was his job? A. James – now, I can't remember exactly what James did. He was at RTI International. So i'd have to double-check exactly what his role was. Q. Okay. And there's Merrill Tisdel. She worked for Syngenta Crop Protection, correct?
2 3 4 5 6 7	Neurochemical, Stereological, and Neuropathological Studies on Potential Effects of Paraquat in the Substantia Nigra Pars Compacta and Striatum of Male C57BL/6J Mice," right?  A. That's correct.  Q. And we have as the principal investigator Charles Breckenridge, right?	2 3 4 5 6 7	Q. And James Mathews – what was his job? A. James – now, I can't remember exactly what James did. He was at RTI International. So I'd have to double-check exactly what his role was. Q. Okay. And there's Merrill Tisdel. She worked for Syngenta Crop Protection, correct? A. Yes. It's a gentleman. And, yes, he
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2 3 4 5 6 7 8	Neurochemical, Stereological, and Neuropathological Studies on Potential Effects of Paraquat in the Substantia Nigra Pars Compacta and Striatum of Male C57BL/6J Mice," right?  A. That's correct.  Q. And we have as the principal investigator Charles Breckenridge, right?  A. That's correct.  Q. And then he is followed by, as the list goes on, Nicholas Sturgess.  He worked at Syngenta Limited	2 3 4 5 6 7 8 9 10	Q. And James Mathews – what was his job? A. James – now, I can't remember exactly what James did. He was at RTI International. So I'd have to double-check exactly what his role was. Q. Okay. And there's Merrill Tisdel. She worked for Syngenta Crop Protection, correct? A. Yes. It's a gentleman. And, yes, he was with Syngenta. Q. And what did Merrill Tisdel do? A. Merrill was one of the people in the product safety department in Greensboro. So he —
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Neurochemical, Stereological, and Neuropathological Studies on Potential Effects of Paraquat in the Substantia Nigra Pars Compacta and Striatum of Male C57BL/6J Mice," right?  A. That's correct.  Q. And we have as the principal investigator Charles Breckenridge, right?  A. That's correct.  Q. And then he is followed by, as the list goes on, Nicholas Sturgess.  He worked at Syngenta Limited  Jealott's Hill at that time, right?  A. Yes, that's correct. And he was previously at CTL Syngenta.  Q. Okay. And then there's a Mark Butt, right?  A. Yes.  Q. And he worked at Tox Path Specialists,	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Q. And James Mathews – what was his job? A. James – now, I can't remember exactly what James did. He was at RTI International. So I'd have to double-check exactly what his role was. Q. Okay. And there's Merrill Tisdel. She worked for Syngenta Crop Protection, correct? A. Yes. It's a gentleman. And, yes, he was with Syngenta. Q. And what did Merrill Tisdel do? A. Merrill was one of the people in the product safety department in Greensboro. So he – he was largely Involved in what we call "study monitoring." So he went to visit WIL and WIL Laboratories particularly to make sure that everything was being done appropriately. Q. And Danlel Minnema – he also worked for Syngenta. And what did his Job entail? A. Yes. He is a neurotoxicology expert.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Neurochemical, Stereological, and Neuropathological Studies on Potential Effects of Paraquat in the Substantia Nigra Pars Compacta and Striatum of Male C57BL/6J Mice," right?  A. That's correct.  Q. And we have as the principal investigator Charles Breckenridge, right?  A. That's correct.  Q. And then he is followed by, as the list goes on, Nicholas Sturgess.  He worked at Syngenta Limited  Jealott's Hill at that time, right?  A. Yes, that's correct. And he was previously at CTL Syngenta.  Q. Okay. And then there's a Mark Butt, right?  A. Yes.  Q. And he worked at Tox Path Specialists, LLC, In Frederick, Maryland, right?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Q. And James Mathews – what was his job? A. James – now, I can't remember exactly what James did. He was at RTI International. So I'd have to double-check exactly what his role was. Q. Okay. And there's Merrill Tisdel. She worked for Syngenta Crop Protection, correct? A. Yes. It's a gentleman. And, yes, he was with Syngenta. Q. And what did Merrill Tisdel do? A. Merrill was one of the people in the product safety department in Greensboro. So he – he was largely involved in what we call "study monitoring." So he went to visit WIL and WIL Laboratories particularly to make sure that everything was being done appropriately. Q. And Danlel Minnema – he also worked for Syngenta. And what did his Job entail? A. Yes. He is a neurotoxicology expert.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Neurochemical, Stereological, and Neuropathological Studies on Potential Effects of Paraquat in the Substantia Nigra Pars Compacta and Striatum of Male C57BL/6J Mice," right?  A. That's correct.  Q. And we have as the principal investigator Charles Breckenridge, right?  A. That's correct.  Q. And then he is followed by, as the list goes on, Nicholas Sturgess.  He worked at Syngenta Limited  Jealott's Hill at that time, right?  A. Yes, that's correct. And he was previously at CTL Syngenta.  Q. Okay. And then there's a Mark Butt, right?  A. Yes.  Q. And he worked at Tox Path Specialists, LLC, in Frederick, Maryland, right?  A. That's right.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Q. And James Mathews – what was his job? A. James – now, I can't remember exactly what James did. He was at RTI International. So I'd have to double-check exactly what his role was. Q. Okay. And there's Merrill Tisdel. She worked for Syngenta Crop Protection, correct? A. Yes. It's a gentleman. And, yes, he was with Syngenta. Q. And what did Merrill Tisdel do? A. Merrill was one of the people in the product safety department in Greensboro. So he – he was largely involved in what we call "study monitoring." So he went to visit WIL and WIL Laboratories particularly to make sure that everything was being done appropriately. Q. And Daniel Minnema – he also worked for Syngenta. And what did his job entail? A. Yes. He is a neurotoxicology expert. So he was particularly involved in reviewing some of the data.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Neurochemical, Stereological, and Neuropathological Studies on Potential Effects of Paraquat in the Substantia Nigra Pars Compacta and Striatum of Male C57BL/6J Mice," right?  A. That's correct.  Q. And we have as the principal investigator Charles Breckenridge, right?  A. That's correct.  Q. And then he is followed by, as the list goes on, Nicholas Sturgess.  He worked at Syngenta Limited  Jealott's Hill at that time, right?  A. Yes, that's correct. And he was previously at CTL Syngenta.  Q. Okay. And then there's a Mark Butt, right?  A. Yes.  Q. And he worked at Tox Path Specialists, LLC, in Frederick, Maryland, right?  A. That's right.  Q. What did he do in this study?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q. And James Mathews – what was his job? A. James – now, I can't remember exactly what James did. He was at RTI International. So I'd have to double-check exactly what his role was. Q. Okay. And there's Merrill Tisdel. She worked for Syngenta Crop Protection, correct? A. Yes. It's a gentleman. And, yes, he was with Syngenta. Q. And what did Merrill Tisdel do? A. Merrill was one of the people in the product safety department in Greensboro. So he – he was largely involved in what we call "study monitoring." So he went to visit Wil. and – Wil. Laboratories particularly to make sure that everything was being done appropriately. Q. And Daniel Minnema – he also worked for Syngenta. And what did his job entail? A. Yes. He is a neurotoxicology expert. So he was particularly involved in reviewing some of the data. Q. And then there's Kim Travis, Andy Cook,
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Neurochemical, Stereological, and Neuropathological Studies on Potential Effects of Paraquat in the Substantia Nigra Pars Compacta and Striatum of Male C57BL/6J Mice," right?  A. That's correct.  Q. And we have as the principal investigator Charles Breckenridge, right?  A. That's correct.  Q. And then he is followed by, as the list goes on, Nicholas Sturgess.  He worked at Syngenta Limited  Jealott's Hill at that time, right?  A. Yes, that's correct. And he was previously at CTL Syngenta.  Q. Okay. And then there's a Mark Butt, right?  A. Yes.  Q. And he worked at Tox Path Specialists, LLC, in Frederick, Maryland, right?  A. That's right.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Q. And James Mathews – what was his job? A. James – now, I can't remember exactly what James did. He was at RTI International. So I'd have to double-check exactly what his role was. Q. Okay. And there's Merrill Tisdel. She worked for Syngenta Crop Protection, correct? A. Yes. It's a gentleman. And, yes, he was with Syngenta. Q. And what did Merrill Tisdel do? A. Merrill was one of the people in the product safety department in Greensboro. So he – he was largely involved in what we call "study monitoring." So he went to visit WiL and WIL Laboratories particularly to make sure that everything was being done appropriately. Q. And Danlel Minnema – he also worked for Syngenta. And what did his Job entail? A. Yes. He is a neurotoxicology expert. So he was particularly involved in reviewing some of the data.

	Page 1565		Page 1567
1 <b>Q</b> .	Okay. This particular study the	1	is the striatum. So there is a nerve – a nervous
2 Brecker	nridge 2013 study, we can refer to it as	2	connection between the substantia nigra and the
3 <b>examin</b>	ed the effects of paraquat dosing on the	3	striatum. And that's that's dopamine is
4 <b>C57 bla</b>	ck mouse by Intraperitoneal injection, didn't	4	produced at the end of those those nervous
5 it?		5	connections.
6 <b>A</b> .	That's right.	6	Q. Dopamine is the neurotransmitter that is
7 <b>Q.</b>	This is another of the studies that was	7	responsible for controlling movement, correct?
8 decided	on in the meeting in the lab, correct?	8	A. It Is.
9 <b>A</b> .	Yes, that's right.	9	Q. The loss of dopamine is what causes the
10 <b>Q</b> .	Okay. And one of the pathologic	10	onset of motor symptoms in PD patients, Parkinson's
11 halimar	ks of – of PD is the loss of	11	disease patients, right?
12 dopami	ne-producing neurons in the substantia nigra,	12	A. That's correct.
13 right?		13	Q. Now, in this study, you were dosing the
-	That's right.	14	animals in the amount of 1, 10, 15, 25, 30, or
	MR. NARESH: Objection. Asked and	15	35 milligrams per kilogram per week, correct?
16 answer	•	16	A. That's correct.
	Go ahead.	17	Q. And if you want to look at page 3 of 14,
	MR. TILLERY:	18	that will give you the dose administration if you
	The TH is tyrosine hydroxylase, right?	19	want to verify my statement.
	what's referenced in this study? TH?	20	A. Yes. Thanks for that. And, yes, that
	•	21	Is correct.
	Yes. TH is tyrosine hydroxylase.	22	
	That's an enzyme that controls the	1	Q. Okey. Mice were injected
	Iting step in making dopamine, right?	23	Intraperitoneally – and we refer to that and you
24 <b>A</b> .	That's correct.	24	refer to that as an IP — one, two, or three times
	Page 1566		Page 1568
1 <b>Q.</b>	So it is the key enzyme in the	1	Charren steem and bederage animate dans dilin
2 protect			with each injection separated by a week, correct?
	on of dopamine from dopaminergic neurons,	2	A. That's correct.
3 Isn't it?	on of dopamine from dopaminergic neurons,	1	
3 Isn't it?	on of dopamine from dopaminergic neurons, It is, yes.	2	A. That's correct.
3 <b>Isn't it?</b> 4 A.		2 3	A. That's correct.     Q. The study was done to show that paraquat
<ul><li>3 Isn't it?</li><li>4 A.</li></ul>	It is, yes.	2 3 4	A. That's correct.     Q. The study was done to show that paraquat does not cause the death of dopaminergic neurons in
<ul><li>3 Isn't it?</li><li>4 A.</li><li>5 Q.</li></ul>	It is, yes.	2 3 4 5	A. That's correct.     Q. The study was done to show that paraquat does not cause the death of dopaminergic neurons in the substantia nigra, correct?
3	It is, yes.  Without TH+, no dopamine is produced, is  MR. NARESH: I will object to this line	2 3 4 5 6	A. That's correct.     Q. The study was done to show that paraquat does not cause the death of dopaminergic neurons in the substantia nigra, correct?     A. Not quite correct. It was to
3	It is, yes.  Without TH+, no dopamine is produced, is	2 3 4 5 6 7	A. That's correct.     Q. The study was done to show that paraquat does not cause the death of dopaminergic neurons in the substantia nigra, correct?     A. Not quite correct. It was to investigate whether paraquat might cause the loss of
3	It is, yes.  Without TH+, no dopamine is produced, is  MR. NARESH: I will object to this line tioning as calling for expert testimony. If eave a standing objection?	2 3 4 5 6 7 8	A. That's correct.  Q. The study was done to show that paraquat does not cause the death of dopaminergic neurons in the substantia nigra, correct?  A. Not quite correct. It was to investigate whether paraquat might cause the loss of dopaminergic neurons.  Q. But at a dose of 15 milligrams per
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	Page 1569		Page 157
1	A. No.	1	BY MR. TILLERY:
2	Q. No. Okay. So there was a reduction in	2	Q. And the dose of 15 milligrams per
3	that Test 4 of about 30 percent of the TH+ neurons,	3	kllogram administered three times a week caused
4	right?	4	paraquat to kill more TH+ neurons than the MPTP did
5	And if you want to verify that, that's	5	correct?
6	page 8, first column under "Stereology, Studies 4	6	A. In this study, that is that is the
7	and 5."	7	case.
8	A. Yes. Okay. That's fine.	8	Q. So paraquat was more toxic than your
9	Q. All right. Now, if you go to page 8,	9	positive control of MPTP at that dose in Study 4,
LO	again, there is a Figure 4. Okay?	10	wasn't it?
1	A. I've got that.	11	A. Yes. But you have to be very careful
L 2	Q. Okay. Do you see Figure 4?	12	about how you interpret the the results of the
13	A. Ido.	13	study.
L 4	Q. All right. So you replicated the	14	So this study was looking at more than
15	findings of loss of dopaminergic neurons with	15	just the measurement of TH-positive cells. It was
16	15 milligrams per kilogram similar to findings in the	16	also looking to say if that cell death was real,
17	Independent literature, correct?	17	then you would also see other pathological events
L 7	A. Absolutely.	18	which would, if you like, confirm that it was cell
L 9	Q. And Independent studies done in	19	death. And that was where our study went further
20	laboratories worldwide show that paraquat causes loss	20	than the published research and was unable to show
21	of TH+ neurons in the substantia nigra. Would you	21	that.
	· ·	22	
22	agree?		Q. Yeah. I move to strike your answer as
23	MR. NARESH: Object to let me	23	unresponsive.
24	just make would you just let me let me get my	24	My question is simple. So with respect
	Page 1570		Page 1572
1	objections in if you would.	1	to paraquat as used against the control MPTP In
1 2	objections in if you would. So I'll object to the question as	1 2	to paraquat as used against the control MPTP In Study 4, paraquat was shown to be more toxic than
		1	-
2	So I'll object to the question as	2	Study 4, paraquat was shown to be more toxic than
2	So I'll object to the question as phrased. I think it's incomplete. But if you feel	2	Study 4, paraquat was shown to be more toxic than the positive control of MPTP at least in that study,
2 3 4	So I'll object to the question as phrased. I think it's incomplete. But if you feel like you can answer it, please go ahead.	2 3 4	Study 4, paraquat was shown to be more toxic than the positive control of MPTP at least in that study, correct?
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2 3 4 5 6 7 8 9 10 11 11 12 13 14 15 16 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19	So I'll object to the question as phrased. I think it's incomplete. But if you feel like you can answer it, please go ahead. BY MR. TILLERY: Q. Go ahead, sir. A. Now, just ask the question again, please. Q. Okay. Independent laboratories and studies done – strike that. Independent studies done in independent laboratories worldwide have shown that paraquat causes loss of TH+ neurons in the substantia nigra. Would you agree? A. Yes. Q. Okay. And, again, I think we said the loss of TH+ dopaminergic neurons in the substantia nigra is one of the pathologic hallmarks of Parkinson's disease, right? MR. NARESH: Objection. Asked and	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Study 4, paraquat was shown to be more toxic than the positive control of MPTP at least in that study, correct?  A. I think that isn't the right way to put it because, as I said in quite a few questions ago now, the purpose of MPTP was not there to do a comparison of the potency of between paraquat and MPTP. It was there as a methodological control.  So I don't think you can make conclusions about the effect of 15 milligrams per kilogram being greater than that with MPTP.  Q. Well, did you have more evidence of the death of TH+ neurons with the use of MPTP or with the use of paraquat in Study 4?  A. Well, if you look at the totality of the data in this paper, MPTP caused all the other pathological changes that we would have expected to see if there was a genuine loss or death of the neurons in the substantia nigra. So the other

	Page 1573		Page 157!
1	I'm asking you a specific question.	1	Q. And which one had sustained more loss of
2	And we're looking very specifically at a - on	2	TH neurons? Is it paraquat?
3	page 8, Figure 4, the column. And you're comparing	3	A. Yeah. The paraquat 15 milligrams per
4	the control versus paraquat, and you're looking very	4	kllogram, which, again, I say we were very open to
5	specifically at one study. Okay?	5	discussing in this paper.
6	And all I'm asking you is using that	6	Q. So the answer is, yes, paraquat killed
7	one study, Study 4, if you compare there and you	7	more TH+ neurons than MPTP at the level in Test 4 of
8	look at the 15 milligrams per kilogram administered	8	15 milligrams per kilogram administered three times a
9	three times per week, paraquat killed more TH+	9	week; isn't that true?
0	neurons than MPTP dld.	10	A. No. It's not true. It says that that
1	Is that a correct statement?	11	measurement suggested that there were fewer neuron
2	MR. NARESH: I'll object to the	12	measurable in the paraquat-treated animals compared
3	characterization of the study. I don't think that	13	to MPTP, both compared to controls.
4	accurately characterizes Study 4.	14	It does not, however, when you look at
5	THE WITNESS: No, It doesn't. I	15	the totality of the data in this paper, say that
6	absolutely I agree.	16	that necessarily leads to a conclusion that more
7	This the Study 4 measured - did	17	cells were killed.
8	more than one type of measurement. It also measured	18	Q. Well, then what is that model – what is
9	the other pathology that I'm talking about. So you	19	that table in that study for if it doesn't mean what
0	have to look at all the effects, not just the one	20	It says? If a reader can't come along and look at
	that's in Figure 4.	21	your table, they have to give you a call to get your
2	BY MR. TILLERY:	22	spin on whatever it really means. I mean, if one is
3	Q. Okay. Let's look at the TH neurons with	23	
	respect to Study 4 that were impacted by MPTP. What	24	reading this as a scientist, what does it tell them?  It tells them in Study 4 at the
_	Daga 4574	-	Page 4574
	Page 1574		Page 1576
	was the number?	1	15 milligram per kilogram administered dose three
2	Go to your – go to your Figure 4 If	2	times per week, paraquat killed more TH+ neurons
	you wouldn't mind.	3	than MPTP. That's what it says, doesn't it?
A	A. Which figure are you asking me for?		
	A. Which lighte are you asking the for:	4	MR. NARESH: Objection. Compound
5	Q. I'm looking at page 8 of that study, and	5	MR. NARESH: Objection. Compound and –
5			
5 6 1	Q. I'm looking at page 8 of that study, and	5	and —
5 6 7 8	I'm looking at page 8 of that study, and that's Study Number 4, experiment in Study Number 4.	5 6	and – THE WITNESS: No.
5 6 1 7	Q. I'm looking at page 8 of that study, and that's Study Number 4, experiment in Study Number 4.  A. Right. I'm sorry. What's your	5 6 7	and –  THE WITNESS: No.  MR. NARESH: Objection. Compound and
5 6 7 8	Q. I'm looking at page 8 of that study, and that's Study Number 4, experiment in Study Number 4.  A. Right. I'm sorry. What's your question?	5 6 7 8	and –  THE WITNESS: No.  MR. NARESH: Objection. Compound and argumentative.
5 6 1 7 8 9	Q. I'm looking at page 8 of that study, and that's Study Number 4, experiment in Study Number 4.  A. Right. I'm sorry. What's your question?  Q. My question is I want you to compare the	5 6 7 8 9	and –  THE WITNESS: No.  MR. NARESH: Objection. Compound and argumentative.  You can answer.
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5 6 1 7 8 9 9 0 1 1 1 1 2 2 3 1 1 1 1 2 5 6 6 7 8 8 9 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Q. I'm looking at page 8 of that study, and that's Study Number 4, experiment in Study Number 4.  A. Right. I'm sorry. What's your question?  Q. My question is I want you to compare the impact on TH neurons between paraquat and the control MPTP in Study 4. What were the raw numbers?  A. So you're asking me to look at the — the black line which is MPTP and the one immediately to the left which is the green hash 15 milligrams per kilogram?  Q. Right.  A. Yeah.  Q. What does that tell you? Is my answer correct — is the answer "Yes" to my question?  A. There was a difference in the number of measured neurons between those two groups.	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	and —  THE WITNESS: No.  MR. NARESH: Objection. Compound and argumentative.  You can answer.  THE WITNESS: No. It doesn't say that necessarily.  It says that the ability to detect neurons using this stereological method suggested that there was a difference. But what I'm saying is that you have to look at all the information in order to properly interpret that, and that was really the heart of this paper.  So the reader of this paper wouldn't be able to see that what we're saying is that, yes, using the stereological method, there was a suggestion that more cells were killed, more to your
5 6 1 7 8 9 0 II 1 2 3 11 5 6 7 8 9 0 0	Q. I'm looking at page 8 of that study, and that's Study Number 4, experiment in Study Number 4.  A. Right. I'm sorry. What's your question?  Q. My question is I want you to compare the impact on TH neurons between paraquat and the control MPTP in Study 4. What were the raw numbers?  A. So you're asking me to look at the — the black line which is MPTP and the one immediately to the left which is the green hash 15 milligrams per kilogram?  Q. Right.  A. Yeah.  Q. What does that tell you? Is my answer correct — is the answer "Yes" to my question?  A. There was a difference in the number of	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	and –  THE WITNESS: No.  MR. NARESH: Objection. Compound and argumentative.  You can answer.  THE WITNESS: No. It doesn't say that necessarily.  It says that the ability to detect neurons using this stereological method suggested that there was a difference. But what I'm saying is that you have to look at all the Information in order to properly interpret that, and that was really the heart of this paper.  So the reader of this paper wouldn't be able to see that what we're saying is that, yes,

	Page 1577		Page 1579
1	BY MR. TILLERY:	1	A. Yes. Yes.
2	Q. So the other – the other evidence would	2	Q. Causes a measurable loss in neuronal
3 <b>t</b>	e Study 5, right?	3	cells in the substantia nigra, right?
4	A. It would be the other pathology that we	4	A. It does.
5 <b>l</b> e	ooked at to look at microglia, astrocytes, and so	5	Q. In Study 4, you dose the mice four times
6 6	on.	6	in eight hours with 10 milligrams per kilogram of
7	Q. And you did a Study 5 where you tried to	7	MPTP, didn't you?
8 r	eplicate exactly the results of Study 4, right?	8	A. Correct.
9	A. Right.	9	Q. You found a statistically significant
10	Q. And you did it the same way, didn't you?	10	loss of TH neurons with chromogenic stain, right?
11	A. I believe so, yes.	11	A. That's correct.
12	Q. And you used the same dosing regimen in	12	Q. In Study 5, you dosed the mice four
	Study 4 and 5, but you did not find the same result	13	times in eight hours with 10 milligrams per kilogram
	of loss of TH neurons with paraquat, did you?	14	of MPTP, right?
15	A. That's correct, yes.	15	A. That's correct.
16	Q. Okay. So between the studies of 4 and 5	16	Q. But in Study 5, you did not find a
	at 15 milligrams per kilogram, you could not	17	statistically significant loss of TH+ neurons with
	eplicate your own results, right?	18	chromogenic stain, did you?
19	A. That's correct. And that's – that	19	A. No. But we did see it with a
	vas that was the continued picture that we were	20	fluorescent stain.
	seeing here that this was a phenomenon that was	21	Q. Move to strike your answer as
	difficult to replicate.	22	unresponsive.
23	Q. And if you go to page 12 of the study,	23	But in Study 5, you did not find a
-	and I think it's line 10, you state, "The low-dose	24	statistically significant loss of TH+ neurons with
		4	
	Page 1578		Page 1580
1 re	Page 1578 egimen used in these experiments was deliberately	1	Page 1580 chromogenic stain, right?
		1 2	
2 <b>e</b> i	egimen used in these experiments was deliberately	1	chromogenic stain, right?
2 <b>e</b> i	egimen used in these experiments was deliberately mployed to determine if the stereological methods	2	chromogenic stain, right?  A. We used two methods to be able so we
2 en 3 w 4 ch	egimen used in these experiments was deliberately mployed to determine if the stereological methods ould be sensitive enough to direct relatively small	2 3	chromogenic stain, right?  A. We used two methods to be able so we could be really sure that we knew what we were
2 en 3 w 4 ch	egimen used in these experiments was deliberately imployed to determine if the stereological methods ould be sensitive enough to direct relatively small manges in the number of TH+ neurons in the	2 3 4	chromogenic stain, right?  A. We used two methods to be able so we could be really sure that we knew what we were measuring.
2 ei 3 w 4 cl 5 si	egimen used in these experiments was deliberately imployed to determine if the stereological methods ould be sensitive enough to direct relatively small manges in the number of TH+ neurons in the ubstantia nigra pars compacta," correct?	2 3 4 5	chromogenic stain, right?  A. We used two methods to be able so we could be really sure that we knew what we were measuring.  Q. Right. Actually, I'm going to ask about
2 e1 3 w 4 cl 5 st 6 7	egimen used in these experiments was deliberately imployed to determine if the stereological methods ould be sensitive enough to direct relatively small manges in the number of TH+ neurons in the abstantia nigra pars compacta," correct?  A. That's correct.	2 3 4 5 6	chromogenic stain, right?  A. We used two methods to be able so we could be really sure that we knew what we were measuring.  Q. Right. Actually, I'm going to ask about the other one. Can you answer my question?
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2 ei 3 w 4 cl 5 su 6 7 8 cc	egimen used in these experiments was deliberately imployed to determine if the stereological methods ould be sensitive enough to direct relatively small manges in the number of TH+ neurons in the substantia nigra pars compacta," correct?  A. That's correct.  Q. Okay. So stereology is a method used to bunt neurons and preserve brain tissue, right?	2 3 4 5 6 7 8	chromogenic stain, right?  A. We used two methods to be able so we could be really sure that we knew what we were measuring.  Q. Right. Actually, I'm going to ask about the other one. Can you answer my question?  Did you or did you not find a statistically significant loss of TH+ neurons with
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2 en 3 w 4 cl 5 su 6 7 8 cc 9 10 11 de	egimen used in these experiments was deliberately imployed to determine if the stereological methods ould be sensitive enough to direct relatively small nanges in the number of TH+ neurons in the substantia nigra pars compacta," correct?  A. That's correct.  Q. Okay. So stereology is a method used to bunt neurons and preserve brain tissue, right?  A. That's right.  Q. And the purpose of this study was to	2 3 4 5 6 7 8 9	chromogenic stain, right?  A. We used two methods to be able so we could be really sure that we knew what we were measuring.  Q. Right. Actually, I'm going to ask about the other one. Can you answer my question?  Did you or did you not find a statistically significant loss of TH+ neurons with chromogenic stain in Study 5?  A. No. It was just below the level of
2 ei 3 w 4 cl 5 st 6 7 8 cc 9 10 11 dd 12 sc	egimen used in these experiments was deliberately imployed to determine if the stereological methods ould be sensitive enough to direct relatively small nanges in the number of TH+ neurons in the substantia nigra pars compacta," correct?  A. That's correct.  Q. Okay. So stereology is a method used to bunt neurons and preserve brain tissue, right?  A. That's right.  Q. And the purpose of this study was to evelop a stereological cell-counting method that was	2 3 4 5 6 7 8 9 10	chromogenic stain, right?  A. We used two methods to be able so we could be really sure that we knew what we were measuring.  Q. Right. Actually, I'm going to ask about the other one. Can you answer my question?  Did you or did you not find a statistically significant loss of TH+ neurons with chromogenic stain in Study 5?  A. No. It was just below the level of statistical significance.
2 ei 3 w 4 cl 5 st 6 7 8 cc 9 10 11 dc 12 sc 13 nit	egimen used in these experiments was deliberately imployed to determine if the stereological methods could be sensitive enough to direct relatively small enanges in the number of TH+ neurons in the substantia nigra pars compacta," correct?  A. That's correct.  Q. Okay. So stereology is a method used to count neurons and preserve brain tissue, right?  A. That's right.  Q. And the purpose of this study was to evelop a stereological cell-counting method that was ensitive enough to detect very small changes in the	2 3 4 5 6 7 8 9 10 11	chromogenic stain, right?  A. We used two methods to be able so we could be really sure that we knew what we were measuring.  Q. Right. Actually, I'm going to ask about the other one. Can you answer my question?  Did you or did you not find a statistically significant loss of TH+ neurons with chromogenic stain in Study 5?  A. No. It was just below the level of statistical significance.  Q. So, again, you did not replicate your
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2 ei 3 w 4 cl 5 st 6 7 8 cc 6 9 10 11 dd 12 sc 13 ni 14 ps 15 16 M 17 oi 18	egimen used in these experiments was deliberately imployed to determine if the stereological methods ould be sensitive enough to direct relatively small nanges in the number of TH+ neurons in the substantia nigra pars compacta," correct?  A. That's correct.  Q. Okay. So stereology is a method used to bunt neurons and preserve brain tissue, right?  A. That's right.  Q. And the purpose of this study was to evelop a stereological cell-counting method that was ensitive enough to detect very small changes in the number of TH neurons that could have been affected by arraquat, right?  A. Absolutely. That's why we are using IPTP, as I've sald before, to really make sure that our methodology was sensitive.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	chromogenic stain, right?  A. We used two methods to be able so we could be really sure that we knew what we were measuring.  Q. Right. Actually, I'm going to ask about the other one. Can you answer my question?  Did you or did you not find a statistically significant loss of TH+ neurons with chromogenic stain in Study 5?  A. No. It was just below the level of statistical significance.  Q. So, again, you did not replicate your results, did you?  A. MPTP on that occasion didn't give the expected level of response.  Q. You're not able to replicate your results with paraquat at 3 milligrams actually,
2 el a di	egimen used in these experiments was deliberately imployed to determine if the stereological methods ould be sensitive enough to direct relatively small hanges in the number of TH+ neurons in the substantia nigra pars compacta," correct?  A. That's correct.  Q. Okay. So stereology is a method used to bunt neurons and preserve brain tissue, right?  A. That's right.  Q. And the purpose of this study was to evelop a stereological cell-counting method that was ensitive enough to detect very small changes in the number of TH neurons that could have been affected by araquat, right?  A. Absolutely. That's why we are using IPTP, as I've sald before, to really make sure that our methodology was sensitive.  Q. So your positive control was MPTP,	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	chromogenic stain, right?  A. We used two methods to be able so we could be really sure that we knew what we were measuring.  Q. Right. Actually, I'm going to ask about the other one. Can you answer my question?  Did you or did you not find a statistically significant loss of TH+ neurons with chromogenic stain in Study 5?  A. No. It was just below the level of statistical significance.  Q. So, again, you did not replicate your results, did you?  A. MPTP on that occasion didn't give the expected level of response.  Q. You're not able to replicate your results with paraquat at 3 milligrams actually, dosing three times a week at 15 milligrams per
2 ei 3 w 4 cl 5 st 6 7 8 cc 6 9 10 11 dd 12 sc 13 ni 14 ps 15 16 M 17 oi 18	egimen used in these experiments was deliberately imployed to determine if the stereological methods ould be sensitive enough to direct relatively small hanges in the number of TH+ neurons in the substantia nigra pars compacta," correct?  A. That's correct.  Q. Okay. So stereology is a method used to build neurons and preserve brain tissue, right?  A. That's right.  Q. And the purpose of this study was to evelop a stereological cell-counting method that was ensitive enough to detect very small changes in the number of TH neurons that could have been affected by araquat, right?  A. Absolutely. That's why we are using in the purpose of the study was to evelop as the could be the counting method that was ensitive enough to detect very small changes in the number of TH neurons that could have been affected by araquat, right?  A. Absolutely. That's why we are using in the number of the purpose of the country of the purpose of the study was to exceed the number of the neurons that could have been affected by araquat, right?  A. Oksolutely. That's why we are using in the number of the neurons that could have been affected by araquat, right?  A. Oksolutely. That's why we are using in the number of the neurons that could have been affected by araquat, right?  A. Oksolutely. That's why we are using in the number of the neurons that our methodology was sensitive.  Q. So your positive control was MPTP, ight?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	chromogenic stain, right?  A. We used two methods to be able so we could be really sure that we knew what we were measuring.  Q. Right. Actually, I'm going to ask about the other one. Can you answer my question?  Did you or did you not find a statistically significant loss of TH+ neurons with chromogenic stain in Study 5?  A. No. It was just below the level of statistical significance.  Q. So, again, you did not replicate your results, did you?  A. MPTP on that occasion didn't give the expected level of response.  Q. You're not able to replicate your results with paraquat at 3 milligrams actually, dosing three times a week at 15 milligrams per kilogram and in studies 4 and 5 either, were you?
2 ei 3 w 4 cl 5 st 6 7 8 cx 9 10 11 dx 12 st 13 nt 14 px 15 16 M 17 oi 18 19 rig 20 21	egimen used in these experiments was deliberately imployed to determine if the stereological methods ould be sensitive enough to direct relatively small nanges in the number of TH+ neurons in the substantia nigra pars compacta," correct?  A. That's correct.  Q. Okay. So stereology is a method used to bount neurons and preserve brain tissue, right?  A. That's right.  Q. And the purpose of this study was to evelop a stereological cell-counting method that was ensitive enough to detect very small changes in the sumber of TH neurons that could have been affected by araquat, right?  A. Absolutely. That's why we are using interest and preserve that unmethodology was sensitive.  Q. So your positive control was MPTP, ght?  A. Yes.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	chromogenic stain, right?  A. We used two methods to be able so we could be really sure that we knew what we were measuring.  Q. Right. Actually, I'm going to ask about the other one. Can you answer my question?  Did you or did you not find a statistically significant loss of TH+ neurons with chromogenic stain in Study 5?  A. No. It was just below the level of statistical significance.  Q. So, again, you did not replicate your results, did you?  A. MPTP on that occasion didn't give the expected level of response.  Q. You're not able to replicate your results with paraquat at 3 milligrams actually, dosing three times a week at 15 milligrams per kilogram and - In studies 4 and 5 either, were you?  A. Yes. But we were much more frequently
2 ei 3 w 4 cl 5 st 6 7 8 cc 6 9 10 11 dc 12 st 13 ni 14 pt 15 16 M 17 oi 18 19 rig 20 21	egimen used in these experiments was deliberately imployed to determine if the stereological methods ould be sensitive enough to direct relatively small nanges in the number of TH+ neurons in the substantia nigra pars compacta," correct?  A. That's correct.  Q. Okay. So stereology is a method used to build neurons and preserve brain tissue, right?  A. That's right.  Q. And the purpose of this study was to evelop a stereological cell-counting method that was ensitive enough to detect very small changes in the number of TH neurons that could have been affected by araquat, right?  A. Absolutely. That's why we are using the purpose of the sumber of TH neurons that could have sure that the number of the purpose of the swip was a sensitive.  Q. So your positive control was MPTP, ght?  A. Yes.  Q. And it's considered a chemical that	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	chromogenic stain, right?  A. We used two methods to be able so we could be really sure that we knew what we were measuring.  Q. Right. Actually, I'm going to ask about the other one. Can you answer my question?  Did you or did you not find a statistically significant loss of TH+ neurons with chromogenic stain in Study 5?  A. No. It was just below the level of statistical significance.  Q. So, again, you did not replicate your results, did you?  A. MPTP on that occasion didn't give the expected level of response.  Q. You're not able to replicate your results with paraquat at 3 milligrams actually, dosing three times a week at 15 milligrams per kilogram and In studies 4 and 5 either, were you?  A. Yes. But we were much more frequently able to show a significant effect with MPTP.

	Page 1581		Page 1583
1	response.	1	the exact numbers, but I do remember that they got a
2	Q. Is it important if you're just below	2	different level of response.
3	significant levels like at .6 or .06 to consider	3	Q. So your method did not detect the same
4	the where the needle is pointing on those in terms	4	amount of loss that Brooks did, right?
5	of the importance of them?	5	A. That's true.
6	A. I don't quite understand the question.	6	Q. Okay. You used mice in this study that
7	Q. I'm trying to say this: I mean, your	7	were nine to ten weeks old when they were dosed with
8	statistic a confidence interval that you're	8	paraquat, right?
9	looking at 95, you're going to look at anything less	9	A. Yes. I think that's correct.
10	than .05 is – is going to be statistically	10	Q. And that equates to mid-teens to adults?
11	significant generally, right?	11	I'm sorry – strike that.
12	A. Right.	12	That equates to mid-teens in — in
13	Q. In a laboratory.	13	human beings, correct?
		14	A. Yes. I think that was what we
14 15	So if it's – if it's .06, do you look	15	calculated this morning, wasn't it?
	at that as you just said you did here and give	16	<u>.</u>
16	consideration to it because of how close it is to an	1	Q. Okay. When the experiments were
17	arbitrary level of statistical significance?	17	complete, the mice were 12 to 15 weeks old, which is
18	A. Yes, You could do. But we didn't rely	18	the threshold mature adult phase of their life. It's
19	on that because we also have the second method to	19	equivalent to late teens or early 20s for humans,
20	detect a lot of TH neurons in terms of the	20	correct?
21	fluorescent method.	21	A. That's about right, yes.
22	Q. Now, If you go to Figure 4 again on	22	Q. Okay. Now, If you'd go to Figure 1,
23	page 8, using your stereological method, you found	23	page 5. This is a reference to pharmacokinetic
24	about a 25 percent loss with MPTP, right?	24	results.
	Page 1582		Page 1584
1	A. Okay. Yeah.	1	A. Yeah. Okay. Excuse me. I was just
2	Q. Is that right?	2	getting there. Yes. I'm with you now.
3	A. Yes.	3	Q. Would you take a look at this and
4	Q. And you gave MPTP dose of 10 milligrams		-
_		4	tamiliarize yourself with it, please.
5		5	familiarize yourself with it, please.  A. Okav.
5 6	per kilogram every two hours for a maximum of four	I	A. Okay.
5 6 7	per kilogram every two hours for a maximum of four doses, right?	5	A. Okay.     Q. Do the pharmacokinetics results show
6 7	per kilogram every two hours for a maximum of four doses, right?  A. That's right.	5 6	A. Okay.     Q. Do the pharmacokinetics results show that paraquat cleared from the blood within hours but
6 7 8	per kilogram every two hours for a maximum of four doses, right?  A. That's right.  Q. And that's a total of 40 milligrams per	5 6 7	A. Okay.     Q. Do the pharmacokinetics results show that paraquat cleared from the blood within hours but can be found in the brain and persist in the brain.
6 7 8 9	per kilogram every two hours for a maximum of four doses, right?  A. That's right.  Q. And that's a total of 40 milligrams per kilogram, right?	5 6 7 8 9	A. Okay.     Q. Do the pharmacokinetics results show that paraquat cleared from the blood within hours but can be found in the brain and persist in the brain for days?
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6 7 8 9 10	per kilogram every two hours for a maximum of four doses, right?  A. That's right.  Q. And that's a total of 40 milligrams per kilogram, right?  A. That's correct.  Q. You're familiar with the Brooks study.	5 6 7 8 9 10	A. Okay.  Q. Do the pharmacokinetics results show that paraquat cleared from the blood within hours but can be found in the brain and persist in the brain for days?  A. Yes. That's true.  Q. So you found clearly that paraquat does
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6 7 8 9 10 11 12 13 14 15 16 17 18	per kilogram every two hours for a maximum of four doses, right?  A. That's right. Q. And that's a total of 40 milligrams per kilogram, right? A. That's correct. Q. You're familiar with the Brooks study. You cited it in one of these – the 1999 Brooks study. Are you familiar with that? A. Yes. Indeed, yes. Q. Okay. They administered 40 milligrams per kilogram, right? A. I would need to go back and check that but Q. I'll represent to you that's what I saw	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A. Okay. Q. Do the pharmacokinetics results show that paraquat cleared from the blood within hours but can be found in the brain and persist in the brain for days? A. Yes. That's true. Q. So you found clearly that paraquat does cross the blood-brain barrier, right? A. It certainly gets into the brain, yes. Q. And how long is the half life of paraquat in the brain? A. I believe we calculated it around about 22, 23 days from memory. Q. Okay. Could you in this study determine where in the brain the paraquat was located?
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	per kilogram every two hours for a maximum of four doses, right?  A. That's right.  Q. And that's a total of 40 milligrams per kilogram, right?  A. That's correct.  Q. You're familiar with the Brooks study.  You cited it in one of these – the 1999 Brooks study. Are you familiar with that?  A. Yes. Indeed, yes.  Q. Okay. They administered 40 milligrams per kilogram, right?  A. I would need to go back and check that but  Q. I'll represent to you that's what I saw in the Brooks study.	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	A. Okay. Q. Do the pharmacokinetics results show that paraquat cleared from the blood within hours but can be found in the brain and persist in the brain for days? A. Yes. That's true. Q. So you found clearly that paraquat does cross the blood-brain barrier, right? A. It certainly gets into the brain, yes. Q. And how long is the half life of paraquat in the brain? A. I believe we calculated it around about 22, 23 days from memory. Q. Okay. Could you in this study determine where in the brain the paraquat was located? A. Well, this Figure 1 shows we we
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	Page 1585		Page 158
	So we detected more, actually, in the	1	A. No. This used dlet.
2	olfactory bulb, as we were talking about earlier,	2	<ul> <li>Q. And, again, the stereology was done by</li> </ul>
3	which is outside the blood-brain barrier.	3	Mr. Zadory?
ļ	<ul> <li>Q. Have you ever taken a look at your</li> </ul>	4	A. That's correct.
5	studies and compared them in terms of the age of the	5	Q. In this study for 13 weeks, you fed male
5	mice with the effects that the age has on the outcome	6	and female C57BL/6J mice control zero, then 10,
	of neurotoxicity studies of paraquat?	7	50 milligrams per kilogram of paraquat, right?
	A. Yes. I mean, we looked at age of	8	A. That's correct.
•	mice excuse me as one of the factors that may	9	Q. Neurochemical, neuropathological, and
	be important in the Smeyne study that we talked	10	stereological measurements indicated no losses of
	about was published a few years after this one.	11	dopamine or its metabolites in the brains of
	Q. Okay. Now, let's move to Exhibit 143.	12	paraquat-treated mice, right?
i	(Exhibit 143 was identified	13	A. That's correct.
	for the record.)	14	Q. No loss of dopaminergic neurons were
	BY MR. TILLERY:	15	reported, right?
	Q. And if you'd open up this exhibit, take	16	A. That's right.
	a look at it and tell me if you can identify this.	17	Q. No activation or – of astrocytes or
	A. Okay. So this is a follow-up one of	18	microglia, right?
	the follow-up studies that we did where we looked at	19	A. That's right. That's the initial
	the administration of paraquat to mice but using a	20	pathology I was talking about in the previous study.
	different route of administration. So this was in	21	Q. And the mice you used were ten weeks ok
	the diet.	22	at the beginning of the study, right?
	Q. So let's look, if we can, at the - If	23	A. Just checking that, Yes, Applied at
	we go back to the prior study, I'll look at this and	24	seven weeks of age.
	Page 1586		Page 158
:	Page 1586 show the publication date.	1	Page 158
	_	1 2	
	show the publication date.	1	Q. And at the end of the study, they were
	show the publication date.  The Breckenridge study was submitted —	2	Q. And at the end of the study, they were 23 weeks old, right?
	show the publication date.  The Breckenridge study was submitted — received for publication August 14th, 2012; accepted	2 3	<ul><li>Q. And at the end of the study, they were</li><li>23 weeks old, right?</li><li>A. That would be about right, yes.</li></ul>
	show the publication date.  The Breckenridge study was submitted – received for publication August 14th, 2012; accepted March 12th, 2013; and put online March 21st.	2 3 4	<ul> <li>Q. And at the end of the study, they were</li> <li>23 weeks old, right?</li> <li>A. That would be about right, yes.</li> <li>Q. Okay. So what does that equate to in</li> </ul>
	show the publication date.  The Breckenridge study was submitted — received for publication August 14th, 2012; accepted March 12th, 2013; and put online March 21st.  Does that sound right?	2 3 4 5	<ul> <li>Q. And at the end of the study, they were</li> <li>23 weeks old, right?</li> <li>A. That would be about right, yes.</li> <li>Q. Okay. So what does that equate to in</li> <li>the human population? Teenage?</li> </ul>
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,	show the publication date.  The Breckenridge study was submitted — received for publication August 14th, 2012; accepted March 12th, 2013; and put online March 21st.  Does that sound right?  A. That is correct, yes. I've actually got it — I just had a — looked at a copy I've got by the side of me, and that is correct.  Q. All right. And then if you look at this one, it says it was received — "this one" being Exhibit 143, the so-called Minnema study. It says this one was received September 27th, 2013; available online January 3rd, 2014. Right?  A. Yes.  Q. Okay. Now, this group of authors is virtually identical to the prior study, right?  A. It is.  Q. is there any difference in this group other than the fact that Dan Minnema is now listed as the primary or principal investigator?  A. No. I think it's identical.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q. And at the end of the study, they were 23 weeks old, right?  A. That would be about right, yes. Q. Okay. So what does that equate to in the human population? Teenage? A. I'm — Q. Preteen? Something like that? A. Yeah. I mean, it's similar to what — the calculations we made before; so into their 20s. Q. In maybe their 20s. At — Into a category where we've never in medical history seen a category where we've never in medical history seen a Parkinson's disease human victim, correct? A. Yes, that's right. Q. Okay. Now, if we could go to page 7. A. Okay. Q. Excuse me. That may be the wrong page. Okay. If we go to — let me read this — seven, yes. Okay. In the bottom of the first column, do you see the paragraph that starts off "Several previous PQ studies"?

