

Koch, Michael 01-11-2019

Koch, Michael 01-11-2019

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Total Time 01:31:24



Page/Line	Source	ID
7:20 - 7:24	<p>Koch, Michael 01-11-2019 (00:00:11)</p> <p>7:20 THE VIDEOGRAPHER: The court reporter is 7:21 John Arndt, and he will now swear in the witness. 7:22 7:23 The witness, MICHAEL KOCH, PhD, first having 7:24 been duly sworn, testified as follows:</p>	Koch.1
8:2 - 8:6	<p>Koch, Michael 01-11-2019 (00:00:06)</p> <p>8:2 Q. Good morning. 8:3 A. Good morning. 8:4 Q. It's a cold day here in St. Louis. Are 8:5 you from St. Louis originally? 8:6 A. I am.</p>	Koch.2
8:12 - 8:20	<p>Koch, Michael 01-11-2019 (00:00:21)</p> <p>8:12 Q. My name is Brent Wisner. I 8:13 represent the plaintiffs in this action. Are you 8:14 familiar generally with what this lawsuit is about? 8:15 A. It's my understanding it's a lawsuit 8:16 regarding glyph -- Roundup and an individual who has 8:17 cancer. 8:18 Q. And specifically a type of cancer called 8:19 non-Hodgkin's lymphoma? 8:20 A. Yes.</p>	Koch.3
16:7 - 17:7	<p>Koch, Michael 01-11-2019 (00:01:23)</p> <p>16:7 Q. I want to start off with a little bit of 16:8 background of yourself. What is your educational 16:9 background? 16:10 A. So would you like me to start at my 16:11 bachelor's degree, or would you like for me to start 16:12 with my most recent education? 16:13 Q. Well, I think you should start off where 16:14 you think it's relevant for your job today. 16:15 A. Okay. So I have a PhD from the University 16:16 of Iowa. That was granted in 2005, in pharmacology. 16:17 My professional experience since that time has been in 16:18 regulatory toxicology. I've worked for Research in 16:19 Ashland, Ohio, conducting regulatory toxicology studies 16:20 from 2006 to 2008, and then from 2008 to 2010 I worked 16:21 for Seventh Wave Labs, which is another contract 16:22 research organization which does short-term toxicology 16:23 work and pharmacokinetics. And then I joined Monsanto</p>	Koch.4

16:24 in 2010, and I'm -- well, I'm part of Bayer now, since
17:1 the acquisition.

17:2 Q. Those various contract laboratories that
17:3 you worked for prior to joining Monsanto, were -- did
17:4 they do work for Monsanto?

17:5 A. Yes. The -- Research in Ashland, Ohio,
17:6 did work for Monsanto. I don't recall working on any
17:7 Monsanto studies there.

18:19 - 19:2

Koch, Michael 01-11-2019 (00:00:22)

Koch.5
KOCH2.1.1

18:19 I'm handing you

18:20 Exhibit 2.

18:21 [Exhibit 2 marked for identification.]

18:22 A. Thank you.

18:23 Q. This is a document. It's MONGLY Number
18:24 05247516, and it appears to be on the front page an
19:1 e-mail from yourself to yourself. Do you see that?

KOCH2.1.2

19:2 A. Yes.

20:9 - 20:11

Koch, Michael 01-11-2019 (00:00:04)

Koch.6
KOCH2.2.1

20:9 Q. So we have attached here a curriculum
20:10 vitae, it appears to be, of yours. Do you see that?

20:11 A. Yes.

40:3 - 40:23

Koch, Michael 01-11-2019 (00:00:53)

Koch.7
clear

40:3 Q. And in 2015, did -- are you familiar with
40:4 Dr. Donna Farmer?

40:5 A. Yes.

40:6 Q. Did she work underneath you at that point?

40:7 A. Yes. In 2015 she was -- I believe she was
40:8 a part of David's team.

40:9 Q. David is?

40:10 A. David Saltmiras.

40:11 Q. And so Dr. Farmer then and Dr. Saltmiras
40:12 both reported to you; is that right?

40:13 A. Dr. Saltmiras or David reported directly
40:14 to me and Donna reported to David, but she was in my
40:15 organization.

40:16 Q. And that was in -- starting in 2015 --
40:17 December 2015?

40:18 A. Yes.

40:19 Q. Prior to that, did Dr. Farmer or Dr.

40:20 Saltmiras report to you?

40:24 - 41:3	<p>40:21 A. Yes. Both Donna and David reported 40:22 directly to me from September of 2014 to November of 40:23 2015 as the toxicology and nutrition center lead.</p> <p>Koch, Michael 01-11-2019 (00:00:05)</p>	Koch.8
41:4 - 41:13	<p>40:24 Q. And when you were in the new technologies 41:1 and toxicology, did Dr. Farmer or Dr. Saltmiras report 41:2 to you?</p> <p>41:3 A. No.</p> <p>Koch, Michael 01-11-2019 (00:00:30)</p>	Koch.9
41:21 - 42:5	<p>41:4 Q. Do you know Dr. William Heydens? 41:5 A. I do. 41:6 Q. Did Dr. Heydens ever report to you? 41:7 A. No, Dr. Heydens never reported to me. 41:8 Q. Did you ever report to Dr. Heydens? 41:9 A. No. Bill was a peer. We both shared the 41:10 same manager, reporting in at various times to Susan 41:11 Martineau Kapp (ph) and Sonja Franklin (ph), but -- and 41:12 no, at no time did I report to Bill or did Bill report 41:13 to me.</p> <p>Koch, Michael 01-11-2019 (00:00:22)</p>	Koch.10
42:6 - 42:8	<p>41:21 Q. When you took on the role as product 41:22 safety center lead, did that require you to be 41:23 overseeing the product safety of glyphosate and 41:24 Roundup?</p> <p>42:1 A. The product safety center -- yes, 42:2 includes all of our products which are 42:3 crop-protection chemicals and biotech products as well 42:4 as some biopesticides -- microbial and biochemical 42:5 biopesticides, as well.</p> <p>Koch, Michael 01-11-2019 (00:00:07)</p>	Koch.11
42:9 - 43:9	<p>42:6 Q. So if we go through the description here, 42:7 it kind of describes the center, right, the first 42:8 couple of sentences?</p> <p>Koch, Michael 01-11-2019 (00:01:02)</p> <p>42:9 A. Yes, and the teams which are comprised of 42:10 it. Yep.</p> <p>42:11 Q. And it goes on to say the role provides 42:12 scientific oversight and direction and people 42:13 leadership to both the toxicology and composition teams 42:14 as they plan, conduct, and interpret studies comprising</p>	Koch.12
		KOCH2.2.2

42:15 two key aspects of the regulatory submissions and
42:16 global scientific outreach for biotechnology-derived
42:17 products. Did I read that right?

42:18 A. Yes.

42:19 Q. And so in your role as the lead, you were
42:20 providing oversight and direction; is that right?

42:21 A. Yes.

42:22 Q. It goes on to say the role leverages
42:23 productive collaborations with Monsanto stakeholders.
42:24 I'll stop right there. What does that mean?

KOCH2.2.3

43:1 A. Anyone who would have an interest in our
43:2 products.

KOCH2.2.4

43:3 Q. And external bodies, national research
43:4 institutes, international trade associations, and
43:5 national regulatory agencies, to navigate and shape a
43:6 complex international regulatory environment and gain
43:7 regulatory approvals and freedom to operate for the
43:8 company's products. Did I read that right?

43:9 A. Yes.

43:18 - 44:10

Koch, Michael 01-11-2019 (00:00:40)

Koch.13

43:18 Q. And so the product safety center lead --
43:19 part of your job was to ensure freedom to operate for
43:20 the company's products?