Page 1589		Page 1591
e and multiple, typically three,	1	Did you put it in there?
of paraquat. The doses used were	2	A. Well, no, because the Marks studies
ms."	3	were not published.
ng this animal model, a	4	Q. All right. So does this say in here
ories have observed a reduction in	5	anything about published – publishing?
nts of dopaminergic neurons in the	6	You say here, "Our IP studies using
flowing dosing."	7	neuropathology, stereology, and specific stains for
e that?	8	glial activation have failed to replicate previously
	9	published findings." And that is
reference Brooks, et al., 1999;	10	A. Right.
nack, 2002. Right?	11	Q exactly opposite of what she found in
	12	her studies. She said in her conclusions that her
ld you mind reading the next	13	studies did replicate what was in the public domain,
ecord?	14	didn't she?
traperitoneal, "studies	15	A. Yeah. Both statements are correct.
ogy, stereology, and specific	16	Q. Okay. You just left it out, didn't you?
lial activation have falled to	17	A. We we -   mean, your insinuation is
/ published findings even with	18	that we deliberately left it out, and that's not a
approaching the maximum tolerated	19	reasonable comment to make because we fully
	20	recognized that the public research shows that
	21	there's an effect. That's where the whole research
actually referenced Breckenridge	22	program was based, an assumption that that was
	23	correct.
	24	Q. That statement is a lie, isn't it?
Page 1590		Page 1592
oked at Breckenridge and said	1	That statement in that study that you
gs in Study 4 in the Breckenridge	2	all signed on behalf of Syngenta is an absolute
ed that your studies using this -	3	bald-faced lie, isn't it?
ques did not find evidence of a	4	MR. NARESH: Objection. Compound.
	5	Argumentative. You're already asked the question in
nt. That's what I was		
	6	nonargumentative terms.
We – we went a number of steps	6 7	
	7	nonargumentative terms.
We – we went a number of steps	7	nonargumentative terms.  THE WITNESS: It certainly is not a lle, no. If you're referring to the statement "Our IP studies," et cetera, that is not a lie.
We – we went a number of steps – some of those previous ur overall conclusion is that	7	nonargumentative terms.  THE WITNESS: It certainly is not a lle, no. If you're referring to the statement "Our
We – we went a number of steps – some of those previous ur overall conclusion is that r effect even at the 15 milligrams	7 8 9	nonargumentative terms.  THE WITNESS: It certainly is not a lle, no. If you're referring to the statement "Our IP studies," et cetera, that is not a lie.
We – we went a number of steps – some of those previous ur overall conclusion is that r effect even at the 15 milligrams n you looked at all of those	7 8 9 10	nonargumentative terms.  THE WITNESS: It certainly is not a lle, no. If you're referring to the statement "Our IP studies," et cetera, that is not a lie. BY MR. TILLERY:
We – we went a number of steps – some of those previous ur overall conclusion is that r effect even at the 15 milligrams n you looked at all of those	7 8 9 10	nonargumentative terms.  THE WITNESS: It certainly is not a  lle, no. If you're referring to the statement "Our  IP studies," et cetera, that is not a lie.  BY MR. TILLERY:  Q. Okay. Was — was Louise Marks' study an
We – we went a number of steps – some of those previous ur overall conclusion is that r effect even at the 15 milligrams n you looked at all of those ut you didn't say a single word	7 8 9 10 11	nonargumentative terms.  THE WITNESS: It certainly is not a lle, no. If you're referring to the statement "Our IP studies," et cetera, that is not a lie.  BY MR. TILLERY:  Q. Okay. Was – was Louise Marks' study an IP study?
We – we went a number of steps – some of those previous ur overall conclusion is that r effect even at the 15 milligrams n you looked at all of those ut you didn't say a single word ct that Louise Marks had done	7 8 9 10 11 12 13	nonargumentative terms.  THE WITNESS: It certainly is not a lle, no. If you're referring to the statement "Our IP studies," et cetera, that is not a lie.  BY MR. TILLERY:  Q. Okay. Was – was Louise Marks' study an IP study?  A. It was.
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We – we went a number of steps  – some of those previous  ur overall conclusion is that  reffect even at the 15 milligrams in you looked at all of those  ut you didn't say a single word  ct that Louise Marks had done before, three studies in a row, adicted what you published in that  SH: Objection to form.  ssumes facts not in evidence.  ESS: No, we didn't. And –  ized some of the reasons for that, dies –	7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	nonargumentative terms.  THE WITNESS: It certainly is not a  lle, no. If you're referring to the statement "Our  IP studies," et cetera, that is not a lie.  BY MR. TILLERY:  Q. Okay. Was – was Louise Marks' study an  IP study?  A. It was.  Q. Did it involve C – the same study –  same study mouse?  A. It did.  Q. Did it involve neuropathology,  stereology?  A. It – it just used stereology.  Q. Right. And did she find evidence of  Impact at statistically significant levels in three  studies on the dopaminergic neurons in those
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	e and multiple, typically three, of paraquat. The doses used were ms."  Ing this animal model, a pries have observed a reduction in the st of dopaminergic neurons in the st of	e and multiple, typically three, of paraquat. The doses used were ms."  1 g this animal model, a ories have observed a reduction in ots of dopaminergic neurons in the flowing dosing." 2 that?  8 reference Brooks, et al., 1999; nack, 2002. Right?  10 ld you mind reading the next ecord? 11 traperitoneal, "studies 15 rogy, stereology, and specific fillal activation have falled to 17 y published findings even with approaching the maximum tolerated 19 per kilogram dose by the IP 20 chicked at Breckenridge 22 23 24  Page 1590  Roked at Breckenridge and said 19 in Study 4 in the Breckenridge 22 ad that your studies using this — ques did not find evidence of a

	Page 1593		Page 1595
1	Jiao and McCormack dld.	1	greater detail as we have here with the other
2	Q. So the reason you put that in there is	2	pathological measurements.
3	because it – you chose not to publish her studies.	3	Q. I move to strike your answer as
4	Is that the reason?	4	unresponsive.
5	A. No, not at all. Absolutely not.	5	Did you put anywhere in this study any
6	Q. So you you did you forget to	6	reference to Louise Marks, sir?
7	mention her?	7	A. No.
8	A. No. There was no need to mention	8	Q. Okay. And you say you weren't trying to
9	her - mention those studies.	9	hide it.
10	Q. Was there a footnote to reference her?	10	Were you aware, sir, that it wasn't
11	MR. NARESH: Steve	11	until I demanded in a letter that the Louise Marks
12	BY MR. TILLERY:	12	studies be disclosed that they were in December of
13	Q. Was there a footnote by the -	13	2019? Were you aware of that?
14	MR. NARESH: Steve, I know you're	14	MR. NARESH: Objection. Asked and
15	getting –	15	answered ten minutes ago.
16	MR. TILLERY: Excuse me.	16	THE WITNESS: Yeah. Certainly, I was
17	MR. NARESH: You keep cutting the	17	aware of the history of reporting those Marks
18	witness off. No. Steve, you	18	studies to the EPA, yes.
19	MR. TILLERY: Let me finish my	19	BY MR. TILLERY:
20	question.	20	Q. Okay. They weren't reported before I
21	MR. NARESH: No, no, no, no, no. You	21	made that - sent that letter, were they?
22	keep cutting the witness off. Het it go three	22	MR. NARESH: Same objection.
23	times. I know you're all heated but	23	THE WITNESS: No, they weren't.
24	MR. TILLERY: I'm not heated.	24	
	Page 1594		D 4506
	rage 1354		Page 1596
1	MR. NARESH: But I'd ask	1	Page 1596 BY MR. TILLERY:
1 2	_	1 2	-
	MR. NARESH: But I'd ask	1	BY MR. TILLERY:
2	MR. NARESH: But I'd ask MR. TILLERY: I'm sleepy.	2	BY MR. TILLERY: Q. Okay. So I am looking at this sentence
2	MR. NARESH: But I'd ask MR. TILLERY: I'm sleepy. MR. NARESH: I'm going to ask —	2	BY MR. TILLERY: Q. Okay. So I am looking at this sentence again. And it says, "Our IP studies using
2 3 4	MR. NARESH: But I'd ask MR. TILLERY: I'm sleepy. MR. NARESH: I'm going to ask — MR. TILLERY: I'm sleepy. I'm not	2 3 4	BY MR. TILLERY:  Q. Okay. So I am looking at this sentence again. And it says, "Our IP studies using neuropathology, stereology, and specific stains for
2 3 4 5	MR. NARESH: But I'd ask MR. TILLERY: I'm sleepy. MR. NARESH: I'm going to ask MR. TILLERY: I'm sleepy. I'm not heated.	2 3 4 5	BY MR. TILLERY:  Q. Okay. So I am looking at this sentence again. And it says, "Our IP studies using neuropathology, stereology, and specific stains for glial activation have falled to replicate previously
2 3 4 5 6	MR. NARESH: But I'd ask MR. TILLERY: I'm sleepy. MR. NARESH: I'm going to ask — MR. TILLERY: I'm sleepy. I'm not heated. MR. NARESH: You've got to let the	2 3 4 5 6	BY MR. TILLERY:  Q. Okay. So I am looking at this sentence again. And it says, "Our IP studies using neuropathology, stereology, and specific stains for glial activation have falled to replicate previously published findings even with doses of paraquat
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Page 1597	Page 1599
1 what –	1 I move to strike your answer as unresponsive. I'm
Q. You're telling me – you just told the	2 not going to ask it again. I'll ask the court to
ladies and gentlemen of the Jury and the Judge that	3 order you to reappear.
the reason you left her out of there and didn't put	4 So you were comparing paraquat that was
her in the study is because her – her results	5 given In the diet to MPTP that was administered
6 weren't published.	6 through IP Injection, right?
7 I'm asking you looking at that study,	7 A. That's right.
where does it condition your IP studies as being	8 Q. And that's not an apples-to-apples
9 published?	9 comparison? Whether it's part of your test design or
MR. NARESH: Objection.	10 not, it's not an apples-to-apples comparison, is it?
Mischaracterizes prior testimony.	11 A. It's not, and it was not meant to be.
2 THE WITNESS: Yeah. I'm not saying	12 Q. You administered four doses of
3 that the reason you gave was the reason we didn't	13 10 milligrams per kilogram of MPTP about two hours
include it there. I think I've said again just now	14 apart, correct?
very recently that the reference to published data	15 A. Yeah. I think that is correct.
in Brooks, Jiao, and McCormack which Marks	16 Q. Do you want to verify that, sir?
7 replicated was an adequate demonstration that we	17 A. Yeah.
were well aware that other research groups with	18 Q. On page 2 and in the second column, last
9 were believed that paraquat affected dopaminergic	19 paragraph. If you can –
cells In this mouse model.	20 A. Yeah. Just let me double-check that.
BY MR. TILLERY:	21 Q. Go ahead.
	22 A. Yeah. Okay. Go ahead.
Q. Now, let's go back to the study again if	23 Q. Okay. In the female dose, if you'd go
we can, and let's go to page 8 of 9.	24 to page 8 of 9 again.
4 A. Okay.	24 to page 8 of 9 again.
Page 1598	Page 1600
Q. You used the positive control of MPP –	1 A. Okay.
2 MPTP, correct?	2 Q. In the female-dosed mice, those dosed
A. We did.	3 with MPTP, you only found a reduction in dopamine
Q. Again, it's known neurotoxins can be	4 neurons of 5 percent, right?
_	1 Heatons of 5 percent, right:
5 used to induce parkinsonian-like symptoms in	5 A. That's right.
used to induce parkinsonlan-like symptoms in laboratory animals at times, correct?	
	5 A. That's right.
laboratory animals at times, correct?	5 A. That's right. 6 Q. And the P value was .11. So it's not
laboratory animals at times, correct?  A. Yes.	5 A. That's right. 6 Q. And the P value was .11. So it's not 7 statistically significant compared to the control,
6 laboratory animals at times, correct? 7 A. Yes. 8 Q. And you administered MPTP via	5 A. That's right. 6 Q. And the P value was .11. So it's not 7 statistically significant compared to the control, 8 correct?
6 laboratory animals at times, correct? 7 A. Yes. 8 Q. And you administered MPTP via 9 IP injection, right?	5 A. That's right. 6 Q. And the P value was .11. So it's not 7 statistically significant compared to the control, 8 correct? 9 A. That's right.
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A. Yes.  And you administered MPTP via  IP injection, right?  A. We did.  Q. You didn't use the diet?  A. That's correct for the reasons I've	5 A. That's right. 6 Q. And the P value was .11. So it's not 7 statistically significant compared to the control, 8 correct? 9 A. That's right. 10 Q. So that means that MPTP did not kill a 11 statistically significant amount of dopamine neurons
A. Yes.  Q. And you administered MPTP via  IP injection, right?  A. We did.  Q. You didn't use the diet?  A. That's correct for the reasons I've discussed previously. This was a methodological	5 A. That's right. 6 Q. And the P value was .11. So it's not 7 statistically significant compared to the control, 8 correct? 9 A. That's right. 10 Q. So that means that MPTP did not kill a 11 statistically significant amount of dopamine neurons 12 compared to the controls?
A. Yes.  Q. And you administered MPTP via  IP injection, right?  A. We did.  Q. You didn't use the diet?  A. That's correct for the reasons I've  discussed previously. This was a methodological positive control, not a comparison of the effects of	A. That's right.  G. And the P value was .11. So it's not statistically significant compared to the control, correct?  A. That's right.  G. So that means that MPTP did not kill a statistically significant amount of dopamine neurons compared to the controls?  A. That's right.  A. That's right.  G. So your stereology method could not
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A. Yes. Q. And you administered MPTP via IP injection, right? A. We did. Q. You didn't use the diet? A. That's correct for the reasons I've discussed previously. This was a methodological positive control, not a comparison of the effects of MPTP with paraquat in the diet. Q. I move to strike your answer as unresponsive. You didn't use the diet for the administration of MPTP in your test animals, did you, sir?	A. That's right.  G. And the P value was .11. So it's not statistically significant compared to the control, correct?  A. That's right.  G. So that means that MPTP did not kill a statistically significant amount of dopamine neurons compared to the controls?  A. That's right.  G. So your stereology method could not defect what should have been a large change from the controls, correct?  A. Well, you say "Should have been a large change." Again, this is where you do see inconsistency between labs; so and also differences between male and female mice. I mean,

	Page 1601		Page 1603
1	A. So just repeat your question. I'm not	1	MR. NARESH: Objection to the improper
2	quite sure	2	hypothetical.
3	Q. Yeah. I mean, I want to know what	3	Go ahead and answer if you can.
4	assumptions you made in terms of the amount of food	4	THE WITNESS: So what you're trying to
5	that was exposed to paraquat for administration,	5	tell me is that in this study, the mice did eat
6	dietary administration, how much by way of percentage	6	50 percent of their body weight compared to a norm
7	of body weight that the mice ate per day.	7	of 17 percent? I can't confirm that one way or
8	A. How much	8	another, I'm afraid.
9	Q. Can you look up at that?	9	BY MR. TILLERY:
10	A. So what so what percentage of their	10	Q. Okay. So well, let's do it this way,
11	body weight	11	then, so that we don't have to take the time for you
12	Q. Yes.	12	to read the study, which you can do this evening if
13	A did they consume as diet?	13	you want to.
14	Q. Right. In their what did you assume	14	Let's just assume that a study assumed
15	In the study? You were one of the coauthors.	15	for purposes of dietary intake that paraquat-laced
16	A. I that I really can't answer that	16	food was consumed at 50 percent of the mouse's body
17	question without going back to the detail.	17	weight per day. Let's just assume that –
18	Q. Well, why don't you look at it. Take	18	A. Uh-huh.
19	your time and look at it and tell me.	19	Q whether it's true or not. Okay? Are
20	A. I'm not sure that this paper tells me	20	you with me?
21	thet.	21	A. Okay. Yeah.
22	Q. Are you sure? You can't	22	Q. And then let's assume that, in fact, the
23	A. Well	23	mice consumed really only a third of that amount or
24	Q find that information?	24	17 percent per day of their body weight. Would that
	Deca 4600		
	Page 1602		Page 1604
1	A. Well, why don't you point me to	1	Page 1604 Impact the results of your study?
1 2	-	1 2	
	A. Well, why don't you point me to	1	Impact the results of your study?
2	A. Well, why don't you point me to where – where you think might be the answer?	2	Impact the results of your study?  MR. NARESH: Same objection.
2	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we Just do It	2 3	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a
2 3 4	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we Just do it this way: Do you believe that mice would eat	2 3 4	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult an interesting comparison, but you do
2 3 4 5	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we Just do it this way: Do you believe that mice would eat 50 percent of their body weight per day?	2 3 4 5	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult an Interesting comparison, but you do have to remember that in the study we also measured
2 3 4 5 6	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we just do it this way: Do you believe that mice would eat 50 percent of their body weight per day?  A. Fifty percent of their body weight per	2 3 4 5 6	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult an interesting comparison, but you do have to remember that in the study we also measured the internal kinetics. So we measured how much
2 3 4 5 6 7	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we Just do It this way: Do you believe that mice would eat 50 percent of their body weight per day?  A. Fifty percent of their body weight per day? I mean, I couldn't I couldn't answer that	2 3 4 5 6 7	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult an interesting comparison, but you do have to remember that in the study we also measured the internal kinetics. So we measured how much paraquat was actually absorbed, which is a much more
2 3 4 5 6 7 8	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we just do it this way: Do you believe that mice would eat 50 percent of their body weight per day?  A. Fifty percent of their body weight per day? I mean, I couldn't I couldn't answer that question off the top of my head.	2 3 4 5 6 7 8	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult an interesting comparison, but you do have to remember that in the study we also measured the internal kinetics. So we measured how much paraquat was actually absorbed, which is a much more appropriate measure of exposure to paraquat than how
2 3 4 5 6 7 8	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we just do it this way: Do you believe that mice would eat 50 percent of their body weight per day?  A. Fifty percent of their body weight per day? I mean, I couldn't – I couldn't answer that question off the top of my head.  Q. Okay. Do you know what the statistics	2 3 4 5 6 7 8	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult an Interesting comparison, but you do have to remember that in the study we also measured the internal kinetics. So we measured how much paraquat was actually absorbed, which is a much more appropriate measure of exposure to paraquat than how much was in their diet.
2 3 4 5 6 7 8 9	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we just do it this way: Do you believe that mice would eat 50 percent of their body weight per day?  A. Fifty percent of their body weight per day? I mean, I couldn't I couldn't answer that question off the top of my head.  Q. Okay. Do you know what the statistics and other studies show the average consumption by	2 3 4 5 6 7 8 9	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult an Interesting comparison, but you do have to remember that in the study we also measured the internal kinetics. So we measured how much paraquat was actually absorbed, which is a much more appropriate measure of exposure to paraquat than how much was in their diet.  And, you know, in broad terms, the
2 3 4 5 6 7 8 9 10	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we just do it this way: Do you believe that mice would eat 50 percent of their body weight per day?  A. Fifty percent of their body weight per day? I mean, I couldn't I couldn't answer that question off the top of my head.  Q. Okay. Do you know what the statistics and other studies show the average consumption by virtue of body weight of food is for a laboratory	2 3 4 5 6 7 8 9 10	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult — an Interesting comparison, but you do have to remember that in the study we also measured the internal kinetics. So we measured how much paraquat was actually absorbed, which is a much more appropriate measure of exposure to paraquat than how much was in their diet.  And, you know, in broad terms, the amount of paraquat that was absorbed in the study
2 3 4 5 6 7 8 9 10 11	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we just do it this way: Do you believe that mice would eat 50 percent of their body weight per day?  A. Fifty percent of their body weight per day? I mean, I couldn't – I couldn't answer that question off the top of my head.  Q. Okay. Do you know what the statistics and other studies show the average consumption by virtue of body weight of food is for a laboratory mouse?	2 3 4 5 6 7 8 9 10 11	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult an interesting comparison, but you do have to remember that in the study we also measured the internal kinetics. So we measured how much paraquat was actually absorbed, which is a much more appropriate measure of exposure to paraquat than how much was in their diet.  And, you know, in broad terms, the amount of paraquat that was absorbed in the study was not too dissimilar from intra – intraperitoneal
2 3 4 5 6 7 8 9 10 11 12	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we Just do It this way: Do you believe that mice would eat 50 percent of their body weight per day?  A. Fifty percent of their body weight per day? I mean, I couldn't I couldn't answer that question off the top of my head.  Q. Okay. Do you know what the statistics and other studies show the average consumption by virtue of body weight of food is for a laboratory mouse?  A. I must admit it's a while since I wes	2 3 4 5 6 7 8 9 10 11 12 13	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult an interesting comparison, but you do have to remember that in the study we also measured the internal kinetics. So we measured how much paraquat was actually absorbed, which is a much more appropriate measure of exposure to paraquat than how much was in their diet.  And, you know, in broad terms, the amount of paraquat that was absorbed in the study was not too dissimilar from intra – intraperitoneal dosing would.
2 3 4 5 6 7 8 9 10 11 12 13	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we Just do It this way: Do you believe that mice would eat 50 percent of their body weight per day?  A. Fifty percent of their body weight per day? I mean, I couldn't – I couldn't answer that question off the top of my head.  Q. Okay. Do you know what the statistics and other studies show the average consumption by virtue of body weight of food is for a laboratory mouse?  A. I must admit it's a while since I was directly involved in these kind of studies; so I	2 3 4 5 6 7 8 9 10 11 12 13 14	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult an interesting comparison, but you do have to remember that in the study we also measured the internal kinetics. So we measured how much paraquat was actually absorbed, which is a much more appropriate measure of exposure to paraquat than how much was in their diet.  And, you know, in broad terms, the amount of paraquat that was absorbed in the study was not too dissimilar from intra – intraperitoneal dosing would.  BY MR. TILLERY:
2 3 4 5 6 7 8 9 10 11 12 13 14	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we just do it this way: Do you believe that mice would eat 50 percent of their body weight per day?  A. Fifty percent of their body weight per day? I mean, I couldn't – I couldn't answer that question off the top of my head.  Q. Okay. Do you know what the statistics and other studies show the average consumption by virtue of body weight of food is for a laboratory mouse?  A. I must admit it's a while since I was directly involved in these kind of studies; so I don't have that figure to mind.	2 3 4 5 6 7 8 9 10 11 12 13 14 15	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult an Interesting comparison, but you do have to remember that in the study we also measured the internal kinetics. So we measured how much paraquat was actually absorbed, which is a much more appropriate measure of exposure to paraquat than how much was in their diet.  And, you know, in broad terms, the amount of paraquat that was absorbed in the study was not too dissimilar from intra – intraperitoneal dosing would.  BY MR. TILLERY:  Q. So from your standpoint there would be
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we just do it this way: Do you believe that mice would eat 50 percent of their body weight per day?  A. Fifty percent of their body weight per day? I mean, I couldn't – I couldn't answer that question off the top of my head.  Q. Okay. Do you know what the statistics and other studies show the average consumption by virtue of body weight of food is for a laboratory mouse?  A. I must admit it's a while since I was directly involved in these kind of studies; so I don't have that figure to mind.  Q. Well, If the study shows 50 percent and	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult an interesting comparison, but you do have to remember that in the study we also measured the internal kinetics. So we measured how much paraquat was actually absorbed, which is a much more appropriate measure of exposure to paraquat than how much was in their diet.  And, you know, in broad terms, the amount of paraquat that was absorbed in the study was not too dissimilar from intra – intraperitoneal dosing would.  BY MR. TILLERY:  Q. So from your standpoint there would be no difference whatsoever because you made a check and
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we just do it this way: Do you believe that mice would eat 50 percent of their body weight per day?  A. Fifty percent of their body weight per day? I mean, I couldn't — I couldn't answer that question off the top of my head.  Q. Okay. Do you know what the statistics and other studies show the average consumption by virtue of body weight of food is for a laboratory mouse?  A. I must admit it's a while since I was directly involved in these kind of studies; so I don't have that figure to mind.  Q. Well, If the study shows 50 percent and you calculate the amount in their system by virtue of	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult an Interesting comparison, but you do have to remember that in the study we also measured the internal kinetics. So we measured how much paraquat was actually absorbed, which is a much more appropriate measure of exposure to paraquat than how much was in their diet.  And, you know, in broad terms, the amount of paraquat that was absorbed in the study was not too dissimilar from intra – intraperitoneal dosing would.  BY MR. TILLERY:  Q. So from your standpoint there would be no difference whatsoever because you made a check and determined the amount from a pharmacokinetic
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we just do it this way: Do you believe that mice would eat 50 percent of their body weight per day?  A. Fifty percent of their body weight per day? I mean, I couldn't — I couldn't answer that question off the top of my head.  Q. Okay. Do you know what the statistics and other studies show the average consumption by virtue of body weight of food is for a laboratory mouse?  A. I must admit it's a while since I wes directly involved in these kind of studies; so I don't have that figure to mind.  Q. Well, If the study shows 50 percent and you calculate the amount in their system by virtue of what you assume they ate in terms of percentage of	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult an Interesting comparison, but you do have to remember that in the study we also measured the internal kinetics. So we measured how much paraquat was actually absorbed, which is a much more appropriate measure of exposure to paraquat than how much was in their diet.  And, you know, in broad terms, the amount of paraquat that was absorbed in the study was not too dissimilar from intra – intraperitoneal dosing would.  BY MR. TILLERY:  Q. So from your standpoint there would be no difference whatsoever because you made a check and determined the amount from a pharmacokinetic standpoint that was actually in the circulating
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we just do it this way: Do you believe that mice would eat 50 percent of their body weight per day?  A. Fifty percent of their body weight per day? I mean, I couldn't — I couldn't answer that question off the top of my head.  Q. Okay. Do you know what the statistics and other studies show the average consumption by virtue of body weight of food is for a laboratory mouse?  A. I must admit it's a while since I was directly involved in these kind of studies; so I don't have that figure to mind.  Q. Well, If the study shows 50 percent and you calculate the amount in their system by virtue of what you assume they ate in terms of percentage of body weight and, in fact, the industry norm for a	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult an Interesting comparison, but you do have to remember that in the study we also measured the internal kinetics. So we measured how much paraquat was actually absorbed, which is a much more appropriate measure of exposure to paraquat than how much was in their diet.  And, you know, in broad terms, the amount of paraquat that was absorbed in the study was not too dissimilar from intra – intraperitoneal dosing would.  BY MR. TILLERY:  Q. So from your standpoint there would be no difference whatsoever because you made a check and determined the amount from a pharmacokinetic standpoint that was actually in the circulating bloodstream of the mouse, right?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	A. Well, why don't you point me to where – where you think might be the answer?  Q. Here's what I – maybe we just do it this way: Do you believe that mice would eat 50 percent of their body weight per day?  A. Fifty percent of their body weight per day? I mean, I couldn't — I couldn't answer that question off the top of my head.  Q. Okay. Do you know what the statistics and other studies show the average consumption by virtue of body weight of food is for a laboratory mouse?  A. I must admit it's a while since I was directly involved in these kind of studies; so I don't have that figure to mind.  Q. Well, If the study shows 50 percent and you calculate the amount in their system by virtue of what you assume they ate in terms of percentage of body weight and, in fact, the industry norm for a long time has been 17 percent of body weight per day,	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Impact the results of your study?  MR. NARESH: Same objection.  THE WITNESS: Well, I think this is a difficult — an Interesting comparison, but you do have to remember that in the study we also measured the internal kinetics. So we measured how much paraquat was actually absorbed, which is a much more appropriate measure of exposure to paraquat than how much was in their diet.  And, you know, in broad terms, the amount of paraquat that was absorbed in the study was not too dissimilar from intra — intraperitoneal dosing would.  BY MR. TILLERY:  Q. So from your standpoint there would be no difference whatsoever because you made a check and determined the amount from a pharmacokinetic standpoint that was actually in the circulating bloodstream of the mouse, right?  A. Right.
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	Page 1605		Page 160
1 A	Absolutely, yes.	1	BY MR. TILLERY:
2 <b>G</b>	). Okay. Okay. Do you know do you know	2	Q. You would need somebody who was an
3 Dr. Ric	chard Smeyne?	3	expert in the field to tell you what he was doing
4 A	. Ido.	4	wrong?
5 <b>G</b>	. And how do you know him?	5	A. That would help.
6 A	. Because he – subsequent to the study	6	Q. Is Dr. Smeyne an expert in the field of
7 we've	just been discussing, he agreed to collaborate	7	stereology?
8 with u	s because he had – he was one of the people	8	A. His laboratory certainly conducted
9 who p	ublished suggesting that paraquat does affect	9	stereology, and Dr. Jiao is the person who did that.
.0 <b>cells l</b> i	n the substantia nigra. And you mentioned	10	Q. Dr. Jiao and Dr. Smeyne, right?
.1 the Jia	o paper earlier. I believe that Dr. Smeyne	11	A. Right.
2 was <b>o</b>	ne of the coauthors of that paper.	12	Q. And they're both well-respected
.3 <b>G</b>	. So you understand that Dr. Smeyne was	13	stereologists, aren't they?
	ed by Syngenta to do a paraquat study using a	14	A. They certainly have done a lot of work
	e model, right?	15	with that technique, yes.
	. He was.	16	Q. And you understood that Dr. Smeyne is
	. And you were a coauthor of the Smeyne	17	listed as a witness in this case, right, by Syngenta?
	as well, weren't you?	18	A. I did know that, yes.
•	. I was.	19	Q. Okay. And just for the record, we're
	. Okay. And the Smeyne study was	20	talking about Zadory's counting of dopaminergic cells
	tted for publication over two years after the	21	in the substantia nigra of laboratory animals exposed
	ma study was submitted, correct?	22	to paraquat. Okay? Do you understand?
	That's right.	23	A. If you mean that's what you're talking
	. Okay. Were you aware at the time	24	about, then okay.
	Page 1606	-	Page 1608
1 D-+ 7	_	1	
	adory did the stereology cell counting in the	1 2	Q. That's what I'm talking about. Okay.
	ma and Breckenridge studies, he was doing the	3	And and just so we're clear, Dan Zadory did the
	unting incorrectly?	4	stereology of brain cell counting, and you've told me
4 5 <b>not in</b> 6	MR. NARESH: Objection. Assumes facts	5	In the Minnema study, the Breckenridge study. And he
6 noting	evidence. THE WITNESS: Yes. What evidence have	6	did one part of it in the Smeyne study too, didn't he?
		7	
	ot for that, please?	8	A. Yes. He was one of the people but not
	Y MR. TILLERY:	1	the only person who did that.
_	I'm acking you a quactica air Mara	n n	
9 <b>Q</b>	. I'm asking you a question, sir. Were	9	Q. Right, And you would agree that getting
9 <b>Q</b> .0 <b>you aw</b>	vare at the time that Dan Zadory did the	10	the cell counts right is absolutely fundamental and
9 Q .0 you av .1 stereo	vare at the time that Dan Zadory did the logy cell counting in Minnema and Breckenridge	10 11	the cell counts right is absolutely fundamental and essential to the validity of the study, wouldn't you?
9 Q .0 you av .1 stereo .2 studles	vare at the time that Dan Zadory did the logy cell counting in Minnema and Breckenridge s that he was doing the counting incorrectly?	10 11 12	the cell counts right is absolutely fundamental and essential to the validity of the study, wouldn't you?  A. Yes, indeed.
9 Q .0 you av .1 stereo .2 studies	vare at the time that Dan Zadory did the logy cell counting in Minnema and Breckenridge is that he was doing the counting incorrectly?  MR. NARESH: Objection. Assumes facts	10 11 12 13	the cell counts right is absolutely fundamental and essential to the validity of the study, wouldn't you?  A. Yes, indeed.  G. Because if the cell count is not
9 Q 10 you av 11 stereo 12 studies	ware at the time that Dan Zadory did the logy cell counting in Minnema and Breckenridge is that he was doing the counting incorrectly?  MR. NARESH: Objection. Assumes facts evidence.	10 11 12 13 14	the cell counts right is absolutely fundamental and essential to the validity of the study, wouldn't you?  A. Yes, indeed.  Q. Because if the cell count is not accurate, too high, it will cause the study to
9 Q you av 11 stereo studies 13 not in 6	ware at the time that Dan Zadory did the logy cell counting in Minnema and Breckenridge is that he was doing the counting incorrectly?  MR. NARESH: Objection. Assumes facts evidence.  THE WITNESS: I would need to	10 11 12 13 14 15	the cell counts right is absolutely fundamental and essential to the validity of the study, wouldn't you?  A. Yes, indeed.  Q. Because if the cell count is not accurate, too high, it will cause the study to underreport brain cell loss due to paraquat exposure,
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you av stereo studles not in a not in a sereo studles a not in a sereo studles a not in a sereo not in a not in a not in a not in a	ware at the time that Dan Zadory did the logy cell counting in Minnema and Breckenridge is that he was doing the counting incorrectly?  MR. NARESH: Objection. Assumes facts evidence.  THE WITNESS: I would need to stand what he meant by "incorrectly."  Y MR. TILLERY:  So you don't know – you know nothing the fact that he was not performing stereology thy?  MR. NARESH: Objection. Assumes facts	10 11 12 13 14 15 16 17 18 19 20 21	the cell counts right is absolutely fundamental and essential to the validity of the study, wouldn't you?  A. Yes, indeed.  Q. Because if the cell count is not accurate, too high, it will cause the study to underreport brain cell loss due to paraquat exposure, correct?  A. It would, yes.  Q. Okay. And that would render the study results inaccurate, wouldn't it?  A. Yes. It might, yes.  Q. You were aware that Dr. Smeyne was

	Page 1609		Page 1611
1	A. Right. Okay. Now now I'm beginning	1	But I believe that Dr. Smeyne always
2	to understand your your comments.	2	sald that whilst the absolute total number may
3	Yes. Absolutely, I was clear about	3	differ depending on what technologies you've used,
4	I was well aware of that, that there were a lot of	4	you're still looking at changes in those numbers in
5	active discussions about the methodologies that were	5	response to MPTP and paraquat. So measuring
6	being used. And there were some differences because	6	different numbers does not necessarily mean that
7	it's - It's a complicated technique. It's not just	7	your – your experiments are invalidated.
8	a simple case of looking down a microscope.	8	Q. Well, let's see exactly what he meant.
9	Q. Well, were you aware that he was	9	Let's go to Exhibit 144. And just so we're clear,
10	counting overcounting the substantia in the	10	this is from the deposition of Richard Smeyne taken
11	substantia nigra the dopaminergic neurons of a	11	In this case, page 321, line 18 through page 327,
12	C57 mouse by more than two-to-one what they should	12	line 14.
13	have been?	13	(Exhibit 144 was marked for
14	A. Right. I'm now that you're getting	14	identification.)
15	down to that level of detail, which is what I was	15	BY MR. TILLERY:
16	hoping for before, I certainly do remember a lot of	16	Q. And if you would please watch this, and
17	discussions around why that might be. Whether one	17	then I'll ask you some questions about it. Okay?
18	was right and the other was wrong, I think it's fair	18	Okay. Can you see that, sir?
19	to say that nobody characterized one as being	19	A. I can see it now, yes.
20	Incorrect and one as being correct.	20	Q. You can see it now? Okay. Give me a
21	There there are different ways In	21	second.
22	which this technique is is used and not just by	22	MR. TILLERY: Can you get started or do
23	the two two people that you're you're	23	? Just take this.
24	talking – talking about now.	24	MR. NARESH: And I'm sorry to
	Page 1610		Page 1612
1	Q. Well – well, given the fact that	1	interrupt. Are we supposed to be seeing something?
2	there's only a little over 8,000 dopaminergic neurons	2	MR. TILLERY: You can't see anything?
2		1 -	wik. HELEKT. Tou canti see anything:
3	In a mouse's brain, can you explain how Dan Zadory	3	THE WITNESS: No. It's just a free
3 4	In a mouse's brain, can you explain how Dan Zadory counted 20,000?	1	
		3	THE WITNESS: No. It's just a free
4	counted 20,000?	3 4	THE WITNESS: No. It's just a free screen. Sorry. I thought you were still working on
4 5	counted 20,000?  A. Yeah. I mean, that – that was – that	3 4 5	THE WITNESS: No. It's just a free screen. Sorry. I thought you were still working on the technology.
4 5 6	counted 20,000?  A. Yeah. I mean, that – that was – that was one of the the discussions that we were	3 4 5 6	THE WITNESS: No. It's just a free screen. Sorry. I thought you were still working on the technology.  MR. TILLERY: I'm sorry. Just
4 5 6 7	counted 20,000?  A. Yeah. I mean, that — that was — that was one of the the discussions that we were having. And this is I think there's too much	3 4 5 6 7	THE WITNESS: No. It's just a free screen. Sorry. I thought you were still working on the technology.  MR. TILLERY: I'm sorry. Just they're not seeing anything. Sorry.
4 5 6 7 8	counted 20,000?  A. Yeah. I mean, that – that was – that was one of the the discussions that we were having. And this is I think there's too much technical detail that would be required to – to go	3 4 5 6 7 8	THE WITNESS: No. It's just a free screen. Sorry. I thought you were still working on the technology.  MR. TILLERY: I'm sorry. Just they're not seeing anything. Sorry.  THE WITNESS: Are we — I mean, can
4 5 6 7 8 9	counted 20,000?  A. Yeah. I mean, that — that was — that was one of the — the discussions that we were having. And this is — I think there's too much technical detail that would be required to — to go into this, but it depends where you draw the margins	3 4 5 6 7 8 9	THE WITNESS: No. It's just a free screen. Sorry. I thought you were still working on the technology.  MR. TILLERY: I'm sorry. Just they're not seeing anything. Sorry.  THE WITNESS: Are we I mean, can we can we press play on our end? Is that the way
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	Page 1613		Page 1615
1	listening to it?	1	line 18, through page 327, line 14, of the
2	A. I'm still listening to it.	2	Richard Smeyne dep. And if you'd look at that and
3	Q. All right. Sorry. Tell me when you're	3	see if that looks like what you just listened to.
4	finished.	4	A. Yeah. I'm looking at it now just to
5	(Whereupon, a video was	5	let you know.
6	played.)	6	Yeah. Okay. I would agree the
7	THE WITNESS: Okay. Yeah. I could	7	transcript looks to be a record of what I've just
8	hear that. Thank you.	8	seen on the video.
9	BY MR. TILLERY:	9	Q. All right. Thank you. So this -
10	Q. All right. And the video will – is	10	MR. NARESH: So wait. So, Steve,
11	marked as Plaintiffs' Deposition Exhibit 145 and the	11	before I do object to asking questions about a
12	transcript of that video - can we offer that up? -	12	partial playing of a deposition transcript that he's
13	is Exhibit 145.	13	not reviewed. I I take you at your suggestion
14	(Exhibit 145 was identified	14	that why don't we take a break now.
15	for the record.)	15	MR. TILLERY: I don't have the
16	BY MR. TILLERY:	16	transcript –
17	Q. And I just want to show it to you so	17	MR. NARESH: Yeah. That's fine. And
18	that you can verify it's the same document that you	18	so why don't we take a break now. I'll show him the
19	just listened to.	19	part that I think that he should see for rule of
20	MR. NARESH: And, Steve, for rule	20	completeness reasons, and then you can ask your
21	completeness reasons, would you also mind showing	21	questions after that.
22	him and/or playing for Dr. Botham 329, lines 2	22	MR. TILLERY: Well, I don't have but
23	through 11?	23	two questions. So I have just follow-up questions,
24	MR. TILLERY: 329. I don't know if I	24	and then you can and then I can finish this – I
	Page 1614		Page <b>161</b> 6
1	_	1	Page 1616
	have 329. I don't have I stop at 327. You'll	1 2	
1 2 3	have 329. I don't have I stop at 327. You'll have to do that on your redirect.	I	think that's actually it. No. I think I have just
2	have 329. I don't have I stop at 327. You'll have to do that on your redirect.  MR. NARESH: Well, I'll object. I'll	2	think that's actually it. No. I think I have just one or more questions that have no relevance to
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2 3 4 5 6 7 8 9 10 11 11 12 13 14 15 16 17 18 19 19 19 19 19 19 19 19 19 19 19 19 19	have 329. I don't have I stop at 327. You'll have to do that on your redirect.  MR. NARESH: Well, I'll object. I'll object on rule completeness grounds. I think he needs to see the whole – the whole testimony, not just a part of it, in order to answer your questions.  MR. TILLERY: Well, you're – you're able to do that on your – your clarification, not  MR. NARESH: No. I disagree for the same reasons as you articulated on the Greenamyre Issue here. I think that if you're going to play any of it, you've got to play the rest of it for completeness.  MR. TILLERY: I'm happy to do it. I don't have it here. I'm happy to play this at the – at the hearing, or you can show it to him at a break. That's up to you. But I don't have that here.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	think that's actually it. No. I think I have just one or more questions that have no relevance to this, but let me – let me follow up with this.  Q. So you would agree from the sworn testimony from Syngenta's retained stereology expert Dr. Smeyne that as of the time Dr. Smeyne met with Dan Zadory that Zadory was not using the correct procedure in counting dopaminergic brain cells until he was corrected by Dr. Smeyne. Would you agree with that statement?  MR. NARESH: I – I object to the characterization. I also object on the rule of completeness reasons I previously articulated.  BY MR. TILLERY:  Q. Go ahead, sir.  A. Yeah. So the – there were certainly – it's certainly true that the methodology that Dan Zadory used may have, as Dr. Smeyne has Indicated, overestimated the total number of neurons.
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2 3 4 5 6 7 8	have 329. I don't have I stop at 327. You'll have to do that on your redirect.  MR. NARESH: Well, I'll object. I'll object on rule completeness grounds. I think he needs to see the whole – the whole testimony, not just a part of it, in order to answer your questions.  MR. TILLERY: Well, you're – you're able to do that on your – your clarification, not  MR. NARESH: No. I disagree for the same reasons as you articulated on the Greenamyre Issue here. I think that if you're going to play any of it, you've got to play the rest of it for completeness.  MR. TILLERY: I'm happy to do it. I don't have it here. I'm happy to play this at the – at the hearing, or you can show it to him at a break. That's up to you. But I don't have that here.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	one or more questions that have no relevance to this, but let me – let me follow up with this.  Q. So you would agree from the sworn testimony from Syngenta's retained stereology expert Dr. Smeyne that as of the time Dr. Smeyne met with Dan Zadory that Zadory was not using the correct procedure in counting dopaminergic brain cells until he was corrected by Dr. Smeyne. Would you agree with that statement?  MR. NARESH: I – I object to the characterization. I also object on the rule of completeness reasons I previously articulated.  BY MR. TILLERY:  Q. Go ahead, sir.  A. Yeah. So the – there were certainly it's certainly true that the methodology that Dan Zadory used may have, as Dr. Smeyne has Indicated, overestlmated the total number of neurons.

	Page 1617		Page 1619
1	happened; and, two, when we worked with Dr. Smeyne	1	Q. And Zadory's errors in analysis could
2	using Dr. Smeyne's approved stereology, again, there	2	certainly explain the inconsistent results in the
3	was no effect of paraquat seen.	3	Breckenridge study as well, couldn't they?
4	So I think the implications of this	4	A. By "inconsistent," you mean the
5	of this methodological issue are not as profound as	5	total – total neurons in the Breckenridge?
6	you might be trying to make out.	6	Q. Yes.
7	Q. I move to strike your answer as	7	A. Yes.
8	nonresponsive, and let's go back to my question.	8	Q. And they could certainly explain
9	Would you agree with me from the sworn	9	negative results in the Minnema study too, couldn't
10	testimony that you've just listened to from	10	they?
11	Syngenta's own retained stereology expert	11	A. No. I think that this is a different
12	Dr. Richard Smeyne that at the time he saw and	12	question, which is what I was saying earlier.
13	visited and watched Zadory conduct stereology	13	Whether that methodological counting
14	technique in Zadory's own laboratory that Zadory was	14	issue actually had an impact on the outcome of the
15	not using the correct procedure in counting	15	studies, it's not all that likely because other
16	dopaminergic brain cells in laboratory animals until	16	methods were used to confirm whether or not cells
17	he was corrected by Dr. Smeyne. Would you agree	17	had been lost as a consequence of pathology. We
18	with that?	18	didn't rely just on the one stereological
19	MR. NARESH: Same objections as before,	19	assessment.
20	and I'll also object on best evidence. Dr. Smeyne's	20	Q. Well, to the extent that you dld rely
21	testimony speaks for itself.	21	upon cell counts, you used this - you didn't use
22	THE WITNESS: Yeah. That - that Is	22	staining techniques when you used stereology, did
23	certainly the technical view, but I think your	23	you? In the Minnema study.
24	nevertheless, you have to ask what would it actually	24	A. We used you mean we used a
-			
	Page 1618		Page 1620
1		1	
_	matter in terms of interpretation of the studies?	1	fluorescent method?
2	matter in terms of interpretation of the studies?  BY MR. TILLERY:	2	Q. What I'm asking is, Is that when you
	·	2 3	Q. What I'm asking is, Is that when you when you reference In your study the loss of
2	BY MR. TILLERY:	2 3 4	Q. What I'm asking is, is that when you — when you reference in your study the loss of dopaminergic neurons, were you referring to cell
2 3 4 5	BY MR. TILLERY:  Q. Well, let's say this: He was counting, according to Smeyne's sworn testimony, twice as many cells as actually existed, wasn't he?	2 3 4 5	Q. What I'm asking is, is that when you — when you reference in your study the loss of dopaminergic neurons, were you referring to cell counts through stereology?
2 3 4 5 6	BY MR. TILLERY:  Q. Well, let's say this: He was counting, according to Smeyne's sworn testimony, twice as many cells as actually existed, wasn't he?  A. The yes. It sounds like the	2 3 4 5 6	Q. What I'm asking is, is that when you — when you reference in your study the loss of dopaminergic neurons, were you referring to cell counts through stereology?  A. Yes. The effects included those that
2 3 4 5 6 7	BY MR. TILLERY:  Q. Well, let's say this: He was counting, according to Smeyne's sworn testimony, twice as many cells as actually existed, wasn't he?  A. The yes. It sounds like the calculation that the automated stereology uses was	2 3 4 5 6 7	Q. What I'm asking is, is that when you — when you reference in your study the loss of dopaminergic neurons, were you referring to cell counts through stereology?  A. Yes. The effects included those that we measured with stereology, yes.
2 3 4 5 6 7 8	BY MR. TILLERY:  Q. Well, let's say this: He was counting, according to Smeyne's sworn testimony, twice as many cells as actually existed, wasn't he?  A. The yes. It sounds like the calculation that the automated stereology uses was projecting twice the number, yes.	2 3 4 5 6 7 8	Q. What I'm asking is, Is that when you — when you reference In your study the loss of dopaminergic neurons, were you referring to cell counts through stereology?  A. Yes. The effects included those that we measured with stereology, yes.  Q. All right. And if that stereology
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2 3 4 5 6 7 8 9 10	BY MR. TILLERY:  Q. Well, let's say this: He was counting, according to Smeyne's sworn testimony, twice as many cells as actually existed, wasn't he?  A. The yes. It sounds like the calculation that the automated stereology uses was projecting twice the number, yes.  Q. And he was doing it because he was assuming that the number of cells was homogenous throughout the substantia nigra, correct?	2 3 4 5 6 7 8 9 10	Q. What I'm asking is, is that when you — when you reference in your study the loss of dopaminergic neurons, were you referring to cell counts through stereology?  A. Yes. The effects included those that we measured with stereology, yes.  Q. All right. And if that stereology number was wrong because of a technique making the assumption of a homogenous number of dopaminergic neurons throughout the substantia nigra, an incorrect
2 3 4 5 6 7 8 9 10 11	BY MR. TILLERY:  Q. Well, let's say this: He was counting, according to Smeyne's sworn testimony, twice as many cells as actually existed, wasn't he?  A. The yes. It sounds like the calculation that the automated stereology uses was projecting twice the number, yes.  Q. And he was doing it because he was assuming that the number of cells was homogenous throughout the substantia nigra, correct?  MR. NARESH: I again object to this	2 3 4 5 6 7 8 9 10 11	Q. What I'm asking is, is that when you — when you reference in your study the loss of dopaminergic neurons, were you referring to cell counts through stereology?  A. Yes. The effects included those that we measured with stereology, yes.  Q. All right. And if that stereology number was wrong because of a technique making the assumption of a homogenous number of dopaminergic neurons throughout the substantia nigra, an incorrect assumption, that could influence the counting,
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	BY MR. TILLERY:  Q. Well, let's say this: He was counting, according to Smeyne's sworn testimony, twice as many cells as actually existed, wasn't he?  A. The yes. It sounds like the calculation that the automated stereology uses was projecting twice the number, yes.  Q. And he was doing it because he was assuming that the number of cells was homogenous throughout the substantia nigra, correct?  MR. NARESH: I again object to this line of questioning on complete completeness grounds and best evidence grounds.  MR. TILLERY: I'll let you have that continuing objection.  Q. Can you answer me, sir?  A. That is the reason given. And, actually, it is a reason that I remember being explained to me at the time.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Q. What I'm asking is, is that when you — when you reference in your study the loss of dopaminergic neurons, were you referring to cell counts through stereology?  A. Yes. The effects included those that we measured with stereology, yes.  Q. All right. And if that stereology number was wrong because of a technique making the assumption of a homogenous number of dopaminergic neurons throughout the substantia nigra, an incorrect assumption, that could influence the counting, correct?  A. But you would expect that that would be evened out because both the controls and the test animals were subjected to the same counting methodology. So if there was an effect, you would see it regardless of what the total number was.  Q. Okay. Now, let's go back to the discussion section of the Minnema study. And this is
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	BY MR. TILLERY:  Q. Well, let's say this: He was counting, according to Smeyne's sworn testimony, twice as many cells as actually existed, wasn't he?  A. The yes. It sounds like the calculation that the automated stereology uses was projecting twice the number, yes.  Q. And he was doing it because he was assuming that the number of cells was homogenous throughout the substantia nigra, correct?  MR. NARESH: I again object to this line of questioning on complete completeness grounds and best evidence grounds.  MR. TILLERY: I'll let you have that continuing objection.  Q. Can you answer me, sir?  A. That is the reason given. And, actually, it is a reason that I remember being explained to me at the time.  Q. And that - that accounted for the	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q. What I'm asking is, is that when you — when you reference in your study the loss of dopaminergic neurons, were you referring to cell counts through stereology?  A. Yes. The effects included those that we measured with stereology, yes.  Q. All right. And if that stereology number was wrong because of a technique making the assumption of a homogenous number of dopaminergic neurons throughout the substantia nigra, an incorrect assumption, that could influence the counting, correct?  A. But you would expect that that would be evened out because both the controls and the test animals were subjected to the same counting methodology. So if there was an effect, you would see it regardless of what the total number was.  Q. Okay. Now, let's go back to the discussion section of the Minnema study. And this is Exhibit 143. Do you see that?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	BY MR. TILLERY:  Q. Well, let's say this: He was counting, according to Smeyne's sworn testimony, twice as many cells as actually existed, wasn't he?  A. The yes. It sounds like the calculation that the automated stereology uses was projecting twice the number, yes.  Q. And he was doing it because he was assuming that the number of cells was homogenous throughout the substantia nigra, correct?  MR. NARESH: I again object to this line of questioning on complete completeness grounds and best evidence grounds.  MR. TILLERY: I'll let you have that continuing objection.  Q. Can you answer me, sir?  A. That is the reason given. And, actually, it is a reason that I remember being explained to me at the time.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Q. What I'm asking is, is that when you — when you reference in your study the loss of dopaminergic neurons, were you referring to cell counts through stereology?  A. Yes. The effects included those that we measured with stereology, yes.  Q. All right. And if that stereology number was wrong because of a technique making the assumption of a homogenous number of dopaminergic neurons throughout the substantia nigra, an incorrect assumption, that could influence the counting, correct?  A. But you would expect that that would be evened out because both the controls and the test animals were subjected to the same counting methodology. So if there was an effect, you would see it regardless of what the total number was.  Q. Okay. Now, let's go back to the discussion section of the Minnema study. And this is

Page 1621	Page 1623
1 many studies in the literature that have examined the	1 years.
2 potential effects of paraquat in the substantia nigra	2 Q. Forty, 45 years. Would that be right?
3 pars compacta, relatively few studies have involved	3 <b>A</b> , <b>Yep</b> .
4 long-term continuing – continuous dosing.*	4 Q. Forty-nine years. Forty-nine years, I
5 Do you see that?	5 guess.
6 A. Yeah. Just getting there. Hold on.	6 So after 49 years of selling this
7 Q. It's in the discussion.	7 product in the United States, Syngenta scientists
8 A. Yeah. I think yeah. Which page are	8 were still saying they really didn't know how to do
9 you on? A page number, that would be helpful.	9 a human health risk assessment for paraquat, right?
0 Q. Yeah. It's page 5.	10 MR. NARESH: Objection to the
1 A. Must be yours. I haven't got 5.	11 characterization.
2 Right. Okay. I'm with you. I'm with you now.	12 THE WITNESS: No. I think that's not
.3 Thank you.	13 what we were saying at all here.
4 Q. All right. If you take your time and	14 BY MR. TILLERY:
5 under "Discussion," do you see the first line?	15 Q. Well, did you say these words? "The
6 A. Yeah. I'm there. Thank you.	16 relevance of these dose levels, routes, and durations
Q. It says, "Among the many studies in the	17 of exposure to human paraquat exposure scenarios and,
8 literature that have examined the potential effects	18 therefore, to human risk assessment is difficult to
9 of paraguat on the substantia nigra pars compacta,	19 assess*?
relatively few studies have involved long-term	
continuous dosing,* correct?	20 A. Right. But this was referring to the
22 A. Correct.	21 kind of studies that were involved – that included
	22 subcutaneous injection, Intraperitoneal injection,
· ·	23 et cetera.
it says, "The relevance of these dose levels, routes,	24 Q. Did you ever ask Elizabeth Anderson for
Page 1622	Page 1624
and durations of exposure to human paraquat exposure	1 help in designing a human health risk assessment?
2 scenarios and, therefore, to human risk assessment is	2 A. Not as I recall, no.
3 difficult to assess."	3 Q. Do you know her?
4 Is that what you said?	4 A. I know her. I don't know her, but I
5 A. Sorry. Where where are you now	5 know the name.
6 reading?	6 Q. Okay. Did Syngenta ever reach out to
7 Q. The last sentence of that same	7 her and say, "Can you help design a human health ris
8 paragraph.	8 assessment? Help us understand how this chemical
9 A. Oh, the same paragraph. I'm sorry.	9 paraquat affects applicators and how it might make
0 Right.	10 them sick by neurotoxicity."
Q. "The relevance of these dose levels,	11 Did you ever do that?
2 routes, and durations of exposure to human paraquat	12 A. I'm not aware that we did.
exposure scenarios and, therefore, to human risk	13 Q. Okay. Was she ever consulted to do any
4 assessment is difficult to assess."	14 kind of analysis or guidance, counseling, on human
.5 Is that what you wrote? The	15 health risk assessment of paraguat?
6 A. Correct, yes.	16 A. I don't – I don't know. I don't think
.7 Qsentence?	17 so, but I don't know.
.8 A. Correct.	18 Q. Okay. You never were told about it if
	19 she was, correct?
	1.5 Sile Was, corrects
9 Q. Okay. So as of that time, assuming that	20 A I'm prothy cure that's the case
Q. Okay. So as of that time, assuming that this chemical had been on the market since the	2.0 A. I'm pretty sure that's the case.
Q. Okay. So as of that time, assuming that this chemical had been on the market since the mid-'60s in the United States, what are we talking	Q. Okay. Would it be accurate to say that
Q. Okay. So as of that time, assuming that this chemical had been on the market since the	, ,

	Page 1625		Page 162
1	A. It depends how you define	1	record. The time is 10:04. This ends Media Unit
2	"neurotoxicity study." We've done a lot of studies	2	Number 7.
3	on neurotoxicity, and some of those have been	3	(Recess taken.)
4	long long-term studies. But you've got to define	4	THE VIDEOGRAPHER: We're going back on
5	what you mean.	5	the record. The time is 10:25. This begins Media
6	Q. I'm talking about well, you said	6	Unit Number 8.
7	earlier in this deposition that long term was what?	7	BY MR, TILLERY:
8	A year?	8	Q. When did – strike that.
9	A. One to two years, yes.	9	When did Dr. Smeyne first become a
.0	Q. Okay. Have you ever done a one-year	10	Syngenta consultant?
. 1	study where the end point was the study parameters	11	A. I'm sorry. I don't know exactly the
2	were focused upon evaluating whether or not paraquat	12	year. Circa 2013, '14, I believe. Possibly the
.3	caused neurotoxicity?	13	year after that.
. 4	•	14	Q. Dr. Smeyne advised Syngenta about
	A. The chronic studies that are guideline	1	
.5	studies for 12 sorry for 18-month or two-year	15	Parkinson's disease?
.6	studies in the rodent and one year in the dog have	16	A. Yeah. He because of the work that
7	included some assessments of neurotoxicity but not	17	he had done previously, particularly in the mouse
. 8	at the level of granularity or detail that might be	18	model, he was engaged really to try to help us to
9	appropriate in terms of Parkinson's disease.	19	better understand the – the way in which the mouse
0	Q. Well, let's put it this way: In those	20	model might be following paraquat and Parkinson's
21	studies, did you evaluate cellular loss or damage in	21	disease.
2	the substantia nigra of those test animals?	22	<ul> <li>Q. And he also advised Syngenta about doing</li> </ul>
23	A. No, we didn't, which is one of the	23	paraquat experiments with the black mouse model,
24	things that I was just referring to.	24	didn't he?
	Page 1626		Page 162
1	Q. All right. So let me rephrase my	1	A. Yeah. That's - that's correct, yes.
2	question.	2	Q. And you knew that he had a person in his
3	Would it be accurate to say, then, in	3	laboratory that he relied upon to run his lab by the
4	all the years Syngenta has sold paraquat, Syngenta	4	name of Dr. Yun Jiao, right?
5	has never conducted a long-term neurotoxicity of	5	A. Yes, we did. That's correct, yes.
6	paraquat where an evaluation of cellular loss in the	6	Q. Did you meet her?
7	substantia nigra of the test animal was made?	7	A. I think that I met her once, but
8	A. No, we haven't. But we've compensated	8	Dr. Breckenridge is the person who had more
9	for that, as is normal toxicological practice, by	9	interaction with her.
. 0	using extremely high-dose levels in shorter term	10	Q. And you understood that he did - strike
.1	test studies.	11	that.
.2	Q. Can you answer my question directly?	12	You understood that Dr. Jiao also did a
		13	
. 3	Have you ever done such a study?	14	lot of Dr. Smeyne's stereology?  A. Yes. Yes, we knew that.
. 4	A. I said in the beginning of that, no, we	15	Q. Now, let's go to Plaintiffs' Deposition
.5	haven't.	1	
.6	Q. Okay. Would it be accurate to say that	16	Exhibit Number 146.
.7	In all the years of sales of paraquat, Syngenta has	17	(Exhibit 146 was identified
8	never conducted a study of the effects of paraquat on	18	for the record.)
-	the upregulation of alpha-synuclein?	19	BY MR. TILLERY:
	A. No. We have never looked at	20	<ul> <li>Q. If you could familiarize yourself with</li> </ul>
L9 20		1	
20	alpha-synuclein in that in any level of detail.	21	this document and then identify it for the record,
	alpha-synuclein in that in any level of detail. MR. TILLERY: Okay. Let's take a – a	21 22 23	this document and then identify it for the record, please.