43:21 A. As a part of engaging stakeholders, as --
43:22 part of that is sharing that data and communicating
43:23 with them, yeah.

43:24 Q. It says to accomplish this, the product
44:1 safety center lead must identify strategic challenges
44:2 to the development of new products and the defense of
44:3 existing products. Did I read that right?

KOCH2.2.5

44:4 A. Yes.

44:5 Q. What do you mean by the defense of
44:6 existing products?

44:7 A. So occasionally there are results
44:8 published in the public literature which are not --
44:9 which we feel are not accurate, and we take steps to
44:10 investigate whether or not they're accurate.

clear

44:11 - 44:14

Koch, Michael 01-11-2019 (00:00:09)

Koch.14

44:11 Q. And just off the top of your head, has
44:12 there ever been a result showing a health risk

44:18 - 45:1	<p>44:13 associated with Roundup or glyphosate that you believed 44:14 was accurate? Koch, Michael 01-11-2019 (00:00:23)</p>	Koch.15
	<p>44:18 A. The -- yeah. Would you clarify what you 44:19 mean by any -- any result? 44:20 Q. (By Mr. Wisner) Have you seen -- is there 44:21 a single peer-reviewed journal article that you 44:22 yourself have reviewed in your capacity as product 44:23 safety center lead that showed a health risk associated 44:24 with Roundup or glyphosate that in your opinion was 45:1 accurate?</p>	Koch.16
45:3 - 45:15	<p>Koch, Michael 01-11-2019 (00:00:39) 45:3 A. I'm not the glyphosate expert. I'm more 45:4 familiar with -- I received summaries from the team 45:5 members who are glyphosate experts, and so I'm not 45:6 intimately familiar with the literature, but the 45:7 literature that I have seen, I don't believe that the 45:8 results report hazards associated with it like some of 45:9 the literature says are accurate. No, I don't believe 45:10 that. I believe the regulatory dataset, which is much 45:11 more robust. 45:12 Q. (By Mr. Wisner) So to be clear, then, 45:13 sitting here today, you cannot identify a single 45:14 peer-reviewed article reflecting a health risk 45:15 associated with Roundup that you believe is accurate?</p>	Koch.17
45:17 - 45:18	<p>Koch, Michael 01-11-2019 (00:00:03) 45:17 A. That's correct. The literature I'm 45:18 familiar with I don't believe is convincing.</p>	Koch.18
46:8 - 46:14	<p>Koch, Michael 01-11-2019 (00:00:19) 46:8 Q. So would it be fair to say then that as 46:9 part of your job as the product safety center lead, one 46:10 of the outcomes of your conduct that we've gone 46:11 through -- which included navigating complex regulatory 46:12 environments, securing freedom to operate -- that the 46:13 outcome of that was to have white papers and journal 46:14 articles published?</p>	Koch.19
46:16 - 46:21	<p>Koch, Michael 01-11-2019 (00:00:15) 46:16 A. That wasn't the sole purpose of it. The 46:17 sole purpose was to generate data to share with 46:18 regulatory stakeholders to allow them to decide on the</p>	Koch.19