	Page 1629		Page 163
1	of October, 2013.	1	A. I don't know that I was aware of that.
2	Q. Okay. And by this time, October 2nd,	2	This is the organization that Dr. Breckenridge is
3	2013, Dr. Smeyne had actually become a member of the	3	now a part of?
4	Syngenta's paraquat health team on – on the outside	4	Q. Yes. The Quality Scientific Solutions
5	member, correct?	5	website shows Charles Breckenridge listed as
6	A. Yeah. He was an external guest in the	6	principal.
7	beginning, yes.	7	A. Right. Yeah. I know there are a large
8	Q. And how did you identify people who were	8	number of scientists who have some connections
9	external external guests from permanent members?	9	with with Quality Science Solutions, yes.
L 0	A. How did we identify them in terms of	10	Q. And he's also a Syngenta consultant,
1	what, precisely?	11	isn't he?
2	Q. In other – in other words, how could	12	A. I'm not sure whether he is now, whether
. 3	you – was Professor Smith an external member, or was	13	that is now finished. Again, as I said earlier, I'm
4	he a permanent member of the paraquat health science	14	not I don't get involved in those contracts.
15	team?	15	Q. And on the same website of Qualified
6	A. Right. So that It was a little bit	16	Settlement – or Scientific Solutions, Peter Hertl is
.7	of a loose boundary, I have to say. But people like	17	listed as a principal?
. 8	Professor Smith and Sir Colin Berry in particular	18	A. Right. Yes.
9	were really more permanent members of the of the	19	Q. He's a former Syngenta employee, right?
20	team. Others were temporarily associated with the	20	A. Yes. Correct.
21	team.	21	Q. And Jim Simkins is also listed as a
22	Q. How long did the association with	22	principal in the same organization, Quality
23	Dr. Smeyne continue?	23	Scientific Solutions, and he is a long-time Syngenta
24	A. Really up until the – the time when	24	consultant, right?
_	Dago 1620		Page 162
_	Page 1630		_
1	Page 1630 his joint publication with us was was released.	1	A. That's right.
1 2	_	2	_
	his joint publication with us was was released.	2 3	A. That's right.     Q. And Lewis Smith is also listed as an associate with Quality Scientific Solutions. He is a
2	his joint publication with us was was released.  And, in fact, it is still gone on post the	2	A. That's right.     Q. And Lewis Smith is also listed as an associate with Quality Scientific Solutions. He is a
2	his joint publication with us was was released.  And, in fact, it is still gone on post the publication because we've needed to tie up some	2 3	A. That's right.     Q. And Lewis Smith is also listed as an associate with Quality Scientific Solutions. He is a
2 3 4	his joint publication with us was was released.  And, in fact, it is still gone on post the publication because we've needed to tie up some loose ends on internal reports and data to make sure	2 3 4	A. That's right.     Q. And Lewis Smith is also listed as an associate with Quality Scientific Solutions. He is a long-term former employee and associate of Syngenta,
2 3 4 5	his joint publication with us was was released.  And, in fact, it is still gone on post the publication because we've needed to tie up some loose ends on internal reports and data to make sure it's all in good order.	2 3 4 5	A. That's right.     Q. And Lewis Smith is also listed as an associate with Quality Scientific Solutions. He is a long-term former employee and associate of Syngenta, correct?
2 3 4 5 6	his joint publication with us was was released.  And, in fact, it is still gone on post the publication because we've needed to tie up some loose ends on internal reports and data to make sure it's all in good order.  Q. And so you still – as of this time?	2 3 4 5 6 7 8	A. That's right.  Q. And Lewis Smith is also listed as an associate with Quality Scientific Solutions. He is a long-term former employee and associate of Syngenta, correct?  A. Correct.  Q. Mark Butt is listed as an associate.  He's been a Syngenta consultant for years, right?
2 3 4 5 6 7	his joint publication with us was was released.  And, in fact, it is still gone on post the publication because we've needed to tie up some loose ends on internal reports and data to make sure it's all in good order.  Q. And so you still – as of this time?  (Reporter clarification.)	2 3 4 5 6 7	A. That's right.     Q. And Lewis Smith is also listed as an associate with Quality Scientific Solutions. He is a long-term former employee and associate of Syngenta, correct?     A. Correct.     Q. Mark Butt is listed as an associate.
2 3 4 5 6 7 8	his joint publication with us was was released.  And, in fact, it is still gone on post the publication because we've needed to tie up some loose ends on internal reports and data to make sure it's all in good order.  Q. And so you still – as of this time?  (Reporter clarification.)  BY MR. TILLERY:	2 3 4 5 6 7 8	A. That's right.  Q. And Lewis Smith is also listed as an associate with Quality Scientific Solutions. He is a long-term former employee and associate of Syngenta, correct?  A. Correct.  Q. Mark Butt is listed as an associate.  He's been a Syngenta consultant for years, right?
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2 3 4 5 6 7 8 9	his joint publication with us was was released.  And, in fact, it is still gone on post the publication because we've needed to tie up some loose ends on internal reports and data to make sure it's all in good order.  Q. And so you still – as of this time?  (Reporter clarification.)  BY MR. TILLERY:  Q. So you still have your association with him as of this time?	2 3 4 5 6 7 8 9	A. That's right.  Q. And Lewis Smith is also listed as an associate with Quality Scientific Solutions. He is a long-term former employee and associate of Syngenta, correct?  A. Correct.  Q. Mark Butt is listed as an associate.  He's been a Syngenta consultant for years, right?  A. Yes. He's been a collaborator and a consultant.
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	his joint publication with us was was released.  And, in fact, it is still gone on post the publication because we've needed to tie up some loose ends on internal reports and data to make sure it's all in good order.  Q. And so you still - as of this time? (Reporter clarification.)  BY MR. TILLERY: Q. So you still have your association with him as of this time? A. We still have some contact with Richard Smeyne, yes. Q. What was his role on the paraquat health sciences team? A. Very much as as an adviser to the issue we've been discussing for the last hour or two on the the way in which the mouse the C57 black 6 mouse model should be conducted and in terms of the parameters that are important particularly as	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	A. That's right.  Q. And Lewis Smith is also listed as an associate with Quality Scientific Solutions. He is a long-term former employee and associate of Syngenta, correct?  A. Correct.  Q. Mark Butt is listed as an associate. He's been a Syngenta consultant for years, right?  A. Yes. He's been a collaborator and a consultant.  Q. Okay. Jeff Wolf is listed. What is his role in this?  A. Yeah. Jeff Wolf is also a a - an expert in - in neuropathology.  Q. Okay. And he has been a consultant for Syngenta for a number of years, right?  A. Yes, he was.  Q. And part of your paraquat health science team, right?
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2 3 4 5 6 7 8	his joint publication with us was was released.  And, in fact, it is still gone on post the publication because we've needed to tie up some loose ends on internal reports and data to make sure it's all in good order.  Q. And so you still - as of this time? (Reporter clarification.)  BY MR. TILLERY: Q. So you still have your association with him as of this time? A. We still have some contact with Richard Smeyne, yes. Q. What was his role on the paraquat health sciences team? A. Very much as as an adviser to the Issue we've been discussing for the last hour or two on the the way in which the mouse the C57 black 6 mouse model should be conducted and in terms of the parameters that are important particularly as he and Dr. Jiao had done done work on this model themselves.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	<ul> <li>Q. And Lewis Smith is also listed as an associate with Quality Scientific Solutions. He is a long-term former employee and associate of Syngenta, correct? <ul> <li>A. Correct.</li> <li>Q. Mark Butt is listed as an associate.</li> </ul> </li> <li>He's been a Syngenta consultant for years, right? <ul> <li>A. Yes. He's been a collaborator and a consultant.</li> <li>Q. Okay. Jeff Wolf is listed. What is his role in this?</li> <li>A. Yeah. Jeff Wolf is also a a - an expert in - in neuropathology.</li> <li>Q. Okay. And he has been a consultant for Syngenta for a number of years, right?</li> <li>A. Yes, he was.</li> <li>Q. And part of your paraquat health science team, right?</li> <li>A. He was, Indeed. As this the minutes indicate, he was an external member for a period of</li> </ul> </li> </ul>

	Page 1633		Page 163
lon	g-term Syngenta consultant, right?	1	than those we have seen previously."
:	A. Yes. As a statistician.	2	Do you see that?
	Q. Do you know how many hours a year	3	A. Yes.
Qu	elity Scientific Solutions does work for Syngenta?	4	Q. Okay. Is this the meeting that you
	A. Are you referring to now?	5	attended where there was an explanation given about
	Q. Yes.	6	the cell number count?
	A. No. I don't have that number at hand.	7	A. It may well have been. So I don't
	Q. Okay. Now, if you go to number 3, if	8	recall precisely; but, certainly, I think it's
vo	u have the first page pulled up on the agenda	9	highly likely that it would have been discussed as a
•	ms. "Outcome of investigative study with	10	technical issue, yes.
	chard Smeyne.* Do you see that?	11	Q. And you were listed as the very first
	A. Yes.	12	person present at that meeting, weren't you?
	Q. And it says "NTS." Who would that stand	13	A. Yes. Because I was chalring the
for	-	14	committee.
	A. That's Nick Sturgess.	15	Q. You were the chair of that group,
	Q. And then RS?	16	weren't you?
	A. Richard Smeyne.	17	A. Yes, I was.
	Q. And JW?	18	Q. All right. So it continues on in –
	A. Jeff Wolf.	19	under number 3 in that same paragraph and says, "Bot
	Q. Okay. Now, if we look about the fourth	20	group – groups need to understand why the current
	e, it says, "Similarly, the EPL." And what does	21	study has failed to replicate Richard Smeyne's
	et refer to?	22	previously published data prior to a potential
		23	Smeyne-authored joint publication of the current
Jet	A. EPL is the the organization that  If Wolf worked for works for.	24	investigation in an influential journal."
	Da no 4024		Daga 463
	Page 1634		Page 163
	Q. And so did Dan Zadory, right?	1	Do you see that?
	A. And Dan Zadory too, correct.	2	A. Yes.
	Q. Right. And when the stereology work was	3	<ul> <li>Q. Okay. So this is referring to the</li> </ul>
	a Name dans at CDI by Dan Zadani stabili	4	require in the Missesse study leaf 147
dor	e, it was done at EPL by Dan Zadory, right?	4	results in the Minnema study, Isn't it?
	A. That's right.	5	A. And the Breckenridge study.
		5 6	•
	A. That's right.	5	A. And the Breckenridge study.
	A. That's right.     Q. Okay. And this study – strike that.	5 6 7 8	<ul><li>A. And the Breckenridge study.</li><li>Q. I'm sorry?</li><li>A. And the Breckenridge study.</li><li>Q. And both of them?</li></ul>
bef	A. That's right.     Q. Okay. And this study – strike that.     And this committee met about four days.	5 6 7	<ul><li>A. And the Breckenridge study.</li><li>Q. I'm sorry?</li><li>A. And the Breckenridge study.</li></ul>
	A. That's right.  Q. Okay. And this study – strike that.  And this committee met about four days ore the publication – strike that.	5 6 7 8	<ul><li>A. And the Breckenridge study.</li><li>Q. I'm sorry?</li><li>A. And the Breckenridge study.</li><li>Q. And both of them?</li></ul>
bef	A. That's right.  Q. Okay. And this study – strike that.  And this committee met about four days ore the publication – strike that.  And this study met on – strike that.	5 6 7 8 9	<ul> <li>A. And the Breckenridge study.</li> <li>Q. I'm sorry?</li> <li>A. And the Breckenridge study.</li> <li>Q. And both of them?</li> <li>A. Yes.</li> </ul>
bef wha	A. That's right.  Q. Okay. And this study – strike that. And this committee met about four days ore the publication – strike that. And this study met on – strike that. And this health science team met on	5 6 7 8 9	<ul> <li>A. And the Breckenridge study.</li> <li>Q. I'm sorry?</li> <li>A. And the Breckenridge study.</li> <li>Q. And both of them?</li> <li>A. Yes.</li> <li>Q. Breckenridge and Minnema, right?</li> </ul>
bef wha	A. That's right.  Q. Okay. And this study – strike that. And this committee met about four days ore the publication – strike that. And this study met on – strike that. And this health science team met on at date?	5 6 7 8 9 10 11	<ul> <li>A. And the Breckenridge study.</li> <li>Q. I'm sorry?</li> <li>A. And the Breckenridge study.</li> <li>Q. And both of them?</li> <li>A. Yes.</li> <li>Q. Breckenridge and Minnema, right?</li> <li>Now, if you look at the next page —</li> </ul>
bef wha	A. That's right.  Q. Okay. And this study – strike that. And this committee met about four days one the publication – strike that. And this study met on – strike that. And this health science team met on at date?  A. The 2nd of October, 2013.	5 6 7 8 9 10 11 12	<ul> <li>A. And the Breckenridge study.</li> <li>Q. I'm sorry?</li> <li>A. And the Breckenridge study.</li> <li>Q. And both of them?</li> <li>A. Yes.</li> <li>Q. Breckenridge and Minnema, right? Now, if you look at the next page – actually, go to the next paragraph. "RS," </li> </ul>
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bef wha but stud	A. That's right.  Q. Okay. And this study – strike that. And this committee met about four days one the publication – strike that. And this study met on – strike that. And this health science team met on at date?  A. The 2nd of October, 2013. Q. And you can look and see if you want, I think that's about a week after the Minnerna dy was reported or submitted.	5 6 7 8 9 10 11 12 13 14 15	A. And the Breckenridge study.  Q. I'm sorry?  A. And the Breckenridge study.  Q. And both of them?  A. Yes.  Q. Breckenridge and Minnema, right?  Now, if you look at the next page —  actually, go to the next paragraph. "RS,"  Richard Smeyne, "outlined potential options for further investigation of the fallure to reproduce the findings previously obtained in his
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before what study published sensitive effects and sensitive effects and sensitive effects are sensitive effects.	A. That's right.  Q. Okay. And this study – strike that. And this committee met about four days one the publication – strike that. And this study met on – strike that. And this health science team met on at date?  A. The 2nd of October, 2013. Q. And you can look and see if you want, I think that's about a week after the Minnerna day was reported or submitted. A. Yes. That's about right. It was olished in early 2014, correct. Q. Okay. Now, let's go back to that tence. "Similarly, the EPL stereology data for study are consistent with what we have seen viously (effect with the positive control MPTP, no	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A. And the Breckenridge study.  Q. I'm sorry?  A. And the Breckenridge study.  Q. And both of them?  A. Yes.  Q. Breckenridge and Minnema, right?  Now, if you look at the next page — actually, go to the next paragraph. "RS," Richard Smeyne, "outlined potential options for further investigation of the fallure to reproduce the findings previously obtained in his investigations."  It says a PowerPoint presentation from Richard Smeyne, right?  A. Yes.  Q. "During the discussion, one difference

	Page 1637		Page 1639
1	A. That's the study that we were – the	1 on neuromal cells in the sub	ostantia nigra in the
2	studies that we were talking about the	2 Minnema and the Breckenri	dge studies compared to the
3	Breckenridge and the Minnema studies.	3 Jiao and Smeyne work in 20	012, I think It was.
4	Q. And Minnema, right?	4 So, one, a number of	of hypotheses were
5	A. Yeah.	5 put forward, one of which w	as a different standard
6	Q "which formed part of the Smeyne	6 of paraquat purity of para	quat was used, and
7	collaborative study, the paraquat-treated mice were	7 potentially a more toxic imp	urity could have been in
8	not on heating pads. Richard Smeyne stated that in	8 the material that was used t	by Richard Smeyne. And
9	his original investigation which led to the	9 so that should be investigat	ed to see if there's any
.0	publication, there was no assessment of slides for	10 evidence of that.	•
. 1	the presence of microglial activation." Okay?	11 Q. You didn't find any	evidence of that
2	A. Yes.	12 did you?	
.3	Q. "Richard Smeyne stated that based upon	13 A. No, we didn't.	
	<u> </u>	14 Q. Okay. Now, what's	s the next number?
. 4	his earlier investigation using section evaluation	15 Let's go to Exhibit 147.	s die next number.
.5	interval, he believed the actual number of	16 (Exhibit 147 was id	entified
. 6	dopaminergic neurons in the substantia nigra to be	for the record.)	enunca
.7	about 8,800."		
. 8	Do you see that?		
. 9	A. Yes.	19 Q. If you'd open that i	• • •
0 :0	Q. Do you have any information that that's	20 Is a document entitled "Ge	
21	incorrect?		ed Neurodegeneration in the
22	A. No, not at all. This is actually	22 Substantia Nigra Pars Com	•
23	refers to the conversation we were having before the	23 <b>Do you see that in</b> -	
24	break.	24 is Yun Jiao and then Lu Lu,	Robert Williams, and
	Page 1638		Page 1640
1	Q. Okay. And it's consistent with what his	1 Richard Smeyne. Do you se	e this?
2	testimony was, isn't it?	2 A. I do.	
3	A. It is.	3 Q. This is the 2012 Sm	neyne article, isn't
4	Q. Now, if you continue to the next page	4 it?	
5	and go into the second paragraph, "Richard Smeyne	5 <b>A. It Is.</b>	
6	indicated that he believed that counting every third	<ol> <li>Q. In 2012 Dr. Smeyne</li> </ol>	coauthored a paper
6		<ul><li>Q. In 2012 Dr. Smeyne</li><li>entitled "Genetic Dissection</li></ul>	
	section, i.e., one in three, was unnecessarily labor	7 entitled "Genetic Dissection	
6 7		7 entitled "Genetic Dissection	of Strain Dependent generation* at a time when he
6 7 8 9	section, i.e., one in three, was unnecessarily labor intensive and that every fifth section, one in five, was sufficient."	entitled "Genetic Dissection Paraquat-induced Neurodeg was not a consultant with Sy	of Strain Dependent generation* at a time when he
6 7 8 9	section, i.e., one in three, was unnecessarily labor intensive and that every fifth section, one in five, was sufficient."  Do you see that?	7 entitled "Genetic Dissection 8 Paraquat-induced Neurodeg 9 was not a consultant with Sy 10 A. Correct.	of Strain Dependent generation* at a time when he
6 7 8 9	section, i.e., one in three, was unnecessarily labor intensive and that every fifth section, one in five, was sufficient."  Do you see that?  A. Yes.	7 entitled "Genetic Dissection 8 Paraquat-induced Neurodeg 9 was not a consultant with Sy 10 A. Correct. 11 Q. He had never work	of Strain Dependent generation <sup>®</sup> at a time when he yngenta, correct?
6 7 8 9 10	section, i.e., one in three, was unnecessarily labor intensive and that every fifth section, one in five, was sufficient."  Do you see that?  A. Yes.  Q. "The view of the meeting regarding the	entitled "Genetic Dissection Paraquat-induced Neurodeg was not a consultant with 5y A. Correct.  Q. He had never work time, had he?	of Strain Dependent generation* at a time when he mgenta, correct? sed for Syngenta at that
6 7 8 9 0 1	section, i.e., one in three, was unnecessarily labor intensive and that every fifth section, one in five, was sufficient."  Do you see that?  A. Yes.  Q. "The view of the meeting regarding the investigation of the potential for differences	entitled "Genetic Dissection Paraquat-induced Neurode was not a consultant with 5y A. Correct.  Q. He had never work time, had he?  A. I don't believe he had	of Strain Dependent generation* at a time when he yngenta, correct? red for Syngenta at that rd, no.
6 7 8 9 10 11 12 13	section, i.e., one in three, was unnecessarily labor Intensive and that every fifth section, one in five, was sufficient."  Do you see that?  A. Yes.  Q. "The view of the meeting regarding the Investigation of the potential for differences between Sigma-sourced versus Syngenta-sourced	entitled "Genetic Dissection Paraquat-induced Neurodeg was not a consultant with Sy A. Correct. C. He had never work time, had he? A. I don't believe he had Q. He used paraquat	of Strain Dependent generation* at a time when he yngenta, correct?  ted for Syngenta at that  id, no. to induce parkinsonism
6 7 8 9 10 11 12 13 14	section, i.e., one in three, was unnecessarily labor Intensive and that every fifth section, one in five, was sufficient."  Do you see that?  A. Yes.  Q. "The view of the meeting regarding the Investigation of the potential for differences between Sigma-sourced versus Syngenta-sourced paraquat analytical standards due to possible	entitled "Genetic Dissection Paraquat-induced Neurodeg was not a consultant with 5y A. Correct. C. He had never work time, had he? A. I don't believe he had G. He used paraquati symptoms in the C57 mouse	of Strain Dependent generation* at a time when he yngenta, correct?  sed for Syngenta at that  id, no. to induce parkinsonism e, right?
6 7 8 9 0 1 1 2 3 4 5	section, i.e., one in three, was unnecessarily labor intensive and that every fifth section, one in five, was sufficient."  Do you see that?  A. Yes.  Q. "The view of the meeting regarding the investigation of the potential for differences between Sigma-sourced versus Syngenta-sourced paraquat analytical standards due to possible presence of the significance and very highly potent	entitled "Genetic Dissection Paraquat-induced Neurodeg was not a consultant with 5y A. Correct. L. Q. He had never work time, had he? A. I don't believe he had Q. He used paraquat symptoms in the C57 mouse A. He was using that to	of Strain Dependent generation* at a time when he yngenta, correct?  ted for Syngenta at that  id, no. to induce parkinsonism e, right? o see particularly
6 7 8 9 10 11 12 13 14 15	section, i.e., one in three, was unnecessarily labor intensive and that every fifth section, one in five, was sufficient."  Do you see that?  A. Yes.  Q. "The view of the meeting regarding the investigation of the potential for differences between Sigma-sourced versus Syngenta-sourced paraquat analytical standards due to possible presence of the significance and very highly potent impurity to account for differences in results was	entitled "Genetic Dissection Paraquat-induced Neurodeg was not a consultant with 5y A. Correct. L. Q. He had never work time, had he? A. I don't believe he he Q. He used paraquat symptoms in the C57 mouse A. He was using that to If there was any any impact	of Strain Dependent generation* at a time when he yngenta, correct?  ted for Syngenta at that  id, no. to induce parkinsonism e, right? o see particularly
6 7 8 9 10 11 12 13 14 15 16	section, i.e., one in three, was unnecessarily labor intensive and that every fifth section, one in five, was sufficient."  Do you see that?  A. Yes.  Q. "The view of the meeting regarding the investigation of the potential for differences between Sigma-sourced versus Syngenta-sourced paraquat analytical standards due to possible presence of the significance and very highly potent impurity to account for differences in results was that this was probably better determined first by	entitled "Genetic Dissection Paraquat-induced Neurodes was not a consultant with 5y A. Correct. L. Q. He had never work time, had he? A. I don't believe he he Q. He used paraquat symptoms in the C57 mouse A. He was using that to if there was any any impac	of Strain Dependent generation* at a time when he yngenta, correct?  ted for Syngenta at that  id, no. to induce parkinsonism a, right? b see particularly at on the substantia
6 7 8 9 0 .0 .1 .2 .3 .4 .5 .6 .6 .17	section, i.e., one in three, was unnecessarily labor intensive and that every fifth section, one in five, was sufficient."  Do you see that?  A. Yes.  G. "The view of the meeting regarding the investigation of the potential for differences between Sigma-sourced versus Syngenta-sourced paraquat analytical standards due to possible presence of the significance and very highly potent impurity to account for differences in results was that this was probably better determined first by chemical analysis."	entitled "Genetic Dissection  Paraquat-induced Neurodeg  was not a consultant with Sy  Correct.  He had never work  time, had he?  A. I don't believe he he  Q. He used paraquat:  symptoms in the C57 mouse  A. He was using that to  lif there was any any impact  nigra.  Q. Right. And If you keep	of Strain Dependent generation* at a time when he yngenta, correct?  sed for Syngenta at that ad, no. to induce parkinsonism a, right? b see particularly at on the substantia  pook at the page 1 of
6 7 8 9 .0 .1 .2 .3 .4 .5 .6 .6 .17	section, i.e., one in three, was unnecessarily labor intensive and that every fifth section, one in five, was sufficient."  Do you see that?  A. Yes.  G. "The view of the meeting regarding the investigation of the potential for differences between Sigma-sourced versus Syngenta-sourced paraquat analytical standards due to possible presence of the significance and very highly potent impurity to account for differences in results was that this was probably better determined first by chemical analysis."  What does that have reference to?	entitled "Genetic Dissection  Paraquat-induced Neurodes  was not a consultant with 5y  A. Correct.  C. He had never work time, had he?  A. I don't believe he ha Q. He used paraquat symptoms in the C57 mouse A. He was using that to lif there was any any Impac nigra.  Q. Right. And If you le his study in the abstract abo	of Strain Dependent generation* at a time when he yngenta, correct?  sed for Syngenta at that ad, no. to induce parkinsonism e, right? o see particularly et on the substantia  pook at the page 1 of out the fourth line down,
6 7 8 9 10 11 12 13 14 15 16 17 18 19	section, i.e., one in three, was unnecessarily labor intensive and that every fifth section, one in five, was sufficient."  Do you see that?  A. Yes.  Q. "The view of the meeting regarding the investigation of the potential for differences between Sigma-sourced versus Syngenta-sourced paraquat analytical standards due to possible presence of the significance and very highly potent impurity to account for differences in results was that this was probably better determined first by chemical analysis."  What does that have reference to?  A. Well, we were having a general	entitled "Genetic Dissection  Paraquat-induced Neurodes  was not a consultant with 5y  A. Correct.  C. He had never work time, had he?  A. I don't believe he ha Q. He used paraquat symptoms in the C57 mouse A. He was using that to If there was any any Impac nigra.  Q. Right. And If you le his study in the abstract abo he says in the abstract, "Par	of Strain Dependent generation* at a time when he yngenta, correct?  sed for Syngenta at that  id, no. to induce parkinsonism a, right? b see particularly at on the substantia  book at the page 1 of out the fourth line down, aquat acts as a direct
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	section, i.e., one in three, was unnecessarily labor intensive and that every fifth section, one in five, was sufficient."  Do you see that?  A. Yes.  G. "The view of the meeting regarding the investigation of the potential for differences between Sigma-sourced versus Syngenta-sourced paraquat analytical standards due to possible presence of the significance and very highly potent impurity to account for differences in results was that this was probably better determined first by chemical analysis."  What does that have reference to?	entitled "Genetic Dissection  Paraquat-induced Neurodeg  was not a consultant with 5y  A. Correct.  C. He had never work  time, had he?  A. I don't believe he ha  G. He used paraquat  symptoms in the C57 mouse  A. He was using that to  if there was any any Impac  nigra.  G. Right. And If you ke  his study in the abstract abo  he says in the abstract, "Par  redox cycling agent to indure	of Strain Dependent generation* at a time when he gragenta, correct?  ted for Syngenta at that  ad, no. to induce parkinsonism a, right? b see particularly at on the substantia  book at the page 1 of but the fourth line down, aquat acts as a direct ce formation of free
6 7 8	section, i.e., one in three, was unnecessarily labor intensive and that every fifth section, one in five, was sufficient."  Do you see that?  A. Yes.  Q. "The view of the meeting regarding the investigation of the potential for differences between Sigma-sourced versus Syngenta-sourced paraquat analytical standards due to possible presence of the significance and very highly potent impurity to account for differences in results was that this was probably better determined first by chemical analysis."  What does that have reference to?  A. Well, we were having a general	entitled "Genetic Dissection  Paraquat-induced Neurodes  was not a consultant with 5y  A. Correct.  C. He had never work time, had he?  A. I don't believe he ha Q. He used paraquat symptoms in the C57 mouse A. He was using that to If there was any any Impac nigra.  Q. Right. And If you le his study in the abstract abo he says in the abstract, "Par	of Strain Dependent generation* at a time when he gragenta, correct?  ted for Syngenta at that  ad, no. to induce parkinsonism a, right? bee particularly at on the substantia  book at the page 1 of but the fourth line down, aquat acts as a direct ace formation of free acred to mice, induces the

	Page 1641		Page 164
1 .	TH+ positive dopaminergic neurons in the ventral	1	That's what he said, right?
2	midbrain substantia nigra pars compacta," correct?	2	A. That's right.
3	A. Correct.	3	Q. Paraquat has been shown to induce
4	Q. Okay. That's a direct quote from his	4	extensive mitochondrial oxidative damage,* correct?
5	paper, right?	5	That's what he said?
6	A. Yes.	6	A. Yes.
7	Q. And in 19 strike that.	7	Q. "And in the brain, paraquat is actively
В	In 2012 would you agree that Dr. Smeyne	8	transported through neutral amino acid transporters,
9 1	likely made that statement because it was well	9	he also said, correct?
	established at that time in the scientific	10	A. Correct.
	literature that paraquat acts as a redox cycling	11	Q. "Paraquat generates free radicals
	agent to induce formation of free radicals, and when	12	through redox cycling." And that's page 1, left
	administered to mice, induces the cardinal symptoms	13	column, last sentence, if you want to verify that.
	of Parkinson's including the loss of TH+ positive	14	A. Okay. Yep.
	dopaminergic neurons in the substantia nigra?	15	Q. And if you go to page 4, the first
5	MR. NARESH: Objection, Calls for an	16	column, line 10, "Experimentally," Dr. Smeyne wrote,
	expert opinion.	17	"systemic administration of paraguat induces a
3		18	relatively specific lesion in the substantia nigra
	May I have a standing objection on this line?	19	that results in dopaminergic neuron loss," correct?
		20	A. Correct.
)	MR. TILLERY: Yes.	1	
L	THE WITNESS: Yes. I agree with your	21	Q. And he cited three references for that
	statement there that Dr. Smeyne was using the	22	statement, right?
	Information that was in the public literature at	23	A. Yes.
1 1	that time.	24	Q. So that means at least three other
	Page 1642		Page 164
L	BY MR. TILLERY:	1	
-	DI MIC TIEFERT.	1	published studies found those same results –
	Q. And it was consistent – the statement	2	published studies found those same results – correct? – at that time?
2		1	· ·
2 3 <b>v</b>	Q. And it was consistent – the statement	2	correct? – at that time?
2 3 <b>v</b>	<ul> <li>Q. And it was consistent – the statement</li> <li>vas consistent with it, wasn't it?</li> </ul>	2 3	correct? – at that time?  A. At that time, yes.  Q. in fact, by 2012 many laboratories
2 3 <b>v</b> 1	Q. And it was consistent – the statement was consistent with it, wasn't it?  A. Yes.	2 3 4	correct? — at that time?  A. At that time, yes.  Q. in fact, by 2012 many laboratories worldwide had established the paraquet black mouse as
2 3 <b>v</b> 1 5 <b>s</b>	Q. And it was consistent – the statement vas consistent with it, wasn't it?  A. Yes.  Q. In that 2012 study by Dr. Smeyne, he	2 3 4 5	correct? — at that time?  A. At that time, yes.  Q. in fact, by 2012 many laboratories worldwide had established the paraquet black mouse as
2 3 4 5 5 8 7	Q. And it was consistent — the statement was consistent with it, wasn't it?  A. Yes.  Q. In that 2012 study by Dr. Smeyne, he showed that the C57 black mouse treated with paraquat ost about 50 percent of their neurons in the	2 3 4 5 6	correct? — at that time?  A. At that time, yes.  Q. In fact, by 2012 many laboratories worldwide had established the paraquet black mouse as a model to induce parkinsonian pathology and symptoms
2 3 4 5 5 5 8 8 8 8	Q. And it was consistent — the statement was consistent with it, wasn't it?  A. Yes.  Q. In that 2012 study by Dr. Smeyne, he showed that the C57 black mouse treated with paraquat	2 3 4 5 6 7	correct? – at that time?  A. At that time, yes.  Q. In fact, by 2012 many laboratories worldwide had established the paraquet black mouse as a model to induce parkinsonian pathology and symptoms to study potential cures for Parkinson's disease,
2 3 4 5 5 5 8 8 8	Q. And it was consistent — the statement was consistent with it, wasn't it?  A. Yes. Q. In that 2012 study by Dr. Smeyne, he showed that the C57 black mouse treated with paraquat post about 50 percent of their neurons in the substantia nigra compared with untreated animals.	2 3 4 5 6 7 8	correct? – at that time?  A. At that time, yes.  Q. In fact, by 2012 many laboratories worldwide had established the paraquet black mouse as a model to induce parkinsonian pathology and symptoms to study potential cures for Parkinson's disease, correct?
2 3 4 5 5 5 5 5 5 5 8 8 8 8 8 9 1	Q. And it was consistent – the statement vas consistent with it, wasn't it?  A. Yes. Q. In that 2012 study by Dr. Smeyne, he showed that the C57 black mouse treated with paraquat lost about 50 percent of their neurons in the substantia nigra compared with untreated animals.  And if you need to see the reference, that's page 2, right column in the "Results" section	2 3 4 5 6 7 8	correct? – at that time?  A. At that time, yes.  Q. in fact, by 2012 many laboratories worldwide had established the paraquat black mouse as a model to induce parkinsonian pathology and symptoms to study potential cures for Parkinson's disease, correct?  A. That's correct.
2 3 1 5 5 5 5 5 5 5 8 8 8 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Q. And it was consistent – the statement vas consistent with it, wasn't it?  A. Yes. Q. In that 2012 study by Dr. Smeyne, he showed that the C57 black mouse treated with paraquat lost about 50 percent of their neurons in the substantia nigra compared with untreated animals.  And if you need to see the reference, that's page 2, right column in the "Results" section if you want to verify that.	2 3 4 5 6 7 8 9	correct? – at that time?  A. At that time, yes.  Q. In fact, by 2012 many laboratories worldwide had established the paraquet black mouse as a model to induce parkinsonian pathology and symptoms to study potential cures for Parkinson's disease, correct?  A. That's correct. Q. Now, let's go to 148.
2 33 <b>v</b> 4 5 6 <b>s</b> 77 <b>k</b> 8 8 9 10 <b>t</b> 11 <b>H</b>	Q. And it was consistent — the statement was consistent with it, wasn't it?  A. Yes. Q. In that 2012 study by Dr. Smeyne, he showed that the C57 black mouse treated with paraquat lost about 50 percent of their neurons in the substantia nigra compared with untreated animals.  And if you need to see the reference, hat's page 2, right column in the "Results" section if you want to verify that.  A. Yes, that's correct.	2 3 4 5 6 7 8 9 10	correct? — at that time?  A. At that time, yes.  Q. in fact, by 2012 many laboratories worldwide had established the paraquet black mouse as a model to induce parkinsonian pathology and symptoms to study potential cures for Parkinson's disease, correct?  A. That's correct.  Q. Now, let's go to 148. (Exhibit 148 was Identified for the record.)
2 33 <b>v</b> 4 5 5 7 k 8 33 <b>s</b> 9 00 tl 11 <b>H</b>	Q. And it was consistent — the statement was consistent with it, wasn't it?  A. Yes. Q. In that 2012 study by Dr. Smeyne, he showed that the C57 black mouse treated with paraquat cost about 50 percent of their neurons in the substantia nigra compared with untreated animals.  And if you need to see the reference, that's page 2, right column in the "Results" section if you want to verify that.  A. Yes, that's correct. Q. Okay. To your knowledge, this was a	2 3 4 5 6 7 8 9 10 11	correct? — at that time?  A. At that time, yes.  Q. in fact, by 2012 many laboratories worldwide had established the paraquet black mouse as a model to induce parkinsonian pathology and symptoms to study potential cures for Parkinson's disease, correct?  A. That's correct. Q. Now, let's go to 148.  (Exhibit 148 was Identified for the record.) BY MR. TILLERY:
2 33 <b>v</b> 1 5 5 5 5 5 5 5 5 8 8 9 8 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Q. And it was consistent – the statement was consistent with it, wasn't it?  A. Yes. Q. In that 2012 study by Dr. Smeyne, he showed that the C57 black mouse treated with paraquat post about 50 percent of their neurons in the substantia nigra compared with untreated animals.  And if you need to see the reference, that's page 2, right column in the "Results" section if you want to verify that.  A. Yes, that's correct. Q. Okay. To your knowledge, this was a ralid study, wasn't it?	2 3 4 5 6 7 8 9 10 11 12 13	correct? — at that time?  A. At that time, yes.  Q. in fact, by 2012 many laboratories worldwide had established the paraquet black mouse as a model to induce parkinsonian pathology and symptoms to study potential cures for Parkinson's disease, correct?  A. That's correct.  Q. Now, let's go to 148.  (Exhibit 148 was Identified for the record.)  BY MR. TILLERY:  Q. After the publication of Dr. Smeyne's
2 v 4 4 5 5 s s s 9 t t H 2 2 3 3 v v 5 5	Q. And it was consistent — the statement was consistent with it, wasn't it?  A. Yes. Q. In that 2012 study by Dr. Smeyne, he showed that the C57 black mouse treated with paraquat lost about 50 percent of their neurons in the substantia nigra compared with untreated animals.  And if you need to see the reference, that's page 2, right column in the "Results" section if you want to verify that.  A. Yes, that's correct. Q. Okay. To your knowledge, this was a ralid study, wasn't it?  A. Yes, indeed. As, indeed, we always	2 3 4 5 6 7 8 9 10 11 12 13 14 15	correct? — at that time?  A. At that time, yes.  Q. In fact, by 2012 many laboratories worldwide had established the paraquet black mouse as a model to induce parkinsonian pathology and symptoms to study potential cures for Parkinson's disease, correct?  A. That's correct.  Q. Now, let's go to 148.  (Exhibit 148 was Identified for the record.)  BY MR. TILLERY:  Q. After the publication of Dr. Smeyne's 2012 study, he became a Syngenta consultant in that
2 33 v 4 5 5 6 s 5 9 tt 1 H 2 2 3 4 v 5 6 8	Q. And it was consistent — the statement vas consistent with it, wasn't it?  A. Yes. Q. In that 2012 study by Dr. Smeyne, he showed that the C57 black mouse treated with paraquat lost about 50 percent of their neurons in the substantia nigra compared with untreated animals.  And if you need to see the reference, that's page 2, right column in the "Results" section if you want to verify that.  A. Yes, that's correct. Q. Okay. To your knowledge, this was a ralid study, wasn't it?  A. Yes, indeed. As, indeed, we always assume that most of the public literature was.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	correct? – at that time?  A. At that time, yes.  Q. In fact, by 2012 many laboratories worldwide had established the paraquet black mouse as a model to induce parkinsonian pathology and symptoms to study potential cures for Parkinson's disease, correct?  A. That's correct.  Q. Now, let's go to 148.  (Exhibit 148 was Identified for the record.)  BY MR. TILLERY:  Q. After the publication of Dr. Smeyne's 2012 study, he became a Syngenta consultant in that same year; is that correct?
2	Q. And it was consistent – the statement vas consistent with it, wasn't it?  A. Yes. Q. In that 2012 study by Dr. Smeyne, he showed that the C57 black mouse treated with paraquat lost about 50 percent of their neurons in the substantia nigra compared with untreated animals.  And if you need to see the reference, that's page 2, right column in the "Results" section if you want to verify that.  A. Yes, that's correct. Q. Okay. To your knowledge, this was a railid study, wasn't it?  A. Yes, indeed. As, indeed, we always assume that most of the public literature was. Q. Okay. Dr. Smeyne wrote that "Paraquat's	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	correct? – at that time?  A. At that time, yes.  Q. in fact, by 2012 many laboratories worldwide had established the paraquet black mouse as a model to induce parkinsonian pathology and symptoms to study potential cures for Parkinson's disease, correct?  A. That's correct.  Q. Now, let's go to 148.  (Exhibit 148 was identified for the record.)  BY MR. TILLERY: Q. After the publication of Dr. Smeyne's 2012 study, he became a Syngenta consultant in that same year, is that correct? A. Yes.
2 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Q. And it was consistent – the statement vas consistent with it, wasn't it?  A. Yes. Q. In that 2012 study by Dr. Smeyne, he showed that the C57 black mouse treated with paraquat lost about 50 percent of their neurons in the substantia nigra compared with untreated animals.  And if you need to see the reference, hat's page 2, right column in the "Results" section if you want to verify that.  A. Yes, that's correct. Q. Okay. To your knowledge, this was a ralid study, wasn't it?  A. Yes, indeed. As, indeed, we always assume that most of the public literature was. Q. Okay. Dr. Smeyne wrote that "Paraquat's nechanism of action involves the transfer of an	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	correct? – at that time?  A. At that time, yes.  Q. in fact, by 2012 many laboratories worldwide had established the paraquet black mouse as a model to induce parkinsonian pathology and symptoms to study potential cures for Parkinson's disease, correct?  A. That's correct.  Q. Now, let's go to 148.  (Exhibit 148 was Identified for the record.)  BY MR. TILLERY:  Q. After the publication of Dr. Smeyne's 2012 study, he became a Syngenta consultant in that same year, is that correct?  A. Yes.  Q. Dr. Smeyne was tasked with designing
22 33	Q. And it was consistent — the statement was consistent with it, wasn't it?  A. Yes. Q. In that 2012 study by Dr. Smeyne, he showed that the C57 black mouse treated with paraquat lost about 50 percent of their neurons in the substantia nigra compared with untreated animals.  And if you need to see the reference, hat's page 2, right column in the "Results" section if you want to verify that.  A. Yes, that's correct. Q. Okay. To your knowledge, this was a ralid study, wasn't it?  A. Yes, indeed. As, indeed, we always assume that most of the public literature was. Q. Okay. Dr. Smeyne wrote that "Paraquat's nechanism of action involves the transfer of an electron usually from NADPH to form a P2+ radical,"	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	correct? – at that time?  A. At that time, yes.  Q. in fact, by 2012 many laboratories worldwide had established the paraquet black mouse as a model to induce parkinsonian pathology and symptoms to study potential cures for Parkinson's disease, correct?  A. That's correct.  Q. Now, let's go to 148.  (Exhibit 148 was Identified for the record.)  BY MR. TILLERY:  Q. After the publication of Dr. Smeyne's 2012 study, he became a Syngenta consultant in that same year; is that correct?  A. Yes.  Q. Dr. Smeyne was tasked with designing paraquat experiments to determine whether paraquat
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	Page 1645		Page 1647
1	right?	1	the substantia nigra is a pathologic hallmark of
2	A. That's right.	2	human Parkinson's disease, correct?
3	Q. The work resulted in the publication of	3	A. Yes, that's right.
4	another study we can refer to as the Smeyne 2016	4	Q. Dr. Smeyne performed stereology on the
5	study of which you were a coauthor, correct?	5	mice that were part of the experiments taking place
6	A. That's correct.	6	
7	Q. The results of that study were	7	at his lab at St. Jude using what is known as
8		1	2D design method of stereology, right?
	ultimately published in a paper entitled "Assessment	8	A. Right.
9	of the Effects of MPTP and Paraquat on Dopaminergic	9	Q. And 2D is two-dimensional stereology,
10	Neurons and Microglia in the Substantia Nigra Pars	10	right?
11	Compacta of the C57BL/6 Mice," right?	11	A. Correct.
12	A. That's right.	12	<ul> <li>Q. And Dan Zadory used what is known as 3D,</li> </ul>
13	Q. And that is marked right now before you	13	a three-dimensional stereology, right?
14	as Exhibit 148 for this deposition, correct?	14	A. Yes.
15	A. That is correct, yes.	15	<ul> <li>Q. And Zadory was a paid Syngenta</li> </ul>
16	Q. All right. The paper was published. If	16	consultant at the time as well, right?
17	we look at the publication date, it was received	17	A. Yes, I believe he was.
18	November 30th, 2015; accepted September 20th, 2016;	18	<ul> <li>Q. In that study you used the same strain</li> </ul>
19	and published October 27th, 2016.	19	of mice from two different suppliers; is that
20	Is that a fair statement?	20	correct?
21	A. It is.	21	A. That's correct.
22	Q. Okay. Dr. Smeyne performed experiments	22	Q. That's page 6, Figure 1, if you want to
23	in his lab at St. Jude's Hospital in the	23	verify that.
24	United States, correct?	24	A. Just double-check. I'm pretty sure
1	Page 1646		Page 1648
		1 1	thatis the case
1	A. Yes.	1 2	that's the case.
2	Q. And another Syngenta consultant	2	MR. NARESH: And by "that study,"
2	Q. And another Syngenta consultant  Dan Zadory performed other experiments at EPL, the	2 3	MR. NARESH: And by "that study," Steve, you're referring to the 2016?
2 3 4	Q. And another Syngenta consultant Dan Zadory performed other experiments at EPL, the organization you previously described, correct?	2 3 4	MR. NARESH: And by "that study," Steve, you're referring to the 2016? MR. TILLERY: I am. I'm referring to
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2 3 4 5 6	<ul> <li>Q. And another Syngenta consultant</li> <li>Dan Zadory performed other experiments at EPL, the organization you previously described, correct?         <ul> <li>A. Yes. So Dan Zadory was involved in one part of those experiments.</li> </ul> </li> </ul>	2 3 4 5 6	MR. NARESH: And by "that study," Steve, you're referring to the 2016? MR. TILLERY: I am. I'm referring to the 2016 study which is marked as Plaintiffs' Deposition Exhibit 148.
2 3 4 5 6 7	<ul> <li>Q. And another Syngenta consultant</li> <li>Dan Zadory performed other experiments at EPL, the organization you previously described, correct?</li> <li>A. Yes. So Dan Zadory was involved in one part of those experiments.</li> <li>Q. Right. Just the stereology?</li> </ul>	2 3 4 5 6 7	MR. NARESH: And by "that study," Steve, you're referring to the 2016?  MR. TILLERY: I am. I'm referring to the 2016 study which is marked as Plaintiffs' Deposition Exhibit 148.  MR. NARESH: Thank you.
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	Q. And another Syngenta consultant Dan Zadory performed other experiments at EPL, the organization you previously described, correct?  A. Yes. So Dan Zadory was involved in one part of those experiments.  Q. Right. Just the stereology?  A. Just the stereology, yes. Q. "EPL" stands for experimental pathology laboratory, correct?  A. That's correct. Q. Okay. Did Syngenta pay for the study?  A. Yes, it did. Q. Did Syngenta pay the study authors? A. If they were consultants, there was a payment, yes. Q. Did Syngenta pay for all the expenses associated with the lab experiments?  A. As far as I know, yes.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	MR. NARESH: And by "that study,"  Steve, you're referring to the 2016?  MR. TILLERY: I am. I'm referring to the 2016 study which is marked as Plaintiffs'  Deposition Exhibit 148.  MR. NARESH: Thank you.  THE WITNESS: Yes, you're correct. So we have – mice were sourced from Jackson and from Harlan.  BY MR. TILLERY:  Q. Right. And you used mice that were 9 or 16 weeks old at the start of the experiment, correct?  A. That's correct.  Q. And, again, just for the ladies and gentiemen of the jury and the court, what does that equate to in general terms with human population?  A. So, again, we're talking about mid to late teenage at the beginning of the study.  Q. Okay. You determined whether paraquat
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Q. And another Syngenta consultant Dan Zadory performed other experiments at EPL, the organization you previously described, correct?  A. Yes. So Dan Zadory was involved in one part of those experiments.  Q. Right. Just the stereology?  A. Just the stereology, yes. Q. "EPL" stands for experimental pathology laboratory, correct?  A. That's correct. Q. Okay. Did Syngenta pay for the study? A. Yes, it did. Q. Did Syngenta pay the study authors? A. If they were consultants, there was a payment, yes. Q. Did Syngenta pay for all the expenses associated with the lab experiments? A. As far as I know, yes. Q. Okay. One purpose of that paper was to	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	MR. NARESH: And by "that study,"  Steve, you're referring to the 2016?  MR. TILLERY: I am. I'm referring to the 2016 study which is marked as Plaintiffs'  Deposition Exhibit 148.  MR. NARESH: Thank you.  THE WITNESS: Yes, you're correct. So we have – mice were sourced from Jackson and from Harlan.  BY MR. TILLERY:  Q. Right. And you used mice that were 9 or 16 weeks old at the start of the experiment, correct?  A. That's correct.  Q. And, again, just for the ladies and gentiemen of the jury and the court, what does that equate to in general terms with human population?  A. So, again, we're talking about mid to late teenage at the beginning of the study.  Q. Okay. You determined whether paraquat
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Page 1649		Page 1651
were dying in the substantia nigra, you would see	1	Would you agree with that as well?
that activation of microglia.	2	A. Yes. Yes, Indeed.
<ul> <li>Q. And would you explain what microglial</li> </ul>	3	Q. So activation means that there's a toxin
activation is?	4	to attack or damaged cell to dispose of, right?
A. Yeah. Microglia I mean, one way of	5	A. Yes. And it's the latter that we were
explaining it, it's a bit like macrophage is	6	most concerned about here.
responding to attack by bacteria. So they're one	7	Q. Right. In other words, the death of a
component of the response to external insult.	8	dopaminergic neuron would signal the activation of a
So if you get damage, then in the	9	microglial cell, right?
brain, then these cells called "microglia" would be	10	A. That's right.
activated as part of that response, which might	11	<ul> <li>Q. When microglial are resting, they have a</li> </ul>
include the death of neurons.	12	small round center with tentacles, right?
<ul> <li>Q. You found that paraquat treatment did</li> </ul>	13	A. Yes.
not result in the loss of dopaminergic neurons,	14	<ul> <li>Q. And when activated, they change shape by</li> </ul>
right?	15	withdrawing their tentacles, so more of a circular
A. That's correct.	16	structure with a larger diameter than the resting
Q. That's what you reported in your paper,	17	cell. Correct?
right?	18	A. That's right.
A. In this paper, that's right.	19	Q. Okay. And that's how you can tell
Q. And you reported in the study that	20	they've been activated?
paraquat treatment did not result in microgliai	21	A. That's right.
activation, right?	22	Q. You measure whether microglial were
A. That's correct.	23	activated by paraquat in the 2016 paper, right?
Q. And that's very important because	24	A. We did.
Page <b>1</b> 650		Page 1652
microglial activation would tell you what?	1	Q. And you found that paraquat did not
A. I mean, micro – microglial activation	2	activate microglia, right?
is a way of confirming, according to our	3	A. That's correct.
pathological consultants Including Professor Smeyne,	4	Q. Because had you found that, that would
that there is there is genuine pathology, cell	5	have been an Indication that paraquat was neurotoxic,
death in this case, actually happening.	6	correct?
Q. In other words, that the introduction of	7	A. It would have increased the likelihood
paraquat is actually causing cellular death in the	8	that paraquat was causing the death of dopaminergic
substantia nigra?	9	neurons, that's correct.
A. That's right.	10	Q. Okay. In page – on page 8 of the 2016
Q. Okay. And the paper was published in	11	paper under "Statistical Analyses," that's the last
the journal PLOS One, right?	12	paragraph there. If you would pull that up and look
A. That's correct.	13	at It.
Q. Okay. Now, If I can just go through	14	A. Yeah. Okay. I'm on that.
	I	Q. Where it says "Statistical Analyses," it
these microglial counts references quickly.	15	d. Where it bays occasion what your
	15	says, "The mean number of activated resting and total
these microglial counts references quickly.  Microglial are immune cells found in		7
these microglial counts references quickly.  Microglial are immune cells found in the brain and spinal cord, right?	16	says, "The mean number of activated resting and total
these microglial counts references quickly.  Microglial are immune cells found in the brain and spinal cord, right?  A. That's right.	16 17 18	says, "The mean number of activated resting and total microglia in the substantia nigra of vehicle controls was compared statistically to PQ- and MPTP-treated
these microglial counts references quickly.  Microglial are immune cells found in the brain and spinal cord, right?  A. That's right.  Q. Okay. They're first responders to	16 17 18 19	says, "The mean number of activated resting and total microglia in the substantia nigra of vehicle controls was compared statistically to PQ- and MPTP-treated groups using a two-sided Weich t-test. A two-side
these microglial counts references quickly.  Microglial are immune cells found in the brain and spinal cord, right?  A. That's right.  Q. Okay. They're first responders to defend the central nervous system. Would you agree?	16 17 18 19 20	says, "The mean number of activated resting and total microglia in the substantia nigra of vehicle controls was compared statistically to PQ- and MPTP-treated groups using a two-sided Welch t-test. A two-side test was used because it was considered equally
these microglial counts references quickly.  Microglial are immune cells found in the brain and spinal cord, right?  A. That's right.  Q. Okay. They're first responders to defend the central nervous system. Would you agree?  A. Yes. Yes. As I said, a little bit	16 17 18 19 20 21	says, "The mean number of activated resting and total microglia in the substantia nigra of vehicle controls was compared statistically to PQ- and MPTP-treated groups using a two-sided Welch t-test. A two-side test was used because it was considered equally likely that these agents could activate microglia as
these microglial counts references quickly.  Microglial are immune cells found in the brain and spinal cord, right?  A. That's right.  Q. Okay. They're first responders to defend the central nervous system. Would you agree?	16 17 18 19 20	says, "The mean number of activated resting and total microglia in the substantia nigra of vehicle controls was compared statistically to PQ- and MPTP-treated groups using a two-sided Welch t-test. A two-side test was used because it was considered equally
	that activation of microglia.  Q. And would you explain what microglial activation is?  A. Yeah. Microglia I mean, one way of explaining it, it's a bit like macrophage is responding to attack by bacteria. So they're one component of the response to external insult.  So if you get damage, then in the brain, then these cells called "microglia" would be activated as part of that response, which might include the death of neurons.  Q. You found that paraquat treatment did not result in the loss of dopaminergic neurons, right?  A. That's correct.  Q. That's what you reported in your paper, right?  A. In this paper, that's right.  Q. And you reported in the study that paraquat treatment did not result in microglial activation, right?  A. That's correct.  Q. And that's very important because  Page 1650  microglial activation would tell you what?  A. I mean, micro - microglial activation is a way of confirming, according to our pathological consultants including Professor Smeyne, that there is there is genuine pathology, cell death in this case, actually happening.  Q. In other words, that the introduction of paraquat is actually causing cellular death in the substantia nigra?  A. That's right.  Q. Okay. And the paper was published in the journal PLOS One, right?	that activation of microglia.  Q. And would you explain what microglial activation is?  A. Yeah. Microglia I mean, one way of explaining it, it's a bit like macrophage is responding to attack by bacteria. So they're one component of the response to external insult.  So if you get damage, then in the brain, then these cells called "microglia" would be activated as part of that response, which might include the death of neurons.  Q. You found that paraquat treatment did not result in the loss of dopaminergic neurons, right?  A. That's correct.  Q. That's what you reported in your paper, right?  A. In this paper, that's right.  Q. And you reported in the study that paraquat treatment did not result in microglial activation, right?  A. That's correct.  Q. And that's very important because  Page 1650  microglial activation would tell you what?  A. I mean, micro - microglial activation is a way of confirming, according to our pathological consultants including Professor Smeyne, that there is there is genuine pathology, cell death in this case, actually happening.  Q. In other words, that the Introduction of paraquat is actually causing cellular death in the substantia nigra?  A. That's right.  Q. Okay. And the paper was published in the journal PLOS One, right?

	Page <b>165</b> 3		Page 1655
1	Do you see that?	1	I'll send him a note.
2	A. Yes.	2	THE VIDEOGRAPHER: Off the record. The
3	Q. What is a cytotoxic effect?	3	time Is 10:59. This ends Media Unit Number 8.
4	A. Well, that would mean that the external	4	(Discussion off the record.)
5	agent paraquat or MPTP was directly damaging the	5	THE VIDEOGRAPHER: We're going back on
6	glia or activating the microglia rather than the	6	the record. The time is 11:01. This begins Media
7	microglia responding to dopaminergic cell death.	7	Unit Number 9.
8	Q. Does paraguat have a direct cytotoxic –	8	BY MR. TILLERY:
9	cytotoxic effect on microglia?	9	Q. And if you would look at this email from
10	A. I don't know that we've got evidence to	10	
11	that effect.	11	Charles Breckenridge, October 1, 2014, 6:12 a.m.,
12		12	to Andy Cook, Dan Minnema, and to you re Smeyne data,
	Q. Have you ever seen any science published	1	It says, "Andy, I have an agreement with Smeyne. We
13	anywhere in the world that paraquat is cytotoxic to	13	do not decode the data until we resolve all
14	microglia?	14	discrepancies."
15	A. I can't recall that kind of	15	"Decode" means to unwind it, doesn't
16	information.	16	It?
17	Q. And the next is – we're going to go to	17	A. It does, yes.
18	Exhibit 149 now. If you could open that up.	18	<ul> <li>Q. Okay. And he says, "Dan, go ahead and</li> </ul>
19	(Exhibit 149 was identified	19	send the decoded Harlan data."
20	for the record.)	20	And he says at the last line, he says,
21	BY MR. TILLERY:	21	"In the Harian mice, we have PQ effects on activated
22	Q. This is an email exchange. And lucky	22	microglia but not TH neurons."
23	you, you're involved again. You're listed, aren't	23	Do you see that?
24	you?	24	A. I do.
	Page 1654		Page 1656
1	A. Yes, I am. I'm copied into it.	1	Q. Okay. And then there's a response.
2	Q. This is an October 1st, 2014, email	2	He - the - and he sends it, Dan Minnema, the top
3	exchange, isn't it?	3	one, top email, which is sent a few hours later. And
4	A. Yes.	4	he sends it to Nick Sturgess, to Cook, to you. And
5	Q. And it's the highlighted sentence	5	it says, "See attached decoded Harian data. We'll
6	is – well, I don't think it's highlighted in yours.	6	start checking the JAX data today."
7	A. No, it's not.	7	That means they unblinded the data,
8	Q. Look at the very last of this. We have	8	didn't they?
9	Andy Cook saying to Dan Minnema, "Any chance you can	9	A. Whether that means they were unblinding
10	share information about the Smeyne data?"	10	it all as they were doing some of the discrepancy
11	And then you have a response from	11	checking, I wouldn't be able to comment on that.
12	Charles Breckenridge saying, "I have an agreement	12	Q. Okay. But that's certainly – decoding,
13	with Smeyne that we do not decode the data until we	13	it means it makes it available from the controls to
	•	1	
14	resolve all discrepancies. Dan has not checked the	14	the test subjects. That's what it means, doesn't it?
15	Jackson mice data yet which we got on Monday."	15	A. Right. For the Harlan for the
16	And then it says, "Dan, go shead and	16	Harlan data, that's right, yes.
17	send the decoded Harlan data. We can discuss the	17	Q. Okay. All right. Did — you did — did
	results today."	18	you report the paraquat effects on activated
18	A, Okay. Yeah. I can see that.	19	microglia in Harlan mice in the 2016 paper?
18 19		20	<ul> <li>A. I would have to look again at the</li> </ul>
18 19 20	MR. NARESH: Is it frozen for anybody	1	
18 19 20 21		21	paper. I mean, I don't know whether that was the
18 19 20	MR. NARESH: Is it frozen for anybody	21 22	paper. I mean, I don't know whether that was the final interpretation here. That may have been a
18 19 20 21	MR. NARESH: Is it frozen for anybody else?	21	

	Page 1657		Page 1659
1	Q. Okay. Let's what's the next exhibit?	1	to Breckenridge and Dan Minnema, microglia counts.
2	lt's 150.	2	Do you see that?
3	(Exhibit 150 was identified	3	A. Yes.
4	for the record.)	4	Q. And then if you go to the third
5	BY MR. TILLERY:	5	paragraph, it says, "Although I am confident of the
6	Q. I think the next will clear this up for	6	numbers provided, counts between Yun and I," and she
7	you. And here, if you wouldn't look – if you	7	says, "Inter investigator are within 10 percent and
8	wouldn't mind, you can go through and look at this	8	counts between Yun and herself and me and myself,
9	four-page – I think it's four pages of emails. And	9	Intrainvestigator, have the same plus or minus
10	if you'd just skim through them, you'll see the	10	10 percent, I can understand given the many
11	discussions. And this is referencing microglial	11	Iterations Yun has sent you there are – there may be
12	counts and what to do with the findings of	12	questions on the microglia numbers."
13	Dr. Yun Jiao in Dr. Smeyne's laboratory. And you're	13	Do you see that?
14	included in some of these as well.	14	A. Yeah, I do.
15	Do you see?	15	Q. Okey. All right. So he's saying that
16	A. Yes.	16	he's confident in Yun's microglia counts, isn't he?
17		17	A. Yes.
	Q. All right. Do you remember this	18	
18	exchange?	1	Q. But then he offers to do a recount,
19	A. Well, some of it. As you say, I wasn't	19	doesn't he?
20	Involved In some of the detailed interchange at the	20	And if you want to see that, go to the
21	beginning.	21	next page, which is page 4, second paragraph, and it
22	Q. But it –	22	says for the record, "I know that Syngerita has
23	MR. NARESH: And, Dr. Botham, If you	23	Invested a great amount of time and funds for this
24	need, you know take whatever time you need to	24	project and want to make sure that you feel both are
	Page 1658		Page 1660
1	to read the email and	,	
		1	good investments and, thus, want to make sure that
2	THE WITNESS: Yeah, I'm I'm still	2	good investments and, thus, want to make sure that you are comfortable with any decision you make. In
2		1	-
	THE WITNESS: Yeah. I'm I'm still	2	you are comfortable with any decision you make. In
3	THE WITNESS: Yeah. I'm I'm still looking through this. BY MR. TILLERY:	2 3	you are comfortable with any decision you make. In terms of time and effort, I know that you would like
3 4	THE WITNESS: Yeah. I'm I'm stlll looking through this. BY MR. TILLERY: Q. Right. I'm not trying to rush you, but	2 3 4	you are comfortable with any decision you make. In terms of time and effort, I know that you would like data sooner than later. But as you said, it is more important to have complete confidence in the data."
3 4 5	THE WITNESS: Yeah. I'm I'm stlll looking through this.  BY MR. TILLERY:  Q. Right. I'm not trying to rush you, but it looks like you were copied on all of this.	2 3 4 5	you are comfortable with any decision you make. In terms of time and effort, I know that you would like data sooner than later. But as you said, it is more
3 4 5 6 7	THE WITNESS: Yeah. I'm I'm still looking through this.  BY MR. TILLERY:  Q. Right. I'm not trying to rush you, but it looks like you were copied on all of this.  Tell me when you're ready to accept	2 3 4 5 6 7	you are comfortable with any decision you make. In terms of time and effort, I know that you would like data sooner than later. But as you said, it is more important to have complete confidence in the data."  Do you see that?  A. I do.
3 4 5 6 7 8	THE WITNESS: Yeah. I'm I'm still looking through this.  BY MR. TILLERY:  Q. Right. I'm not trying to rush you, but it looks like you were copied on all of this.  Tell me when you're ready to accept questions, please.	2 3 4 5 6 7 8	you are comfortable with any decision you make. In terms of time and effort, I know that you would like data sooner than later. But as you said, it is more important to have complete confidence in the data."  Do you see that?  A. I do.  MR. NARESH: Steve, sorry to interrupt.
3 4 5 6 7 8	THE WITNESS: Yeah. I'm I'm still looking through this.  BY MR. TILLERY:  Q. Right. I'm not trying to rush you, but it looks like you were copied on all of this.  Tell me when you're ready to accept questions, please.  A. Okay. I'll do my best, but this is	2 3 4 5 6 7 8	you are comfortable with any decision you make. In terms of time and effort, I know that you would like data sooner than later. But as you said, it is more important to have complete confidence in the data."  Do you see that?  A. I do.  MR. NARESH: Steve, sorry to interrupt. But I think we just lost Shaun, the videographer.
3 4 5 6 7 8 9	THE WITNESS: Yeah. I'm — I'm still looking through this.  BY MR. TILLERY:  Q. Right. I'm not trying to rush you, but it looks like you were copied on all of this.  Tell me when you're ready to accept questions, please.  A. Okay. I'll do my best, but this is quite a — quite a complicated set of information.	2 3 4 5 6 7 8 9	you are comfortable with any decision you make. In terms of time and effort, I know that you would like data sooner than later. But as you said, it is more important to have complete confidence in the data."  Do you see that?  A. I do.  MR. NARESH: Steve, sorry to interrupt.  But I think we just lost Shaun, the videographer.  MR. TILLERY: Oh.
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3 4 5 6 7 8 9 10 11	THE WITNESS: Yeah. I'm — I'm still looking through this.  BY MR. TILLERY:  Q. Right. I'm not trying to rush you, but it looks like you were copied on all of this.  Tell me when you're ready to accept questions, please.  A. Okay. I'll do my best, but this is quite a — quite a complicated set of information.  Q. Right. And Dr. Jiao, who worked in Dr. Smeyne's lab at St. Jude's, gives the first	2 3 4 5 6 7 8 9 10 11 12	you are comfortable with any decision you make. In terms of time and effort, I know that you would like data sooner than later. But as you said, it is more important to have complete confidence in the data."  Do you see that?  A. I do.  MR. NARESH: Steve, sorry to interrupt.  But I think we just lost Shaun, the videographer.  MR. TILLERY: Oh.  MR. NARESH: I saw him drop in the middle of the question. I don't know if we can go
3 4 5 6 7 8 9 10 11 12	THE WITNESS: Yeah. I'm — I'm still looking through this.  BY MR. TILLERY:  Q. Right. I'm not trying to rush you, but it looks like you were copied on all of this.  Tell me when you're ready to accept questions, please.  A. Okay. I'll do my best, but this is quite a — quite a complicated set of information.  Q. Right. And Dr. Jiao, who worked in Dr. Smeyne's lab at St. Jude's, gives the first microglial counts for the 2016 paper from this if you	2 3 4 5 6 7 8 9 10 11 12 13	you are comfortable with any decision you make. In terms of time and effort, I know that you would like data sooner than later. But as you sald, it Is more important to have complete confidence in the data."  Do you see that?  A. I do.  MR. NARESH: Steve, sorry to interrupt.  But I think we just lost Shaun, the videographer.  MR. TILLERY: Oh.  MR. NARESH: I saw him drop in the middle of the question. I don't know if we can go off the record.
3 4 5 6 7 8 9 10 11 12 13	THE WITNESS: Yeah. I'm I'm still looking through this.  BY MR. TILLERY:  Q. Right. I'm not trying to rush you, but it looks like you were copied on all of this.  Tell me when you're ready to accept questions, please.  A. Okay. I'll do my best, but this is quite a quite a complicated set of information.  Q. Right. And Dr. Jiao, who worked in Dr. Smeyne's lab at St. Jude's, gives the first microglial counts for the 2016 paper from this if you read the first emalls, correct?	2 3 4 5 6 7 8 9 10 11 12 13 14	you are comfortable with any decision you make. In terms of time and effort, I know that you would like data sooner than later. But as you said, it is more important to have complete confidence in the data."  Do you see that?  A. I do.  MR. NARESH: Steve, sorry to interrupt.  But I think we just lost Shaun, the videographer.  MR. TILLERY: Oh.  MR. NARESH: I saw him drop in the middle of the question. I don't know if we can go off the record.  THE REPORTER: Yeah. We'll just go off
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3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	THE WITNESS: Yeah. I'm — I'm still looking through this.  BY MR. TILLERY:  Q. Right. I'm not trying to rush you, but it looks like you were copied on all of this.  Tell me when you're ready to accept questions, please.  A. Okay. I'll do my best, but this is quite a — quite a complicated set of information.  Q. Right. And Dr. Jiao, who worked in Dr. Smeyne's lab at St. Jude's, gives the first microglial counts for the 2016 paper from this if you read the first emalls, correct?  A. Right.  Q. And she's the one who found the paraquat effects on microglia that Dr. Breckenridge wrote about in the prior exhibit, correct?  A. So which — where — Just point to me exactly where —	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	you are comfortable with any decision you make. In terms of time and effort, I know that you would like data sooner than later. But as you said, it is more important to have complete confidence in the data."  Do you see that?  A. I do.  MR. NARESH: Steve, sorry to interrupt.  But I think we just lost Shaun, the videographer.  MR. TILLERY: Oh.  MR. NARESH: I saw him drop in the middle of the question. I don't know if we can go off the record.  THE REPORTER: Yeah. We'll just go off the -  MR. NARESH: Why don't we go off the record.  MR. TILLERY: Yeah. Okay.  (Discussion off the record.)  THE VIDEOGRAPHER: We're going back on the record. The time is 11:12. This is the

	Page 1661		Page 1663
1 little bit. I think th	ne transcript was continuing,	1	fashlon, was it?
2 but I think we los	t some video. But i'll continue	2	A. To what are you referring?
3 <b>on.</b>		3	<ul> <li>Q. I'm talking about the fact that the data</li> </ul>
4 Dr. Smey	ne offered – I was in the	4	that was sent back for review was - was where the
5 process of going	through that in the record, and I	5	code was broken and the review - the second review
6 will go back and	repeat it – on the fourth page of	6	after Dr. Jlao's by Dr. Smeyne was done unblinded.
7 the chain of ema	lls. And he says, "I know that	7	A. Okay. So you're referring to
8 Syngenta has inv	ested a great amount of time and	8	specifically what Dr. Smeyne is suggesting
9 funds for this pro	ject and want to make sure that	9	Q. Right.
10 you feel both are	good investments and, thus, want	10	A doing here?
	t you are comfortable with any	11	Q. That's right. Would that be a fair
	ke. In terms of time and effort, I	12	statement?
	like data sooner rather than later.	13	A. I I don't know. I mean, I don't
•	t's more Important to have	14	know whether we – at this point he was unblinded to
complete confide		15	treatment.
16 Do you se		16	Q. But Dr. Jiao, Yun Jiao, was blinded when
17 A. Ido.		17	she performed her microglial counts as far as you
	So Dr. Smeyne – Smeyne	18	know, right?
_	e recount despite being confident	19	A. As far as we know, yes.
, ,			
	ers were accurate because he wanted	20	Q. Yes. And Dr. Smeyne proposed to recount
, ,	good about their investment,	21	a subset of the brains that were analyzed by Dr. Jiao
22 correct?		22	to compare numbers from Yun Jiao's initial counts,
	SH: Objection to	23	right? That's the way you understand this?
24 THE WITN	IESS:   think another way I	24	A. Yes.
	Page 1662		Page 1664
1 think another		1	Q. Okay. On page 1 of this exhibit is an
2 MR. NARE	SH: Objection on foundation.	2	email exchange from Dr. Breckenridge to Dr. Smeyne
3 Go ahead		3	dated October 21, If you go to that. Okay?
4 THE WITN	IESS: Yeah. Sorry.	4	A. Yes.
	other way of putting that is	5	Q. Do you see that?
	make sure that the findings were	6	A. Uh-huh.
7 scientifically soun	-	7	Q. October 21, 2014. In the first
8 BY MR. TILLE		8	paragraph, he says, "It is unfortunate that we cannot
	Break the codes" means that	9	reconstruct the microglial counts from the raw data
	ed as to whether tissue was treatment	10	for the reads done by Yun. The good news is that the
			slide remains the authoritative raw data."
	i that be a correct statement?	11	
.2 A. Yes, that		12	Paragraph two says, "We are considering
	and that's not what was reported	13	the options you described and will discuss them in
4 in the study, right		14	our PQ team meeting tomorrow morning. It is likely
	s not reported in the study?	15	we will opt for a reread of microglia using 2D
↑ 14/m al	re any indication that the codes	16	method."
	· .	17	Do you see that?
were broken in the	lite sure how we've reported	18	A. I do see that, yes.
were broken in the	· ·		Q. Okay. That's the part that he's
were broken in the A. I'm not qu	re the study referred to reading	19	at oneyt matouropartmatrico
were broken in the A. I'm not question of the A. I'm pretty su		19 20	referring to.
were broken in the A. I'm not que that. I'm pretty su the material in a b			
were broken in the A. I'm not que that. I'm pretty su the material in a be Q. Yes, it r	linded fashlon.	20	referring to.
were broken in the A. I'm not que that. I'm pretty su the material in a be Q. Yes, it r	linded fashlon.	20 21	referring to.  Now, let's pull up – what is the next

	Page <b>166</b> 5		Page 166
1	BY MR. TILLERY:	1	Q. And it says, "Performed – assessment
2	Q. All right. And if you look at this	2	perform by RS.*
3	exhibit, it's Syngenta PQ SYNG-PQ-02143684. Okay?	3	That's Richard Smeyne, right?
4	And it's entitled "Mouse Studies at St. Jude's	4	A. Yes.
5	Hospital."	5	Q. And Smeyne found that paraquat-treated
6	Do you see that?	6	mice activated microglia.
7	"Dr. Richard Smeyne, Status Update,	7	Do you see that?
8	November 19th, 2014," right?	8	A. Yes.
9	A. Yes, I see that.	9	Q. The results were statistically
10	Q. All right. Now, this is a presentation	10	significant as noted by the asterlsk, correct?
11 1	that Dr. Smeyne wrote to give Syngenta as an update	11	A. Yes. Yes. Okay.
	on those mouse studies, isn't it?	12	Q. But that's not what you reported in your
13	A. Yes, that's that's correct.	13	2016 paper. You didn't report this, dld you?
14	Q. Were you present at this or at least	14	A. Well, I would need to really understand
	participating?	15	what the status of this work was at the time
16	A. I'm pretty sure I was.	16	compared to how we eventually or more accurately
17	Q. Yes. And this ~ If you'd go to the	17	Professor Smeyne eventually interpreted these
	slide which appears on page 12. Tell me when you're	18	findings. So we're looking at a point in time on
	there.	19	14
20		20	
	A. Okay. So number of microglia. Is that the slide?	1	Q. Well, I'll show you. If we look at the
		21	next slide and you look at this, this is the – the
22	Q. Right. And it says, "Assessment	22	next slide is 15 of 16. And it's entitled "Harlan
	performed by YJ," Yun Jiao, right?	23	C57 Mice, Number of Active Microglia Comparison of
24	A. Yes.	24	Richard Smeyne and Yun Jiao."
	Page 1666		Page 1668
1	Q. And then you see it's got dark marked	1	Do you see that?
2	"Active Microglia," second is "Resting Microglia,"	2	A. Yes.
3	"Total Microglia." And then it has an indication on	3	Q. And – and are you able to look at this
4	them for significance. And statistical significance	4	and tell how he has reached a comparison?
5	is noted with an asterisk.	5	Dr. Smeyne's Initials are RS for
6	Do you see that?	6	Richard Smeyne, right?
7	A. Yes.	7	A. Yes.
8	Q. All right. Now, the very next slide is	8	Q. And Yun Jiao's are YJ, right?
9	a validation study. "Redetermination of the number	9	A. Right,
	of microglia in the substantia nigra of the Harlan	10	Q. And if you look up In the upper
	C57 mice.*	11	right-hand portion of this, you'll see the R-squared
12	Do you see that?	12	value?
13	A. Ido.	13	A. Yes.
	Q. And it says, "To confirm/validate the	14	Q. Okay. And it represents the estimate of
1 4	assessment of the number of microglia In the	15	how similar Dr. Smeyne's counting was compared to
	assessment of the number of fillelogical in the	16	Dr. Jiao's.
15	substantla nigra. Dr. Pichard Smayna reread the stale		Dr. Jigo 5.
15 16	substantia nigra, Dr. Richard Smeyne reread the stain		Do you see that?
15 16 17	slides of Harian C57 mice."	17	Do you see that?
15 16 17 18	slides of Harian C57 mice."  A. Yes. It does say that.	17 18	A. Okay. Yes.
15 16 17 18	slides of Harlan C57 mice."  A. Yes. It does say that.  Q. All right. The next slide, number 14.	17 18 19	A. Okay. Yes.     Q. Okay. So here the R-squared value is
15 16 17 18 19	slides of Harian C57 mice."  A. Yes. It does say that.  Q. All right. The next slide, number 14. If you'd look at that.	17 18 19 20	A. Okay. Yes.     Q. Okay. So here the R-squared value is     .895. Tells us that Smeyne's counts are 90 percent.
15 16 17 18 19 20	sildes of Harlan C57 mice."  A. Yes. It does say that.  Q. All right. The next silde, number 14.  If you'd look at that.  A. Okay. Go ahead.	17 18 19 20 21	A. Okay. Yes.     Q. Okay. So here the R-squared value is     .895. Tells us that Smeyne's counts are 90 percent similar to Dr. Jiao's.
15 16 17 18 19 20 21	slides of Harian C57 mice."  A. Yes. It does say that.  Q. All right. The next slide, number 14.  If you'd look at that.  A. Okay. Go ahead.  Q. This shows the assessment of microglia	17 18 19 20 21 22	A. Okay. Yes. Q. Okay. So here the R-squared value is .895. Tells us that Smeyne's counts are 90 percent similar to Dr. Jiao's. A. That was –
16 17 18 19 20 21	sildes of Harlan C57 mice."  A. Yes. It does say that.  Q. All right. The next silde, number 14.  If you'd look at that.  A. Okay. Go ahead.	17 18 19 20 21	A. Okay. Yes. Q. Okay. So here the R-squared value is .895. Tells us that Smeyne's counts are 90 percent similar to Dr. Jiao's.

	Page 1669		Page 167
1	Q. That's within 10 percent.	1	And then the two-tailed test, he's just
2	The regression is for the pool data of	2	barely over at .06, where you said earlier an hour
3	all animals. That would be in controls, MPTP, and	3	or so ago that that's what you look strongly at,
4	PQ treated together, right? Right?	4	correct?
5	A. Yes.	5	A. Right, Yes. You can say - you might
6	Q. Okay. Now, to do the statistics, you	6	say that that was a trend towards significance.
7	used, as in most of these studies, a 95 percent	7	That's what I said earlier.
8	confidence interval, correct?	8	Q. Right. Okay. So Dr. Smeyne's
9	A. Right.	9	microglial counts were statistically significant
10	Q. And so anything less than a .05 is	10	using the one-talled t-test, weren't they?
11	statistically significant, correct?	11	A. That's correct, yes.
12	A. That's correct.	12	Q. Using the two-tailed t-test, his were
13	Q. Using both the one-tailed and a	13	just above the .05 statistical significance level at
14		14	.06, correct?
	two-tailed t-test, Dr. Jiao's counts were	15	•
15	statistically significant, weren't they?	1	A. Yes.
16	A. That's what was indicated on the	16	Q. But in the 2016 study report, you chose
17	previous slide, yes.	17	to report only Dr. Smeyne's microglial counts, didn't
18	Q. Okay. They were less than .05, right?	18	you?
19	A. Uh-huh.	19	A.   would need to check that; so but
20	Q. Dr. Smeyne's microglial counts were	20	will take your word for now.
21	statistically significant using a one-tail t-test,	21	Q. Okay. You never disclosed Dr. Jiao's
22	right?	22	microglial counts despite having confidence in her
23	<ul> <li>A. Right. You're now getting down to a</li> </ul>	23	counts, correct?
24	level of detail which I	24	A. Well, this would have been a judgment
	Page 1670		Page 1672
1	Q. Well, just look at - just look -	1	of Dr Professor Smeyne. So he was entirely
2	(Reporter clarification.)	2	accountable and, indeed, accepted the responsibility
3	MR. NARESH: You're interrupting.	3	for the what were the definitive data.
4	BY MR. TILLERY:	4	Q. Okay. So because if you'd have
5	Q. Okay. Look at the -	5	reported that paraquat caused activated microglia,
6	(Reporter clarification.)	6	that would have been a negative effect, wouldn't it,
7	BY MR. TILLERY:	7	sir?
	Q. Go ahead, Dr. Botham. Finish.	8	A. Yes. If – and particularly from the
8		1	
8 9	A. I can't immediately confirm what you've	9	two two-tailed test, yes.
9	A. I can't immediately confirm what you've said around about the one-sided statistics.	10	two – two-tailed test, yes.  Q. It would have also been Inconsistent
9 10	sald around about the one-sided statistics.	10	Q. It would have also been inconsistent
9 10 11	sald around about the one-sided statistics.  Q. Yeah. That's what I'm pointing you to.	10 11	Q. It would have also been inconsistent with your findings that paraquat did not cause a loss
9 10 11 12	sald around about the one-sided statistics.  Q. Yeah. That's what I'm pointing you to.  Okay? That's what I was trying to help point.	10 11 12	Q. It would have also been inconsistent with your findings that paraquat did not cause a loss of TH neurons in the substantia nigra pars compacta.
9 10 11 12 13	sald around about the one-sided statistics.  Q. Yeah. That's what I'm pointing you to.  Okay? That's what I was trying to help point.  If you go to PQ under YJ column and RS,	10 11 12 13	Q. It would have also been inconsistent with your findings that paraquat did not cause a loss of TH neurons in the substantia nigra pars compacta. Would you agree with that?
9 10 11 12 13	sald around about the one-sided statistics.  Q. Yeah. That's what I'm pointing you to.  Okay? That's what I was trying to help point.  If you go to PQ under YJ column and RS,  do you see that in the middle of the page at the	10 11 12 13 14	Q. It would have also been inconsistent with your findings that paraquat did not cause a loss of TH neurons in the substantia nigra pars compacta. Would you agree with that? A. Well, it would have suggested that the
9 10 11 12 13 14	sald around about the one-sided statistics.  Q. Yeah. That's what I'm pointing you to.  Okay? That's what I was trying to help point.  If you go to PQ under YJ column and RS, do you see that in the middle of the page at the bottom?	10 11 12 13 14 15	Q. It would have also been inconsistent with your findings that paraquat did not cause a loss of TH neurons in the substantia nigra pars compacta. Would you agree with that? A. Well, it would have suggested that the microglia had been activated in response to
9 10 11 12 13 14 15	sald around about the one-sided statistics.  Q. Yeah. That's what I'm pointing you to.  Okay? That's what I was trying to help point.  If you go to PQ under YJ column and RS,  do you see that in the middle of the page at the bottom?  A. Yes.	10 11 12 13 14 15 16	Q. It would have also been inconsistent with your findings that paraquat did not cause a loss of TH neurons in the substantia nigra pars compacta. Would you agree with that? A. Well, it would have suggested that the microglia had been activated in response to something, yes.
9 10 11 12 13 14 15 16	sald around about the one-sided statistics.  Q. Yeah. That's what I'm pointing you to.  Okay? That's what I was trying to help point.  If you go to PQ under YJ column and RS,  do you see that in the middle of the page at the  bottom?  A. Yes.  Q. All right. And it says — it shows	10 11 12 13 14 15 16 17	Q. It would have also been inconsistent with your findings that paraquat did not cause a loss of TH neurons in the substantia nigra pars compacta. Would you agree with that? A. Well, it would have suggested that the microglia had been activated in response to something, yes. Q. The one-tailed test, you think, is the
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9 110 111 112 113 114 115 116 117 118 119 220 221 222	sald around about the one-sided statistics.  Q. Yeah. That's what I'm pointing you to. Okay? That's what I was trying to help point. If you go to PQ under YJ column and RS, do you see that in the middle of the page at the bottom?  A. Yes. Q. All right. And it says – it shows one-tailed test, YJ, .0124 clearly within the – the statistically significant range, right? A. Okay. I've got it now, yes. Q. And the two-tailed test, she's clearly, again, strongly within that range.	10 11 12 13 14 15 16 17 18 19 20 21	Q. It would have also been inconsistent with your findings that paraquat did not cause a loss of TH neurons in the substantia nigra pars compacta. Would you agree with that?  A. Well, it would have suggested that the microglia had been activated in response to something, yes.  Q. The one-tailed test, you think, is the appropriate test or the two-tailed test?  A. I believe it's actually more of the two-tailed test. But, I mean, this is now memory from when we were discussing this. So, again, I would need to check that.
9 10 11 12 13 14 15 16 17 18 19 20	sald around about the one-sided statistics.  Q. Yeah. That's what I'm pointing you to. Okay? That's what I was trying to help point.  If you go to PQ under YJ column and RS, do you see that in the middle of the page at the bottom?  A. Yes.  Q. All right. And it says — it shows one-tailed test, YJ, .0124 clearly within the — the statistically significant range, right?  A. Okay. I've got it now, yes.  Q. And the two-tailed test, she's clearly,	10 11 12 13 14 15 16 17 18 19 20 21	Q. It would have also been inconsistent with your findings that paraquat did not cause a loss of TH neurons in the substantia nigra pars compacta. Would you agree with that?  A. Well, it would have suggested that the microglia had been activated in response to something, yes.  Q. The one-tailed test, you think, is the appropriate test or the two-tailed test?  A. I believe it's actually more of the two-tailed test. But, I mean, this is now memory from when we were discussing this. So, again, I

	Page 1673		Page 1675
1	to glial cells.	1	MR. NARESH: Do you mind reading the
2	Do you believe that?	2	transcript cite into the record while Mr. Botham is
3	A. I mean, now we're getting down to - to	3	reading it.
4	a level of detail where I really would need to - to	4	MR. TILLERY: Yeah. It's I'm sorry
5	check the - the information and the interpretation	5	about that. It's it's page 276, line 4, through
6	of this study.	6	page 280, line 3.
7	Q. Well, beyond this, can you tell me this:	7	MR. NARESH: Thank you.
8	Have you ever seen anything in the scientific	8	THE WITNESS: Okay. I've listened to
9	literature that paraquat kills microglia directly?	9	that.
10	A. I'm - I I'm not aware of anything	10	MR. NARESH: Steve?
11	as we sit here.	11	THE WITNESS: I've listened to that.
12	Q. So –	12	So ready when you are, Steve.
13	A. But I wouldn't rule it out.	13	BY MR. TILLERY:
14	Q. But if it — if it doesn't kill	14	Q. All right. Sorry. I was engrossed in
15	microglia directly, then the test would be a	15	the – watching the film.
16	one-tailed test, right? One-sided?	16	MR. NARESH: And I'll just object to
17	A. Yes. Because it would be due to the	17	the record on rule of completeness, similar to last
18	microglia responding to dopaminergic neuron –	18	time. I believe that the clip should include 280,
19	neuron cell loss, that's correct.	19	line 4, through 282, line 1.
20	<ul><li>Q. And that test with both your counts –</li></ul>	20	BY MR. TILLERY:
21	well, both of their counts and Yun's was	21	Q. So I would ask you the same question I
22	statistically significant? Both Smeyne's and Yun's	22	asked Dr. Smeyne, Dr. Botham. And that is if you'd
23	on the one-tailed test was statistically significant,	23	considered Dr. Yun Jiao's microglial counts, the
24	correct?	24	results of the study would have been different,
	Page 1674		Page 1676
1			
	A. Correct.	1	wouldn't they?
2	A. Correct.     Q. Now, have you seen as a before we	1 2	wouldn't they?  MR. NARESH: Objection. Foundation.
	Q. Now, have you seen as a before we	1	
2	Q. Now, have you seen as a before we wrap up for the day, one final point.	2	MR. NARESH: Objection. Foundation. THE WITNESS: Well, if if, indeed,
2 3 4	<ul> <li>Q. Now, have you seen as a before we wrap up for the day, one final point.</li> <li>Have you seen Dr. Smeyne's explanation</li> </ul>	2	MR. NARESH: Objection. Foundation. THE WITNESS: Well, if if, indeed,
2 3 4 5	Q. Now, have you seen as a before we wrap up for the day, one final point. Have you seen Dr. Smeyne's explanation of this?	2 3 4	MR. NARESH: Objection. Foundation. THE WITNESS: Well, if if, indeed, Dr. Yun's counts were based on a complete assessment of their quality by Dr. Smeyne, yes. I mean, we
2 3 4 5 6	<ul> <li>Q. Now, have you seen as a before we wrap up for the day, one final point.         Have you seen Dr. Smeyne's explanation of this?         A. I don't recall whether I have.     </li> </ul>	2 3 4 5	MR. NARESH: Objection. Foundation. THE WITNESS: Well, if if, indeed, Dr. Yun's counts were based on a complete assessment of their quality by Dr. Smeyne, yes. I mean, we or Professor Smeyne. We were reliant on him doing
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	Page <b>1677</b>		Page 1679
1	BY MR. TILLERY:	1	Okay?
2	Q. Well, but	2	MR. NARESH: Okay. And Just for the
3	A. Why would he do that?	3	record, my rule of completeness objection is for
4	Q. But he got statistical – he got	4	both of the final two exhibits, not just the video
5	statistical significance on the one-tail himself,	5	but the transcript as well. But that's fine.
6	didn't he?	6	5:00 o'clock central tomorrow, 11:00 a.m. UK time
7	A. Well, that can be	7	tomorrow sounds fine. And I'll stay on.
8	MR. NARESH: Objection.	8	MR. TILLERY: Okay.
9	THE WITNESS: Well, what you showed me	9	THE REPORTER: Same original or same
10	In that correlation graph suggested that was the	10	standing orders?
11	case, yes.	11	MR. TILLERY: Yes. Same for us.
12	can't explain that.   mean, I'm even	12	MR. ORLET: Same thing.
13	one step further away from the detail than	13	MR. NARESH: Same.
14	Professor Smeyne was.	14	(Discussion off the record.)
15	BY MR. TILLERY:	15	THE VIDEOGRAPHER: This concludes the
_		1	
16	Q. Let me ask you this: Do you have any	16 17	video-recorded deposition of Philip Botham,
17	way of disputing what Dr. Smeyne said in his sworn		Volume 6. We're going off the record at 11:39.
18	testimony that you just watched on video?	18	(Whereupon, signature was not
19	A. Well, clearly not, no.	19	waived and the witness was
20	Q. Do you from your knowledge and	20	excused at 11:39 a.m.)
21	participation in that study and your recollection of	21	000
22	the events of that occurrence, do you have any	22	
23	recollection today that's any different than what you	23	
24	just saw in the sworn testimony?	24	*
	Page 1678		Page 1680
1	A. Well, I don't know that I ever was a	1	CERTIFICATE OF REPORTER
2	party to the kind of conversation about those data	2	I, RENEE COMBS QUINBY, a Registered
3	that we you were just having on that video with	3	Diplomate Reporter, Certified Realtime Reporter,
4	Professor Smeyne.	4	Certified Court Reporter (MO), Certified Court
5	Q. All right. So let's go back now for the	5	Reporter (IL), and Notary Public within and for the
6	record and - and take a look at this. This is	6	State of Missouri, do hereby certify that the
7	exhibit – so the video was an exhibit which will be	7	witness whose testimony appears in the foregoing
7 8	exhibit – so the video was an exhibit which will be attached or sent to the court reporter as 152,	7 8	
		1	witness whose testimony appears in the foregoing
8	attached or sent to the court reporter as 152, Plaintiffs' 152.	8 9	witness whose testimony appears in the foregoing deposition was duly sworn by me to testify to the truth and nothing but the truth; that the testimony
8 9 10	attached or sent to the court reporter as 152, Plaintiffs' 152. And if you would now look at 153 for me	8 9 10	witness whose testimony appears in the foregoing deposition was duly sworn by me to testify to the truth and nothing but the truth; that the testimony of said witness was taken by stenographic means by
8 9 10 11	attached or sent to the court reporter as 152, Plaintiffs' 152.  And if you would now look at 153 for me and verify that those portions – and I think it's	8 9 10 11	witness whose testimony appears in the foregoing deposition was duly sworn by me to testify to the truth and nothing but the truth; that the testimony of said witness was taken by stenographic means by me to the best of my ability and thereafter reduced
8 9 10 11 12	attached or sent to the court reporter as 152, Plaintiffs' 152.  And if you would now look at 153 for me and verify that those portions – and I think it's just for your reference, Dr. Botham. It would start	8 9 10 11 12	witness whose testimony appears in the foregoing deposition was duly sworn by me to testify to the truth and nothing but the truth; that the testimony of said witness was taken by stenographic means by me to the best of my ability and thereafter reduced to print under my direction.
8 9 10 11 12 13	attached or sent to the court reporter as 152, Plaintiffs' 152.  And if you would now look at 153 for me and verify that those portions – and I think it's just for your reference, Dr. Botham. It would start on page 276, line 4, and continue through page 280,	8 9 10 11 12 13	witness whose testimony appears in the foregoing deposition was duly sworn by me to testify to the truth and nothing but the truth; that the testimony of said witness was taken by stenographic means by me to the best of my ability and thereafter reduced to print under my direction.  I further certify that I am neither
8 9 10 11 12 13	attached or sent to the court reporter as 152, Plaintiffs' 152.  And if you would now look at 153 for me and verify that those portions – and I think it's just for your reference, Dr. Botham. It would start on page 276, line 4, and continue through page 280, line 3. If you would look at that and confirm that	8 9 10 11 12 13 14	witness whose testimony appears in the foregoing deposition was duly sworn by me to testify to the truth and nothing but the truth; that the testimony of said witness was taken by stenographic means by me to the best of my ability and thereafter reduced to print under my direction.  I further certify that I am neither attorney nor counsel nor related nor employed by any
8 9 10 11 12 13 14	attached or sent to the court reporter as 152, Plaintiffs' 152.  And if you would now look at 153 for me and verify that those portions – and I think it's just for your reference, Dr. Botham. It would start on page 276, line 4, and continue through page 280, line 3. If you would look at that and confirm that that corresponds with what you watched.	8 9 10 11 12 13 14 15	witness whose testimony appears in the foregoing deposition was duly sworn by me to testify to the truth and nothing but the truth; that the testimony of said witness was taken by stenographic means by me to the best of my ability and thereafter reduced to print under my direction.  I further certify that I am neither attorney nor counsel nor related nor employed by any of the parties to the action in which this
8 9 10 11 12 13 14 15	attached or sent to the court reporter as 152, Plaintiffs' 152.  And if you would now look at 153 for me and verify that those portions – and I think it's just for your reference, Dr. Botham. It would start on page 276, line 4, and continue through page 280, line 3. If you would look at that and confirm that that corresponds with what you watched.  A. Okay. That looks to be a transcription	8 9 10 11 12 13 14 15 16	witness whose testimony appears in the foregoing deposition was duly sworn by me to testify to the truth and nothing but the truth; that the testimony of said witness was taken by stenographic means by me to the best of my ability and thereafter reduced to print under my direction.  I further certify that I am neither attorney nor counsel nor related nor employed by any of the parties to the action in which this deposition was taken; further, that I am not a
8 9 10 11 12 13 14 15 16	attached or sent to the court reporter as 152, Plaintiffs' 152.  And if you would now look at 153 for me and verify that those portions – and I think it's just for your reference, Dr. Botham. It would start on page 276, line 4, and continue through page 280, line 3. If you would look at that and confirm that that corresponds with what you watched.  A. Okey. That looks to be a transcription of that, yes.	8 9 10 11 12 13 14 15 16	witness whose testimony appears in the foregoing deposition was duly sworn by me to testify to the truth and nothing but the truth; that the testimony of said witness was taken by stenographic means by me to the best of my ability and thereafter reduced to print under my direction.  I further certify that I am neither attorney nor counsel nor related nor employed by any of the parties to the action in which this deposition was taken; further, that I am not a relative or employee of any attorney or counsel
8 9 10 11 12 13 14 15 16 17	attached or sent to the court reporter as 152, Plaintiffs' 152.  And if you would now look at 153 for me and verify that those portions – and I think it's just for your reference, Dr. Botham. It would start on page 276, line 4, and continue through page 280, line 3. If you would look at that and confirm that that corresponds with what you watched.  A. Okay. That looks to be a transcription of that, yes.  Q. All right. You don't see any	8 9 10 11 12 13 14 15 16 17	witness whose testimony appears in the foregoing deposition was duly sworn by me to testify to the truth and nothing but the truth; that the testimony of said witness was taken by stenographic means by me to the best of my ability and thereafter reduced to print under my direction.  I further certify that I am neither attorney nor counsel nor related nor employed by any of the parties to the action in which this deposition was taken; further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto or financially
8 9 10 11 12 13 14 15 16 17 18	attached or sent to the court reporter as 152, Plaintiffs' 152.  And if you would now look at 153 for me and verify that those portions – and I think it's just for your reference, Dr. Botham. It would start on page 276, line 4, and continue through page 280, line 3. If you would look at that and confirm that that corresponds with what you watched.  A. Okay. That looks to be a transcription of that, yes.  Q. All right. You don't see any differences? I want to just confirm it as a	8 9 10 11 12 13 14 15 16 17 18	witness whose testimony appears in the foregoing deposition was duly sworn by me to testify to the truth and nothing but the truth; that the testimony of said witness was taken by stenographic means by me to the best of my ability and thereafter reduced to print under my direction.  I further certify that I am neither attorney nor counsel nor related nor employed by any of the parties to the action in which this deposition was taken; further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto or financially interested in this action.
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Page 1683  1 Errata Sheet 2 Witness: PHILIP BOTHAM 3 In Re: DIANA HOFFMANN, individually and as independent Administrator of the Estate of THOMAS R. 4 HOFFMANN, Deceased, et al. vs. SYNGENTA CROP PROTECTION, LLC, et al. 5 Upon reading the deposition and before subscribing thereto, the deponent indicated the following changes should be made: 7 Page Line Should read: 8 Reason assigned for change: 9 Page Line Should read: Reason assigned for change: 10 Page Line Should read: 11 Reason assigned for change: 12 Page Line Should read: Reason assigned for change: 13 Page Line Should read: Reason assigned for change: 14 Reason assigned for change: 15 Page Line Should read: Reason assigned for change: 16 Page Line Should read: Reason assigned for change: 17 Reason assigned for change: 18 Page Line Should read: Reason assigned for change: 19 Page Line Should read: Reason assigned for change: 19 Page Line Should read: Reason assigned for change: 19 Page Line Should read: Reason assigned for change: 19 Page Line Should read: Reason assigned for change: 19 Page Line Should read: Reason assigned for change: 19 Page Line Should read: Reason assigned for change: 19 Page Line Should read: Reason assigned for change: 10 Reason assigned for change: 11 Reason assigned for change: 12 Page Line Should read: Reason assigned for change: 13 Reason assigned for change: 14 Reason assigned for change: 15 Reason assigned for change: 16 Reason assigned for change: 17 Reason assigned for change: 18 Reason assigned for change: 19 Reason assigned for change: 20 Reason assigned for change: 21 Reason assigned for change: 22 Reason assigned for change: 23 Reason assigned for change: 24 Reason assigned for change:

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# EXHIBIT 16 FILED UNDER SEAL