46:22 - 47:2	<p>46:19 safety of the product, but sometimes we would write 46:20 white papers and journal articles to share information, 46:21 yes.</p> <p>Koch, Michael 01-11-2019 (00:00:10)</p> <p>46:22 Q. (By Mr. Wisner) And journal articles -- I 46:23 mean, that is not really for regulatory purposes, 46:24 right, because if you want to submit something to a 47:1 regulator, you just give it to them. Journal articles, 47:2 that's for the academic community; right?</p>	Koch.20
47:4 - 47:6	<p>Koch, Michael 01-11-2019 (00:00:07)</p> <p>47:4 A. Journal articles are for both the academic 47:5 and the regulatory community. There are some journals 47:6 which specialize in regulatory data.</p>	Koch.21
47:15 - 47:19	<p>Koch, Michael 01-11-2019 (00:00:13)</p> <p>47:15 Q. So it would be fair to say then in your 47:16 capacity as the product safety center lead, you were 47:17 helping drive the policies of Monsanto in the 47:18 maintenance of the safety of the products that they 47:19 were selling?</p>	Koch.22
47:21 - 48:7	<p>Koch, Michael 01-11-2019 (00:00:27)</p> <p>47:21 A. No, I was leading a team that generated 47:22 some of the data which would occur -- which would 47:23 demonstrate the safety of the products.</p> <p>47:24 Q. (By Mr. Wisner) Right. And so you'd be 48:1 making decisions on a day-to-day basis that would 48:2 ultimately decide what data is pursued, what studies 48:3 were done? Is that fair to say?</p> <p>48:4 A. In collaboration with other internal 48:5 stakeholders, yes, we were.</p> <p>48:6 Q. But at the end of the day the buck stopped 48:7 with you -- is that fair to say?</p>	Koch.23
48:9 - 48:9	<p>Koch, Michael 01-11-2019 (00:00:01)</p> <p>48:9 A. No, I don't believe that's accurate.</p>	Koch.24
48:10 - 48:11	<p>Koch, Michael 01-11-2019 (00:00:04)</p> <p>48:10 Q. (By Mr. Wisner) But you did play a 48:11 substantial role in making those decisions; right?</p>	Koch.25
48:13 - 49:1	<p>Koch, Michael 01-11-2019 (00:00:32)</p> <p>48:13 A. Can you describe substantial role?</p> <p>48:14 Q. (By Mr. Wisner) Well, you just said the 48:15 buck didn't stop with you, and I appreciate that, but</p>	Koch.26

48:16 you did contribute to the decision-making processes
48:17 about what studies would be done, what assessments
48:18 would be made related to Monsanto's products; is that
48:19 fair?

48:20 A. We would develop technical justifications
48:21 and strategies and share them with other internal
48:22 stakeholders to come to a consensus.

48:23 Q. Great. And one of the products that that
48:24 involved was Roundup?

49:1 A. As a product in the portfolio, yes.

57:7 - 57:10

Koch, Michael 01-11-2019 (00:00:12)

Koch.27

57:7 Q. And is it true that Monsanto has developed
57:8 a group of third-party toxicologists who come to defend
57:9 Monsanto's products in the public domain specifically
57:10 as it relates to glyphosate?

57:12 - 57:17

Koch, Michael 01-11-2019 (00:00:21)

Koch.28

57:12 A. Monsanto contracts with independent
57:13 experts for their time and to provide their independent
57:14 opinions on our products.

57:15 Q. (By Mr. Wisner) So that's a yes? There's
57:16 a network of third-party toxicologists that Monsanto
57:17 pays for their time in defending glyphosate publicly?

57:20 - 57:21

Koch, Michael 01-11-2019 (00:00:03)

Koch.29

57:20 A. We pay them for their time and they
57:21 provide their independent opinions.

57:22 - 58:3

Koch, Michael 01-11-2019 (00:00:19)

Koch.30

57:22 Q. (By Mr. Wisner) And Monsanto wouldn't pay
57:23 them for their opinions if it didn't support -- this is
57:24 under the goal -- oversee the production of and in some
58:1 cases generate quality documents on an as-needed basis
58:2 to successfully rebut allegations and proactively
58:3 defend the safety of our products; correct?

58:7 - 58:14

Koch, Michael 01-11-2019 (00:00:19)

Koch.31

58:7 A. So as I said, the independent consultants
58:8 provide their independent professional opinions.
58:9 They're very highly-regarded scientists, and we respect
58:10 their opinions.