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1	IN THE CIRCUIT COURT	1	Exhibit 161 Prosar Year 1998, 1804
2	TWENTIETH JUDICIAL CIRCUIT	2	SYNG-PG-08486034
3	ST. CLAIR COUNTY, ILLINOIS	3	Exhibit 162 Database 1806
4 5	00o DIANA HOFFMANN, )	4	Exhibit 163 Estimation of Nuclear Population 1809
	individually and as )	5	from Microtome Sections
6	Independent Administrator)	6	Exhibit 164 Excerpt from transcript of 1811
7	of the Estate of THOMAS) R. HOFFMANN, Deceased,)	7	deposition of Richard Smeyne,
,	et al.,	8	Ph.D., October 2, 2020
8	)	9	Exhibit 165 www.issia.net/about printout 1813
9	Piaintiffs, )	10	Exhibit 166 Stanovy/Articles of Association 1814
	vs. ) No. 17-L-517	11	Exhibit 167 Overview - Journal of Microscopy 1816
10	0)	12	- Wiley Online Library
11	SYNGENTA CROP ) PROTECTION, LLC, et al., )	13	Exhibit 168 Journal of the Royal 1817
11	)	14	Microscopical Society, Volume 87,
12	Defendants. )	15	
13	)	16	Issue 1, Stereologic techniques
14	VIDEO-RECORDED VIDEOCONFERENCE	17	in microscopy (The original exhibits were provided to the court
15	DEPOSITION OF	18	reporter electronically to be attached to the
16 17	PHILIP BOTHAM, Ph.D.	-	·
18	Volume 7 (pages 1684-1827)	19	original and copies of the transcript.)
19	January 6, 2021	20	
20		21	
21 22	(Beginning at 5:08 a.m.)	22	
23	(2-3)	23	
24		24	
23	Dago 169E	24	Dago 1697
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	INDEX  PAGE  EXAMINATION BY MR. TILLERY1690 EXHIBITS  Exhibit 154 A study of the health of 1692 Malaysian plantation workers with particular reference to paraquat spraymen  Exhibit 155 Paraquat Pharmacokinetics in 1711 Primates  Exhibit 156 Paraquat - Analysis of Brain 1750 Samples from Paraquat-Exposed Squirrel Monkeys for Residues of Paraquat  Exhibit 157 Paraquat Health Science Team, 1760 Action Minutes from Marlow Meeting, April 20 & 21, 2009	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	IN THE CIRCUIT COURT TWENTIETH JUDICIAL CIRCUIT ST. CLAIR COUNTY, ILLINOIS -000- DIANA HOFFMANN, ) individually and as ) Independent Administrator) of the Estate of THOMAS ) R. HOFFMANN, Deceased, ) et al., )  Plaintiffs, )  vs. ) No. 17-L-517  SYNGENTA CROP ) PROTECTION, LLC, et al., )  Defendants. ) 00- VIDEO-RECORDED VIDEOCONFERENCE DEPOSITION OF PHILIP BOTHAM, Ph.D., VOLUME 7, produced, sworn, and examined on Wednesday, January 6, 2021, taken on
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	INDEX  PAGE  EXAMINATION BY MR. TILLERY1690 EXHIBITS  Exhibit 154 A study of the health of 1692 Malaysian plantation workers with particular reference to paraquat spraymen  Exhibit 155 Paraquat Pharmacokinetics in 1711 Primates  Exhibit 156 Paraquat - Analysis of Brain 1750 Samples from Paraquat-Exposed Squirrel Monkeys for Residues of Paraquat  Exhibit 157 Paraquat Health Science Team, 1760 Action Minutes from Marlow Meeting, April 20 & 21, 2009  Exhibit 158 NHP brain analysis results - 1768	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	IN THE CIRCUIT COURT TWENTIETH JUDICIAL CIRCUIT ST. CLAIR COUNTY, ILLINOIS000- DIANA HOFFMANN, ) individually and as ) Independent Administrator) of the Estate of THOMAS ) R. HOFFMANN, Deceased, ) et al., ) Plaintiffs, ) y vs. ) No. 17-L-517 } SYNGENTA CROP ) PROTECTION, LLC, et al., ) Defendants. ) 00 VIDEO-RECORDED VIDEOCONFERENCE DEPOSITION OF PHILIP BOTHAM, Ph.D., VOLUME 7, produced, sworn,
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	INDEX  PAGE  EXAMINATION BY MR. TILLERY1690 EXHIBITS  Exhibit 154 A study of the health of 1692 Malaysian plantation workers with particular reference to paraquat spraymen  Exhibit 155 Paraquat Pharmacokinetics in 1711 Primates  Exhibit 156 Paraquat - Analysis of Brain 1750 Samples from Paraquat-Exposed Squirrel Monkeys for Residues of Paraquat  Exhibit 157 Paraquat Health Science Team, 1760 Action Minutes from Marlow Meeting, April 20 & 21, 2009  Exhibit 158 NHP brain analysis results - 1768 samples from DiMonte studies	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	IN THE CIRCUIT COURT TWENTIETH JUDICIAL CIRCUIT ST. CLAIR COUNTY, ILLINOIS000- DIANA HOFFMANN, ) individually and as ) Independent Administrator) of the Estate of THOMAS ) R. HOFFMANN, Deceased, } et al., )  Plaintiffs, )  vs. ) No. 17-L-517  SYNGENTA CROP ) PROTECTION, LLC, et al., )  Defendants. ) OO VIDEO-RECORDED VIDEOCONFERENCE DEPOSITION OF PHILIP BOTHAM, Ph.D., VOLUME 7, produced, sworn, and examined on Wednesday, January 6, 2021, taken on behalf of the Plaintiffs, with the witness appearing
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	INDEX  PAGE  EXAMINATION BY MR. TILLERY1690 EXHIBITS  Exhibit 154 A study of the health of 1692 Malaysian plantation workers with particular reference to paraquat spraymen  Exhibit 155 Paraquat Pharmacokinetics in 1711 Primates  Exhibit 156 Paraquat - Analysis of Brain 1750 Samples from Paraquat-Exposed Squirrel Monkeys for Residues of Paraquat  Exhibit 157 Paraquat Health Science Team, 1760 Action Minutes from Marlow Meeting, April 20 & 21, 2009  Exhibit 158 NHP brain analysis results - 1768 samples from DiMonte studies  Exhibit 159 Spreadsheet named "Paraquat 1782	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	IN THE CIRCUIT COURT TWENTIETH JUDICIAL CIRCUIT ST. CLAIR COUNTY, ILLINOIS000- DIANA HOFFMANN, ) individually and as ) Independent Administrator) of the Estate of THOMAS ) R. HOFFMANN, Deceased, ) et al., ) Plaintiffs, ) ys, ) No. 17-L-517 } SYNGENTA CROP PROTECTION, LLC, et al., ) Defendants. ) OO VIDEO-RECORDED VIDEOCONFERENCE DEPOSITION OF PHILLIP BOTHAM, Ph.D., VOLUME 7, produced, sworn, and examined on Wednesday, January 6, 2021, taken on behalf of the Plaintiffs, with the witness appearing from Jealott's Hill, England, before RENEE COMBS QUINBY, a Certified Court Reporter (MO) #1291, Certified Shorthand Reporter (ILL) #084-004867,
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1 (Pages 1684 to 1687)

	Page <b>1688</b>		Page 1690
1	APPEARANCES	1	000
2	FOR THE RIABITIES.	2	IT IS HEREBY STIPULATED AND AGREED by and
3	FOR THE PLAINTIFFS: Stephen Tillery, Esq. (via videoconference)	3	between counsel for the Plaintiffs and counsel for
J	Rosemary Fiorillo, Esq. (via videoconference)	1	
4	Korein Tillery	4	the Defendants that this deposition may be taken in
5	505 North Seventh Street, Suite 3600	5	machine shorthand by RENEE COMBS QUINBY, a Certifie
5	St. Louis, MO 63101 (314)241-4844	6	Court Reporter and Notary Public, and afterwards
6	stillery@koreintillery.com	7	
			transcribed into typewriting and the signature not
7	FOR THE DEFENDANTS, SYNGENTA CROP PROTECTION, LLC;	8	waived by agreement of counsel and consent of the
8	SYNGENTA AG; and GROWMARK, INC.:	9	witness.
	Ragan Naresh, Esq. (via videoconference)	10	000-
9	Kirkland & Ellis, LLP	11	PROCEEDINGS 5:08 a.m.
10	1301 Pennsylvania Avenue NW Washington, D.C. 20004		
10	(202)879-2000	12	THE VIDEOGRAPHER: We're on the record.
11	ragan.naresh@kirkland.com	13	The date Is January 6th, 2021, and the time Is
10	FOR THE DEFENDANT CHE PONDER BUILDES CHEMICAL COMPANY	14	5:08 a.m. This is Volume 7 – I'm sorry. This is
12	FOR THE DEFENDANT CHEVRON PHILLIPS CHEMICAL COMPANY LP:	15	Volume 7 of Philip Botham. And we're on the record.
13	LF.		•
	Joseph Orlet, Esq. (vla videoconference)	16	PHILIP BOTHAM, Ph.D.,
14	Husch Blackwell, LLP	17	of lawful age, having been first duly sworn to
15	190 Carondelet Plaza, Sulte 600 St, Louis, MO 63105	18	testify to the truth, the whole truth, and nothing
	(314)480-1500	19	but the truth in the case aforesaid, deposes and
16	Joseph.orlet@huschblackwell.com		
17 18	and Mark Smith, Esq. (via videoconference)	20	says in reply to oral Interrogatories propounded as
19	Husch Blackwell, LLP	21	follows, to-wit:
20	736 Georgia Avenue, Suite 300	22	000
21	Chattanooga, TN 37402	23	EXAMINATION
22 23	(423)755-2667 mark.smlth@huschblackwell.com		
24	THE ASSISTANCE INCOME.	24	BY MR. TILLERY:
	Page 1689		Page 169
1	FOR THE DEFENDANT GROWMARK, INC.:	1	Q. Okay. Dr. Botham, you understand this
1	Anthony Hopp, Esq. (via videoconference)	1	Q. Okay. Dr. Botham, you understand this
1	Anthony Hopp, Esq. (via vIdeoconference) Steptoe & Johnson, LLP	2	is a continuation of the deposition we started back
2	Anthony Hopp, Esq. (via vIdeoconference) Steptoe & Johnson, LLP 227 West Monroe Street, Suite 4700	1	
	Anthony Hopp, Esq. (via vIdeoconference) Steptoe & Johnson, LLP 227 West Monroe Street, Suite 4700 Chicago, IL 60606	2	is a continuation of the deposition we started back
2	Anthony Hopp. Esq. (via vIdeoconference) Steptoe & Johnson, LLP 227 West Monroe Street, Suite 4700 Chicago, IL 60606 (312)577-1300	2	is a continuation of the deposition we started back in February, right?
2 3 4	Anthony Hopp. Esq. (via videoconference) Steptoe & Johnson, LLP 227 West Monroe Street, Suite 4700 Chicago, IL 60606 (312)577-1300 ahopp@steptoe.com	2 3 4 5	is a continuation of the deposition we started back in February, right?  A. Yes. I do understand that.  Q. And rules that we talked about are all
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2 3 4 5 6 7 8 9	Anthony Hopp. Esq. (via videoconference) Steptoe & Johnson, LLP 227 West Monroe Street, Suite 4700 Chicago, IL 60606 (312)577-1300 ahopp@steptoe.com  FOR THE DEFENDANT WILBUR ELLIS: Gerhardt Zacher, Esq. (via videoconference) Gordon & Rees, LLP 101 West Broadway, Unit 2000 San Diego, CA 92101 (619)232-7703 gzacher@grsm.com  ALSO PRESENT: Nichole Graham  THE VIDEOGRAPHER: Shaun Steele (via videoconference) Alarls Litigation Services 711 North 11th Street St. Louis, MO 63101 (800)280-3376  COURT REPORTER: Renee Combs Quinby, RDR, CRR Missouri CCR #1291 Illinols CSR #084-004867	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	is a continuation of the deposition we started back in February, right?  A. Yes. I do understand that.  Q. And rules that we talked about are all the same. Everything is the same. Okay?  A. Okay.  Q. Are you familiar with the study that's referred to as the Howard study?  A. I think you may need to remind me about that.  Q. Okay. Sure. Actually, why don't I put up Plaintiffs' Deposition Exhibit 154 and give you a chance to see if you can take a look at it and familiarize yourself with it and see if you can answer questions about this.  THE VIDEOGRAPHER: And, excuse me, Counsel. Before we do, I missed a step. We're going off the record. The time is 5:09.  (Discussion off the record.)  THE VIDEOGRAPHER: We're going back or
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2 (Pages 1688 to 1691)

	Page 1692		Page 1694
1		1	3
2	Q. Dr. Botham, I have placed in eDepoze a document which has been numbered 154 – It's a	2	to your knowledge, relying on this study as evidence
3	plaintiffs' exhibit and wondering if you have any	3	that occupational exposure to paraquat does not
4		4	cause long-term chronic health effects?
5	familiarity with that document?	1	A. I think it would be very doubtful to
6	(Exhibit 154 was identified	5	say that it was reliant on this study. This is
7	for the record.)	6	perhaps part of the weight of evidence, but I
	THE WITNESS: Yes. Thank you. I've	7	wouldn't go any further than that.
В	now been into eDepoze, and I'm just looking at the	8	Q. Okay. And I just wanted to go over it.
9	front page of that document.	9	To the extent that it is part of the weight of the
10	So I – I do remember seeing this in	10	evidence, I think we have to ask a few questions
11	the past, but I – It's not a paper that I studied	11	about the study.
12	in great detail.	12	Do you know if this study was ever
13	BY MR. TILLERY:	13	submitted to any regulatory – regulatory authority
14	Q. All right. This was done by let's	14	in the world in support of the continued
15	see. Do you recognize any of these people? Howard?	15	registration of paraquat?
16	Sabapathy? Anne Whitehead?	16	I'm afraid I can't answer that
17	A. Yeah. The only person that I knew was	17	question. I don't know.
18	Dr. Sabapathy.	18	Q. All right. Let's go to page 1 if we
19	<ul> <li>Q. Sabapathy. Okay. And these are people</li> </ul>	19	can. It's an eight-page study. And if you look in
20	at ICI, right?	20	the lower right-hand column beginning with the word
21	A. Yes, that's correct.	21	"concern." Do you see that sentence?
22	<ul> <li>Q. Okay. So just for the court and jury's</li> </ul>	22	A. Just bear with me. So, yes, the last
23	purposes, ICI is a predecessor corporation to	23	paragraph on page 1 beginning "concern," yes, I can
24	Syngenta, correct?	24	see that.
	Page 1693		Page 1695
í	Page <b>1</b> 693	1	-
1 2	-	1 2	Q. Would you just read those seven
	A. It is.		-
2	A. It is. Q. So if you would look at this, I just	2	Q. Would you just read those seven sentences, and then I'll ask you a question about
2	A. It is.  Q. So if you would look at this, I just have a few questions about it. And please take your	2	Q. Would you just read those seven sentences, and then I'll ask you a question about it. You don't need to read it into the record.
2 3 4	A. It is.  Q. So if you would look at this, I just have a few questions about it. And please take your time as you go through it if you need to spend time	2 3 4	Q. Would you just read those seven sentences, and then I'll ask you a question about it. You don't need to read it into the record.  Just read it to yourself.
2 3 4 5	A. It is.  Q. So if you would look at this, I just have a few questions about it. And please take your time as you go through it if you need to spend time looking at it, but I wanted to ask you just a few	2 3 4 5	Q. Would you just read those seven sentences, and then I'll ask you a question about it. You don't need to read it into the record.  Just read it to yourself.  A. Okay. Yep. I've read that.
2 3 4 5 6	A. It is.  Q. So if you would look at this, I just have a few questions about it. And please take your time as you go through it if you need to spend time looking at it, but I wanted to ask you just a few questions.	2 3 4 5 6	Q. Would you just read those seven sentences, and then I'll ask you a question about it. You don't need to read it into the record.  Just read it to yourself.  A. Okay. Yep. I've read that. Q. Okay. So ICI dld this study because they were concerned that paraquat may represent an
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	Page 1696		Page 1698
1	long-term toxicity studies.	1	Q. And they had 23 total members in it.
2	BY MR. TILLERY:	2	Do you see that?
3	Q. Right. Are you familiar with any study	3	A. Yes, yes.
4	of this type, "this" being the document marked for	4	Q. Participants of the study were all
5	our purposes as 154 today. Are you familiar with	5	male? If you look on page 2, you can confirm that.
6	any such study having ever been undertaken before	6	A. Yes, I can confirm that.
7	1981?	7	Q. All right. The spray men averaged
8	A. I can't bring to mind any particular	8	three to five years of spraying, right?
9	study at this point. That's not to say there wasn't	9	A. Yes, that's correct.
10	one that I may not know about, but I can't	10	Q. Okay. And that is what the study
11	immediately indicate another one.	11	authors considered to be a long-term spraying under
12	Q. All right. So if we can, let's go to	12	their definitions, correct?
13	the abstract. You have it in front of you there.	13	A. Yes. That's what they were defining
14	If you glance over it, I just want to	14	here.
15	ask a question, make sure you can confirm what I'm	15	Q. Paraquat exposure was determined
16	saying.	16	through an interview with the spray men; is that
17	A. Okay. I've read the abstract.	17	right?
18	Q. So the study compared 27 spray men who	18	A. Yes. The spraying history was obtained
19	sprayed paraquat – paraquat and other herbicides	19	at an interview, yes. I can see that.
20	with two control groups, right?	20	Q. Okay. And the spray men were defined
21	A. That's right.	21	as those who had sprayed a minimum of 1,000 hours?
22		22	A. Right.
23	Q. Okay. And if you go to page 2 now,	23	
23	there's a section that describes the control groups.	24	Q. Okay. But since the – and there's –
24	One control group was a group of general manual	24	on column 2, last paragraph, I think the last full
	Page 1697		Page 1699
1	workers, some of whom may occasionally work in areas	1	paragraph, it indicates but since the spray men
2	sprayed with paraquat.	2	sprayed paraquat and other herbicides, they didn't
3	Can you look at that? Do you see that?	3	know exactly how much paraquat was sprayed in those
4	A. Yes.	4	1,000 hours. If you could confirm that as well?
5	Q. All right. And the general manual	5	A. Okay. Yep.
6	workers control group included rubber tappers and	6	<ul> <li>Q. Now, if we go to page – excuse me.</li> </ul>
7	harvesters. That's what they say?	7	Strike that.
8	A. Yes.	8	Do you know if spray records for each
9	Q. Some members of the general workers	9	spray man were maintained at that state by looking
10	control group had seen minimal exposure to paraquat	10	at this study?
11	as a result of working in areas of the plantations	11	A. I can't answer that question without
12	in which spraying had been recently completed.	12	looking at it in more detail. It does it does
13	That's what I took that straight out	13	Indicate that there were spraying records. I can
14	of the report. If you can confirm that?	14	see that on page 2 but
15	A. Yes.	15	Q. From what I can tell, and if you can
16	Q. The general workers control group, if	16	take the time if you need to, to confirm. I know
17	you would look at it down at the bottom of page 2, I	17	that you haven't looked at this study, I'm sure, for
18	think you can confirm had 24 members in It?	18	some time.
TO	A. Yes, that's right. In Table 1.	19	But I just wanted to – to ask you
19	Q. In Table 1, correct. The other control	20	these questions because what I was trying to
	G. In Table 1, confect the other control		· · ·
19	group was a group of latex processing factory	21	determine is whether spray records were kept at the
19 20		21 22	
19 20 21	group was a group of latex processing factory		determine is whether spray records were kept at the plantation for each man and how they were kept, who maintained them. These questions — I would want to

	Page 1700		Page 1702
1	answer those?	1	A. Yes, that's correct.
2	A. Well, what I'm reading on page 2 is	2	<ul> <li>Q. And if he could not work because of</li> </ul>
3	that there was a spraying record of each man. So	3	Illness, he would not have participated in the
4	that's – those records dld exist for each	4	study. Is that your assumption from reading this?
5	individual.	5	A. Well, that would be an assumption. I
6	Q. But it doesn't - it doesn't say what	6	don't think it spells that out.
7	the – it doesn't say if it was broken down by	7	Q. In other words, if any of the sprayers
8	herbicide, does it?	8	were sick or disabled using paraquat and couldn't
9	A. I can't see that level of detail, no.	9	work, they would be excluded from participation in
10	Q. Right. So they have sprayers that	10	the study at least as far as I see it. I would like
11	sprayed a thousand hours, but you don't know how	11	your confirmation of that.
12	many hours of those represented spraying of paraquat	12	A. Well, I think this paper is silent on
13	from what I can tell in this study.	13	whether they actually excluded anybody because of
14	A. Lagree. I can't see that level of	14	Illness. So I don't know I think maybe what
	_	15	you're saying is speculative.
15	detail here.	16	
16	Q. Okay. Other than having been selected	17	Q. Right. Can you look, though, and see  if, in fact, they were using from the abstract of
L7	for spraying history of paraquat and other		
18	herbicides for three years, the study doesn't tell	18	the study and from the front page, if you just read
19	us anything about how these men were chosen to	19	that, that they were actually using people who were
20	participate in the study, does it?	20	actively working?
21	A. No. It it just says where they	21	A. Yeah. Sure. That is true.
22	were – they were – they were from.	22	Q. So they were actually working. So your
23	Q. Right. They indicate some were	23	assumption would be somebody who is afflicted with
24	Chinese, some were Indian, some were from Malaysia,	24	Parkinson's disease or neurological disorders would
	Page 1701		Page 1703
1	right?	1	find it quite difficult to be a spray man in a
2	A. Yes.	2	Malaysian plantation of this chemical. Would you
2	O 10 111 1 111 17 11-4	3	_
3	Q. If you'd look at that Table 1, age and	)	agree?
3 4	racial structure of the working groups – that's	4	agree?  A. Yes. That would be what you would
4	-	1	-
4 5	racial structure of the working groups – that's SYNG-PQ-22611736 for counsel on the call.	4	A. Yes. That would be what you would
4 5 6	racial structure of the working groups – that's SYNG-PQ-22611736 for counsel on the call.  If you'd look at that.	4 5	A. Yes. That would be what you would normally expect.
4 5 6 7	racial structure of the working groups – that's SYNG-PQ-22611736 for counsel on the call.  If you'd look at that.  A. Yes. I'm looking at Table 1.	4 5 6	A. Yes. That would be what you would normally expect.     Q. Okay. So do you know what a selection
4 5 6 7 8	racial structure of the working groups – that's SYNG-PQ-22611736 for counsel on the call. If you'd look at that. A. Yes. I'm looking at Table 1. Q. Okay. All right. So seven of the	4 5 6 7	A. Yes. That would be what you would normally expect.     Q. Okay. So do you know what a selection bias is for epidemiology?
4 5 6 7 8 9	racial structure of the working groups – that's SYNG-PQ-22611736 for counsel on the call.  If you'd look at that.  A. Yes. I'm looking at Table 1.  Q. Okay. All right. So seven of the participants were under the age of 25, right?	4 5 6 7 8 9	A. Yes. That would be what you would normally expect. Q. Okay. So do you know what a selection bias is for epidemiology? A. I do. Q. What does that mean?
4 5 6 7 8 9	racial structure of the working groups – that's SYNG-PQ-22611736 for counsel on the call.  If you'd look at that.  A. Yes. I'm looking at Table 1.  Q. Okay. All right. So seven of the participants were under the age of 25, right?  A. Seven of the spray men, yes.	4 5 6 7 8 9	A. Yes. That would be what you would normally expect.  Q. Okay. So do you know what a selection bias is for epidemiology?  A. I do.  Q. What does that mean?  A. It means that you're not necessarily
4 5 6 7 8 9	racial structure of the working groups – that's SYNG-PQ-22611736 for counsel on the call.  If you'd look at that.  A. Yes. I'm looking at Table 1.  Q. Okay. All right. So seven of the participants were under the age of 25, right?  A. Seven of the spray men, yes.  Q. And nine were between 25 and 34?	4 5 6 7 8 9 10	A. Yes. That would be what you would normally expect.  Q. Okay. So do you know what a selection bias is for epidemiology?  A. I do.  Q. What does that mean?  A. It means that you're not necessarily selecting a full cross section of a population, for
4 5 6 7 8 9 10 11	racial structure of the working groups – that's SYNG-PQ-22611736 for counsel on the call.  If you'd look at that.  A. Yes. I'm looking at Table 1.  Q. Okay. All right. So seven of the participants were under the age of 25, right?  A. Seven of the spray men, yes.  Q. And nine were between 25 and 34?  A. Yes.	4 5 6 7 8 9 10 11 12	A. Yes. That would be what you would normally expect.  Q. Okay. So do you know what a selection bias is for epidemiology?  A. I do.  Q. What does that mean?  A. It means that you're not necessarily selecting a full cross section of a population, for example.
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4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	racial structure of the working groups – that's SYNG-PQ-22611736 for counsel on the call.  If you'd look at that.  A. Yes. I'm looking at Table 1.  Q. Okay. All right. So seven of the participants were under the age of 25, right?  A. Seven of the spray men, yes.  Q. And nine were between 25 and 34?  A. Yes.  Q. So 16 out of 27 were 34 or younger?  A. In the spray man group, that's correct.  Q. In the – in the so-called test group, not the control group?  A. Yes.  Q. Okay. So more than half the men were 34 and younger, right?  A. Yes.  Q. And if you could confirm this for me as well, those who participated had to be healthy in	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	A. Yes. That would be what you would normally expect.  Q. Okay. So do you know what a selection bias is for epidemiology?  A. I do.  Q. What does that mean?  A. It means that you're not necessarily selecting a full cross section of a population, for example.  Q. Like, if you wanted to know, for example, the impact of a chemical on an array of mice by age and you got mice who normally live between two and three years and you got all of your mice at age 15 weeks and you were trying to assess the impact across an age spectrum of the implications of paraquat exposure, you wouldn't be able to extrapolate about how that could impact mice that are 20 weeks or 50 weeks old, could you?  A. Well, I think we need to be careful not
4 5 6 7 8	racial structure of the working groups – that's SYNG-PQ-22611736 for counsel on the call.  If you'd look at that.  A. Yes. I'm looking at Table 1.  Q. Okay. All right. So seven of the participants were under the age of 25, right?  A. Seven of the spray men, yes.  Q. And nine were between 25 and 34?  A. Yes.  Q. So 16 out of 27 were 34 or younger?  A. In the spray man group, that's correct.  Q. In the – in the so-called test group, not the control group?  A. Yes.  Q. Okay. So more than half the men were 34 and younger, right?  A. Yes.  Q. And if you could confirm this for me as	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A. Yes. That would be what you would normally expect.  Q. Okay. So do you know what a selection bias is for epidemiology?  A. I do.  Q. What does that mean?  A. It means that you're not necessarily selecting a full cross section of a population, for example.  Q. Like, if you wanted to know, for example, the impact of a chemical on an array of mice by age and you got mice who normally live between two and three years and you got all of your mice at age 15 weeks and you were trying to assess the impact across an age spectrum of the implications of paraquat exposure, you wouldn't be able to extrapolate about how that could impact mice that are 20 weeks or 50 weeks old, could you?

	Page 1704		Page 1706
1	the selection of appropriate age ranges in animal	1	Q. Renal function. The study measured –
2	studies, and the considerations are different for	2	if you go to page 3 of the study, you'll see that
3	those two.	3	it – there's a reference to the study having
4	So the analogy of animal studies Is	4	measured respiratory function, liver function, renal
5	not is not one that is 100 percent relevant to	5	function, and red and white blood cells.
6	epidemiology.	6	Do you see that?
7	Q. Well, let's come back to that, then.	7	A. Yes. That's correct, yes.
8	Okay? Let's come back to that study.	8	<ul> <li>Q. So there was no effort to tell us</li> </ul>
9	Let's go back to epidemiology. If	9	anything about the central nervous system effects o
10	you're looking at the impact across a population,	10	long-term spraying of paraquat from this study, was
11	you'd want representative numbers in your test group	11	there?
12	from different age categories, particularly when you	12	A. No. This study was focusing on the
13	know the typical way age-wise when a disease like	13	on the known potential toxicity that paraquat has,
14	Parkinson's disease presents, correct?	14	so particularly on the lung and the kidney.
15	A. In a study like this, you would I	15	Q. Right. It wasn't designed and did not
16	in a practical sense, you would only be able to look	16	inform us about anything concerning neurotoxicity
17	at the population that was working in the field.	17	effects of long-term spraying of paraquat. Would
18	And it is possible that that working population here	18	you agree with that statement?
19	were largely of a younger age. They may not have	19	A. This study can't doesn't inform on
20	been older workers who were engaged In this	20	that, no, directly. That's that Is true.
21	activity.	21	<ul> <li>Q. So this study would not tell us</li> </ul>
22	Q. But to the extent that you know, as you	22	anything about long-term exposure to paraquat
23	sald in the deposition yesterday, that the typical	23	potentially causing Parkinson's disease or not,
24	average age of onset of Parkinson's disease is in	24	would it?
	Page 1705		Page 1707
1	the mid-'60s, if you're looking at a population like	1	A. No. That was not the intention of the
2	this of a group of men where 16 out of 27 of the	2	study.
3	study participants were 34 years or younger, It's	3	Q. Right. If you go back to that Table 1,
4	difficult to draw any parallels or conclusions based	4	the range - age range of the men was less than 25
5	upon a a the presentation of symptoms for	l -	to over 4E Hebt?
		5	to over 45, right?
6	Parkinson's disease, isn't it?	6	A. Yes.
6 7		I	
	Parkinson's disease, isn't it?	6	A. Yes.
7	Parkinson's disease, isn't it?  A. Well, the intention of the study, the	6 7	A. Yes.  Q. There was seven spray men under 25?
7 8	Parkinson's disease, isn't it?  A. Well, the intention of the study, the purpose of the study was not to focus on Parkinson's disease. This was to look at long-term health	6 7 8	<ul><li>A. Yes.</li><li>Q. There was seven spray men under 25?</li><li>A. Yes.</li></ul>
7 8 9	Parkinson's disease, isn't it?  A. Well, the intention of the study, the purpose of the study was not to focus on Parkinson's	6 7 8 9	<ul><li>A. Yes.</li><li>Q. There was seven spray men under 25?</li><li>A. Yes.</li><li>Q. Six spray men over the age of 45?</li></ul>
7 8 9 10	Parkinson's disease, isn't it?  A. Well, the intention of the study, the purpose of the study was not to focus on Parkinson's disease. This was to look at long-term health effects, not — not a specific neurotoxicology	6 7 8 9	<ul> <li>A. Yes.</li> <li>Q. There was seven spray men under 25?</li> <li>A. Yes.</li> <li>Q. Six spray men over the age of 45?</li> <li>A. Yes.</li> <li>Q. Okay. Was there ever any follow-up of</li> </ul>
7 8 9 10 11	Parkinson's disease, isn't it?  A. Well, the intention of the study, the purpose of the study was not to focus on Parkinson's disease. This was to look at long-term health effects, not — not a specific neurotoxicology epidemiology study.	6 7 8 9 10 11	<ul> <li>A. Yes.</li> <li>Q. There was seven spray men under 25?</li> <li>A. Yes.</li> <li>Q. Six spray men over the age of 45?</li> <li>A. Yes.</li> <li>Q. Okay. Was there ever any follow-up of</li> </ul>
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7 8 9 10 11 12 13	Parkinson's disease, isn't it?  A. Well, the intention of the study, the purpose of the study was not to focus on Parkinson's disease. This was to look at long-term health effects, not — not a specific neurotoxicology epidemiology study.  Q. And how did we — In this study, how did — how did Syngenta, ICI, define "long-term"	6 7 8 9 10 11 12 13	<ul> <li>A. Yes.</li> <li>Q. There was seven spray men under 25?</li> <li>A. Yes.</li> <li>Q. Six spray men over the age of 45?</li> <li>A. Yes.</li> <li>Q. Okay. Was there ever any follow-up of these workers some years later to your knowledge?</li> <li>A. I'm not able to answer that question.</li> </ul>
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7 8 9 10 11 12 13 14 15	Parkinson's disease, isn't it?  A. Well, the intention of the study, the purpose of the study was not to focus on Parkinson's disease. This was to look at long-term health effects, not — not a specific neurotoxicology epidemiology study.  Q. And how did we — In this study, how did — how did Syngenta, iCl, define "long-term health effects"?  A. Well, again, I'd have to read the paper In full to see if there was some commentary on that.	6 7 8 9 10 11 12 13 14 15	<ul> <li>A. Yes.</li> <li>Q. There was seven spray men under 25?</li> <li>A. Yes.</li> <li>Q. Six spray men over the age of 45?</li> <li>A. Yes.</li> <li>Q. Okay. Was there ever any follow-up of these workers some years later to your knowledge?</li> <li>A. I'm not able to answer that question.</li> <li>I really don't know.</li> <li>Q. Okay. The study that you said is out for publication yesterday involving pharmacokinetic</li> </ul>
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7 8 9 10 11 12 13 14 15 16 17 18	Parkinson's disease, isn't it?  A. Well, the intention of the study, the purpose of the study was not to focus on Parkinson's disease. This was to look at long-term health effects, not — not a specific neurotoxicology epidemiology study.  Q. And how did we — In this study, how did — how did Syngenta, ICI, define "long-term health effects"?  A. Well, again, I'd have to read the paper In full to see if there was some commentary on that.  Q. Okay. Do you know what they were testing? What they were observing?  A. Well, the paper was looking at various	6 7 8 9 10 11 12 13 14 15 16 17 18	A. Yes. Q. There was seven spray men under 25? A. Yes. Q. Six spray men over the age of 45? A. Yes. Q. Okay. Was there ever any follow-up of these workers some years later to your knowledge? A. I'm not able to answer that question. I really don't know. Q. Okay. The study that you said is out for publication yesterday involving pharmacokinetic in primates – is that a study you referred to as the Stevens study? A. Yes, that's correct.
7 8 9 10 11 12 13 14 15 16 17 18 19 20	Parkinson's disease, isn't it?  A. Well, the intention of the study, the purpose of the study was not to focus on Parkinson's disease. This was to look at long-term health effects, not — not a specific neurotoxicology epidemiology study.  Q. And how did we — In this study, how did — how did Syngenta, iCl, define "long-term health effects"?  A. Well, again, I'd have to read the paper in full to see if there was some commentary on that.  Q. Okay. Do you know what they were testing? What they were observing?  A. Well, the paper was looking at various functions of the — of the people that were	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	A. Yes. Q. There was seven spray men under 25? A. Yes. Q. Six spray men over the age of 45? A. Yes. Q. Okay. Was there ever any follow-up of these workers some years later to your knowledge? A. I'm not able to answer that question. I really don't know. Q. Okay. The study that you said is out for publication yesterday involving pharmacokinetic in primates — is that a study you referred to as the Stevens study? A. Yes, that's correct. Q. is Stevens the principal investigator
7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Parkinson's disease, isn't it?  A. Well, the intention of the study, the purpose of the study was not to focus on Parkinson's disease. This was to look at long-term health effects, not — not a specific neurotoxicology epidemiology study.  Q. And how did we — In this study, how did — how did Syngenta, iCl, define "long-term health effects"?  A. Well, again, I'd have to read the paper In full to see if there was some commentary on that.  Q. Okay. Do you know what they were testing? What they were observing?  A. Well, the paper was looking at various functions of the — of the people that were monitored. Respiratory function, liver function,	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A. Yes. Q. There was seven spray men under 25? A. Yes. Q. Six spray men over the age of 45? A. Yes. Q. Okay. Was there ever any follow-up of these workers some years later to your knowledge? A. I'm not able to answer that question. I really don't know. Q. Okay. The study that you said is out for publication yesterday involving pharmacokinetic in primates – is that a study you referred to as the Stevens study? A. Yes, that's correct. Q. is Stevens the principal investigator in that study?

	Page 1708		Page 1710
1	that study?	1	accepted for publication. It's been accepted
2	A. Quite a number of people, which I could	2	pending some modifications. That occurred in
3	list if you gave me a moment.	3	November.
4	<ul> <li>Q. Go ahead. Take your time, please.</li> </ul>	4	We are still working on that response.
5	A. Okay. Just bringing it up now.	5	It will – that will be completed by the end of
6	So the authors are from Syngenta,	6	January. So we anticipate publication in a few
7	Dr. Stevens; Dr. Travis, who of course is no longer	7	months after that in 2021.
8	with Syngenta but he was when the work was done;	8	<ul> <li>Q. And the modifications that you're</li> </ul>
9	Dr. Hinderliter, similarly, was from – with	9	referring to are what?
LO	Syngenta but is now not with the company.	10	<ul> <li>A. The normal kind of comments that you</li> </ul>
L1	Q. What do these people – if you don't	11	get from $-$ from reviewers. There are $-$ there were
.2	mind as you're telling us about these people, could	12	three reviewers who commented on this, and there
.3	you please inform us as to what they're doing now?	13	were some comments that were very detailed. Again
4	A. Yes, of course. Right. So I'll start	14	exactly what you would normally expect from
.5	agaln.	15	reviewers.
6	So Dr. Stevens is still with Syngenta	16	One or two comments which required us
.7	here at Jeałott's HIII.	17	to add some additional wording In about the behavio
. 8	Dr. Travis was at Jealott's Hill. He's	18	of paraquat in the body, but nothing substantive,
9	now working for Regulatory Science Associates.	19	which is why the editor is happy to accept these
20	That's a consultancy company in the United Kingdom.	20	papers subject to those modifications.
21	Dr. Hinderliter was working at the	21	Q. What is the title of this paper?
22	Syngenta Greensboro office and Is now working for	22	A. "Paraquat PharmacokInetics in Primates
23	Alexion Pharmaceuticals in Boston, Massachusetts.	23	and Extrapolation to Humans."
24	Myself, obviously, still working for	24	Q. And let's pull this up. Number – next
	Page 1709		Page 171
1	Syngenta here at Jealott's Hill.	1	number would be, yeah, 155.
2	Andy Cook also Syngenta at	2	(Exhibit 155 was identified
3	Jealott's Hill, still working here.	3	for the record.)
4	Dan Minnema, Syngenta in the Greensboro	4	BY MR. TILLERY:
5	office, still working for Syngenta.	5	Q. So our next exhibit is 155. If you
6	Jeff Wolf, Syngenta, Greensboro	6	could take a look at this and tell us if Exhibit 155
7	sorry Syngenta, North Carolina, Research Triangle	7	is the so-called Stevens paraquat pharmacokinetic
8	Park and still working for the company.	8	study you Just referenced.
9	And then in addition, there were two	9	A. Yes, that's the one.
.0	scientists from the Ramboll, environment and health	10	Q. Okay. Absent the changes that you're
1	consulting company in Raleigh, North Carolina	11	currently writing?
.2	Jerry Campbell and Harvey Clewell.	12	A. Well, yes, I'm not sure what version
3	Q. What was their roles?	13	this is.
4	A. They were they are experts in what	14	Q. This would have been – I can't – your
5	we call PBPK modeling, so the mathematics that go	15	counsel is on the call. He can tell us more
6	into estimating the kinetics and distribution of	16	specifically which version. It would have been
7	chemicals.	17	produced sometime last year; so I don't know when
,	Q. When was it submitted for publication?	18	last year.
	The so-called Stevens study?	19	Has there been any other laboratory
. 8		20	work done since June of 2020?
.8	A. So that was submitted in September of		
.8 .9 .0	A. So that was submitted in September of 2020.	21	A. Not lab work. There is a sister paper
.8 .9 !0			A. Not lab work. There is a sister paper to this which was based on lab work and modeling
18 19 20 21 22	2020.	21	•

	Page 1712		Page 1714
1	been submitted to the same journal with similar	1	to be named?
2	authorship. But to answer your question directly,	2	A. That's – I would need to double-check.
3	no lab work has been done since June.	3	Q. Do you have your paper there with a
4	Q. How many primate test subjects were	4	list of authors?
5	used?	5	A. I've got the paper here with a list of
6	A. I'd need to do a count for that. Do	6	authors, yes.
7	you want me to give you an accurate number now or	7	Q. Tell me looking at those authors if any
8	Q. Yeah, or your best estimate.	8	of them from the lab wished to Join?
9	A. Right. Well, in Phase 1 and 2, there	9	A. There were no people from the CRO
10	were six monkeys. In Phase 3, 4 – so around about	10	listed as author of this paper.
11	ten. I think that's that's the total number.	11	Q. Okay. Now, radio-labeled paraquat was
12	Q. Okay. And where was the study	12	
13	performed?	13	administered by intravenous infusion, right?
14	A. So the animals were housed and the		A. That's right.
15		14	Q. Radio-labeled paraquat was administered
	the – the dosing was conducted at Battelle, which	15	in two different doses. Is that also correct?
16 17	is a contract research organization in Columbus,	16	A. That's correct.
17	Ohio.	17	Q. So radio-labeled paraquat was given via
18	Q. Did they do all of the analyses while	18	intravenous infusion at .1 milligram per kilogram
19	there? Was the – withdraw the question.	19	body weight and .01 milligram per kilogram body
20	Was the paraquat administered there?	20	weight, right?
21	<ul> <li>A. Yes, the paraquat was administered</li> </ul>	21	A. That's right.
22	there.	22	<ul> <li>Q. And then how long after that were the</li> </ul>
23	Q. Okay. So what was the limit to the	23	primates euthanized? Killed?
24	involvement of that laboratory? What did they do?	24	A. A number of different times after
	Page 1713		Page 1715
1	A. Yeah. So they the administered	1	administration. This was quite a complex protocol;
2	the they housed the animals. They administered	2	so but we were essentially measuring the behavior
3	the radioactive paraquat. They took the samples,	3	of paraquat in those animals over a 14-day period.
4	the blood samples.	4	But we – some animals remained on study beyond that
5	And they did the analyses and and	5	tlme period.
6	also conducted the the final stages of the of	6	Q. After their primate – strike that.
7	the study. So that included the – the analysis of	7	After the primates were
8	the amount of paraquat that was remaining in the –	8	euthanized – strike that question as well.
9	in the subjects at the end of the study.	9	There was no pathological analysis of
10	So they basically did all the nearly	10	any organ performed, correct?
11	all the practical work.	11	A. That's correct because that was not the
12	Q. And who was the principal lab contact	12	purpose of this study. This was a pharmacokinetic
13	for the study?	13	study.
L4	A. I don't know that person's name to	14	Q. Right. I understand that. I'm just
15	hand; so I can give you that at some other point.	15	trying to get some background information before we
16	Q. Is that person listed on the – on the	16	· · · · · ·
17	·	17	get to that, Dr. Botham.
18	study as a participant?	18	Was there any pathological analysis of
	A. They are not included as an author, and		any organ of these monkeys?
19	I can't remember exactly where we ended up in terms	19	A. No.
20	of naming people as contributors.	20	Q. Okay. So after the monkeys were
21	There were we asked a number of	21	euthanized, their carcass was separated from their
22	people who were involved in this whether they wished	22	skin, correct?
23	to be named, and some did and some didn't.	23	<ul> <li>A. Yeah. More accurately, their skin was</li> </ul>
24	Q. Did the people who were at the lab wish	24	

	Page 1716		Page 1718
1	Q. Okay. The carcass was then put In a	1	Q. Now, where did that strike that.
2	blender, right?	2	You don't know where that 7.1 percent
3	A. Yes.	3	is, do you?
4	Q. And the carcass included the brain?	4	A. This is one of the the issues with
5	A. Yes.	5	this – with any kind of pharmacokinetic study in
6	Q. Ten percent of the radio-labeled	6	the primates, let alone with with paraquat.
7	paraquat was found in the carcass, right?	7	The if you look at the experience of
8	A. Yes.	8	particularly pharmaceutical companies who do these
9	Q. Radio-labeled paraquat was detected in	9	kind of studies more routinely, it's – it's very
10	excreta as well, right?	10	generally the situation that you don't ever get
11	A. Yes.	11	100 percent accounted for, for technical reasons.
12	Q. And if you look at this to verify	12	But in the case of paraquat, that's
13	whether the statements that I'm making are correct,	13	further complicated by the fact that paraquet blinds
	82.9 percent of the paraquat was found in excreta	14	to metal surfaces, plastic surfaces. So you do lose
14		15	some of the paraquat in the in the analysis.
15	according to your study, right?	16	It's not necessarily true that that
16	A. Yes, Just double-checking that.	I.	·
17	think that's right.	17	7 percent is in the carcass. It may be on the
18	Yes. 82.9. That is correct.	18	equipment or on the cage sides and so on.
19	<ul> <li>Q. And who did that analysis to come up</li> </ul>	19	Q. But the truth is you don't really know
20	with that number?	20	where that 7.1 percent went, do you?
21	<ul> <li>A. Well, it was based on the analyses done</li> </ul>	21	<ul> <li>A. Well, we can't – we can't specifically</li> </ul>
22	by the contract laboratory, but all the calculations	22	account for where it is.
23	were checked and monitored by our – by the Syngenta	23	Q. I mean, you're taking this as an
24	scientists.	24	indictment of the process. I'm trying to just get
	Page 1717		Page 1719
1	Q. Okay. So this part of the study wasn't	1	straight answers.
2	created by an independent laboratory. The	2	7.1 percent of the paraquat is
3	information was sent to you, and then various people	3	unaccounted for. Would you agree with that
4	from Syngenta completed the information.	4	statement?
5	Would that be a fair assessment?	5	A. It's not possible to to specifically
6	A. A slight misrepresentation. I mean,	6	identify where it was.
7	clearly, this this the conduct the whole	7	Q. All right. That could have been in the
8	the conduct of the study and the analyses was in the	8	carcass, couldn't it?
9	hands of a an independent CRO. We were obviously	9	A. Not likely in the carcass because we
10	doing the necessary data quality checks that would	10	actually measured what was in the carcass.
	be expected.	11	Q. Well, and you say "not likely." How
1 1	Q. Okay. What I'm trying to figure out is	12	did you measure it, Dr. Botham?
11	G. Okay. What I'm trying to figure out is	13	A. Well, we as you indicated, the total
12	the number 92 9 that we _ a nercent that was found		, a trong tro ab you maid a to a to a to a
12 13	the number 82.9 that we – a percent that was found	1	carcass and the skin separately were assentially
12 13 14	in excreta was placed in the study and calculated by	14	carcass and the skin separately were essentially
12 13 14 15	in excreta was placed in the study and calculated by Syngenta scientists, right?	14 15	blended in order to be able to take samples and to
12 13 14 15	in excreta was placed in the study and calculated by Syngenta scientists, right? A. Yes. That that's that is true.	14 15 16	blended in order to be able to take samples and to measure exactly how much paraquat was there. S
12 13 14 15 16 17	in excreta was placed in the study and calculated by Syngenta scientists, right?  A. Yes. That that's that is true.  Q. Okay. So if we take the 82.9 percent	14 15 16 17	blended in order to be able to take samples and to measure exactly how much paraquat was there. S actually one of the more robust figures is how much
12 13 14 15 16 17	in excreta was placed in the study and calculated by Syngenta scientists, right?  A. Yes. That that's that is true.  Q. Okay. So if we take the 82.9 percent that was found in the excreta and we have 10 percent	14 15 16 17 18	blended in order to be able to take samples and to measure exactly how much paraquat was there. S actually one of the more robust figures is how much was in the carcass.
12 13 14 15 16 17 18 19	in excreta was placed in the study and calculated by Syngenta scientists, right?  A. Yes. That that's that is true.  Q. Okay. So if we take the 82.9 percent that was found in the excreta and we have 10 percent that was determined to be in the blended carcass,	14 15 16 17 18 19	blended in order to be able to take samples and to measure exactly how much paraquat was there. So actually one of the more robust figures is how much was in the carcass.  Q. The brain was not specifically analyzed.
12 13 14 15 16 17 18 19 20	in excreta was placed in the study and calculated by Syngenta scientists, right?  A. Yes. That that's that is true.  Q. Okay. So if we take the 82.9 percent that was found in the excreta and we have 10 percent that was determined to be in the blended carcass, that totals 92.9 percent, correct?	14 15 16 17 18 19 20	blended in order to be able to take samples and to measure exactly how much paraquat was there. S actually one of the more robust figures is how much was in the carcass.  Q. The brain was not specifically analyzed for any paraquat dose, was it?
12 13 14 15 16 17 18 19 20 21	in excreta was placed in the study and calculated by Syngenta scientists, right?  A. Yes. That — that's — that is true.  Q. Okay. So if we take the 82.9 percent that was found in the excreta and we have 10 percent that was determined to be in the blended carcass, that totals 92.9 percent, correct?  A. Yes.	14 15 16 17 18 19 20 21	blended in order to be able to take samples and to measure exactly how much paraquat was there. S actually one of the more robust figures is how much was in the carcass.  Q. The brain was not specifically analyzed for any paraquat dose, was it?  A. No.
12 13 14 15 16 17 18 19 20	in excreta was placed in the study and calculated by Syngenta scientists, right?  A. Yes. That that's that is true.  Q. Okay. So if we take the 82.9 percent that was found in the excreta and we have 10 percent that was determined to be in the blended carcass, that totals 92.9 percent, correct?	14 15 16 17 18 19 20 21 22	blended in order to be able to take samples and to measure exactly how much paraquat was there. S actually one of the more robust figures is how much was in the carcass.  Q. The brain was not specifically analyzed for any paraquat dose, was it?  A. No.  Q. It was blended as part of the carcass
12 13 14 15 16 17 18 19 20 21	in excreta was placed in the study and calculated by Syngenta scientists, right?  A. Yes. That — that's — that is true.  Q. Okay. So if we take the 82.9 percent that was found in the excreta and we have 10 percent that was determined to be in the blended carcass, that totals 92.9 percent, correct?  A. Yes.	14 15 16 17 18 19 20 21	blended in order to be able to take samples and to measure exactly how much paraquat was there. S actually one of the more robust figures is how much was in the carcass.  Q. The brain was not specifically analyzed for any paraquat dose, was it?  A. No.

	Page 1720		Page 1722
1	Q. Excuse me. So this study cannot tell	1	A the Table 8, that will give you
2	us what specific concentration existed in the brain	2	MR. NARESH: Steve, Steve. Please,
3	of the monkeys, can it?	3	don't Interrupt him.
4	A. No. That was not the intention of the	4	BY MR. TILLERY:
5	study.	5	Q. You keep answering a different
6	Q. But would you agree with me that it	6	question. I'm asking you from specific
7	cannot?	7	measurements, not through some model that you're
8	A. It cannot, no.	8	using. I'm asking you. You have the animals right
9	Q. And in this study, kidneys were not	9	there in this laboratory when they were taken and
10	specifically analyzed for any paraquat dose, were	10	euthanized after the dosing. There was nothing
11	they?	11	prohibiting Syngenta from actually removing the
12	A. No. No specific tissue was was	12	brains and measuring the level of radio-labeled
13	measured in that way.	13	paraquat in the brain of the monkeys, was there?
14	Q. Right. So you couldn't tell us from	14	A. We are using here 21st century
15	this study the specific concentrations in the	15	technology, which is increasingly going to be using
16	kidneys either, correct?	16	things like mathematical models in order to do
17	A. Not as directly measured. But the	17	exactly what you're saying.
18	point about this study is that from the measurements	18	So we have estimated the amount of
19	that were made using the mathematical modeling, then	19	paraquat that was in those brains with our
20	it is possible to estimate the concentrations that	20	mathematical models, which we believe to be a very
21	were in these tissues, including the brain and the	21	accurate representation of the of what we might
22	kldney.	22	have found had we done what you suggested.
23	Q. Yeah. I move to strike that as	23	Q. Yeah. I move to strike your answer as
24	unresponsive.	24	unresponsive. Let's go back to my question.
1			
	D 4704		Dana 4722
	Page 1721		Page 1723
1	Page 1721  My question is from this study, you	1	After the animals had been dosed with
1 2	My question is from this study, you couldn't tell us directly the specific	2	After the animals had been dosed with radio-labeled paraquat and euthanized, there was
	My question is from this study, you	2 3	After the animals had been dosed with radio-labeled paraquat and euthanized, there was nothing preventing Syngenta from removing the brains
2	My question is from this study, you couldn't tell us directly the specific concentrations in either the brain or the kidneys, could you?	2 3 4	After the animals had been dosed with radio-labeled paraquat and euthanized, there was nothing preventing Syngenta from removing the brains of the test animals and actually measuring the
2 3 4 5	My question is from this study, you couldn't tell us directly the specific concentrations in either the brain or the kidneys, could you?  A. Well, I I'm afraid I have to repeat	2 3 4 5	After the animals had been dosed with radio-labeled paraquat and euthanized, there was nothing preventing Syngenta from removing the brains of the test animals and actually measuring the amount of radio-labeled paraquat in the brains of
2 3 4 5 6	My question is from this study, you couldn't tell us directly the specific concentrations in either the brain or the kidneys, could you?  A. Well, I I'm afraid I have to repeat what I just said. The whole purpose of this study	2 3 4 5 6	After the animals had been dosed with radio-labeled paraquat and euthanized, there was nothing preventing Syngenta from removing the brains of the test animals and actually measuring the amount of radio-labeled paraquat in the brains of the animals.
2 3 4 5 6 7	My question is from this study, you couldn't tell us directly the specific concentrations in either the brain or the kidneys, could you?  A. Well, I I'm afraid I have to repeat what I just said. The whole purpose of this study was not to directly measure, to use your words, by	2 3 4 5 6 7	After the animals had been dosed with radio-labeled paraquat and euthanized, there was nothing preventing Syngenta from removing the brains of the test animals and actually measuring the amount of radio-labeled paraquat in the brains of the animals.  Is that a fair statement?
2 3 4 5 6 7 8	My question is from this study, you couldn't tell us directly the specific concentrations in either the brain or the kidneys, could you?  A. Well, I I'm afraid I have to repeat what I just said. The whole purpose of this study was not to directly measure, to use your words, by separately blending a kidney or or a brain or	2 3 4 5 6 7 8	After the animals had been dosed with radio-labeled paraquat and euthanized, there was nothing preventing Syngenta from removing the brains of the test animals and actually measuring the amount of radio-labeled paraquat in the brains of the animals.  Is that a fair statement?  A. Well, of course, we could have done
2 3 4 5 6 7 8	My question is from this study, you couldn't tell us directly the specific concentrations in either the brain or the kidneys, could you?  A. Well, I I'm afraid I have to repeat what I just said. The whole purpose of this study was not to directly measure, to use your words, by separately blending a kidney or or a brain or or a liver. And we calculated those using the	2 3 4 5 6 7 8	After the animals had been dosed with radio-labeled paraquat and euthanized, there was nothing preventing Syngenta from removing the brains of the test animals and actually measuring the amount of radio-labeled paraquat in the brains of the animals.  Is that a fair statement?  A. Well, of course, we could have done that. We could have done that with any of the
2 3 4 5 6 7 8 9	My question is from this study, you couldn't tell us directly the specific concentrations in either the brain or the kidneys, could you?  A. Well, I I'm afraid I have to repeat what I just said. The whole purpose of this study was not to directly measure, to use your words, by separately blending a kidney or or a brain or or a liver. And we calculated those using the model, the mathematical model. That was the whole	2 3 4 5 6 7 8 9	After the animals had been dosed with radio-labeled paraquat and euthanized, there was nothing preventing Syngenta from removing the brains of the test animals and actually measuring the amount of radio-labeled paraquat in the brains of the animals.  Is that a fair statement?  A. Well, of course, we could have done that. We could have done that with any of the tissues.
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	My question is from this study, you couldn't tell us directly the specific concentrations in either the brain or the kidneys, could you?  A. Well, I I'm afraid I have to repeat what I just said. The whole purpose of this study was not to directly measure, to use your words, by separately blending a kidney or or a brain or or a liver. And we calculated those using the model, the mathematical model. That was the whole purpose of this study.  Q. Well, let me rephrase it, then.  Did you ever take the kidneys or brain out of these test monkeys and specifically measure any radio-labeled paraquat in those organs?  A. No.  Q. Okay. So if I ask you to look at this study and tell me how much radio-labeled paraquat was found in the brains of the squirrel monkey from this study, you couldn't tell me, could you?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	After the animals had been dosed with radio-labeled paraquat and euthanized, there was nothing preventing Syngenta from removing the brains of the test animals and actually measuring the amount of radio-labeled paraquat in the brains of the animals.  Is that a fair statement?  A. Well, of course, we could have done that. We could have done that with any of the tissues.  Q. All right. And you could have done that with the kidneys had you wanted to, right?  A. Yes.  Q. And you could have done that with the lungs too, right?  A. Yes.  Q. And you could have then determined from an assessment of those specific organs how much radio-labeled paraquat was in those organs, right?  A. We could have done that, yes.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	My question is from this study, you couldn't tell us directly the specific concentrations in either the brain or the kidneys, could you?  A. Well, I I'm afraid I have to repeat what I just said. The whole purpose of this study was not to directly measure, to use your words, by separately blending a kidney or or a brain or or a liver. And we calculated those using the model, the mathematical model. That was the whole purpose of this study.  Q. Well, let me rephrase it, then.  Did you ever take the kidneys or brain out of these test monkeys and specifically measure any radio-labeled paraquat in those organs?  A. No.  Q. Okay. So if I ask you to look at this study and tell me how much radio-labeled paraquat was found in the brains of the squirrel monkey from this study, you couldn't tell me, could you?  A. Yes, I could tell you. We could	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	After the animals had been dosed with radio-labeled paraquat and euthanized, there was nothing preventing Syngenta from removing the brains of the test animals and actually measuring the amount of radio-labeled paraquat in the brains of the animals.  Is that a fair statement?  A. Well, of course, we could have done that. We could have done that with any of the tissues.  Q. All right. And you could have done that with the kidneys had you wanted to, right?  A. Yes.  Q. And you could have done that with the lungs too, right?  A. Yes.  Q. And you could have then determined from an assessment of those specific organs how much radio-labeled paraquat was in those organs, right?  A. We could have done that, yes.  Q. Okay. There was nothing preventing you
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	Page 1724		Page 1726
1	to do that.	1	the organs by doing a careful measurement of them
2	Q. So instead of doing those direct	2	and then blending the other monkeys in whatever way
3	measurements, you chose to model the	3	you wanted to do it and applying your model and see
4	concentrations - correct? - using a mathematical	4	how your model – mathematical model you created
5	model?	5	compares to actually measured amounts in these
6	A. That's right.	6	organs?
7	Q. Okay. So you used a model with your	7	A. Well, there are two answers to that,
8	own built-in assumptions about where this paraquat	8	I'm afraid. One is that we did what you've
9	was located, where it was found in the bodies of	9	suggested through – as I Indicated in my previous
10	these monkeys, instead of choosing to actually take	10	answer, through reference to the model – the very
11	a total of 10 monkeys and doing an analysis on their	11	similar model that was used in rodents where we have
12	organs, correct?	12	such information. So that was the validation part.
13	A. Because that was the purpose of the	13	The second thing is, and it's a very
14	study to actually provide such a model. And that	14	important part, we wanted to minimize the number of
15	part of it was done by the Ramboll Institute, not by	15	nonhuman primates that we used in this study.
16	Syngenta.	16	To do what you're suggesting would have
17	Q. So without having specifically analyzed	17	required us to do, for example, probably twice the
18	the lungs for any radio-labeled paraquat, you can't	18	number of animals in this study, and that we didn't
19		19	•
20	tell us what specific concentrations were in the	20	feel was appropriate or ethical.
21	lungs before the carcass of the monkey was put in	21	Q. So I move to strike your answer as
	the blender, can you? Other than by looking at your	22	nonresponsive. Let's go back to my question.
22	mathematical model that you calculated?		No one involved in this test protocol
23	A. I think I also have to bring in this	23	ever suggested to take half of the sacrificed
24	point that the the validation of the model also	24	euthanized monkeys and do actual measurements of the
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	Page 1725		Page 1727
1	Page 1725 comes from the work that was done, for example, in	1	Page 1727 brain, do actual measurements of the lungs, actual
1 2	_	1 2	
	comes from the work that was done, for example, in		brain, do actual measurements of the lungs, actual
2	comes from the work that was done, for example, in the rodents, the second paper that I mentioned,	2	brain, do actual measurements of the lungs, actual measurements in the kidneys, and compare those to
2 3	comes from the work that was done, for example, in the rodents, the second paper that I mentioned, where we actually have got more of that information	2	brain, do actual measurements of the lungs, actual measurements in the kidneys, and compare those to your mathematical formula or math — creation of
2 3 4	comes from the work that was done, for example, in the rodents, the second paper that I mentioned, where we actually have got more of that information to confirm, if you like, that the models that we're	2 3 4	brain, do actual measurements of the lungs, actual measurements in the kidneys, and compare those to your mathematical formula or math — creation of which was by Syngenta folks, and compare the
2 3 4 5	comes from the work that was done, for example, in the rodents, the second paper that I mentioned, where we actually have got more of that information to confirm, if you like, that the models that we're using are an accurate representation of what you	2 3 4 5	brain, do actual measurements of the lungs, actual measurements in the kidneys, and compare those to your mathematical formula or math — creation of which was by Syngenta folks, and compare the results. Nobody suggested doing that, right?
2 3 4 5 6	comes from the work that was done, for example, in the rodents, the second paper that I mentioned, where we actually have got more of that information to confirm, if you like, that the models that we're using are an accurate representation of what you would have found had you physically analyzed	2 3 4 5 6	brain, do actual measurements of the lungs, actual measurements in the kidneys, and compare those to your mathematical formula or math — creation of which was by Syngenta folks, and compare the results. Nobody suggested doing that, right?  A. Well, of course, that was always one
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	Page 1728		Page 1730
1	Q. In the preliminary copy of this as I	1	A. Right.
2	remember reading it, Bartlett 2009 is the study	2	Q. And it's not from the 2009 or 2011
3	you're referencing, right?	3	Bartlett studies.
4	A. That's right. There are two Bartlett	4	A. No.
5	papers. That's one of them.	5	Q. Correct?
6	Q. Well, is that the Bartlett paper you	6	A. Correct.
7	relied on, or is there another one? Because you	7	Q. Right? Is it – I'm sorry?
8	A. Yeah. When I did -	8	A. Correct.
9	Q the first -	9	Q. Okay. And so that leaves us the rodent
.0	A. The Bartlett – excuse me. Sorry. Do	10	models that you built your model on, right?
1	ask the question again.	11	A. Correct.
.2	Q. Yeah. The Bartlett 2009 is what you	12	Q. All right. Now, tell me which rodent
.3	referenced in your – in your paper, right?	13	study did you build this mathematical formula on
4	A. Yeah. There are – there's there's	14	that you relied upon to extrapolate conclusions
.5	a Bartlett 2009, and there's a Bartlett 2011. We	15	about where this chemical was located in the bodie
6	actually include both of them in the paper.	16	of the primates? Which study?
.7	Q. So you reference both of those papers?	17	A. Well, there are a number of different
. 8	A. Yes, we do.	18	studies. And we'd have to go into the – the second
.9	Q. Okay. So is that what your model is	19	paper, the paraquat pharmacokinetics in the rat and
20	based on? Those two Bartlett studies?	20	the mouse, and actually also the dog. It wasn't
21	A. No. The model Isn't based on that.	21	Just rodents. And and there are a number of
22	That that was used to particularly try to better	22	of studies that are listed in there.
23	understand whether the figures that we got from our	23	Q. Well –
24	model made sense in terms of, for example, the	24	A. It's not – it's not just a single
_	Page 1729		Page 173
		1 1	study
1	amount of paraquat that we were seeing or modeling	1 2	study.  Q. All right. So let's go through all of
2	to be in the brain.	2	Q. All right. So let's go through all of
2	to be in the brain.  Q. Well, you had no data about paraquat	2	Q. All right. So let's go through all of them. Here's what I want just for the ladies and
2 3 4	to be in the brain.  Q. Well, you had no data about paraquat concentrations in monkey organs from your own work	2 3 4	Q. All right. So let's go through all of them. Here's what I want just for the ladies and gentlemen of the jury, the judge, and you. Okay?
2 3 4 5	to be in the brain.  Q. Well, you had no data about paraquat concentrations in monkey organs from your own work in Syngenta laboratories.	2 3 4 5	Q. All right. So let's go through all of them. Here's what I want just for the ladies and gentlemen of the jury, the judge, and you. Okay? I want you to tell me what you built
2 3 4 5 6	to be in the brain.  Q. Well, you had no data about paraquat concentrations in monkey organs from your own work in Syngenta laboratories.  Would that be a fair statement for	2 3 4 5 6	Q. All right. So let's go through all of them. Here's what I want just for the ladies and gentlemen of the jury, the judge, and you. Okay? I want you to tell me what you built your mathematical model on. I want everybody here
2 3 4 5 6 7	to be in the brain.  Q. Well, you had no data about paraquat concentrations in monkey organs from your own work in Syngenta laboratories.  Would that be a fair statement for purposes of creating your model?	2 3 4 5	Q. All right. So let's go through all of them. Here's what I want just for the ladies and gentlemen of the jury, the judge, and you. Okay? I want you to tell me what you built
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3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	to be in the brain.  Q. Well, you had no data about paraquat concentrations in monkey organs from your own work in Syngenta laboratories.  Would that be a fair statement for purposes of creating your model?  A. No. We did not – we've – we've no Syngenta data in nonhuman primates, no.  Q. Okay. And then you reference two studies that you got, and you said you didn't get your model information from Bartlett 2009 or 2011, right?  A. It would not actually – the – the papers that – that helped us to validate, if you wish, the whole model, they were being used specifically to – to make sure we – that the amount of paraquat that we believe is in the brain made some sense.  Q. Right. Well, here's – look, I'm	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	G. All right. So let's go through all of them. Here's what I want just for the ladies and gentlemen of the jury, the judge, and you. Okay?  I want you to tell me what you built your mathematical model on. I want everybody here who is watching you or listening to you sometime down the road and looking at this study to be able to know what Syngenta scientists built that study on.  Now, let's go through them. Take as much time as you need, but you tell me every single study you relied upon and how you relied upon it to build that mathematical formula. Okay?  A. Yes. Certainly, I'm now looking at that second paper.  Q. And before you speak about the paper, for the record give us the citation to that paper, where it was published, who were the authors, and
3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	to be in the brain.  Q. Well, you had no data about paraquat concentrations in monkey organs from your own work in Syngenta laboratories.  Would that be a fair statement for purposes of creating your model?  A. No. We did not – we've – we've no Syngenta data in nonhuman primates, no.  Q. Okay. And then you reference two studies that you got, and you said you didn't get your model information from Bartlett 2009 or 2011, right?  A. It would not actually – the — the papers that — that helped us to validate, if you wish, the whole model, they were being used specifically to — to make sure we — that the amount of paraquat that we believe is in the brain made some sense.  Q. Right. Well, here's — look, I'm trying to take us through what you built your model	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	G. All right. So let's go through all of them. Here's what I want just for the ladies and gentlemen of the jury, the judge, and you. Okay?  I want you to tell me what you built your mathematical model on. I want everybody here who is watching you or listening to you sometime down the road and looking at this study to be able to know what Syngenta scientists built that study on.  Now, let's go through them. Take as much time as you need, but you tell me every single study you relied upon and how you relied upon it to build that mathematical formula. Okay?  A. Yes. Certainly, I'm now looking at that second paper.  Q. And before you speak about the paper, for the record give us the citation to that paper, where it was published, who were the authors, and what the title of the document was.  A. Okay. So the — the title is "Paraquat"
2 3 4 5 6 7 8	to be in the brain.  Q. Well, you had no data about paraquat concentrations in monkey organs from your own work in Syngenta laboratories.  Would that be a fair statement for purposes of creating your model?  A. No. We did not – we've – we've no Syngenta data in nonhuman primates, no.  Q. Okay. And then you reference two studies that you got, and you said you didn't get your model information from Bartlett 2009 or 2011, right?  A. It would not actually – the – the papers that – that helped us to validate, if you wish, the whole model, they were being used specifically to – to make sure we – that the amount of paraquat that we believe is in the brain made some sense.  Q. Right. Well, here's – look, I'm	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	G. All right. So let's go through all of them. Here's what I want just for the ladies and gentlemen of the jury, the judge, and you. Okay?  I want you to tell me what you built your mathematical model on. I want everybody here who is watching you or listening to you sometime down the road and looking at this study to be able to know what Syngenta scientists built that study on.  Now, let's go through them. Take as much time as you need, but you tell me every single study you relied upon and how you relied upon it to build that mathematical formula. Okay?  A. Yes. Certainly, I'm now looking at that second paper.  Q. And before you speak about the paper, for the record give us the citation to that paper, where it was published, who were the authors, and what the title of the document was.

	Page <b>1</b> 732		Page 1734
1	Also on the paper were his colleague	1	beings because that's that was the whole purpose
2	Harvey Clewell from Ramboll, who I mentioned before,	2	of this to build mathematical models, to estimate
3	and also Mel Anderson, who formerly was with Ramboll	3	the amount of paraquat that would get into different
4	and is now a retired consultant.	4	tissues in the human being.
5	In addition, the - some of the	5	<ul> <li>Q. Did the Bartlett Group in the two</li> </ul>
6	Syngenta authors that were mentioned previously	6	studies you referenced measure paraquat
7	were are on this paper: Myself, Andy Cook,	7	concentration in monkey organs?
8	Paul Hinderliter at Syngenta, Alex Stevens, and	8	A. They - I mean, Bartlett - at least
9	Kim Travis.	9	our focus on the Bartlett was them using PET Imaging
10	Q. And when was this study published?	10	to to have a to give a visual representation
11	A. This is in the same status as the	11	of the distribution of paraquat in the brain.
12	nonhuman primate study. They – essentially, they	12	Q. So they used, you sald, a PET scan
13	were submitted in parallel. So we're all the	13	analysis?
14	dates that I gave you for the nonhuman primate study	14	A. Yeah. PET scanning, basically. Yes.
15	apply to this one as well.	15	So it showed the distribution of paraquat in the
16	Q. To your knowledge, has this study been	16	brains of rodents and in the brains of the animals
17	disclosed in discovery in this case?	17	that they looked at, and you can see photographs of
18	A. I don't know whether it has or not.	18	those PET images.
19	Q. Okay. Now, tell me how that paper that	19	Q. Right. What I'm trying to say is, to
20	you just referenced told you how to build the	20	your knowledge, did the Bartlett Group remove the
21	mathematical formula.	21	brains and actually analyze the content in the brain
22	A. Right. Well, I'm not going to go into	22	itself? Do you know –
23	a lot of technical detail here because I don't even	23	A. No. They – they were doing PET
24	know what would be appropriate.	24	scanning. So it was a visual a visual
	Page 1733		Page 1735
1	But to answer the question which you	1	representation where the the deeper the staining,
2	asked about, you know, name all name the studies,	2	
3	In Table 1 of this paper that we're now looking at,	4	the more paraquat was present.
		3	the more paraquat was present.  Q. Okay. So then you used the the
4	there are there's a list of studies. And it's		
4 5	there are there's a list of studies. And it's	3	Q. Okay. So then you used the the
		3 4	Q. Okay. So then you used the – the studies that you referenced here in your other paper
5	there are there's a list of studies. And it's entitled, "Summary of preexisting paraquat kinetic studies used in this paper." And they're listed in	3 4 5	Q. Okay. So then you used the – the studies that you referenced here in your other paper as the basis for your creation of your mathematical
5 6	there are there's a list of studies. And it's entitled, "Summary of preexisting paraquat kinetic	3 4 5 6	Q. Okay. So then you used the – the studies that you referenced here in your other paper as the basis for your creation of your mathematical model, right?
5 6 7	there are there's a list of studies. And it's entitled, "Summary of preexisting paraquat kinetic studies used in this paper." And they're listed in alphabetical order of first author.	3 4 5 6 7	<ul> <li>Q. Okay. So then you used the the studies that you referenced here in your other paper as the basis for your creation of your mathematical model, right?</li> <li>A. That's right.</li> </ul>
5 6 7 8	there are there's a list of studies. And it's entitled, "Summary of preexisting paraquat kinetic studies used in this paper." And they're listed in alphabetical order of first author.  And and if you can look, there are	3 4 5 6 7 8	<ul> <li>Q. Okay. So then you used the the studies that you referenced here in your other paper as the basis for your creation of your mathematical model, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now. Let's go through the</li> </ul>
5 6 7 8 9	there are there's a list of studies. And it's entitled, "Summary of preexisting paraquat kinetic studies used in this paper." And they're listed in alphabetical order of first author.  And and if you can look, there are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13	3 4 5 6 7 8 9	<ul> <li>Q. Okay. So then you used the the studies that you referenced here in your other paper as the basis for your creation of your mathematical model, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now. Let's go through the studies you relied on. Pull that paper. Tell us</li> </ul>
5 6 7 8 9 10 11	there are there's a list of studies. And it's entitled, "Summary of preexisting paraquat kinetic studies used in this paper." And they're listed in alphabetical order of first author.  And and if you can look, there are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 14 papers that were used. And some of them are	3 4 5 6 7 8 9	<ul> <li>Q. Okay. So then you used the the studies that you referenced here in your other paper as the basis for your creation of your mathematical model, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now. Let's go through the studies you relied on. Pull that paper. Tell us you said there were ten of them or something?</li> </ul>
5 6 7 8 9	there are there's a list of studies. And it's entitled, "Summary of preexisting paraquat kinetic studies used in this paper." And they're listed in alphabetical order of first author.  And and if you can look, there are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 14 papers that were used. And some of them are Syngenta or predecessor papers. I can tell you	3 4 5 6 7 8 9 10	<ul> <li>Q. Okay. So then you used the the studies that you referenced here in your other paper as the basis for your creation of your mathematical model, right?</li> <li>A. That's right.</li> <li>Q. Okay. Now. Let's go through the studies you relied on. Pull that paper. Tell us you said there were ten of them or something?</li> <li>A. Fourteen in total.</li> </ul>
5 6 7 8 9 10 11	there are there's a list of studies. And it's entitled, "Summary of preexisting paraquat kinetic studies used in this paper." And they're listed in alphabetical order of first author.  And and if you can look, there are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 14 papers that were used. And some of them are Syngenta or predecessor papers. I can tell you precisely. One, 2, 3, 4, 5 6 of those 14 are	3 4 5 6 7 8 9 10 11 12	<ul> <li>Q. Okay. So then you used the – the studies that you referenced here in your other paper as the basis for your creation of your mathematical model, right? <ul> <li>A. That's right.</li> <li>Q. Okay. Now. Let's go through the studies you relied on. Pull that paper. Tell us – you said there were ten of them or something?</li> <li>A. Fourteen in total.</li> <li>Q. Fourteen. And I want you to tell me</li> </ul> </li> </ul>
5 6 7 8 9 10 11 12 13	there are there's a list of studies. And it's entitled, "Summary of preexisting paraquat kinetic studies used in this paper." And they're listed in alphabetical order of first author.  And and if you can look, there are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 14 papers that were used. And some of them are Syngenta or predecessor papers. I can tell you precisely. One, 2, 3, 4, 5 6 of those 14 are ICI's or Zeneca or Syngenta papers.	3 4 5 6 7 8 9 10 11 12 13	<ul> <li>Q. Okay. So then you used the – the studies that you referenced here in your other paper as the basis for your creation of your mathematical model, right? <ul> <li>A. That's right.</li> <li>Q. Okay. Now. Let's go through the studies you relied on. Pull that paper. Tell us – you said there were ten of them or something?</li> <li>A. Fourteen in total.</li> <li>Q. Fourteen. And I want you to tell me how they contributed to the creation of your model.</li> </ul> </li> </ul>
5 6 7 8 9 10 11 12 13 14	there are there's a list of studies. And it's entitled, "Summary of preexisting paraquat kinetic studies used in this paper." And they're listed in alphabetical order of first author.  And and if you can look, there are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 14 papers that were used. And some of them are Syngenta or predecessor papers. I can tell you precisely. One, 2, 3, 4, 5 6 of those 14 are ICI's or Zeneca or Syngenta papers.  So they – so to answer your question	3 4 5 6 7 8 9 10 11 12 13	G. Okay. So then you used the – the studies that you referenced here in your other paper as the basis for your creation of your mathematical model, right?  A. That's right.  G. Okay. Now. Let's go through the studies you relied on. Pull that paper. Tell us – you said there were ten of them or something?  A. Fourteen in total.  G. Fourteen. And I want you to tell me how they contributed to the creation of your model. And let's go pull them out one by one and go through
5 6 7 8 9 10 11 12 13 14 15	there are there's a list of studies. And it's entitled, "Summary of preexisting paraquat kinetic studies used in this paper." And they're listed in alphabetical order of first author.  And and if you can look, there are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 14 papers that were used. And some of them are Syngenta or predecessor papers. I can tell you precisely. One, 2, 3, 4, 5 6 of those 14 are ICI's or Zeneca or Syngenta papers.  So they so to answer your question they are they are live animal studies. They are	3 4 5 6 7 8 9 10 11 12 13 14 15	G. Okay. So then you used the – the studies that you referenced here in your other paper as the basis for your creation of your mathematical model, right?  A. That's right.  G. Okay. Now. Let's go through the studies you relied on. Pull that paper. Tell us – you said there were ten of them or something?  A. Fourteen in total.  G. Fourteen. And I want you to tell me how they contributed to the creation of your model. And let's go pull them out one by one and go through them.
5 6 7 8 9 10 11 12 13 14 15	there are there's a list of studies. And it's entitled, "Summary of preexisting paraquat kinetic studies used in this paper." And they're listed in alphabetical order of first author.  And and if you can look, there are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 14 papers that were used. And some of them are Syngenta or predecessor papers. I can tell you precisely. One, 2, 3, 4, 5 6 of those 14 are ICI's or Zeneca or Syngenta papers.  So they so to answer your question they are they are live animal studies. They are conducted in either the rat, the mouse, or the dog.	3 4 5 6 7 8 9 10 11 12 13 14 15 16	G. Okay. So then you used the – the studies that you referenced here in your other paper as the basis for your creation of your mathematical model, right?  A. That's right.  G. Okay. Now. Let's go through the studies you relied on. Pull that paper. Tell us – you said there were ten of them or something?  A. Fourteen in total.  G. Fourteen. And I want you to tell me how they contributed to the creation of your model. And let's go pull them out one by one and go through them.  A. Well, this could take the whole day if
5 6 7 8 9 10 11 12 13 14 15 16	there are there's a list of studies. And it's entitled, "Summary of preexisting paraquat kinetic studies used in this paper." And they're listed in alphabetical order of first author.  And and if you can look, there are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 14 papers that were used. And some of them are Syngenta or predecessor papers. I can tell you precisely. One, 2, 3, 4, 5 6 of those 14 are ICI's or Zeneca or Syngenta papers.  So they so to answer your question they are they are live animal studies. They are conducted in either the rat, the mouse, or the dog. They are kinetic studies because that's what's	3 4 5 6 7 8 9 10 11 12 13 14 15 16	G. Okay. So then you used the – the studies that you referenced here in your other paper as the basis for your creation of your mathematical model, right?  A. That's right.  G. Okay. Now. Let's go through the studies you relied on. Pull that paper. Tell us – you said there were ten of them or something?  A. Fourteen in total.  G. Fourteen. And I want you to tell me how they contributed to the creation of your model. And let's go pull them out one by one and go through them.  A. Well, this could take the whole day if we did it in that way.
5 6 7 8 9 10 11 12 13 14 15 16 17	there are there's a list of studies. And it's entitled, "Summary of preexisting paraquat kinetic studies used in this paper." And they're listed in alphabetical order of first author.  And and if you can look, there are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 14 papers that were used. And some of them are Syngenta or predecessor papers. I can tell you precisely. One, 2, 3, 4, 5 6 of those 14 are ICI's or Zeneca or Syngenta papers.  So they so to answer your question they are they are live animal studies. They are conducted in either the rat, the mouse, or the dog. They are kinetic studies because that's what's important where you actually measure how much	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	G. Okay. So then you used the – the studies that you referenced here in your other paper as the basis for your creation of your mathematical model, right?  A. That's right.  G. Okay. Now. Let's go through the studies you relied on. Pull that paper. Tell us – you said there were ten of them or something?  A. Fourteen in total.  G. Fourteen. And I want you to tell me how they contributed to the creation of your model. And let's go pull them out one by one and go through them.  A. Well, this could take the whole day if we did it in that way.  The – so the 14 — let me give you an
5 6 7 8 9 10 11 12 13 14 15 16 17 18	there are there's a list of studies. And it's entitled, "Summary of preexisting paraquat kinetic studies used in this paper." And they're listed in alphabetical order of first author.  And and if you can look, there are 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 14 papers that were used. And some of them are Syngenta or predecessor papers. I can tell you precisely. One, 2, 3, 4, 5 6 of those 14 are ICI's or Zeneca or Syngenta papers.  So they so to answer your question they are they are live animal studies. They are conducted in either the rat, the mouse, or the dog. They are kinetic studies because that's what's important where you actually measure how much paraquat is in the plasma, in the urine, in the	3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	G. Okay. So then you used the – the studies that you referenced here in your other paper as the basis for your creation of your mathematical model, right?  A. That's right.  G. Okay. Now. Let's go through the studies you relied on. Pull that paper. Tell us – you said there were ten of them or something?  A. Fourteen in total.  G. Fourteen. And I want you to tell me how they contributed to the creation of your model. And let's go pull them out one by one and go through them.  A. Well, this could take the whole day if we did it in that way.  The – so the 14 — let me give you an example. I don't really know what level of detail

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contributed to a mathematical model which gave you

so much confidence that you and the other Syngenta

23 24

extrapolate to the levels we – we – that were in

the nonhuman primate and -- and could be in human

23

24

	Page 1736		Page 1738
1 scie	entists chose not to do an actual measurement –	1	doing the – the stereology, right?
2 <b>phy</b>	sical measurement of the content in the brains of	2	A. Yes.
	test animals.	3	<ul> <li>Q. Okay. And we talked about – this is</li> </ul>
4	So let's start with the oldest one	4	the one you referenced yesterday after we went
5 firs	t. Pull that -	5	through Dr. Smeyne's analysis of how Dan Zadory was
6	A. No. I mean with respect, I think	6	doing his study, right?
7 tha	t's not really going to be very helpful. I mean,	7	A. Yes.
	y – to give you an indication, they we're	8	Q. Correct?
	ring about studies that started in 1973 and went	9	All right. And is this one of them you
10 righ	nt away through to to papers that were	10	relied on?
11 pul	blished Including the Breckenridge paper which	11	A. Yes. Because this this the
	ve the kinetics as part of it, if you remember,	12	component of this Breckenridge study is the is
13 <b>and</b>	the – and the Minnema paper similarly in 2013	13	the kinetic component.
14 and	1 2014.	14	Q. Right.
15	Q. Right. So this - this is what I'm	15	A. Not the toxicity or pathology
16 <b>try</b> i	ng to figure out, and I move to strike that last	16	component; so
	mment as – as not responsive to any question.	17	Q. Okay. So you - you - I'm just trying
	what I'm trying to figure out is what you used	18	to figure out, sir, one of your studies was your
19 <b>to</b> l	build this algorithm or formula?	19	Breckenridge study you're relying on, right?
20	Let's start with the first one.	20	A. Yes, that's correct.
21 <b>W</b> r	at –	21	Q. All right. What's the next one?
22	A. No. With respect, Mr. Tillery,	22	A. My Chul, et al., 1988.
23 <b>sta</b>	rting with the first one won't help.	23	Q. Okay. And tell me how that informed
24	They they were all used and to	24	any portion of your analysis?
	Page 1737		Page 1739
1 bui	ild the mathematical model by taking the the	1	A. I mean, I said, respectfully, I'm not
	ual data. This is the important part to answer	2	sure where this particular deep line of questioning
	ur question. The these 14 papers were not	3	is going to take us because I – If we do that for
,	emselves mathematical models of of or	4	every paper, we would be here until the end of
	culations of or estimations of how much paraquat	5	today.
	s present in excreta or in blood or in tissues.	6	Q. Well, I'm just telling you, it's
	ey were actual measurements. They were actual	7	important. If you think you've reached or
8	Q. Okay. I understand. And this is why I	8	calculated through some mathematical formula
	nted to talk to you about it because I don't know	9	information so accurate that you don't need — you
	actly what you're going to tell us as to which	10	have to – you can forgo standard laboratory
	e, but I think I understand which studies you're	11	analysis of organ tissue relying on your formula, I
	erencing.	12	want to know how you built it.
13	So you have references to the 14	13	I think everybody wants to know the
	idies. Let's start with the first one that you	14	standards. How - what did you do? How did you d
	ve referenced. What is that one?	15	this – create this formula? Let's go through.
16	A. Well, they're in alpha as I said,	16	What did Chui do, 1988? How did that
	ey're in alphabetical in the Table 1, they're	17	study inform any aspect of this mathematical
	alphabetical order. The first –	18	calculation that you reached?
19	Q. So this is the first one –	19	MR. NARESH: And I'll object to the
20	A. The first one is the Breckenridge.	20	extent it's unfair to the witness. If you want to
21	Q. So the first one is the one that we	21	show – Dr. Botham told you where this Is. And If
	scussed yesterday – Breckenridge 2013, right?	22	you want to walk through each one, then I think you
22 7119			-
22 <b>dis</b> 23	A. Yes.	23	need to show them to him. Asking him to do this as

#### Page 1742 Page 1740 doing the mathematical modeling would have looked at 1 MR. TILLERY: We don't have this other 1 2 2 study that he has published – he hasn't even the - all the detail that actually appears in each 3 publication. So the answer to that question for all 3 published yet. 4 4 of these papers is that the data points, the actual MR. NARESH: Is it -- are you 5 5 numbers, the analyses of paraquat in different representing that the document that Dr. Botham is 6 tissues and - were all fed into the model in order 6 looking at hasn't been produced to you in draft 7 to validate whether the mathematics that - that form? 8 went into the model corresponded with actually how 8 MR. TILLERY: I don't know whether it 9 much paraquat was found by all of those different 9 has or not. I haven't seen it. 10 authors in all of these different papers. 10 MR. NARESH: Okay. Well --11 MR. TILLERY: If you -- if you -- if 11 And, I mean, the conclusion - the 12 overall conclusion of this paper was that they were 12 you haven't -- if you have it, it should be. But It a very good fit. The mathematics -- If you 13 doesn't matter whether I have it here In front of me 13 or not. He does have it, and he can answer 14 14 retrospectively use the model and say we believe 15 that in, say, the Chui paper, they should have found 15 questions from this. 16 this amount of paraguat in the blood or in the brain 16 Q. Now, you mentioned the Breckenridge 17 that they - that they were a very good match. 2013 study. You also mentioned the Chui 1988 study. 17 18 Q. Okay. Dld they use rats in the Chui I'm really not interesting in talking about the 18 paper? 19 19 Breckenridge study. We discussed that yesterday. 20 20 I want to know how Chul, 1988, A. They did, yes. 21 contributed to the creation of your mathematical 21 Q. Okay. And what did we discuss 22 vesterday, if you remember, about how the rats show 22 formula? 23 sensitivity or lack of sensitivity to paraquat? Do 23 A. Right. It was - so the - the summary 24 you remember that of the detail of that study, it was a rat study. 2.4 Page 1741 Page 1743 A. Yeah. But that's --1 And the dose route was intravenous and also 1 Q. - from that study? The Sprague 2 2 inhalation. And the paraquat dose was Dawley? 3 .039 milligrams per kilogram intravenous, 3 4 A. This is - this is irrelevant to this 4 .002 milligrams per liter for inhalation. The 5 discussion because we're not talking about the 5 samples that were taken were blood, urine, feces, sensitivity to pathology here. We're talking about 6 6 and eight different tissues. 7 how paraquat gets distributed around the body --7 And so, you know, that's the summary of -- of the -- of what was done. There is a lot 8 Q. Okay. Dld --8 9 A. - and not toxicity. g more detail. 10 Q. Did the Chui study measure the brain 10 We could -- we could go through that 11 concentrations? level of detail for all of these studies. I'm not -11 12 A. I'm - I'm not that detailed here. 12 sure that that's very helpful in terms of trying to 13 I've just gone -- I'm just looking at the summary 13 answer your question, which I really -- I really which says eight tissues; so I can't answer that. 14 14 would like to be able to do. Believe me, I'm not 15 Q. So you don't know whether the Chul 15 trying to be evasive. I'm just the opposite. I'm study even measured whether or not paraquat entered 16 16 trying -- I'm trying to help you to -- to understand 17 the brain of the rats, do you? 17 Q. Okay. So is there anything other than 18 A. I can't answer that for any of these 18 19 studies at the moment without going back to the 19 those details that you just stated on the record 20 Individual papers. 20 about the Chui 1988 study that - anything else Q. Well, can -21 about that study that helped you form your 21 A. And some of them -- some of them would mathematical modeling for the pharmacokinetic 22 22 23 have done. 23 24 Q. Can you tell me what else the Chul 24 A. Well, I'm sure that the people who were

	Page 1744		Page 1740
1	study added to the analysis of your pharmacokinetic	1	created this model, right?
2	formula?	2	A. They did. That's correct.
3	MR. NARESH: And I'll again object to	3	Q. Okay. And they submitted the model to
4	this. Again, I'll repeat that to the extent you	4	whom at Syngenta?
5	would like to show Dr. Botham a copy of the study,	5	A. it wasn't submitted. It was – it was
6	then I think that you should show it to him. Asking	6	a cocreated, if you wish. I mean, they did most
7	him to do it as a memory test is unfair to the	7	of the work, but there were regular discussions with
8	witness.	8	Dr. Stevens and Dr. Travis as the model was being
9	BY MR. TILLERY:	9	built.
10	Q. Can you answer my question, sir?	10	Q. And when did they build the model?
11	A. No. I mean, I really can't answer the	11	A. Over the previous two or three years.
12	level of detail about any of these papers. We, you	12	It was quite a long-term endeavor – endeavor.
13	know we've got ourselves stuck at number 2 of	13	Q. And did they do it before they treated
14	14 here.	14	or dosed the monkeys?
15	Q. All right. So what's number 3?	15	A. Yes. Most of this work was done after
16	A. Davis, et al., which is in the dog.	16	the the treatment of the monkeys but was done in
17	Q. Okay. And when was It done?	17	parallel with the analysis of the – and development
18	A. 1977.	18	of the mathematical models in the monkeys.
19	Q. 1977 study. Was there any analysis of	19	Q. Back to the Stevens study that you have
20	the brain of the dog?	20	In front of you, the cartilage like the lungs,
21	A. This one says that it was – this was a	21	brain, kidneys was not specifically analyzed for any
22	plasma measurement only, and it was intravenous and	22	particular radio-labeled paraquat dose, correct?
23	oral gavage.	23	A. That's correct. We added the cartilage
24	Q. Okay. So – okay. What's the next	24	as another component of the mathematical model.
	Page 1745		Page 174
1			
1	one?	1	<ul> <li>Q. You cannot tell us what specific</li> </ul>
2	one? A. Dey, et al., D-e-y, et al., 1990 In the	1 2	Q. You cannot tell us what specific concentration was in the cartilage from direct
		l .	•
2	A. Dey, et al., D-e-y, et al., 1990 In the	2	concentration was in the cartilage from direct
2	A. Dey, et al., D-e-y, et al., 1990 in the rat, subcutaneous. Blood, urine, and seven tissues	2	concentration was in the cartilage from direct measurement, can you?
2 3 4	A. Dey, et al., D-e-y, et al., 1990 in the rat, subcutaneous. Blood, urine, and seven tissues measured.	2 3 4	concentration was in the cartilage from direct measurement, can you?  A. No. In the same way that I answered
2 3 4 5	A. Dey, et al., D-e-y, et al., 1990 in the rat, subcutaneous. Blood, urine, and seven tissues measured.  Q. Okay. And for that particular study,	2 3 4 5	concentration was in the cartilage from direct measurement, can you?  A. No. In the same way that I answered that question for other tissues, it's the same for
2 3 4 5 6	A. Dey, et al., D-e-y, et al., 1990 in the rat, subcutaneous. Blood, urine, and seven tissues measured.  Q. Okay. And for that particular study, do you know how it contributed to the creation of	2 3 4 5 6	concentration was in the cartilage from direct measurement, can you?  A. No. In the same way that I answered that question for other tissues, it's the same for cartilage, yes.
2 3 4 5 6 7	A. Dey, et al., D-e-y, et al., 1990 in the rat, subcutaneous. Blood, urine, and seven tissues measured.  Q. Okay. And for that particular study, do you know how it contributed to the creation of your formula? Your mathematical formula?	2 3 4 5 6 7	concentration was in the cartilage from direct measurement, can you?  A. No. In the same way that I answered that question for other tissues, it's the same for cartilage, yes.  Q. It was blended as part of the carcass,
2 3 4 5 6 7 8	A. Dey, et al., D-e-y, et al., 1990 in the rat, subcutaneous. Blood, urine, and seven tissues measured.  Q. Okay. And for that particular study, do you know how it contributed to the creation of your formula? Your mathematical formula?  A. I'm afraid I can't answer that for any	2 3 4 5 6 7 8	concentration was in the cartilage from direct measurement, can you?  A. No. In the same way that I answered that question for other tissues, it's the same for cartilage, yes.  Q. It was blended as part of the carcass, right?
2 3 4 5 6 7 8 9	A. Dey, et al., D-e-y, et al., 1990 in the rat, subcutaneous. Blood, urine, and seven tissues measured.  Q. Okay. And for that particular study, do you know how it contributed to the creation of your formula? Your mathematical formula?  A. I'm afraid I can't answer that for any of these studies specifically with the exception of	2 3 4 5 6 7 8	concentration was in the cartilage from direct measurement, can you?  A. No. In the same way that I answered that question for other tissues, it's the same for cartilage, yes.  Q. It was blended as part of the carcass, right?  A. It was.
2 3 4 5 6 7 8 9	A. Dey, et al., D-e-y, et al., 1990 in the rat, subcutaneous. Blood, urine, and seven tissues measured.  Q. Okay. And for that particular study, do you know how it contributed to the creation of your formula? Your mathematical formula?  A. I'm afraid I can't answer that for any of these studies specifically with the exception of Breckenridge because that would require me to go	2 3 4 5 6 7 8 9	concentration was in the cartilage from direct measurement, can you?  A. No. In the same way that I answered that question for other tissues, it's the same for cartilage, yes.  Q. It was blended as part of the carcass, right?  A. It was.  Q. So without direct analysis of the
2 3 4 5 6 7 8 9 10	A. Dey, et al., D-e-y, et al., 1990 in the rat, subcutaneous. Blood, urine, and seven tissues measured.  Q. Okay. And for that particular study, do you know how it contributed to the creation of your formula? Your mathematical formula?  A. I'm afraid I can't answer that for any of these studies specifically with the exception of Breckenridge because that would require me to go into the detail of each paper. And even then, the	2 3 4 5 6 7 8 9 10	concentration was in the cartilage from direct measurement, can you?  A. No. In the same way that I answered that question for other tissues, it's the same for cartilage, yes.  Q. It was blended as part of the carcass, right?  A. It was.  Q. So without direct analysis of the cartilage, you cannot attribute any of the dose
2 3 4 5 6 7 8 9 10 11	A. Dey, et al., D-e-y, et al., 1990 in the rat, subcutaneous. Blood, urine, and seven tissues measured.  Q. Okay. And for that particular study, do you know how it contributed to the creation of your formula? Your mathematical formula?  A. I'm afraid I can't answer that for any of these studies specifically with the exception of Breckenridge because that would require me to go into the detail of each paper. And even then, the mathematical use of these and Is Is beyond my	2 3 4 5 6 7 8 9 10 11 12	concentration was in the cartilage from direct measurement, can you?  A. No. In the same way that I answered that question for other tissues, it's the same for cartilage, yes.  Q. It was blended as part of the carcass, right?  A. It was.  Q. So without direct analysis of the cartilage, you cannot attribute any of the dose specifically to the cartilage, correct?
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2 3 4 5 6 7 8 9 10 11 12 13 14 15	A. Dey, et al., D-e-y, et al., 1990 in the rat, subcutaneous. Blood, urine, and seven tissues measured.  Q. Okay. And for that particular study, do you know how it contributed to the creation of your formula? Your mathematical formula?  A. I'm afraid I can't answer that for any of these studies specifically with the exception of Breckenridge because that would require me to go into the detail of each paper. And even then, the mathematical use of these and — Is — is beyond my expertise. This — this was the expertise of the mathematical models.  Q. So who was the modeler who used these	2 3 4 5 6 7 8 9 10 11 12 13 14 15	concentration was in the cartilage from direct measurement, can you?  A. No. In the same way that I answered that question for other tissues, it's the same for cartilage, yes.  Q. It was blended as part of the carcass, right?  A. It was.  Q. So without direct analysis of the cartilage, you cannot attribute any of the dose specifically to the cartilage, correct?  A. No, we can't. But, again, if I may, just going back to Bartlett, that confirmed that there was — and, in fact, there are other
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	A. Dey, et al., D-e-y, et al., 1990 in the rat, subcutaneous. Blood, urine, and seven tissues measured.  Q. Okay. And for that particular study, do you know how it contributed to the creation of your formula? Your mathematical formula?  A. I'm afraid I can't answer that for any of these studies specifically with the exception of Breckenridge because that would require me to go into the detail of each paper. And even then, the mathematical use of these and — is — is beyond my expertise. This — this was the expertise of the mathematical models.  Q. So who was the modeler who used these studies and actually created the formula? Who was the person who did that?  A. So these — this was predominantly the	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	concentration was in the cartilage from direct measurement, can you?  A. No. In the same way that I answered that question for other tissues, it's the same for cartilage, yes.  Q. It was blended as part of the carcass, right?  A. It was.  Q. So without direct analysis of the cartilage, you cannot attribute any of the dose specifically to the cartilage, correct?  A. No, we can't. But, again, if I may, just going back to Bartlett, that confirmed that there was — and, in fact, there are other publications too, not just Bartlett, which confirm that paraquat does have a tendency to — to bind to cartilage. And there are good chemical reasons
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	A. Dey, et al., D-e-y, et al., 1990 in the rat, subcutaneous. Blood, urine, and seven tissues measured.  Q. Okay. And for that particular study, do you know how it contributed to the creation of your formula? Your mathematical formula?  A. I'm afraid I can't answer that for any of these studies specifically with the exception of Breckenridge because that would require me to go into the detail of each paper. And even then, the mathematical use of these and — Is — is beyond my expertise. This — this was the expertise of the mathematical models.  Q. So who was the modeler who used these studies and actually created the formula? Who was the person who did that?  A. So these — this was predominantly the Ramboli experts. So Dr. Campbell, Dr. Clewell,	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	concentration was in the cartilage from direct measurement, can you?  A. No. In the same way that I answered that question for other tissues, it's the same for cartilage, yes.  Q. It was blended as part of the carcass, right?  A. It was.  Q. So without direct analysis of the cartilage, you cannot attribute any of the dose specifically to the cartilage, correct?  A. No, we can't. But, again, if I may, just going back to Bartlett, that confirmed that there was — and, in fact, there are other publications too, not just Bartlett, which confirm that paraquat does have a tendency to — to bind to cartilage. And there are good chemical reasons why physical chemical reasons why that would be
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	A. Dey, et al., D-e-y, et al., 1990 in the rat, subcutaneous. Blood, urine, and seven tissues measured.  Q. Okay. And for that particular study, do you know how it contributed to the creation of your formula? Your mathematical formula?  A. I'm afraid I can't answer that for any of these studies specifically with the exception of Breckenridge because that would require me to go into the detail of each paper. And even then, the mathematical use of these and Is is beyond my expertise. This this was the expertise of the mathematical models.  Q. So who was the modeler who used these studies and actually created the formula? Who was the person who did that?  A. So these this was predominantly the Ramboll experts. So Dr. Campbell, Dr. Clewell, Dr. Anderson. And but they were supported in this by particularly Dr. Stevens and Dr. Travis.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	concentration was in the cartilage from direct measurement, can you?  A. No. In the same way that I answered that question for other tissues, it's the same for cartilage, yes.  Q. It was blended as part of the carcass, right?  A. It was.  Q. So without direct analysis of the cartilage, you cannot attribute any of the dose specifically to the cartilage, correct?  A. No, we can't. But, again, if I may, just going back to Bartlett, that confirmed that there was — and, in fact, there are other publications too, not just Bartlett, which confirm that paraquat does have a tendency to — to bind to cartilage. And there are good chemical reasons why physical chemical reasons why that would be the case.  Q. Move to strike your answer as
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A. Dey, et al., D-e-y, et al., 1990 in the rat, subcutaneous. Blood, urine, and seven tissues measured.  Q. Okay. And for that particular study, do you know how it contributed to the creation of your formula? Your mathematical formula?  A. I'm afraid I can't answer that for any of these studies specifically with the exception of Breckenridge because that would require me to go into the detail of each paper. And even then, the mathematical use of these and Is Is beyond my expertise. This this was the expertise of the mathematical models.  Q. So who was the modeler who used these studies and actually created the formula? Who was the person who did that?  A. So these this was predominantly the Ramboll experts. So Dr. Campbell, Dr. Clewell, Dr. Anderson. And but they were supported in	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	concentration was in the cartilage from direct measurement, can you?  A. No. In the same way that I answered that question for other tissues, it's the same for cartilage, yes.  Q. It was blended as part of the carcass, right?  A. It was.  Q. So without direct analysis of the cartilage, you cannot attribute any of the dose specifically to the cartilage, correct?  A. No, we can't. But, again, if I may, just going back to Bartlett, that confirmed that there was — and, in fact, there are other publications too, not just Bartlett, which confirm that paraquat does have a tendency to — to bind to cartilage. And there are good chemical reasons why — physical chemical reasons why that would be the case.

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cartilage in the Stevens study, you could not	1 "Analysis of Brain Samples from Paraquat-expose
attribute any of the specific dose to the cartilage,	2 Squirrel Monkeys for Residues of Paraquat"?
3 correct?	3 Do you remember that?
4 A. Yes. As we said is the case for other	4 A. Is this the study that is linked to
5 tlssues.	5 Dr Dr. DiMonte's studies?
6 Q. Would it be fair to say that in the	6 Q. It is, in fact. And I think you
7 14 studies that you reference that these individuals	7 actually answered questions about that particular
8 used as a basis for this mathematical formula of	8 study. And just for reference, we're going to com
9 primates, none of them involve monkey data?	9 back to it, but we'll pull up Plaintiffs' Deposition
10 A. No, they don't. And that's why you	10 Exhibit Number 156, Yes.
build mathematical models because in in theory,	11 (Exhibit 156 was identified
you would actually want to avoid doing nonhuman	12 for the record.)
primate studies if you can but - In order to be	13 BY MR. TILLERY:
14 able to build a model for – for estimating what	14 Q. Do you have the study in front of you
happens in man. But we did actually go as far as	15 now on eDepoze, Dr. Botham?
doing nonhuman primates studies in order to be mo	
certain about our model.	17 can now see it.
18 Q. I move to strike your answer as	18 Q. All right. Would you familiarize
· · · · · · · · · · · · · · · · · · ·	19 yourself with that study for a moment before I ask
	20 questions.
Would it be fair to say that in the	21 A. Okay. I've just taken a look again at
14 studies that you reference in the study that	
provided the mathematical formula for your – your	
23 Stevens study, none of those 14 studies used any	23 refamiliarization.
24 monkey data?	Q. Now, it is entitled this exhibit is
Page 174	49 Page 175
1 A. That's true, yes. It was mouse, rat,	1 entitled, "Analysis of Brain Samples from
2 and dog only.	2 Paraquat-exposed Squirrel Monkeys for Residues of the square of the
3 Q. They were only based on rodents and	3 Paraquat, Final Report," right?
4 dogs, correct?	4 A. Correct.
5 A. That's correct.	5 Q. And it is dated at least the study
6 Q. All right.	6 completion date is January 21, 2011, right?
7 MR. TILLERY: Okay. Let's take a	7 A. Yeah. The experimental termination
8 few-minute break. Okay?	8 date was October 29th, 2010.
9 THE VIDEOGRAPHER: We're going off the	9 Q. Okay. And the author is
record. The time is 6:24. This ends Media Unit	10 Dr. William Ray?
11 Number 2.	11 A. That's right.
12 (Recess taken.)	12 Q. Do you know him?
13 THE VIDEOGRAPHER: We're going back o	on 13 A. Yes, I do.
the record. The time is 7:17. This begins Media	14 Q. And what is his role at Syngenta?
15 Unit Number 3.	15 A. He is or was a – an analytical chemist
16 BY MR. TILLERY:	16 in the Greensboro campus of Syngenta.
17 Q. Dr. Botham, before we took a break, you	
18 told me that the model used in Stevens was create	19 A. No. It was largely because we offered
-	
19 from rodent and dog data, correct?	20 to – to do the analysis of the levels of paraguat
from rodent and dog data, correct?  A. That's correct.	20 to – to do the analysis of the levels of paraquat 21 In the brains of these monkeys to Professor DiMont
from rodent and dog data, correct?  A. That's correct.  Q. Do you recall that we discussed in an	21 In the brains of these monkeys to Professor DIMont
from rodent and dog data, correct?  A. That's correct.	