58:11 Q. (By Mr. Wisner) That's right. And they
58:12 support this goal, written in black and white here in
58:13 the document, which is to proactively defend the safety

KOCH3.3.1

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58:16 - 58:21	<p>58:14 of our products; correct?</p> <p>Koch, Michael 01-11-2019 (00:00:17)</p> <p>58:16 A. So if -- the scientists are providing 58:17 their opinions and we're not pushing them one way or 58:18 the other. They're providing their opinions for us. 58:19 If it's supportive, that's okay. If it's not 58:20 supportive, we probably need to do more research into 58:21 what their concerns are.</p>	Koch.32 clear
58:22 - 59:2	<p>Koch, Michael 01-11-2019 (00:00:16)</p> <p>58:22 Q. (By Mr. Wisner) Within Monsanto's tox 58:23 network related to glyphosate, is there a single 58:24 independent scientist that is being paid by Monsanto 59:1 that has publicly stated that glyphosate or Roundup can 59:2 cause non-Hodgkin's lymphoma?</p>	Koch.33
59:4 - 59:9	<p>Koch, Michael 01-11-2019 (00:00:13)</p> <p>59:4 A. As I mentioned, I'm more involved in the 59:5 oversight of the tox work, and I'm not the glyphosate 59:6 expert.</p> <p>59:7 Q. (By Mr. Wisner) So your answer is no, you 59:8 don't know of any expert that's publicly stated that 59:9 Roundup or glyphosate can cause cancer?</p>	Koch.34
59:12 - 59:12	<p>Koch, Michael 01-11-2019 (00:00:00)</p> <p>59:12 A. That's correct.</p>	Koch.35
66:13 - 67:21	<p>Koch, Michael 01-11-2019 (00:01:40)</p> <p>66:13 Q. (By Mr. Wisner) Doctor, there is a 66:14 distinction between glyphosate and Roundup; right? 66:15 A. Glyphosate is the active ingredient in the 66:16 Roundup herbicide -- in the formulated product, yes. 66:17 Q. And when you say glyphosate is the active 66:18 ingredient, does that mean that the other ingredients 66:19 in the formulated product have no toxicity? 66:20 A. The formulated products contain the active 66:21 ingredient, which is specified as the chemical which 66:22 does the job for which it's intended, and then there 66:23 are what are referred to as inert ingredients. Inert 66:24 ingredients don't have that same mechanism of action in 67:1 particular.</p> <p>67:2 Q. But would it be fair to say, though, that 67:3 although they're called inert ingredients, they're not 67:4 actually inert chemicals; right?</p>	Koch.36

67:5 A. Inert ingredients are part of the
67:6 formulation, and they're there to serve a variety of
67:7 purposes. You may dye it or put odorants in it's so
67:8 that it's not appealing to people to ingest, and you
67:9 might do -- yeah, there's a variety of purposes of
67:10 inerts, yes.

67:11 Q. And for example, one of the inert
67:12 ingredients in the Roundup formulated product is
67:13 something called a surfactant; is that right?

67:14 A. Yes.

67:15 Q. And a surfactant is a chemical which is
67:16 designed to increase the surface area or the spread of
67:17 the formulated product on plants?

67:18 A. That's my understanding of it, yes.

67:19 Q. And the surfactant actually helps
67:20 glyphosate get into the plant so it can do its job of
67:21 killing it; right?

67:23 - 67:24

Koch, Michael 01-11-2019 (00:00:02)

Koch.37

67:23 A. I'm not a product chemist, so I don't
67:24 know.

68:6 - 68:10

Koch, Michael 01-11-2019 (00:00:16)

Koch.38

68:6 Q. (By Mr. Wisner) So you don't know one way
68:7 or the other whether surfactants help glyphosate
68:8 penetrate a plant?

68:9 A. I know that surfactants as a general class
68:10 aid in dispersal of the product across the leaf.

68:11 - 68:13

Koch, Michael 01-11-2019 (00:00:10)

Koch.39

68:11 Q. You are aware that Monsanto has conducted
68:12 long-term animal carcinogenicity studies on glyphosate
68:13 technical; correct?

68:15 - 69:3

Koch, Michael 01-11-2019 (00:00:38)

Koch.40

68:15 A. Based on the fact that we have
68:16 registrations, yes, I presume that there were
68:17 carcinogenicity studies conducted. I know that other
68:18 registrants have conducted that too.

68:19 Q. (By Mr. Wisner) Fair enough. And those
68:20 studies -- those long-term animal carcinogenicity
68:21 studies -- those are primarily on rodents; correct?

68:22 A. Yes, the rat and the mouse are the
68:23 accepted models for carcinogenicity studies.

69:5 - 69:11	<p>68:24 Q. And those long-term carcinogenicity 69:1 studies look at whether Roundup -- sorry. Strike that. 69:2 Look at whether glyphosate -- not Roundup, but 69:3 glyphosate -- can induce tumors in laboratory animals?</p> <p>Koch, Michael 01-11-2019 (00:00:20)</p> <p>69:5 A. Carcinogenicity studies are designed to 69:6 determine whether or not there's carcinogenic potential 69:7 for an active ingredient. 69:8 Q. (By Mr. Wisner) And to the best of your 69:9 knowledge, Monsanto has never conducted a long-term 69:10 animal carcinogenicity study on the formulated Roundup 69:11 product; correct?</p>	Koch.41
69:13 - 69:16	<p>Koch, Michael 01-11-2019 (00:00:17)</p> <p>69:13 A. The active ingredient and the inerts in 69:14 formulated products are subject to EPA review, and data 69:15 is required, including carcinogenicity, for inerts as 69:16 well.</p>	Koch.42
69:20 - 69:23	<p>Koch, Michael 01-11-2019 (00:00:09)</p> <p>69:20 Q. (By Mr. Wisner) Has the formulated 69:21 product, Roundup, ever been -- has there ever been a 69:22 long-term animal carcinogenicity study for the 69:23 formulated product?</p>	Koch.43
70:1 - 70:7	<p>Koch, Michael 01-11-2019 (00:00:20)</p> <p>70:1 A. Yeah, the components of the formulated 70:2 product have extensive datasets for them up to and 70:3 including carcinogenicity studies. 70:4 Q. (By Mr. Wisner) So are you testifying 70:5 under oath that there have been long-term animal 70:6 carcinogenicity studies examining the formulated 70:7 product?</p>	Koch.44
70:9 - 71:1	<p>Koch, Michael 01-11-2019 (00:00:42)</p> <p>70:9 A. No, what I'm saying is that all of the 70:10 components in there have extensive datasets. 70:11 Q. (By Mr. Wisner) I understand. There have 70:12 been long-term animal carcinogenicity studies on 70:13 glyphosate; correct? 70:14 A. Correct. 70:15 Q. And there have not been long-term 70:16 carcinogenicity studies on the surfactant; correct? 70:17 A. I am not -- the surfactants are not our</p>	Koch.45