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1	administered paraquat, right?	1	that would have made their value more limited.
2	A. Yes, that's right.	2	Q. Did you give this information to the
3	Q. And those were the ones that came from	3	Columbus, Ohio, scientists who calculated this
4	Dr. DiMonte, right?	4	formula for them?
5	A. That's right.	5	A. I don't know whether we did or not. I
6	Q. And Syngenta found paraquat residue in	6	can't answer that. I'm sorry.
7	12 out of 15 samples, didn't it?	7	Q. Who was – who was interacting with
8	A. Yes, that's correct.	8	them? Was that Dr. Travis or Dr. Cook? Do you
9	Q. And if you want to verify that, that's	9	know?
10	Table 1, page 12, if you want to look at it. Do you	10	A. It was Dr. Travis and Dr. Stevens.
11	remember this? But you can go ahead. I'll give you	11	Q. Dr. Stevens and Dr. Travis?
12		12	A. Yes.
	time to verify that.	13	Q. And they were located where when the
13	A. Yeah. I was just agreeing that's what		_
14	the summary said. I'll have a look at 10 and 12	14	did this?
15	again as well.	15	A. They were both in Jealott's Hill.
16	Q. Go ahead.	16	Q. So they were both in England when the
17	A. Yeah.	17	did this. And you don't know if they sent the
18	Q. Page 12, Table 1.	18	DiMonte's information to them, do you?
19	A. Yes. Table 1. But yes, that's	19	A. No, I don't know whether they did.
20	right. Three were below the level of detection.	20	<ul><li>Q. And you don't know, when they</li></ul>
21	<ul> <li>Q. Three below the level of detection.</li> </ul>	21	calculated their formula, if they had nonhuman
22	Twelve out of 15, residue of paraquat found within	22	primate study data that was in the hands of
23	the monkey's brains, correct?	23	Syngenta, right?
24	A. That's right.	24	A. I I honestly don't know whether this
	Page 1753		Page 175
1	Q. And you didn't use any of this data	1	was taken into consideration at all. I mean, that
2	when you created the model in the Stevens study, did		
_	when you created the model in the stevens study, aid	2	is something we could check.
3	you?	2	Is something we could check.  Q. And you knew what the dosing was for
	•	1	Q. And you knew what the dosing was for
3 4	you?  A. I don't believe we did.	3	Q. And you knew what the dosing was for the animals that you had received from Dr. DIMonte,
3	you?  A. I don't believe we did.  Q. Okay. So Syngenta measured paraquat in	3 4	Q. And you knew what the dosing was for
3 4 5 6	you?  A. I don't believe we did.  Q. Okay. So Syngenta measured paraquat in the brains of monkeys, knew 12 out of 15 had	3 4 5	Q. And you knew what the dosing was for the animals that you had received from Dr. DIMonte, didn't you?
3 4 5	you?  A. I don't believe we did.  Q. Okay. So Syngenta measured paraquat in the brains of monkeys, knew 12 out of 15 had paraquat residue in the exact same type of nonhuman	3 4 5 6	<ul> <li>Q. And you knew what the dosing was for the animals that you had received from Dr. DiMonte, didn't you?</li> <li>A. Yeah. We knew how much they had</li> </ul>
3 4 5 6 7	you?  A. I don't believe we did.  Q. Okay. So Syngenta measured paraquat in the brains of monkeys, knew 12 out of 15 had paraquat residue in the exact same type of nonhuman primate species that you used in your Stevens	3 4 5 6 7	<ul> <li>Q. And you knew what the dosing was for the animals that you had received from Dr. DiMonte, didn't you?</li> <li>A. Yeah. We knew how much they had received as an external dose. That's true.</li> </ul>
3 4 5 6 7 8	you?  A. I don't believe we did.  Q. Okay. So Syngenta measured paraquat in the brains of monkeys, knew 12 out of 15 had paraquat residue in the exact same type of nonhuman primate species that you used in your Stevens studies, but you chose to use rodent and dog	3 4 5 6 7 8	<ul> <li>Q. And you knew what the dosing was for the animals that you had received from Dr. DiMonte, didn't you?</li> <li>A. Yeah. We knew how much they had received as an external dose. That's true.</li> <li>Q. And do you know why that wasn't provided to the U.S. EPA?</li> </ul>
3 4 5 6 7 8 9	you?  A. I don't believe we did.  Q. Okay. So Syngenta measured paraquat in the brains of monkeys, knew 12 out of 15 had paraquat residue in the exact same type of nonhuman primate species that you used in your Stevens studies, but you chose to use rodent and dog analyses from older studies instead, right?	3 4 5 6 7 8 9	Q. And you knew what the dosing was for the animals that you had received from Dr. DiMonte, didn't you?  A. Yeah. We knew how much they had received as an external dose. That's true.  Q. And do you know why that wasn't provided to the U.S. EPA?  MR. NARESH: Objection. Assumes facts
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	Page 1756		Page 1758
1	_		-
1 2	you filed the report from Ray?	1	THE WITNESS: I don't think it was
3	A. I think that we've – If you'll	2	nebulous. I think we were doing making our best
	remember, we've been through this before. And what	3	professional judgment between the two committees on
4	I've indicated is that I was Involved in what we	4	what constituted potential referable findings.
5	call the "approach committee" within the product	5	BY MR. TILLERY:
6	safety function, which discusses potential	6	Q. Did anybody at Syngenta ever indicate
7	referability. The final decision is with the	7	they thought this should be turned over? This
8	United States-based PRF committee, which I'm not a	8	Information?
9	member of. They made the final decision.	9	MR. NARESH: Objection. Asked and
10	Q. Blame the Yanks.	10	answered. Foundation.
11	A. No. I'm not blaming anybody.	11	THE WITNESS: I don't recall that
12	Q. No.	12	anybody was making a strong suggestion to that
13	A. I'm describing what happened.	13	effect.
14	Q. All right. So	14	BY MR. TILLERY:
15	MR. NARESH: I'll object to that as -	15	<ul> <li>Q. Do you remember ever talking to the</li> </ul>
16	BY MR. TILLERY:	16	people who developed this – the Americans who
17	Q. So – so let's do It this way. Okay?	17	developed this mathematical formula you used in the
18	Did you recommend — I — I forget the	18	Stevens study? Did you ever interact with them
19	niceties of the committee structures that you have	19	yourself?
20	at Syngenta.	20	A. No. I have done no personal
21	Did you recommend that the dosing	21	communication with this team on the development of
22	Information be turned over to the EPA or not?	22	this – this model. I've talked to those guys about
23	MR. NARESH: I'll object to the	23	other issues to do with modeling but not
24	attorney commentary at the beginning of the	24	specifically the work they dld for us.
	Page 1757		Page 1759
1	_	1	•
1 2	sentence.	1 2	Q. Do you know if they were even told
	_	1	Q. Do you know if they were even told about the DiMonte monkey data?
2	sentence.  THE WITNESS: What the approach committee said is that it was our belief that these	2	Q. Do you know if they were even told
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	THE WITNESS: What the approach committee said is that it was our belief that these kind of – this kind of information, not just in the nonhuman primate but actually in rodents too, kinetic information, we thought probably wasn't referable. And so that was the – that was part of our deliberation, but the final decision on that was taken by the appropriate committee.  BY MR. TILLERY:  Q. So you made the recommendation not to turn it over, right?  A. We – we believe from our understanding of the criteria that that was something that should – that could be considered.  Q. Would you agree with me that there was a dispute about whether it should be turned over?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Q. Do you know if they were even told about the DiMonte monkey data?  A. No. I don't know whether they were or not.  Q. Do you know whether that would have been valuable to them or not?  A. I think I said earlier that I feel that, from a technical perspective, it would have limited value. It was a single observation in time. And we weren't even, I believe, absolutely sure how long after dosing that single measurement was — was taken.  Now, whether my colleagues discussed with the Ramboli consultants, we would have to take offline to determine.  Q. So you don't know whether or not they were given the opportunity to decide the relevance
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	THE WITNESS: What the approach committee said is that it was our belief that these kind of – this kind of information, not just in the nonhuman primate but actually in rodents too, kinetic information, we thought probably wasn't referable. And so that was the – that was part of our deliberation, but the final decision on that was taken by the appropriate committee.  BY MR. TILLERY:  Q. So you made the recommendation not to turn it over, right?  A. We – we believe from our understanding of the criteria that that was something that should – that could be considered.  Q. Would you agree with me that there was a dispute about whether it should be turned over?  A. I wouldn't describe a dispute that I was made aware of.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	Q. Do you know if they were even told about the DiMonte monkey data?  A. No. I don't know whether they were or not.  Q. Do you know whether that would have been valuable to them or not?  A. I think I said earlier that I feel that, from a technical perspective, it would have limited value. It was a single observation in time. And we weren't even, I believe, absolutely sure how long after dosing that single measurement was — was taken.  Now, whether my colleagues discussed with the Ramboli consultants, we would have to take offline to determine.  Q. So you don't know whether or not they were given the opportunity to decide the relevance of the DiMonte monkey data that you had in your possession, right?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	THE WITNESS: What the approach committee sald is that it was our belief that these kind of – this kind of information, not just in the nonhuman primate but actually in rodents too, kinetic information, we thought probably wasn't referable. And so that was the – that was part of our deliberation, but the final decision on that was taken by the appropriate committee.  BY MR. TILLERY:  Q. So you made the recommendation not to turn it over, right?  A. We – we believe from our understanding of the criteria that that was something that should – that could be considered.  Q. Would you agree with me that there was a dispute about whether it should be turned over?  A. I wouldn't describe a dispute that I was made aware of.  Q. Would you agree with me that there was	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Q. Do you know if they were even told about the DiMonte monkey data?  A. No.   don't know whether they were or not.  Q. Do you know whether that would have been valuable to them or not?  A.   think   said earlier that   feel that, from a technical perspective, it would have limited value. It was a single observation in time. And we weren't even,   believe, absolutely sure how long after dosing that single measurement was — was taken.  Now, whether my colleagues discussed with the Ramboli consultants, we would have to take offline to determine.  Q. So you don't know whether or not they were given the opportunity to decide the relevance of the DiMonte monkey data that you had in your possession, right?  A. No.   don't   don't know the
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	THE WITNESS: What the approach committee sald is that it was our belief that these kind of – this kind of information, not just in the nonhuman primate but actually in rodents too, kinetic information, we thought probably wasn't referable. And so that was the – that was part of our deliberation, but the final decision on that was taken by the appropriate committee.  BY MR. TILLERY:  Q. So you made the recommendation not to turn it over, right?  A. We – we believe from our understanding of the criteria that that was something that should – that could be considered.  Q. Would you agree with me that there was a dispute about whether it should be turned over?  A. I wouldn't describe a dispute that I was made aware of.  Q. Would you agree with me that there was certainly a nebulous area at least in the minds of	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Q. Do you know if they were even told about the DiMonte monkey data?  A. No.   don't know whether they were or not.  Q. Do you know whether that would have been valuable to them or not?  A.   think   said earlier that   feel that, from a technical perspective, it would have limited value. It was a single observation in time. And we weren't even,   believe, absolutely sure how long after dosing that single measurement was — was taken.  Now, whether my colleagues discussed with the Ramboli consultants, we would have to take offline to determine.  Q. So you don't know whether or not they were given the opportunity to decide the relevance of the DiMonte monkey data that you had in your possession, right?  A. No.   don't   don't know the definitive answer to that question.

	Page 1760		Page 1762
1	serves me correctly, it was 2009.	1	which we managed the the records of the of the
2	Q. Let's put up exhibit – what's the next	2	meeting.
3	exhibit number? 156. 157. Excuse me.	3	Q. And give you advice on how to keep
4	(Exhibit 157 was Identified	4	information from being disclosed in litigation,
5	for the record.)	5	right?
6	BY MR. TILLERY:	6	A. Yeah. He was able to give advice on
7	Q. I'm going to show you now what's been	7	what might be able to attract privilege if that was
8	marked as Plaintiffs' Deposition Exhibit 157.	8	required, but that had no impact on the scope of the
9	Okay. I hope you can read this.	9	discussions.
10	A. Yes. Just about. Excuse me. Yes.	10	Q. Okay. So one of the speakers was guest
11	Just about.	11	speaker Joan Abbott, right?
12	Q. If you'd familiarize yourself with the	12	A. Yes.
13	document, and then I'll ask you a couple questions.	13	Q. And Joan Abbott at that session talked
14	A. Okay. Yes. So these are minutes of a	14	to you about the blood-brain barrier, didn't she?
15	health science meeting in 2009.	15	A. Yes, she did.
16	Q. Okay. And the guest speakers were	16	Q. And she made a presentation that you
17	Joan Abbott, right?	17	and I have discussed in earlier portions of this
18	A. Yes.	18	deposition, correct?
16 19	Q. And then another guest speaker was	19	A. That's correct.
20	Jeff Wolff?	20	Q. All right. And you also had under the
21	A. Yes. This is Jeff Wolff, the lawyer.	21	health science team Lewis Smith, right?
22	Q. So the lawyer was there. And this is	22	A. Yes.
	the Jeff Wolff from Houston, Texas?	23	Q. Charles Breckenridge?
23 24	A. By which you mean Jeff Wolff from	24	A. Yes.
	Page 1761		Page 1763
1	Fulbright & Jaworski.	1	Q. And who is M.F. Wilks?
2	Q. Yes.	2	A. Martin Wilks. He was medical
3	A. Yes.	3	medically qualified product products adviser fo
4	Q. And then we have expert advisers on	4	Syngenta.
	_		
5	epidemiology, right?	5	Q. And then Philip Botham.
5 6	epidemiology, right?  A. Yes.	5 6	Q. And then Philip Botham, A. Me.
			A. Me. <b>Q. That's you.</b>
6	A. Yes.	6	A. Me.
6 7	A. Yes. Q. And that's Jack Mandel, and who are the	6 7	A. Me. <b>Q. That's you.</b>
6 7 8 9	A. Yes.     Q. And that's Jack Mandel, and who are the other people?	6 7 8	A. Me. Q. That's you. And then Nick Sturgess, right?
6 7 8 9	A. Yes.  Q. And that's Jack Mandel, and who are the other people?  A. These are all academic epidemiologists.	6 7 8 9	A. Me. Q. That's you. And then Nick Sturgess, right? A. Yes.
6 7 8 9	A. Yes. Q. And that's Jack Mandel, and who are the other people? A. These are all academic epidemiologists. So I think certainly two of them are based in the	6 7 8 9 10	<ul> <li>A. Me.</li> <li>Q. That's you.</li> <li>And then Nick Sturgess, right?</li> <li>A. Yes.</li> <li>Q. And then Kim Travis, right?</li> </ul>
6 7 8 9 10	A. Yes. Q. And that's Jack Mandel, and who are the other people? A. These are all academic epidemiologists. So I think certainly two of them are based in the United States. I can't remember exactly their	6 7 8 9 10	<ul> <li>A. Me.</li> <li>Q. That's you.</li> <li>And then Nick Sturgess, right?</li> <li>A. Yes.</li> <li>Q. And then Kim Travis, right?</li> <li>A. Yes.</li> </ul>
6 7 8 9 10 11	A. Yes. Q. And that's Jack Mandel, and who are the other people? A. These are all academic epidemiologists. So I think certainly two of them are based in the United States. I can't remember exactly their affiliation.	6 7 8 9 10 11 12	<ul> <li>A. Me.</li> <li>Q. That's you.</li> <li>And then Nick Sturgess, right?</li> <li>A. Yes.</li> <li>Q. And then Kim Travis, right?</li> <li>A. Yes.</li> <li>Q. And then Andy Cook?</li> </ul>
6 7 8 9 10 11 12	A. Yes. Q. And that's Jack Mandel, and who are the other people? A. These are all academic epidemiologists. So I think certainly two of them are based in the United States. I can't remember exactly their affiliation. Q. And what was the purpose of this	6 7 8 9 10 11 12 13	<ul> <li>A. Me.</li> <li>Q. That's you.</li> <li>And then Nick Sturgess, right?</li> <li>A. Yes.</li> <li>Q. And then Kim Travis, right?</li> <li>A. Yes.</li> <li>Q. And then Andy Cook?</li> <li>A. Yes.</li> </ul>
6 7 8 9 10 11 12 13	A. Yes. Q. And that's Jack Mandel, and who are the other people? A. These are all academic epidemiologists. So I think certainly two of them are based in the United States. I can't remember exactly their affiliation. Q. And what was the purpose of this meeting?	6 7 8 9 10 11 12 13 14	<ul> <li>A. Me.</li> <li>Q. That's you.</li> <li>And then Nick Sturgess, right?</li> <li>A. Yes.</li> <li>Q. And then Kim Travis, right?</li> <li>A. Yes.</li> <li>Q. And then Andy Cook?</li> <li>A. Yes.</li> <li>Q. Janice McFarland?</li> </ul>
6 7 8 9 10 11 12 13 14	A. Yes. Q. And that's Jack Mandel, and who are the other people? A. These are all academic epidemiologists. So I think certainly two of them are based in the United States. I can't remember exactly their affiliation. Q. And what was the purpose of this meeting? A. They – the whole meeting was one	6 7 8 9 10 11 12 13 14 15	<ul> <li>A. Me.</li> <li>Q. That's you.</li> <li>And then Nick Sturgess, right?</li> <li>A. Yes.</li> <li>Q. And then Kim Travis, right?</li> <li>A. Yes.</li> <li>Q. And then Andy Cook?</li> <li>A. Yes.</li> <li>Q. Janice McFarland?</li> <li>A. Yes.</li> </ul>
6 7 8 9 10 11 12 13 14 15 16	A. Yes. Q. And that's Jack Mandel, and who are the other people? A. These are all academic epidemiologists. So I think certainly two of them are based in the United States. I can't remember exactly their affiliation. Q. And what was the purpose of this meeting? A. They – the whole meeting was one one of our regular strategic meetings of the health	6 7 8 9 10 11 12 13 14 15 16	<ul> <li>A. Me.</li> <li>Q. That's you.</li> <li>And then Nick Sturgess, right?</li> <li>A. Yes.</li> <li>Q. And then Kim Travis, right?</li> <li>A. Yes.</li> <li>Q. And then Andy Cook?</li> <li>A. Yes.</li> <li>Q. Janice McFarland?</li> <li>A. Yes.</li> <li>Q. And she was physically present at this</li> </ul>
6 7 8 9 10 11 12 13 14 15 16	A. Yes. Q. And that's Jack Mandel, and who are the other people? A. These are all academic epidemiologists. So I think certainly two of them are based in the United States. I can't remember exactly their affiliation. Q. And what was the purpose of this meeting? A. They – the whole meeting was one — one of our regular strategic meetings of the health science team where we were reviewing the state of	6 7 8 9 10 11 12 13 14 15 16 17	A. Me. Q. That's you. And then Nick Sturgess, right? A. Yes. Q. And then Kim Travis, right? A. Yes. Q. And then Andy Cook? A. Yes. Q. Janice McFarland? A. Yes. Q. And she was physically present at this meeting, right? A. Yes, she was.
6 7 8 9 10 11 12 13 14 15 16 17	A. Yes. Q. And that's Jack Mandel, and who are the other people? A. These are all academic epidemiologists. So I think certainly two of them are based in the United States. I can't remember exactly their affiliation. Q. And what was the purpose of this meeting? A. They – the whole meeting was one — one of our regular strategic meetings of the health science team where we were reviewing the state of the science and our own research program.	6 7 8 9 10 11 12 13 14 15 16 17	A. Me. Q. That's you. And then Nick Sturgess, right? A. Yes. Q. And then Kim Travis, right? A. Yes. Q. And then Andy Cook? A. Yes. Q. Janice McFarland? A. Yes. Q. And she was physically present at this meeting, right? A. Yes, she was.
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	A. Yes. Q. And that's Jack Mandel, and who are the other people? A. These are all academic epidemiologists. So I think certainly two of them are based in the United States. I can't remember exactly their affiliation. Q. And what was the purpose of this meeting? A. They – the whole meeting was one — one of our regular strategic meetings of the health science team where we were reviewing the state of the science and our own research program. Q. And – okay. And what's – what was	6 7 8 9 10 11 12 13 14 15 16 17 18	A. Me. Q. That's you. And then Nick Sturgess, right? A. Yes. Q. And then Kim Travis, right? A. Yes. Q. And then Andy Cook? A. Yes. Q. Janice McFarland? A. Yes. Q. And she was physically present at this meeting, right? A. Yes, she was. Q. And she traveled from America to come
6 7 8 9 10 11 12 13 14 15 16 17 18	A. Yes.  Q. And that's Jack Mandel, and who are the other people?  A. These are all academic epidemiologists.  So I think certainly two of them are based in the United States. I can't remember exactly their affiliation.  Q. And what was the purpose of this meeting?  A. They – the whole meeting was one — one of our regular strategic meetings of the health science team where we were reviewing the state of the science and our own research program.  Q. And – okay. And what's – what was the reason for having a presenter being an outside	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	A. Me. Q. That's you. And then Nick Sturgess, right? A. Yes. Q. And then Kim Travis, right? A. Yes. Q. And then Andy Cook? A. Yes. Q. Janice McFarland? A. Yes. Q. And she was physically present at this meeting, right? A. Yes, she was. Q. And she traveled from America to come to this meeting, right?
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A. Yes.  Q. And that's Jack Mandel, and who are the other people?  A. These are all academic epidemiologists.  So I think certainly two of them are based in the United States. I can't remember exactly their affiliation.  Q. And what was the purpose of this meeting?  A. They – the whole meeting was one — one of our regular strategic meetings of the health science team where we were reviewing the state of the science and our own research program.  Q. And – okay. And what's – what was the reason for having a presenter being an outside lawyer in a health science team?	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A. Me. Q. That's you. And then Nick Sturgess, right? A. Yes. Q. And then Kim Travis, right? A. Yes. Q. And then Andy Cook? A. Yes. Q. Janice McFarland? A. Yes. Q. And she was physically present at this meeting, right? A. Yes, she was. Q. And she traveled from America to come to this meeting, right? A. She did.

	Page 1764		Page 1766
1	A. Kersten Mewes or Mewes, he was the	1	Do you see that?
2	regulatory manager for herbicides including	2	A. Yes, I do.
3	paraquat.	3	Q. What is – what is that reference?
4	<ul> <li>Q. And then under the extended health</li> </ul>	4	A. That – it references the presentation
5	science team, these are team members. You had	5	that we heard from Dr. DiMonte in that meeting.
6	listed health science team plus Colin Berry, right?	6	Q. And what does what do these notes
7	A. Yes.	7	say he said?
8	Q. Nicotera. That's the doctor that we	8	A. I think, as we've discussed before, he
9	talked about yesterday?	9	was telling us the results that he got at that point
10	A. Yes.	10	from the dosing of monkeys both with MPTP and with
11	Q. He is a scientist in Germany, right?	11	paraquat and looking at potential neurotoxicity but
12	A. That's right.	12	also looking at the - or discussing with us the -
13	Q. And then there's Dr. Dino DiMonte,	13	the necessity for not only looking at the pathology
14	right?	14	but also understanding the kinetics.
15	A. That's right.	15	Q. And – and the comment, first bullet
16	Q. And then who's C. Campbell?	16	under his name, would you read that into the record
17	A. C. Campbell is Dr. Clive Campbell.	17	A. "In mice"? That first bullet point?
18	He's the chief medical officer for Syngenta.	18	Yes?
19	Q. And then J. Tomenson, right?	19	Q. Yes, sir,
20	A. Yes.	20	A. "In mice paraquat exposure exposures
21	Q. And then there's a Syngenta legal team.	21	
22	You have Alan Nadel; Jeff Wolff,	22	show 25 percent reduction in dopaminergic neurons
23		23	and upregulation of alpha-synuclein. It is believed
24	Fulbright & Jaworski. J. Sullivan is another		the upregulation is a response to the insult and is
44	In-house counsel for Syngenta, right?	24	not necessarily associated with the dying neurons."
	Page 1765		Page 1767
1	A. He is or was, yes.	1	Q. Okay. And then it shows the results
2	<ul> <li>Q. You had dial-in participants Kim,</li> </ul>	2	from the monkey studies, and what's the first bullet
3	Minnema, Tisdel, Butts, and Campbell. Who were	3	point underneath there? Actually, the first four.
4	they?	4	Would you read those, please?
5	<ul> <li>A. Well, David Kim was a kinetic –</li> </ul>	5	A. Okay. So the results from the squirrel
6	kinetics expert at the time working for Syngenta in	6	monkey studies started off by saying the monkeys
7	Greensboro.	7	were 8 to 12 weeks old. There were four of them.
8	Dan Minnema. We've talked about him	8	MPTP was dosed at 1 – between 1 to 6 milligrams per
9	earlier. He's a toxicologist, still is with	9	kilogram, and it resulted in reduced tyrosine
10	Syngenta in Greensboro.	10	hydroxylase one week and one month after dosing.
11	Merrill Tisdel, also a toxicologist in	11	Paraquat was dosed subcutaneously at
12	the Greensboro team. He was mainly involved in	12	5 milligrams per kilogram, but the monkeys died
13	study monitoring of our contracted research.	13	because of lung toxicity after the second and third
14	Mark Butt, an incorrect spelling there,	14	dose.
	is the pathologist that we're talking about	15	At a lower dose, 2.5 milligrams per
15	yesterday on the Breckenridge and the Minnema	16	kilogram, our animals tolerated the dose with
		17	slx weekly injections at which time they were
16	papers.		sacrificed.
16 17	· ·	18	
16 17 18	And Clive Campbell Is listed twice	18 19	
16 17 18 19	And Clive Campbell Is listed twice there because he was I presume he was actually	19	There were no clinical signs of of
16 17 18 19 20	And Clive Campbell Is listed twice there because he was I presume he was actually dialing in and not present.	19 20	There were no clinical signs of of toxicity, and no difference in numbers of
16 17 18 19 20 21	And Clive Campbell Is listed twice there because he was I presume he was actually dialing in and not present.  Q. Okay. And then there's a section under	19 20 21	There were no clinical signs of of toxicity, and no difference in numbers of dopaminergic neurons was observed.
16 17 18 19 20 21	And Clive Campbell Is listed twice there because he was I presume he was actually dialing in and not present.  Q. Okay. And then there's a section under the minutes and actions, and you see the extended	19 20 21 22	There were no clinical signs of of toxicity, and no difference in numbers of dopaminergic neurons was observed.  Q. Okay. Now, let's look at if we can —
15 16 17 18 19 20 21 22 23 24	And Clive Campbell Is listed twice there because he was I presume he was actually dialing in and not present.  Q. Okay. And then there's a section under	19 20 21	There were no clinical signs of of toxicity, and no difference in numbers of dopaminergic neurons was observed.

	Page 1768		Page 1770
1	for the record.)	1	going to move to a different topic. And I'm going
2	BY MR. TILLERY:	2	to – we're going to have to call up a different
3	Q. Can you look at this exhibit, please?	3	person and have IT come in and pull up a document
4	Deposition Exhibit 158.	4	for me to ask my next round of questions. So we'll
5	A. Okay, Got it.	5	go off for just a few minutes here while he does
6	Q. And it's entitled "Nonhuman" "NHP"	6	that, and we'll come back on. Okay?
7	stands for nonhuman primate, right?	7	THE WITNESS: Okay.
8	A. That's right.	8	MR. TILLERY: Thank you.
9	Q. And "Brain analysis results - samples	9	THE VIDEOGRAPHER: We're going off the
10	from DiMonte studies," right?	10	record. The time is 7:43. This ends Media Unit
11	A. That's right.	11	Number 3.
12	Q. Are these the analyses done by Dr. Ray?	12	(Recess taken.)
13	A. That's correct, yes.	13	THE VIDEOGRAPHER: We're going back on
14	Q. And what do they show?	14	the record. The time is 7:52. This begins Media
15	A. So these were showing the levels of	15	Unit Number 4
16	paraguat that we found in the brain from those	16	BY MR. TILLERY:
17	samples.	17	Q. Dr. Botham, I'd like to move to a
18	Q. Okay. All right. Now, as far as you	18	different topic at this point and discuss the
19	know, the documents we've discussed, the three	19	databases and information that Syngenta has acquire
	documents that we've put on here - 158, 157, and	20	over the years from the ingestion of paraquat,
20	•	21	information related to that topic. Okay?
21	156 – were never given to the people who created	22	A. Okay.
22	your mathematical model used in the Stevens case; is	23	Q. You're aware of the fact that after
23	that correct?	23	
24	A. No. I think I said I don't know	24	paraquat was placed on the market in the
	Page 1769		Page 177
1	whether they were given to the - the people who	1	United States in the mid-1960s, people died from
2	created the model.	2	Ingestion of the chemical, correct?
3	Q. Okay. is there any indication in their	3	A. That's correct.
4	paper that they relied upon this information?	4	<ul> <li>Q. And that happened in the '60s in a way</li> </ul>
5	A. No. I don't think there's anything in	5	that generated autopsy cadaver-type findings that
6	the paper which says that.	6	were sent to the principal registrant of the
7	Q. Is there any reference in the	7	chemical at that time, and that was Chevron,
8	footnotes? Any part of their paper?	8	correct?
9	A. I'd need to go back and double-check	9	A. Yes. We discussed that very early in
10	that.	10	my deposition.
11	Q. Are you listed as an author?	11	Q. We did. We went over that at length,
12	A. lam.	12	and we talked about it. And we actually even looked
13	Q. And on both papers?	13	at some of the autopsy findings if you remember.
	A. lam.	14	Okay?
14	Q. Do you have any recollection of ever	15	A. We did.
	_	16	Q. All right. And that number from
15	referencing this information about Dr. DiMonte's	1	deaths – and the deaths include accidental
15 16	referencing this information about Dr. DiMonte's monkey studies?	17	
15 16 17	monkey studies?	17	
15 16 17 18	monkey studies?  A. I don't have a recollection of that.	1	
15 16 17 18	monkey studies?  A. I don't have a recollection of that.  Q. Do you recollect ever having seen this	18 19	exposures and – where people mistakenly drank som
15 16 17 18 19 20	monkey studies?  A. I don't have a recollection of that.  Q. Do you recollect ever having seen this information referenced in either of those two	18 19 20	exposures and — where people mistakenly drank som of this to, unfortunately, include those folks who had decided to end their lives and to drink the
15 16 17 18 19 20 21	monkey studies?  A. I don't have a recollection of that.  Q. Do you recollect ever having seen this information referenced in either of those two studies?	18 19 20 21	exposures and — where people mistakenly drank som of this to, unfortunately, include those folks who had decided to end their lives and to drink the stuff intentionally, correct?
14 15 16 17 18 19 20 21 22 23	monkey studies?  A. I don't have a recollection of that.  Q. Do you recollect ever having seen this information referenced in either of those two	18 19 20	exposures and — where people mistakenly drank som- of this to, unfortunately, include those folks who had decided to end their lives and to drink the

	Page 1772		Page 1774
1	either accidentally or intentionally ingested the	1	A. If you wish, that's fine.
2	chemical; isn't that right?	2	Q. Okay. Now, when did Syngenta or its
3	A. That's right, yes.	3	predecessors – and when I say "predecessors," I
4	Q. Yes. And that happened. We saw	4	principally mean ICI and Zeneca in this context.
5	documents where that happened not only in the	5	Okay?
6	United States, but it happened in England and	6	But any company related to Syngenta
7	Scotland and in other locations, didn't it?	7	which sold paraquat-containing products, when did
8	A. It did.	8	they start maintaining a database concerning
9	Q. As the as the use of the chemical	9	paraquat exposure incidents?
10	spread throughout the globe at that time in the	10	MR. NARESH: I'll object on scope and
11	'60s, '70s, '80s, 2000s before it was severely	11	foundation.
12	restricted after the beginning of this century, the	12	But go ahead and answer If you can.
13	21st century, there were poisoning deaths that	13	MR. TILLERY: And I'll give you a
14	occurred in dozens of countries, weren't there?	14	continuing objection on that.
15	A. There were.	15	MR. NARESH: Okay.
16	Q. And that information in the	16	THE WITNESS: Right. So I can't give
17	United States that was acquired and shared with	17	you a definitive answer as to when any kind of
18	regulators ended up in 1978 resulting in paraquat	18	systematic database or collection may have started.
19	being changed in status.	19	Back in in the time of ICI/Zeneca,
20	Do you remember that?	20	which is prior to 1993 that's when Zeneca was
21	A. Ido.	21	formed I do know that in more modern times, which
22	Q. And it became what's called a	22	I'm more famillar with, that a database was
23	"restricted-use pesticide," correct?	23	formalized around about 2003. But I'm pretty sure
24	A. That's right.	24	that, although I don't know the detail, there was a
	Page 1773		Page 1775
1	_		
2	Q. And that was due to the fact not that	1	collection of that kind of information in the years
3	it was neurotoxic or not neurotoxic or would do this	2	that preceded 2003.
	or do that. It had to do with the fact that if you		
	aithar intentionally as against tally decay it it	3	BY MR. TILLERY:
4	either intentionally or accidentally drank it, it	4	Q. And that's really what I want to focus
5	would poison you. A small bit could kill you,	4 5	Q. And that's really what I want to focus on first is the period of time preceding 2003. We
5 6	would poison you. A small bit could kill you, correct?	4 5 6	Q. And that's really what I want to focus on first is the period of time preceding 2003. We have, as I think you and I just very, very briefly
5 6 7	would poison you. A small bit could kill you, correct?  A. Yes, that's right.	4 5 6 7	Q. And that's really what I want to focus on first is the period of time preceding 2003. We have, as I think you and I just very, very briefly referenced, we've been provided this database. We
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5 6 7 8 9	would poison you. A small bit could kill you, correct?  A. Yes, that's right.  Q. All right. So the process by which injuries and deaths from this chemical have taken place have occurred now about 55 years, haven't	4 5 6 7 8 9	Q. And that's really what I want to focus on first is the period of time preceding 2003. We have, as I think you and I just very, very briefly referenced, we've been provided this database. We talked about this yesterday at the beginning of the deposition.  We've been supplied some information in
5 6 7 8 9 10	would poison you. A small bit could kill you, correct?  A. Yes, that's right.  Q. All right. So the process by which injuries and deaths from this chemical have taken place have occurred now about 55 years, haven't they?	4 5 6 7 8 9 10	Q. And that's really what I want to focus on first is the period of time preceding 2003. We have, as I think you and I just very, very briefly referenced, we've been provided this database. We talked about this yesterday at the beginning of the deposition.  We've been supplied some information in this database that tells us about some information
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5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	would poison you. A small bit could kill you, correct?  A. Yes, that's right.  Q. All right. So the process by which injuries and deaths from this chemical have taken place have occurred now about 55 years, haven't they?  A. Yes.  Q. And Syngenta has collected information.  And the purpose of this line of questions is to sort of explore how the information has been maintained, where it's been maintained, et cetera, and go through what we have been provided so that you can help us understand the information that's been supplied to us. Okay?  A. I'll do my best.	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Q. And that's really what I want to focus on first is the period of time preceding 2003. We have, as I think you and I just very, very briefly referenced, we've been provided this database. We talked about this yesterday at the beginning of the deposition.  We've been supplied some information in this database that tells us about some information concerning exposure, but it's very limited in time to about 15 years, okay, of the 55 years involved. And what I would like to know is, is everything you can tell us concerning the collection of information, the process of information, and using that information prior to 2003.  What — can you tell me, number one, was there a place in the archives of Syngenta which would include Zeneca and ICI where information

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an area of -- of the company's responsibility that

24

"paraquat exposure incidents"? Is that fair?

24

#### Page 1776 Page 1778 something that was of a very pungent odor, right? 1 I had only marginal dealings with. 1 2 A. Yes, that's right. Another alerting 2 It certainly wasn't something that my 3 agent. That's right. 3 base, CTL, the Central Toxicology Laboratory, was 4 Q. And the emetic was to force them to 4 involved in. It was the product stewardship and the 5 vomit, right? 5 medical department's responsibility. 6 Q. And who would have been the person in 6 A. Yes, that's right. If they ingested, the pre-2003 era who would have had charge of or 7 7 it would create emesis, which is vomiting, yes. 8 Q. And we talked about the need to have 8 responsibility for maintaining that type of 9 this emesis, as you referred to it, occur very 9 information? 10 quickly, right? A. Again, I wouldn't -- I wouldn't want to 10 A. We did. 11 speculate on their names, but the roles that we're 11 talking about would be people like the products 12 Q. And the reason for that, of course, was 12 13 to avoid any absorption in the gut. And the quicker 13 medical advisers and the heads of stewardship. 14 it comes out, the less opportunity there is for that 14 Q. Did this database serve any purpose in 15 purpose, right? 15 the creation or alteration of the paraquat formula? MR. NARESH: I'll object to the use of 16 A. That's right. 16 Q. And once it's absorbed and gets into 17 17 the word "database." I'm not sure that - well, I the circulating bloodstream and winds up in the 18 18 don't think any -- I'll object to the use of the --19 lungs, pulmonary fibrosis develops, and the patient 19 MR. TILLERY: Let me withdraw it. 20 dles, right? 20 Q. Did the information that Syngenta had 21 either pre- or post-2003 - was it ever used for any 21 A. That's - that's unfortunately one 22 purpose in terms of modifying the ultimate formula 22 scenario, yes. Q. Okay. Now, are you able to tell us 23 that was sold to consumers? 2.3 24 A. Yes, it was. And, likewise, I wouldn't 24 today where we would go to ask questions of any Page 1779 Page 1777 1 Syngenta employee or former employee for what data describe this as a database but certainly, shall we 1 2 was maintained in any form prior to 2003? say, a collection of information on paraquat 2 3 A. Well, I would point you to - in our 3 poisoning incidents. 4 current organization to the global regulatory and 4 It was, to answer your question, used, 5 stewardship function, which is based in Basel. 5 for example, to add to the formulated product of -6 Q. And who would that person be? 6 products of paraquat, things that would help to make 7 7 A. Well, the head of global regulatory is those formulations safer. And so the addition of 8 Dave -- David French. There's also a head of --8 things like an emetic, which we discussed in 9 previous parts of my deposition, a dye, and a 9 stewardship is not quite his title - but 10 Juan Valero. So those - those are the two people I 10 stench, a smell. Q. And those were the three things that 11 think I would turn to first. 11 Q. How do you spell Valero for the you undertook to try to make the product safer, 12 12 13 reporter? 13 correct? 14 A. V-a-I-e-r-o. 14 A. That's right. Q. And the dye was used for what purpose? 15 Q. So Juan Valero and David French are the 15 people you think who would have access to this 16 A. Well, to give it a color that was -- if 16 17 information, right? 17 I remember rightly, it's a deep blue. It's a color 18 A. I think they would be better able than 18 that was not similar to any fluid that would 19 me to - to give you some indications of -- of what, 19 normally be consumed, so nothing that would be assumed to be safe to drink because you don't ever 20 If anything, the record would show on that. 20 21 Q. Okay. You - or strike that. 21 see any colorings in drinks or similar things with 22 Are you telling me you don't have 22 that color. 23 personal knowledge and cannot answer any questions 23 Q. And the stench was to tell those people 24 regarding what information was maintained by 24 who can smell those things to - that they were near

	Page 1780		Page 1782
1 :	Syngenta or Syngenta's corporate predecessors	1	with that.
2	concerning ingestion data prior to 2003?	2	Q. Okay. Well, let's pull up at this
3	A. No. I'm – right at 2003, I'm	3	point on screen share a database for you to look
4	I'm – was never familiar with the precise	4	at for us all to look at.
5	methodology and structure that was used to acquire	5	Now, this is -
6	and – and retain that Information.	6	MR. TILLERY: We have a place mark for
7	Q. Okay. So you wouldn't be able to tell	7	this, Counsel, and we're going to refer to it as
	me how Zeneca collected information about paraquat	8	Exhibit 159. And we'll have more detailed
	exposure incidents, right?	9	description of the content of the document from the
10	A. No. I wouldn't be able to give you any	10	witness.
	detail on that.	11	(Exhibit 159 was identified
12	Q. Would you be able to tell me whether or	12	for the record.)
	not Chevron collected that data?	13	BY MR. TILLERY:
14	A. Even less so would   be able to tell	14	Q. Dr. Botham, this is a spreadsheet named
	you that.	15	"Paraquat AHI-DB Prosar report, Confidential" that
		16	I'll represent to you was produced in this
16	Q. Okay. And you wouldn't be able to tell me about ICI and their collection procedures, their	17	litigation by Syngenta's counsel.
	·	18	The "AHI" – does that stand for
	recordkeeping procedures, about the people around	1	adverse health incidents?
	the world who had died or who had been injured as a	19	
	result of ingesting this chemical?	20	A. Yes, it does.
21	A. No. In the ICI days, the people	21	Q. And is one database. And Prosar is the
22	involved in that were based in the south of England	22	name of another database, or are they different or
23	In Fernhurst, not in my department.	23	the same database?
24	Q. Did you know any of the people at ICI	24	A. I know a little bit about the history.
	Page 1781		Page 1783
1	or Zeneca who were in this department?	1	Prosar was a database that was specifically covering
2	A. Yes. I I worked with them from time	2	the Americas and North America Incidents.
3	to time.	3	Q. Okay. So Prosar was part of Syngenta?
4	Q. And who were the people who would have	4	A. Prosar was a database that was owned by
	been in charge of the data at Zeneca?	5	Syngenta, but the operation of it was outsourced.
6	A. Well, again, rather like I said before,	6	Q. Did it do other functions than monitor
	if I gave you names, they wouldn't necessarily be	7	paraquat poisonings?
	accurate in terms of a point in time; so – but the	8	A. Yes. I mean, my understanding is that
	senior medical advisers.	9	it was monitoring adverse health incidents to any
10	I mean, we did mention one name earlier	10	product that Syngenta may have a registration for
	today, Dr. Sabapathy, for example. We also	11	ourselves.
	mentioned Dr. Wilks, but he came later. There were	12	Q. How would people know to contact Prosa
		13	if there was an intentional or accidental exposure?
	other individuals. And and so I can't give you a	14	A. Again, my understanding is that, on the
	complete list.	15	containers of our products, there are telephone
15	Q. Do you know how many different sources	1	numbers to use in the event of an accident or
	of Information or potential databases were actually	16	
	maintained?	17	Incident.
18	A. Maintained by us? No, I can't.	18	Q. And when they called that telephone
	Q. Do you know who today, other than	19	number, it would put them In touch with Prosar
19	Mr. Valero and Mr. French, would be able to answer	20	people, right?
20	_		A Thetle bourt belleve it works in
20 21	our questions concerning the databases?	21	A. That's how I believe It works in
20 21 22	A. Well, I would particularly point you to	22	America, yes.
20 21 22 23			

	Page 1784		Page 1786
1	directly in touch with people who would be trying to	1	of routes – routes. So particularly Important were
2	take their information. Is that your understanding?	2	the global network of poison centers associated with
3	A. Yes, that's right.	3	the hospitals or government laboratories where
4	Q. All right. Now, the AHI, adverse	4	information was provided to Syngenta or to Zeneca
5	health incident is that a separate database?	5	previously from those polson centers.
6	A. Well, it was at one time. Certainly,	6	<ul> <li>Q. Was this information shared with</li> </ul>
7	when I first became familiar with this in the early	7	regulators?
8	2000s, the adverse health incident database was	8	A. I'm sure it was because that's part
9	essentially for the rest of the world.	9	of particularly during reregistration processes
10	Q. And these two apparently were combined	10	for any product, it's expected that details of
11	when they were sent to us. This is how we received	11	post-marketing health effects are – are described.
12	the document, I'm representing to you. It hasn't	12	Q. And do you know what Syngenta or its
13	been changed on our end. Okay?	13	corporate predecessors have reported in terms of th
14	A. Okay.	14	type or number of poisonings that have taken place
15	Q. So I'm just trying to understand have	15	in various different countries?
16	you ever seen them combined into one single database	16	A. That's a level of detail which I can't
17	captured in a spreadsheet?	17	comment on. That was the responsibility of our
18	A. The spreadsheet that you're just	18	regulatory and stewardship function.
19	showing me now is something that my counsel let me	19	Q. Okay. Okay. So if we look at this
20	see earlier this week, actually. And I've not seen	20	database, okay, there are, I think, on this
21	this particular representation of the database. I	21	particular database that starts at 2003, if you go
22	was aware of its existence, but I hadn't seen	22	to the very beginning. And do you see on the
23	recently, the account information that was now being	23	left – far left column there's a number 1 assigned.
24	captured.	24	Okay?
	Page 1785		Page 178
1	Q. So the adverse health incident	1	A. Uh-huh.
2	Information from the rest of the world, okay, would	2	Q. And then if you go all the way to the
3	have been maintained or created where?	3	bottom of this, it will show 10,500
4	A. That was an accountability for the	4	10,856 entries in this database. I'll just show yo
5	people based in Basel in – certainly in 2003. And	5	to confirm that.
6	prior to that In the 1990s, if there was when	6	A. You're still going the wrong way.
7	there was some format of adverse health incident	7	Q. Okay. I think we finally got there.
8	reporting, that would have been based in – in the	8	A. Uh-huh.
9	United Kingdom for Zeneca.	9	Q. Do you see that last entry?
10	Q. Okay. So did you say prior to 1993?	10	A. I do.
11	A. No. Prior to 2003. So prior to the -	11	Q. Okay. It's an Australia entry,
12	the adoption of what we're now calling AHI.	12	June 13th, 2007. There's an entry, and that's
13	As I said earlier, I believe there was	13	10,580 – 5 – 10,857, correct?
14	some form of collection of the data, but I can't	14	A. Correct.
15	give you a level of detail on that database.	15	Q. And I think we started in line 2. So
15 16	Q. And do you know how they collected	16	it would actually be, in terms of records,
17	data? Was it along the same lines where they had a	17	10,856 records on this database.
18	number on on the container and they called and	18	A. Right.
19	then were connected to somebody at Basel who	19	Q. And that's primarily since 2003, right?
20	_	20	A. I believe it is, yes.
	reported the information?	21	Q. And when was the emetic added to the
	<ul><li>A. It – It wasn't quite the same. So I</li></ul>	21	G. Mild Allell Agg file cilient garded to file
21	·	22	chemical?
21 22	know, for example, and certainly it was true in	22	chemical?
21 22 23 24	·	22 23 24	chemical?  A. Twenty years before that.  Q. Okay. And was the amount of emetic.

	Page 1788		Page 1790
1	emetic changed over the course of time?	1	that you and I discussed earlier that came out of
2	A. No.	2	the pharma section of the company, right?
3	Q. Okay. Has it always been the same	3	A. That's correct, yes.
4	level?	4	Q. Yes. And so 796 is used to this very
5	A. Well, let me caveat what I sald. There	5	day, right?
6	were differences in the amount of the emetic in	6	A. It is.
7	different formulations. So there wasn't a fixed	7	Q. And the only variation would be the
8	emetic level in every formulation.	8	amount of PP796 that goes into the formulated
9	Q. Okay. Could you just very - in a	9	product, right?
10	summary form tell me how that emetic changed over	10	A. That's correct.
11	time?	11	Q. Now, when it was first put in, what
12	A. Well, it it changed	12	year was that? Twenty years before in - sometime
13	MR. NARESH: And just sorry to	13	in the '80s? Early '80s?
14	interrupt. For the – just for the sake of the	14	A. Yeah. I can't remember the exact date.
15	record, I assume my scope objection is continuing to	15	We I'm sure the records were we wanted to
16	run, Steve?	16	define it in my previous deposition, but I don't
17	MR. TILLERY: It is.	17	have
18	MR. NARESH: Okay.	18	Q. All right. So it was in the early '80s
19	MR. TILLERY: It Is. I'll raise my	19	when it first went in. And do you remember the
20	hand if it changes.	20	amount that was added at that time?
21	MR. NARESH: Well, I can't see you. I	21	A. Yeah. I mean, it was something like
22	can only see a big Excel screen. So you'll have to	22	.5 grams per liter.
23	do more than that.	23	And to and to to answer your
24	MR. TILLERY: All right. All right.	24	other question, the kind of direction of travel in
	Page 1789		Page 179
1	Sorry. Having some fun with you.	1	terms of changing that level, essentially, we're
2	Q. All right. So, Dr. Botham, do you	2	talking about up to three or five times the level of
3	remember my question?	3	that emetic in some formulations. So there was a
4	A. Yes. So you said, "How did the level	4	kind of flyefold difference between formulations at
	-		
5	of emetic change?"	5	different times.
5 6	of emetic change?"  And so there were changes to the level	5 6	
6	And so there were changes to the level		different times.  Q. Okay. And let's – and let's talk about that. When was the first time from your
6 7	And so there were changes to the level of emetic that on - on occasions when	6	Q. Okay. And let's – and let's talk
6 7 8	And so there were changes to the level of emetic that on – on occasions when formulation changes were made. Generally speaking,	6 7	Q. Okay. And let's – and let's talk about that. When was the first time from your recollection that there was an increase in the
6 7 8 9	And so there were changes to the level of emetic that on on occasions when formulation changes were made. Generally speaking, the direction of travel was to somewhat increase the	6 7 8 9	Q. Okay. And let's – and let's talk about that. When was the first time from your recollection that there was an increase in the .5 grams per liter of PP796 in a formulated paraqua
6 7 8 9	And so there were changes to the level of emetic that on on occasions when formulation changes were made. Generally speaking, the direction of travel was to somewhat increase the level of emetic.	6 7 8	Q. Okay. And let's – and let's talk about that. When was the first time from your recollection that there was an increase in the .5 grams per liter of PP796 in a formulated paraquaproduct?
6 7 8 9 10 11	And so there were changes to the level of emetic that on on occasions when formulation changes were made. Generally speaking, the direction of travel was to somewhat increase the level of emetic.  Q. Well, yes, and it may be. But could	6 7 8 9 10 11	Q. Okay. And let's – and let's talk about that. When was the first time from your recollection that there was an increase in the .5 grams per liter of PP796 in a formulated paraqua
6 7 8 9 10 11	And so there were changes to the level of emetic that on - on occasions when formulation changes were made. Generally speaking, the direction of travel was to somewhat increase the level of emetic.  Q. Well, yes, and it may be. But could you tell me in what ways or a specific, for example,	6 7 8 9	Q. Okay. And let's – and let's talk about that. When was the first time from your recollection that there was an increase in the .5 grams per liter of PP796 in a formulated paraqua product?  A. I'm sorry. I can't give you exact time
6 7 8 9 10 11 12	And so there were changes to the level of emetic that on - on occasions when formulation changes were made. Generally speaking, the direction of travel was to somewhat increase the level of emetic.  Q. Well, yes, and it may be. But could you tell me in what ways or a specific, for example, amounts?	6 7 8 9 10 11 12	Q. Okay. And let's – and let's talk about that. When was the first time from your recollection that there was an increase in the .5 grams per liter of PP796 in a formulated paraquaproduct?  A. I'm sorry. I can't give you exact time and detail of formulation. I'd need to have some
6 7 8 9 10 11 12 13	And so there were changes to the level of emetic that on on occasions when formulation changes were made. Generally speaking, the direction of travel was to somewhat increase the level of emetic.  Q. Well, yes, and it may be. But could you tell me in what ways or a specific, for example, amounts?  The emetic stayed the same, right? The	6 7 8 9 10 11 12 13	Q. Okay. And let's – and let's talk about that. When was the first time from your recollection that there was an increase in the .5 grams per liter of PP796 in a formulated paraquaproduct?  A. I'm sorry. I can't give you exact time and detail of formulation. I'd need to have some notice of that.
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6 7 8 9 10 11 12 13 14 15 16	And so there were changes to the level of emetic that — on — on occasions when formulation changes were made. Generally speaking, the direction of travel was to somewhat increase the level of emetic.  Q. Well, yes, and it may be. But could you tell me in what ways or a specific, for example, amounts?  The emetic stayed the same, right? The type of emetic — there's been no change in the emetic itself from its first introduction into paraquat until today, right?	6 7 8 9 10 11 12 13 14 15	Q. Okay. And let's – and let's talk about that. When was the first time from your recollection that there was an increase in the .5 grams per liter of PP796 in a formulated paraquatoroduct?  A. I'm sorry. I can't give you exact time and detail of formulation. I'd need to have some notice of that.  Q. When was –  THE VIDEOGRAPHER: Excuse me.
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	Page 1792		Page 1794
1	just go to this document. And if we go to the	1	Okay. There are 299. And when we
2	column A, this spreadsheet has a number of columns	2	scroll down in that and look at country code in
3	in It, and column A is a reference to the active	3	column J, we see that all of those are either from
4	ingredient, correct	4	Canada with eight or the United States with the
5	A. That's right.	5	rest.
6	Q. And if we go to the drop-down this	6	Do you see that?
7	is a drop-down that was supplied with this. If you	7	A. I do.
8	see that?	8	Q. Do you have any idea why other
9	A. Yes.	9	countries don't have any high priority cases?
10	Q. That drop-down – if you hit that	10	A. Oh, unless this was something specific
11	button, it demonstrates that all of the records	11	to the Prosar capturing of these data, which was
12	contain paraquat.	12	North America-specific as I indicated.
13	A. Yes.	13	Q. Does high priority have anything to do
14	Q. Okay. Right. And then columns B, C,	14	with potential legal exposure Syngenta might face
15	and D appear to be other active ingredients involved	15	from these incidents?
16	in an incident. And then there's a call type in	16	A. I've got no idea. Like I say, I don't
17	column E, and then cardiovascular system in	17	know what the criteria are based on.
18	column F. Okay? Do you see that?	18	Q. Okay. Column I is "Causal Link"
19	A. Yep.	19	category, right?
20	Q. Why is the cardiovascular system	20	A. Yes.
21	information important to the analysis of paraquat	21	Q. And when we drop down the filter arrow,
22	poisonings as far as you know?	22	we see that the choices are confirmed, insufficient
23	A. Well, I don't know. I speculation,	23	information. Do you see that?
24	this is a spreadsheet that's used for recording	24	A. Yes.
	Page <b>179</b> 3		Page 1795
1	Page 1793 incidents to products other than paraquat. So that	1	Page 1795  Q. Likely, open assignment, uncertain, and
1 2	-	1 2	
	incidents to products other than paraquat. So that		Q. Likely, open assignment, uncertain, and
2	incidents to products other than paraquat. So that may be more relevant to other products, but	2	Q. Likely, open assignment, uncertain, and unrelated. Do you see that?
2 3	incidents to products other than paraquat. So that may be more relevant to other products, but that's — that's my speculation.	2	Q. Likely, open assignment, uncertain, and unrelated. Do you see that?  A. I do.
2 3 4	incidents to products other than paraquat. So that may be more relevant to other products, but that's – that's my speculation.  Q. Okay. Now, after column G that	2 3 4	Q. Likely, open assignment, uncertain, and unrelated. Do you see that? A. I do. Q. Do you know what criteria were used in
2 3 4 5	incidents to products other than paraquat. So that may be more relevant to other products, but that's – that's my speculation.  Q. Okay. Now, after column G that contains the case number – do you see column G	2 3 4 5	Q. Likely, open assignment, uncertain, and unrelated. Do you see that?  A. I do. Q. Do you know what criteria were used in making these assignments?
2 3 4 5 6	incidents to products other than paraquat. So that may be more relevant to other products, but that's – that's my speculation.  Q. Okay. Now, after column G that contains the case number – do you see column G containing the –	2 3 4 5 6	Q. Likely, open assignment, uncertain, and unrelated. Do you see that? A. I do. Q. Do you know what criteria were used in making these assignments? A. Well, not in any detail. But I think
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2 3 4 5 6 7 8 9 10 11 12 13	incidents to products other than paraquat. So that may be more relevant to other products, but that's – that's my speculation.  Q. Okay. Now, after column G that contains the case number – do you see column G containing the –  A. Yes. Q. – case number? Is case priority in column H.  A. (Nods head.) Q. By dropping down the filter, we see that the codes are high, low, medium, uncertain, and blank. Do you see those?  A. Yes.	2 3 4 5 6 7 8 9 10 11 12 13	Q. Likely, open assignment, uncertain, and unrelated. Do you see that?  A. I do. Q. Do you know what criteria were used in making these assignments? A. Well, not in any detail. But I think it's easier to imagine what they do mean. So "confirm" would mean that there was good evidence that the person or the case that's recorded had involved an ingestion or other exposure to paraquat. Q. Okay. When we look at the confirmed — let's look at the confirmed cases. We see that the total is about 7,006 cases and are about 70 percent of the total incidents. Okay?
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	FILE BOTTAN, FILE		
	Page 1796		Page 1798
1	<ul> <li>Q. That includes Argentina, Australia,</li> </ul>	1	could be the fact that, after 2005 or 2007 in the
2	Belgium, Brazil, Canada, Chile, China, Colombia,	2	UK, you couldn't use it anymore, right?
3	Costa Rica, Ecuador. It goes on.	3	A. Right.   agree that would be
4	A. Yes.	4	another another explanation or an additional
5	<ul> <li>Q. And that includes – for this list.</li> </ul>	5	explanation.
6	A. Yes.	6	Q. All right. Okay. Now let's go to the
7	Q. Okay. You wouldn't have any reason to	7	incident date in column N and arrange it from the
8	dispute that number, right?	8	oldest to the newest. And with the exception of two
9	A. No.	9	Incidents which took place in Morocco in 1995, do
10	Q. Okay. Highest number is, I think,	10	you see that the incidents first started in
11	about 5,000 from Thailand, right?	11	January 2003, right?
12	A. I haven't gotten to that; so I'll take	12	A. Yes.
13	your word.	13	<ul> <li>Q. Now, let's look at the preceding</li> </ul>
14	Q. The UK has 14 reports?	14	column M that's has the title "Created." Do you
15	A. Okay.	15	know what those numbers stand for in that column?
16	Q. Okay. Now, Thailand has about the same	16	A. I have no idea. I'm sorry.
17	number of people as the UK, about 70 million.	17	<ul> <li>Q. So when you select that column and</li> </ul>
18	Do you know the reasons for the huge	18	change the format type to date, you can see that all
19	disparity between 5,000 in Thailand and 70 in - or	19	those numbers actually correspond to a specific
20	rather 14 in the UK?	20	date.
21	A. Well, again, I don't want to	21	A. Okay.
22	overspeculate, but you would imagine that in the	22	Q. Okay?
23	United Kingdom there is there's there has been	23	A. Yep.
24	for some time very strict regulatory control over	24	Q. Well, it took a little detective work
	Page 1797		Page 1799
1	the use of pesticides including paraquat and – and	1	on our part, but I'm wondering why - if you know
2	a lot of training of of farmers and growers and	2	why this database was sent in this capacity in a way
3	applicators.	3	which combined the information such that you had to
4	Q. So	4	separate it in order to get the correct date fields?
5	A. And that may not be the same – may not	5	Do you know anything about that?
6	have applied in Thailand.	6	A. No. No. I can't help you with that.
7	Q. So let me propose another answer. How	7	I'm sorry.
8	long has it been illegal to use paraquat in the UK?	8	<ul> <li>Q. Okay. Is it possible they came from</li> </ul>
9	A. Yes. Since the registration was the	9	two separate databases which were melded together
10	reregistration was denied about 15 years ago or so	10	and that confused the data?
11	now, 10 to 15 years ago.	11	A. It may be. Dr. Valero or Mr. Valero
12	Q. So about 15 years ago, it's been — and	12	may be able to help you with that.
13	this database goes to 2003. So it was after - two	13	<ul> <li>Q. All right. I'm not going to take you</li> </ul>
14	years after the data – database was initiated, it	14	through all the – the columns, Dr. Botham, but I do
15	became illegal to even use it in the UK, correct?	15	want to ask you a few more questions on this.
16	A. I haven't given you an exact date of	16	If we go to severity column, and that's
17	when the deregistration happened in the	17	in DD, and when we use the filter arrow again, we
18	United Kingdom, I think, to so I don't know if it	18	see the options fatal, minor, moderate, none,
19	was two years or or more than that.	19	severe, right?
20	Q. I know. And whatever the date is, the	20	A. Right.
21	date is. We agree with that, and I accept that. It	21	Q. And how many fatalities are indicated
22	could have been, I think, 2007 potentially?	22	In the database?
23	A. Yeah. Maybe It was.	23	I wouldn't expect you to know, but I can represent to you that what we've reported or
24	<ul> <li>Q. But irrespective, one other explanation</li> </ul>	24	

	Page <b>18</b> 00		Page 1802
1	looked at is there is in this limited database back	1	exhibit – Plaintiffs' Deposition Exhibit
2	just 17 years, there's 3,536 deaths from exposure.	2	Number 160.
3	Okay?	3	(Exhibit 160 was identified
4	Now, you recall there's a total of	4	for the record.)
5	10,856 incident reports from around the world. So	5	(Discussion off the record.)
6	if my calculations are correct, that means that over	6	MR. TILLERY: Let's go off the record
7	30 percent of the worldwide incidents resulted in	7	for just one second, please, sir. Okay?
8	death.	8	THE VIDEOGRAPHER: We're going off the
9	Would that be a fair assessment?	9	record. The time is 8:36. This ends Media Unit
10	A. Yeah. I was just doing the math. Yes,	10	Number 4.
11	that's correct.	11	(Discussion off the record.)
12	Q. Okay. If we compare the outcome column	12	THE VIDEOGRAPHER: We're going back on
13	in column CH. Okay?	13	the record. The time is 8:38. This begins Media
14	A. Uh-huh.	14	Unit Number 5.
15	Q. With the severity column in DD. Okay?	15	BY MR. TILLERY:
16	A. Uh-huh.	16	<ul><li>Q. I – there's no particular reason for</li></ul>
17	Q. Are we there?	17	showing you this other than to get an explanation
18	A. Uh-huh.	18	about what's referenced here.
19	Q. We see that one of the categories for	19	Do you see the SOS International
20	outcome is fully recovered, and I'll show you that.	20	referenced in this Exhibit Number 160?
21	Do you see that?	21	A. Yes.
22	A, I do.	22	<ul> <li>Q. And you're listed as one of the</li> </ul>
23	Q. Okay. So the database has an entry in	23	recipients; so we pulled this up to look at this.
24	one column that shows that a person who was exposed	24	You're one of – you were sent this email by
	Page 1801		Page 1803
			3
1	to this fully recovered, and that was selected.	1	Dave Berry. Who is he?
1 2	to this fully recovered, and that was selected.  If we then go to severity in column DD,	1 2	
1			Dave Berry. Who is he?
2	If we then go to severity in column DD,	2	Dave Berry. Who is he?  A. Well, Dave Berry was a toxicology
2	If we then go to severity in column DD, okay, and look at the fatal code. Okay?	2	Dave Berry. Who is he?  A. Well, Dave Berry was a toxicology colleague working as a specific expert on paraquat
2 3 4	If we then go to severity in column DD, okay, and look at the fatal code. Okay?  A. Uh-huh.	2 3 4	Dave Berry. Who is he?  A. Well, Dave Berry was a toxicology colleague working as a specific expert on paraquat at that time, and I know he used to get copied into
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2 3 4 5 6	If we then go to severity in column DD, okay, and look at the fatal code. Okay?  A. Uh-huh. Q. Do you see that? A. I do, yes.	2 3 4 5 6	Dave Berry. Who is he?  A. Well, Dave Berry was a toxicology colleague working as a specific expert on paraquat at that time, and I know he used to get copied into some of the adverse health incidents.  Q. And GBAP following his name references
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2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	If we then go to severity in column DD, okay, and look at the fatal code. Okay?  A. Uh-huh. Q. Do you see that? A. I do, yes. Q. Okay. You can see there are 25 incidents that show that a person died but also fully recovered. A. I've got no explanation to that. Q. Yeah. All I'm just trying to say is, I mean, this — was there an effort to maintain this in an accurate way because it's showing people fully recovered who are dead, and they can't be both obviously.  So this is the kind of thing, the sort of thing, we saw. And you're saying I should go to Basel to ask these questions, correct?  A. I think you should, yes. Q. Okay. Let's pull that down.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	Dave Berry. Who is he?  A. Well, Dave Berry was a toxicology colleague working as a specific expert on paraquat at that time, and I know he used to get copied into some of the adverse health incidents.  Q. And GBAP following his name references what, sir?  A. Great Britain Alderley Park, which is where CTL was.  Q. And the date of the email was June 27th, 2007, and he copied Lewis Smith. What was his role at that time?  A. So Lewis previously at CTL had moved to be the head of global product development for crop protection, Syngenta.  Q. Okay. And then you're listed on this as well, right?  A. I was, yes.  Q. All right. And then it's reference to "Accidental exposure to Gramoxone with severe"
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	If we then go to severity in column DD, okay, and look at the fatal code. Okay?  A. Uh-huh. Q. Do you see that? A. I do, yes. Q. Okay. You can see there are 25 incidents that show that a person died but also fully recovered. A. I've got no explanation to that. Q. Yeah. All I'm just trying to say is, I mean, this – was there an effort to maintain this in an accurate way because it's showing people fully recovered who are dead, and they can't be both obviously.  So this is the kind of thing, the sort of thing, we saw. And you're saying I should go to Basel to ask these questions, correct?  A. I think you should, yes. Q. Okay. Let's pull that down. Oh, actually, there's another –	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Dave Berry. Who is he?  A. Well, Dave Berry was a toxicology colleague working as a specific expert on paraquat at that time, and I know he used to get copied into some of the adverse health incidents.  Q. And GBAP following his name references what, sir?  A. Great Britain Alderley Park, which is where CTL was.  Q. And the date of the email was June 27th, 2007, and he copied Lewis Smith. What was his role at that time?  A. So Lewis previously at CTL had moved to be the head of global product development for crop protection, Syngenta.  Q. Okay. And then you're listed on this as well, right?  A. I was, yes.  Q. All right. And then it's reference to "Accidental exposure to Gramoxone with severe outcome, an eight-year-old boy in China," right?
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	If we then go to severity in column DD, okay, and look at the fatal code. Okay?  A. Uh-huh. Q. Do you see that? A. I do, yes. Q. Okay. You can see there are 25 incidents that show that a person died but also fully recovered. A. I've got no explanation to that. Q. Yeah. All I'm just trying to say is, I mean, this – was there an effort to maintain this in an accurate way because it's showing people fully recovered who are dead, and they can't be both obviously.  So this is the kind of thing, the sort of thing, we saw. And you're saying I should go to Basel to ask these questions, correct?  A. I think you should, yes. Q. Okay. Let's pull that down. Oh, actually, there's another — there's another one. Is there another thing? Let's	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	Dave Berry. Who is he?  A. Well, Dave Berry was a toxicology colleague working as a specific expert on paraquat at that time, and I know he used to get copied into some of the adverse health incidents.  Q. And GBAP following his name references what, sir?  A. Great Britain Alderley Park, which is where CTL was.  Q. And the date of the email was June 27th, 2007, and he copied Lewis Smith. What was his role at that time?  A. So Lewis previously at CTL had moved to be the head of global product development for crop protection, Syngenta.  Q. Okay. And then you're listed on this as well, right?  A. I was, yes.  Q. All right. And then it's reference to "Accidental exposure to Gramoxone with severe outcome, an eight-year-old boy in China," right?  A. Right.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	If we then go to severity in column DD, okay, and look at the fatal code. Okay?  A. Uh-huh. Q. Do you see that? A. I do, yes. Q. Okay. You can see there are 25 incidents that show that a person died but also fully recovered. A. I've got no explanation to that. Q. Yeah. All I'm just trying to say is, I mean, this – was there an effort to maintain this in an accurate way because it's showing people fully recovered who are dead, and they can't be both obviously.  So this is the kind of thing, the sort of thing, we saw. And you're saying I should go to Basel to ask these questions, correct?  A. I think you should, yes. Q. Okay. Let's pull that down. Oh, actually, there's another –	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	Dave Berry. Who is he?  A. Well, Dave Berry was a toxicology colleague working as a specific expert on paraquat at that time, and I know he used to get copied into some of the adverse health incidents.  Q. And GBAP following his name references what, sir?  A. Great Britain Alderley Park, which is where CTL was.  Q. And the date of the email was June 27th, 2007, and he copied Lewis Smith. What was his role at that time?  A. So Lewis previously at CTL had moved to be the head of global product development for crop protection, Syngenta.  Q. Okay. And then you're listed on this as well, right?  A. I was, yes.  Q. All right. And then it's reference to "Accidental exposure to Gramoxone with severe outcome, an eight-year-old boy in China," right?

	Page 1804		Page 1806
1	that we also used as another route to acquiring	1	MR. TILLERY: And there's one more
2	information about adverse health incidents to our	2	spreadsheet, right? Can you pull that? And we'll
3	product.	3	call that Exhibit Number 162. 162.
4	Q. And do you know how they supplied	4	(Exhibit 162 was identified
5	information to Syngenta?	5	for the record.)
6	A. No. Again, I was never involved in	6	BY MR. TILLERY:
7	those details; so I can't really comment any further	7	Q. The last one we're going to refer to
8	on that.	8	for hold in reference to that exhibit is 161; so I
9	Q. Do you know if there was a separate	9	have one more to show you to see if you have any
10	database for data from International SOS?	10	information about it, and it's 162.
11	A. I was never aware of a separate	11	A. Is this a screen share again?
12	database.	12	Q. Yes, it is, sir.
13	Q. Let's go to Exhibit 161, and this is a	13	(Discussion off the record.)
14	share screen.	14	BY MR. TILLERY:
15	(Exhibit 161 was identified	15	Q. Can you see this exhibit, sir, that's
16	for the record.)	16	162?
17	BY MR. TILLERY:	17	A. Now I can, yes.
18	Q. Now, have you looked at this exhibit	18	Q. Okay, This is yet another database
19	before, sir?	19	that's been sent to us. Do you have any information
20	A. Is this different than the spreadsheet	20	about this database?
21	we were looking at previously?	21	A. No, I don't, although some of the names
22	Q. Yes, sir, it is. It's a completely	22	that I'm seeing there are in the regulatory
23	different spreadsheet. And this is a - this one	23	department; so –
24	was produced to us in discovery that had the file	24	Q. Monty Dixon would be –
	Page 1805		Page 1807
1	name in the production *Prosar Year 1998 through	1	A. Monty Dixon and Janice McFarland, yeah.
1 2	name in the production "Prosar Year 1998 through 02/25/98 - 12/31/98." Okay?	1 2	_
	·		A. Monty Dixon and Janice McFarland, yeah.
2	02/25/98 - 12/31/98." Okay?	2	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?
2	02/25/98 - 12/31/98." Okay? And I don't know if you'd seen this	2	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd  direct me to them, I presume, to answer your
2 3 4	02/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.	2 3 4 5	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?
2 3 4 5	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.	2 3 4 5	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best
2 3 4 5 6	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of	2 3 4 5	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best person, I think.
2 3 4 5 6 7	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of information, and do you know how this one was	2 3 4 5 6 7	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best person, I think.  Q. Okay.
2 3 4 5 6 7 8	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of information, and do you know how this one was created or retained contrary or different from the	2 3 4 5 6 7 8	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best person, I think.  Q. Okay.  MR. TILLERY: All right. Let's take a
2 3 4 5 6 7 8 9	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of information, and do you know how this one was created or retained contrary or different from the first spreadsheet we looked at?	2 3 4 5 6 7 8	A. Monty Dixon and Janice McFarland, yeah. Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right? A. Yes. Yes. Monty would be the best person, I think. Q. Okay. MR. TILLERY: All right. Let's take a three- or four-minute break and then go to another
2 3 4 5 6 7 8 9	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of information, and do you know how this one was created or retained contrary or different from the first spreadsheet we looked at?  A. Well, the only hint that I've got is	2 3 4 5 6 7 8 9	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best person, I think.  Q. Okay.  MR. TILLERY: All right. Let's take a three- or four-minute break and then go to another topic altogether. Thank you.
2 3 4 5 6 7 8 9 10	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of information, and do you know how this one was created or retained contrary or different from the first spreadsheet we looked at?  A. Well, the only hint that I've got is what you just described. If this refers to Prosar,	2 3 4 5 6 7 8 9 10	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best person, I think.  Q. Okay.  MR. TILLERY: All right. Let's take a three- or four-minute break and then go to another topic altogether. Thank you.  THE WITNESS: Okay.
2 3 4 5 6 7 8 9 10 11	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of information, and do you know how this one was created or retained contrary or different from the first spreadsheet we looked at?  A. Well, the only hint that I've got is what you just described. If this refers to Prosar, this is what we were talking about earlier as the	2 3 4 5 6 7 8 9 10 11	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best person, I think.  Q. Okay.  MR. TILLERY: All right. Let's take a three- or four-minute break and then go to another topic altogether. Thank you.  THE WITNESS: Okay.  THE VIDEOGRAPHER: We're going off the
2 3 4 5 6 7 8 9 10 11 12	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of information, and do you know how this one was created or retained contrary or different from the first spreadsheet we looked at?  A. Well, the only hint that I've got is what you just described. If this refers to Prosar, this is what we were talking about earlier as the mechanism through which adverse health incidents in	2 3 4 5 6 7 8 9 10 11 12 13	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best person, I think.  Q. Okay.  MR. TILLERY: All right. Let's take a three- or four-minute break and then go to another topic altogether. Thank you.  THE WITNESS: Okay.  THE VIDEOGRAPHER: We're going off the record. The time is 8:46. This ends Media Unit
2 3 4 5 6 7 8 9 10 11 12 13 14	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of information, and do you know how this one was created or retained contrary or different from the first spreadsheet we looked at?  A. Well, the only hint that I've got is what you just described. If this refers to Prosar, this is what we were talking about earlier as the mechanism through which adverse health incidents in North America were — were brought into the company	2 3 4 5 6 7 8 9 10 11 12 13	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best person, I think.  Q. Okay.  MR. TILLERY: All right. Let's take a three- or four-minute break and then go to another topic altogether. Thank you.  THE WITNESS: Okay.  THE VIDEOGRAPHER: We're going off the record. The time is 8:46. This ends Media Unit Number 5.
2 3 4 5 6 7 8 9 10 11 12 13 14 15	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of information, and do you know how this one was created or retained contrary or different from the first spreadsheet we looked at?  A. Well, the only hint that I've got is what you just described. If this refers to Prosar, this is what we were talking about earlier as the mechanism through which adverse health incidents in North America were — were brought into the company and then recorded.	2 3 4 5 6 7 8 9 10 11 12 13 14 15	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best person, I think.  Q. Okay.  MR. TILLERY: All right. Let's take a three- or four-minute break and then go to another topic altogether. Thank you.  THE WITNESS: Okay.  THE VIDEOGRAPHER: We're going off the record. The time is 8:46. This ends Media Unit Number 5.  (Recess taken.)
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of information, and do you know how this one was created or retained contrary or different from the first spreadsheet we looked at?  A. Well, the only hint that I've got is what you just described. If this refers to Prosar, this is what we were talking about earlier as the mechanism through which adverse health incidents in North America were – were brought into the company and then recorded.  Q. Okay. And you wouldn't know anything	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best person, I think.  Q. Okay.  MR. TILLERY: All right. Let's take a three- or four-minute break and then go to another topic altogether. Thank you.  THE WITNESS: Okay.  THE VIDEOGRAPHER: We're going off the record. The time is 8:46. This ends Media Unit Number 5.  (Recess taken.)  THE VIDEOGRAPHER: We're going back on
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of information, and do you know how this one was created or retained contrary or different from the first spreadsheet we looked at?  A. Well, the only hint that I've got is what you just described. If this refers to Prosar, this is what we were talking about earlier as the mechanism through which adverse health incidents in North America were – were brought into the company and then recorded.  Q. Okay. And you wouldn't know anything about the assignment of column headings or the	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best person, I think.  Q. Okay.  MR. TILLERY: All right. Let's take a three- or four-minute break and then go to another topic altogether. Thank you.  THE WITNESS: Okay.  THE VIDEOGRAPHER: We're going off the record. The time is 8:46. This ends Media Unit Number 5.  (Recess taken.)  THE VIDEOGRAPHER: We're going back on the record. The time is 8:55. This begins Media
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of information, and do you know how this one was created or retained contrary or different from the first spreadsheet we looked at?  A. Well, the only hint that I've got is what you just described. If this refers to Prosar, this is what we were talking about earlier as the mechanism through which adverse health incidents in North America were — were brought into the company and then recorded.  Q. Okay. And you wouldn't know anything about the assignment of column headings or the information contained? I presume you would direct	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best person, I think.  Q. Okay.  MR. TILLERY: All right. Let's take a three- or four-minute break and then go to another topic altogether. Thank you.  THE WITNESS: Okay.  THE VIDEOGRAPHER: We're going off the record. The time is 8:46. This ends Media Unit Number 5.  (Recess taken.)  THE VIDEOGRAPHER: We're going back on the record. The time is 8:55. This begins Media Unit Number 6.
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of information, and do you know how this one was created or retained contrary or different from the first spreadsheet we looked at?  A. Well, the only hint that I've got is what you just described. If this refers to Prosar, this is what we were talking about earlier as the mechanism through which adverse health incidents in North America were – were brought into the company and then recorded.  Q. Okay. And you wouldn't know anything about the assignment of column headings or the information contained? I presume you would direct me to people in Basel to answer my questions?	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best person, I think.  Q. Okay.  MR. TILLERY: All right. Let's take a three- or four-minute break and then go to another topic altogether. Thank you.  THE WITNESS: Okay.  THE VIDEOGRAPHER: We're going off the record. The time is 8:46. This ends Media Unit Number 5.  (Recess taken.)  THE VIDEOGRAPHER: We're going back on the record. The time is 8:55. This begins Media Unit Number 6.  BY MR. TILLERY:
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of information, and do you know how this one was created or retained contrary or different from the first spreadsheet we looked at?  A. Well, the only hint that I've got is what you just described. If this refers to Prosar, this is what we were talking about earlier as the mechanism through which adverse health incidents in North America were – were brought into the company and then recorded.  Q. Okay. And you wouldn't know anything about the assignment of column headings or the information contained? I presume you would direct me to people in Basel to answer my questions?  A. Yeah. Or potentially people in and	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best person, I think.  Q. Okay.  MR. TILLERY: All right. Let's take a three- or four-minute break and then go to another topic altogether. Thank you.  THE WITNESS: Okay.  THE VIDEOGRAPHER: We're going off the record. The time is 8:46. This ends Media Unit Number 5.  (Recess taken.)  THE VIDEOGRAPHER: We're going back on the record. The time is 8:55. This begins Media Unit Number 6.  BY MR. TILLERY:  Q. Dr. Botham, In the deposition
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	O2/25/98 - 12/31/98." Okay?  And I don't know if you'd seen this before.  A. No, I've never seen this one before.  Q. And so it lists a number of columns of information, and do you know how this one was created or retained contrary or different from the first spreadsheet we looked at?  A. Well, the only hint that I've got is what you just described. If this refers to Prosar, this is what we were talking about earlier as the mechanism through which adverse health incidents in North America were — were brought into the company and then recorded.  Q. Okay. And you wouldn't know anything about the assignment of column headings or the information contained? I presume you would direct me to people in Basel to answer my questions?  A. Yeah. Or potentially people in and there may be people in Greensboro still who can help	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21	A. Monty Dixon and Janice McFarland, yeah.  Q. Right. So other than that, you'd direct me to them, I presume, to answer your questions, right?  A. Yes. Yes. Monty would be the best person, I think.  Q. Okay.  MR. TILLERY: All right. Let's take a three- or four-minute break and then go to another topic altogether. Thank you.  THE WITNESS: Okay.  THE VIDEOGRAPHER: We're going off the record. The time is 8:46. This ends Media Unit Number 5.  (Recess taken.)  THE VIDEOGRAPHER: We're going back on the record. The time is 8:55. This begins Media Unit Number 6.  BY MR. TILLERY:  Q. Dr. Botham, In the deposition yesterday, we discussed a connection with Dan Zadory

31 (Pages 1804 to 1807)

	Page 1808		Page 1810
1	Q. Stereology is a two-dimensional and	1	Birmingham, England.
2	three-dimensional tissue cell counting system, isn't	2	Do you see that?
3	it?	3	A. Ido.
4	A. It is.	4	Q. Now, if you look at – the "Summary"
5	Q. A cell is sometimes identified by	5	section is on the last page of - of text on
6	finding the cell nucleus as part of the counting	6	page 246, If you go there. I believe it's page 8 o
7	from what you read, right?	7	the document, "Summary."
8	MR. NARESH: Steve, may I have - may I	8	Do you see that?
9	have a standing objection to the extent this calls	9	A. Yeah. I'm just getting there. It's
10	for expert testimony?	10	not on page 8.
11	MR. TILLERY: Yes.	11	Q. It's yeah. It is on mine. The
12	MR. NARESH: Go ahead, Phil.	12	summary –
13	THE WITNESS: Yes. I agree with	13	A. Maybe. Just give me a minute. Sorry.
14	Mr. Tillery's point.	14	Yes. I'm sorry. It was underneath where I was
15	BY MR. TILLERY:	15	looking.
16	Q. All right. Have you ever performed	16	Yes. I can see a summary.
17	stereology yourself on animal tissue?	17	Q. Yeah. It's a summary, just general.
18	A. No. That's not a – not – I've never	18	It's a all my point is, is that this
19	done any pathology myself.	19	information was in the public domain about doing
20	Q. Okay, All right. Do you have	20	cell counting in 1946. Okay?
21	familiarity with the general process by which it	21	A. Okay.
22	works from the fact that you do have or have had	22	Q. All right. And then if we go to – and
23	stereologists on staff who are trained to do this?	23	we don't have to show this, but I would - did
23 24	A. Yeah. I have a certain level of	24	you - strike that.
	Page 1809		Page 181
1	understanding.	1	Did you happen to look at the Smeyne
2	Q. All right. So were you aware that	2	deposition last night?
3	methods to perform 2D stereology were available in	3	A. I did not.
4	1946?	4	Q. Okay. I would just suggest
5	A. No. That's not the thing that I would	5	represent to you that Dr. Smeyne on page 114 of his
6	have known.	6	deposition referenced this particular exhibit that I
7	Q. Yeah. Let me show you an exhibit, and	7	just put up on the screen, which is Exhibit 163.
8	we'll call this Plaintiffs' Deposition Exhibit	8	And he referenced it as the original paper by
9	Number 163. If you'd open that.	9	Elizabeth Abercrombie in the Anatomical Record,
10	(Exhibit 163 was identified	10	which I think in 1946 was really the gold standard
11	for the record.)	11	for estimating neurons.
12	MR. NARESH: And if I may add to that	12	And my only question to you is and
13	standing objection on scope.	13	if you would would you care to see that because
14	MR. TILLERY: Of course. I understand	14	can show you that, what he testified to on the
15	your – and you have that objection. For the	15	screen.
16	record, I'm consenting to that continuing objection.	16	A. Well, why not? Why don't you share it.
17	Q. If you'd look at this, it's a very	17	Q. Well, let's do that. Okay. Can you
18	brief article. And this exhibit is entitled	18	pull up 164?
19	*Estimation of Nuclear Population from Microtome	19	(Exhibit 164 was identified
	Sections."	20	for the record.)
20	A. Yes.	21	BY MR. TILLERY:
20 21			
21 22	Q. Okay. And if you look at this	22	Q. Okay. This is just a hard copy of the
21		22 23 24	Q. Okay. This is just a hard copy of the transcript. And the first page of this says it's the videotaped deposition of Richard Smeyne date

32 (Pages 1808 to 1811)

Page 1812		Page 1814
October 2, 2020. Do you see that?	1	Q. *ISSIA continues from a
A. Ido.	2	well-established International Society for
<ul> <li>Q. All right. If you go to the next page,</li> </ul>	3	Stereology, ISS, with expanded scope to all aspects
and the question is starting on line 9, and it says,	4	of image analysis. Our members are coming from many
"And in the '50s and '60s, those methods changed and	5	different fields of science such as mathematics,
improved. Is that also correct?"	6	blomedicine, computer science, material science,
And there was an objection. And then I	7	statistics, geology, stochastic geometry,
said, "You can answer."	8	et cetera."
And then he answers on line 16, "I can	9	Do you see that?
only – the original paper by Elizabeth Abercromble	10	A. I do.
in the Anatomical Record, which I think is 1946, was	11	Q. All right. Do you know when this
really the gold standard for estimating neurons."	12	organization was formed?
Do you see that?	13	A. No. I have no idea.
A. Ido.	14	<ul> <li>Q. Okay. Well, let's go to the next</li> </ul>
Q. Okay. All right. Do you have any	15	exhibit, which is 166.
reason to dispute what Dr. Sworn – Dr. Smeyne's	16	(Exhibit 166 was identified
sworn testimony indicated?	17	for the record.)
A. No, not at all. He's an expert in his	18	BY MR. TILLERY:
field.	19	<ul> <li>Q. And I show you this just to show that</li> </ul>
Q. All right.	20	it was founded – the International Society was
Now, were you aware there's an	21	founded in 1963. And if you look at this exhibit,
International Society for Stereology and Image	22	and I think it's on page 3 of the exhibit.
Analysis?	23	Actually, yes, if you go to the number 3.1.
A. I may have known at one time, but I	24	A. Okay. That's on page 2.
Page 1813		Page 1815
have no memory of of that specifically at the	1	Q. All right. It's on page 2. "Purpose
moment.	2	of association and scope of activity."
Q. Do you have people at Syngenta who are	3	Do you see that?
part of that organization?	4	A. I do.
A. Certainly not now, no.	5	<ul> <li>Q. "Association professes the tradition of</li> </ul>
Q. And would that be after 2007 when your	6	nonprofit organization International Society for
laboratories closed in England?	7	Stereology founded as Internationale Gesellschaft
A. Yes, certainly. And I don't even know	8	fur Stereologie" – my German Is not so good,
if there were prior to that.	9	okay? "in Stuttgart in 1963. It continues its
Q. Okay. If you can, I'm going to pull	10	traditions and sets its own aim of holding within
this next exhibit up. It's number 165.	11	the framework of its activities the role of an
(Exhibit 165 was identified	12	international nongovernmental organization in the
	13	fields specified hereinbelow."
for the record.)	1 2	
for the record.) BY MR. TILLERY:	14	Do you see that?
·	14 15	
BY MR. TILLERY:	14 15 16	Do you see that?  A. I do.  Q. Well, It was formed as an international
BY MR. TILLERY:  Q. And if you look on the first page.	14 15	Do you see that? A. I do.
BY MR. TILLERY:  Q. And if you look on the first page.  A. Okay.	14 15 16 17 18	Do you see that?  A. I do.  Q. Well, It was formed as an international
BY MR. TILLERY:  Q. And if you look on the first page.  A. Okay.  Q. There's a section under the little	14 15 16 17 18 19	Do you see that?  A. I do.  Q. Well, It was formed as an international society in 1963. And did you know that  3D stereology had by that time already been created as a means to augment the 2D stereology that was
BY MR. TILLERY:  Q. And if you look on the first page.  A. Okay.  Q. There's a section under the little diagram there, and it says "International Society	14 15 16 17 18	Do you see that?  A. I do. Q. Well, it was formed as an international society in 1963. And did you know that 3D stereology had by that time already been created
BY MR. TILLERY:  Q. And if you look on the first page.  A. Okay.  Q. There's a section under the little diagram there, and it says "International Society for Stereology and Image Analysis. ISSIA is an	14 15 16 17 18 19 20 21	Do you see that?  A. I do.  Q. Well, It was formed as an international society in 1963. And did you know that  3D stereology had by that time already been created as a means to augment the 2D stereology that was
BY MR. TILLERY:  Q. And if you look on the first page.  A. Okay.  Q. There's a section under the little diagram there, and it says "International Society for Stereology and Image Analysis. ISSIA is an international scientific society alming to promote	14 15 16 17 18 19 20 21	Do you see that?  A. I do.  Q. Well, It was formed as an International society in 1963. And did you know that  3D stereology had by that time already been created as a means to augment the 2D stereology that was used in 1946?  A. No, I didn't. I had no knowledge of the history of that.
BY MR. TILLERY:  Q. And if you look on the first page.  A. Okay.  Q. There's a section under the little diagram there, and it says "International Society for Stereology and Image Analysis. ISSIA is an international scientific society alming to promote stereology and image analysis in a wide range of	14 15 16 17 18 19 20 21	Do you see that?  A. I do.  Q. Well, It was formed as an international society in 1963. And did you know that  3D stereology had by that time already been created as a means to augment the 2D stereology that was used in 1946?  A. No, I didn't. I had no knowledge of
-	October 2, 2020. Do you see that?  A. I do.  Q. All right. If you go to the next page, and the question is starting on line 9, and it says, "And in the '50s and '60s, those methods changed and improved. Is that also correct?"  And there was an objection. And then I said, "You can answer."  And then he answers on line 16, "I can only – the original paper by Elizabeth Abercromble in the Anatomical Record, which I think is 1946, was really the gold standard for estimating neurons."  Do you see that?  A. I do.  Q. Okay. All right. Do you have any reason to dispute what Dr. Sworn – Dr. Smeyne's sworn testimony indicated?  A. No, not at all. He's an expert in his field.  Q. All right.  Now, were you aware there's an international Society for Stereology and image Analysis?  A. I may have known at one time, but I  Page 1813  have no memory of – of that specifically at the moment.  Q. Do you have people at Syngenta who are part of that organization?  A. Certainly not now, no.  Q. And would that be after 2007 when your laboratories closed in England?  A. Yes, certainly. And I don't even know if there were prior to that.  Q. Okay. If you can, I'm going to pull this next exhibit up. It's number 165. (Exhibit 165 was identified	October 2, 2020. Do you see that?  A. I do.  Q. All right. If you go to the next page, and the question is starting on line 9, and it says, "And in the '50s and '60s, those methods changed and improved. Is that also correct?" And there was an objection. And then I said, "You can answer."  And then he answers on line 16, "I can only – the original paper by Elizabeth Abercromble in the Anatomical Record, which I think is 1946, was really the gold standard for estimating neurons."  Do you see that?  A. I do. Q. Okay. All right. Do you have any reason to dispute what Dr. Sworn – Dr. Smeyne's sworn testimony indicated?  A. No, not at all. He's an expert in his field.  Q. All right. Now, were you aware there's an International Society for Stereology and Image Analysis?  A. I may have known at one time, but I  Page 1813  have no memory of – of that specifically at the moment.  Q. Do you have people at Syngenta who are part of that organization?  A. Certainly not now, no. Q. And would that be after 2007 when your laboratories closed in England?  A. Yes, certainly. And I don't even know if there were prior to that. Q. Okay. If you can, I'm going to pull this next exhibit up. It's number 165. (Exhibit 165 was Identified

A. "The principal measuring methods employed in morphometry, generally known as stereology, allow information on volumes, surface areas, numbers of structures and many other dimensions to be derived from simple counting operations. Until relatively recently, these techniques have found only ilmited application in blology, although they have been used for many year in the inorganic sciences. With the development of reliable quantitative methods in physiology and blochemistry, however, stereologic techniques are becoming increasingly important, and a number of interesting methods have been developed which are both rapid and simple. In this paper, a number of practical techniques are presented which have prove useful in light and electron microscopy."  Q. And would you agree that this was published in June of 1967?  A. Yes, it was.
employed in morphometry, generally known as stereology, allow information on volumes, surface areas, numbers of structures and many other dimensions to be derived from simple counting operations. Until relatively recently, these techniques have found only limited application in biology, although they have been used for many year in the inorganic sciences. With the development of reliable quantitative methods in physiology and biochemistry, however, stereologic techniques are becoming increasingly important, and a number of interesting methods have been developed which are both rapid and simple. In this paper, a number of practical techniques are presented which have prove useful in light and electron microscopy."  Q. And would you agree that this was published in June of 1967?
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Q. And would you agree that this was published in June of 1967?
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•
A. Tes, it was.
O And would you paron that's lust and
Q. And would you agree that's just one
year after the initial registration of paraquatin
the United States In June of 1966?
A. Okay. Yes.
Page 181
Q. Okay. And the would you agree also
that from these documents that I've shared with you
that the technology and understanding of how to
perform stereology was employed in multiple
scientific disciplines including biology?
A. Yes. That seems to be true from what
we've got here.
Q. Okay. I believe you told me in
earlier in this deposition that before 2007, at
least, when CPL laboratories was closed, okay, that
laboratories ICI and Syngenta had in England were
state-of-the-art labs, correct?
A. Yeah. In many – In many aspects, they
were.
Q. Had ICI and then later Syngenta wanted
to use available 2D or 3D stereology techniques in
their laboratories in the 1960s or '70s or '80s to
count dopaminergic brain cells, there was nothing
preventing them from buying the stereology equipme
and hiring a trained stereologist to do the studies,
was there?
rras aicici
△ Conceivably that's true
A. Concelvably, that's true.     Q. Did they do that?

	Page 1820		Page 1822
1	specific expert in stereology.	1	this as confidential pursuant to the protective
2	Q. Okay. Until Louise Marks came on the	2	order.
3	scene in the early 2000s, correct?	3	MR, TILLERY: Doctor, let's go off the
4	A. That's right.	4	record.
5	Q. To your knowledge, had Chevron wanted	5	THE VIDEOGRAPHER: Hold on a minute.
6	to use available 2D or 3D stereology techniques in	6	Renee, orders?
7	their laboratories in the 1960s and 1970s to count	7	THE REPORTER: Go off are we "done"
8	dopaminergic brain cells, was there anything from	8	done?
9	where you're sitting that would prevent them from	9	MR. NARESH: We're done.
10	buying the stereology equipment, hiring a trained	10	THE REPORTER: Oh, okay. I guess the
11	stereologist to do the studies?	11	same copy orders, standing orders?
12	A. Again, conceivably, there's nothing	12	MR. NARESH: Yes, please, for Syngenta.
13	that could have stopped them from doing that.	13	MR. TILLERY: It is for the same.
14	Q. Okay. Was IP injection available as a	14	MR, ORLET: Same for Chevron.
15	laboratory tool for the introduction of chemicals	15	MR. HOPP: Same for Growmark.
16	into test animals by 1960?	16	THE VIDEOGRAPHER: And same video
10 17	A. It was.	17	orders for everybody?
	Q. From a purely technological standpoint	18	MR. NARESH: Yes.
18 19	based upon what I've shown you about stereology and	19	MR. TILLERY: Yes.
	stereology availability, there was nothing	20	MR. ORLET: Same video orders.
20		21	THE VIDEOGRAPHER: This concludes
21	preventing either ICI or Chevron from performing in the 1960s or 1970s the exact same type of studies	22	MR. HOPP: Yes.
22		23	THE VIDEOGRAPHER: This concludes the
23	performed by Dr. Louise Marks in the early 2000s, was there?	24	video-recorded deposition of Philip Botham,
24	Agg filele:	24	Video-recorded deposition of Filing Solitani,
	Page 1821		Page 1823
1	Page 1821  A. No. In theory, that's right.	1	
1 2		1 2	
	A. No. In theory, that's right.	1	Volume 7. We're going off the record at 9:30
2	A. No. In theory, that's right.  MR. TILLERY: Thank you. I have no	2	Volume 7. We're going off the record at 9:30 (Whereupon, signature was not
2	A. No. In theory, that's right.  MR. TILLERY: Thank you. I have no further questions, Dr. Botham.	2 3	Volume 7. We're going off the record at 9:30 (Whereupon, signature was not walved and the witness was
2 3 4	A. No. In theory, that's right.  MR. TILLERY: Thank you. I have no further questions, Dr. Botham.  MR. NARESH: All right. Joe or Tony,	2 3 4	Volume 7. We're going off the record at 9:30 (Whereupon, signature was not walved and the witness was excused at 9:30 a.m.)
2 3 4 5	A. No. In theory, that's right.  MR. TILLERY: Thank you. I have no further questions, Dr. Botham.  MR. NARESH: All right. Joe or Tony, do you have any questions?	2 3 4 5	Volume 7. We're going off the record at 9:30 (Whereupon, signature was not walved and the witness was excused at 9:30 a.m.)
2 3 4 5 6	A. No. In theory, that's right.  MR. TILLERY: Thank you. I have no further questions, Dr. Botham.  MR. NARESH: All right. Joe or Tony, do you have any questions?  MR. ORLET: I do not have any	2 3 4 5 6	Volume 7. We're going off the record at 9:30 (Whereupon, signature was not walved and the witness was excused at 9:30 a.m.)
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2 3 4 5 6 7 8 9 10 11	A. No. In theory, that's right.  MR. TILLERY: Thank you. I have no further questions, Dr. Botham.  MR. NARESH: All right. Joe or Tony, do you have any questions?  MR. ORLET: I do not have any questions.  MR. HOPP: I do not have any questions for Growmark.  MR. NARESH: Okay. Can we take a break? I want to speak briefly with my client, and	2 3 4 5 6 7 8 9 10	Volume 7. We're going off the record at 9:30 (Whereupon, signature was not walved and the witness was excused at 9:30 a.m.)
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2 3 4 5 6 7 8 9 10 111 112 113 114 115 116 117	A. No. In theory, that's right.  MR. TILLERY: Thank you. I have no further questions, Dr. Botham.  MR. NARESH: All right. Joe or Tony, do you have any questions?  MR. ORLET: I do not have any questions.  MR. HOPP: I do not have any questions for Growmark.  MR. NARESH: Okay. Can we take a break? I want to speak briefly with my client, and then we'll come back on the record.  MR. TILLERY: Yes, sir.  THE VIDEOGRAPHER: We're going off the record. The time is 9:14. This ends Media Unit Number 6.	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	Volume 7. We're going off the record at 9:30 (Whereupon, signature was not walved and the witness was excused at 9:30 a.m.)
2 3 4 5 6 7 8 9 10 11 11 12 13 14 15 16 17 18	A. No. In theory, that's right.  MR. TILLERY: Thank you. I have no further questions, Dr. Botham.  MR. NARESH: All right. Joe or Tony, do you have any questions?  MR. ORLET: I do not have any questions for Growmark.  MR. HOPP: I do not have any questions for Growmark.  MR. NARESH: Okay. Can we take a break? I want to speak briefly with my client, and then we'll come back on the record.  MR. TILLERY: Yes, sir.  THE VIDEOGRAPHER: We're going off the record. The time is 9:14. This ends Media Unit Number 6.  (Recess taken.)	2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	Volume 7. We're going off the record at 9:30 (Whereupon, signature was not walved and the witness was excused at 9:30 a.m.)
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III	Page 1824	Page 1826
1	CERTIFICATE OF REPORTER	1 ERRATA SHEET
2	I, RENEE COMBS QUINBY, a Registered	Witness Name: PHILIP BOTHAM, Ph.D.
3	Diplomate Reporter, Certifled Realtime Reporter,	2 Case Name: DIANA HOFFMANN, individually and as
4	Certified Court Reporter (MO), Certified Court	Independent Administrator of the Estate of
5	Reporter (IL), and Notary Public within and for the	3 THOMAS R. HOFFMANN, Deceased, et al. v.
6		SYNGENTA CROP PROTECTION, LLC, et al.  4 Date Taken: JANUARY 6, 2021
	State of Missouri, do hereby certify that the	Date faken. SATOART 0, 2021
7	witness whose testimony appears in the foregoing	5 <b>Page # Line #</b>
8	deposition was duly sworn by me to testify to the	Should read:
9	truth and nothing but the truth; that the testimony	6 Reason for change:
10	of sald witness was taken by stenographic means by	7 8 Page # Line #
11	me to the best of my ability and thereafter reduced	9 Should read:
12	to print under my direction.	10 Reason for change:
13	I further certify that I am neither	11
14	attorney nor counsel nor related nor employed by any	12 Page # Line #
15	of the parties to the action in which this	13 Should read:
16	deposition was taken; further, that I am not a	14 Reason for change:
17	relative or employee of any attorney or counsel	16 Page # Line #
18	employed by the parties hereto or financially	17 Should read:
19	Interested In this action.	18 Reason for change:
20	My Commission expires April 9, 2021	19
21		20 Page # Line # 21 Should read:
22	J. Comments	22 Reason for change:
23	Renée Combs Quinby, RDR, CRR, CCR (MO) #1291,	23
24	CSR (IL) #084-004867	24 Witness Signature:
-		
	Page 1825	Page 1827
1	Page 1825  ALARIS LITIGATION SERVICES	
2	ALARIS LITIGATION SERVICES	3
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2 3 4 5	ALARIS LITIGATION SERVICES  January 15, 2021  Ragan Naresh, Esq.	1 STATE OF
2 3 4	ALARIS LITIGATION SERVICES January 15, 2021	1 STATE OF) 2 3 COUNTY OF)
2 3 4 5 6 7 8	ALARIS LITIGATION SERVICES  January 15, 2021  Ragan Naresh, Esq. Kirkland & Ellis, LLP	1 STATE OF) 2 3 COUNTY OF) 4
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36 (Pages 1824 to 1827)