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71:4 - 71:12	<p>70:18 products, and so I don't know what all their dataset 70:19 describes comprised of. 70:20 Q. But Roundup -- that's a Monsanto product; 70:21 right? 70:22 A. It is. 70:23 Q. And to the best of your knowledge, 70:24 Monsanto has never conducted a long-term animal 71:1 carcinogenicity study on Roundup; correct? Koch, Michael 01-11-2019 (00:00:32)</p>	Koch.46
71:13 - 71:15	<p>71:4 A. Monsanto did the active ingredient carc 71:5 (ph) study and at much higher doses than would be found 71:6 in a Roundup product. Likewise, the safety dataset 71:7 from the other components would be -- has been found to 71:8 show no safety concerns, and so there was not a need to 71:9 conduct a study with the Roundup formulation. 71:10 Q. (By Mr. Wisner) Sir, I didn't ask you 71:11 about the need. I will get to that question. I'm just 71:12 trying to get a baseline here. Koch, Michael 01-11-2019 (00:00:10)</p>	Koch.47
71:18 - 71:23	<p>71:13 isn't it true, Doctor, that Monsanto has never 71:14 conducted a long-term animal carcinogenicity study on 71:15 the Roundup formulated product? Koch, Michael 01-11-2019 (00:00:14) 71:18 A. As I said, the components of Roundup have 71:19 been extensively tested, but there is no formulated 71:20 product carcinogenicity study. 71:21 Q. (By Mr. Wisner) So that's a no, they've 71:22 never done a study on Roundup; just the parts within 71:23 it?</p>	Koch.48
72:1 - 72:1	<p>Koch, Michael 01-11-2019 (00:00:01) 72:1 A. Not to my knowledge.</p>	Koch.49
146:9 - 146:12	<p>Koch, Michael 01-11-2019 (00:00:11) 146:9 Q. And isn't it true that even today Monsanto 146:10 has to be careful about how it discusses any particular 146:11 Roundup product because some Roundup products have 146:12 other stuff in them beyond just glyphosate?</p>	Koch.50
146:16 - 146:17	<p>Koch, Michael 01-11-2019 (00:00:02) 146:16 A. I don't know the contents of all the 146:17 Roundup products.</p>	Koch.51
146:18 - 147:2	<p>Koch, Michael 01-11-2019 (00:00:15)</p>	Koch.52

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	146:18 Q. (By Mr. Wisner) Well, you're head of the 146:19 product safety center; right? 146:20 A. That is correct. 146:21 Q. Roundup is a product? 146:22 A. It is. 146:23 Q. And in your capacity as the head of the 146:24 product safety center, you understand that certain 147:1 Roundup products contain active ingredients beyond just 147:2 glyphosate; right?	
147:5 - 147:5	Koch, Michael 01-11-2019 (00:00:00)	Koch.53
	147:5 A. That's correct.	
147:6 - 147:10	Koch, Michael 01-11-2019 (00:00:10)	Koch.54
	147:6 Q. (By Mr. Wisner) And so when you talk 147:7 about the safety of, quote/unquote, Roundup, you got to 147:8 be careful because you might be talking about other 147:9 chemicals depending on which specific Roundup you're 147:10 talking about?	
147:12 - 147:19	Koch, Michael 01-11-2019 (00:00:15)	Koch.55
	147:12 A. Yeah, this e-mail -- I've never seen it 147:13 before. I'm not sure to what they're referring here. 147:14 Q. (By Mr. Wisner) I wasn't asking you about 147:15 the e-mail. I was asking you about your knowledge as 147:16 the product safety center lead. 147:17 A. Then I'm sorry. I misinterpreted you. 147:18 Could you restate the question? 147:19 Q. Sure.	
147:20 - 147:21	Koch, Michael 01-11-2019 (00:00:11)	Koch.56
	147:20 [The pending question was read by the 147:21 reporter.]	
147:24 - 148:5	Koch, Michael 01-11-2019 (00:00:11)	Koch.57
	147:24 A. There's a lot in that question. Can you 148:1 unpack that a little bit for me? 148:2 Q. (By Mr. Wisner) I'll just have him read 148:3 it back, and I thought it was a good question, so -- 148:4 but if you can't answer it that's fine, but let's have 148:5 him read it back again.	
148:6 - 148:7	Koch, Michael 01-11-2019 (00:00:13)	Koch.58
	148:6 [The pending question was read by the 148:7 reporter.]	
148:9 - 148:10	Koch, Michael 01-11-2019 (00:00:03)	Koch.59

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148:16 - 148:24	148:9 A. Yeah. I can't answer that question as 148:10 asked.	Koch.60
148:16 - 148:24	<p>Koch, Michael 01-11-2019 (00:00:24)</p> <p>148:16 Q. Okay. Fine. Let's move on with 148:17 the e-mail. Dr. Farmer writes the terms glyphosate and 148:18 Roundup cannot be used interchangeably, nor can you use 148:19 Roundup for all glyphosate-based herbicides anymore. 148:20 Did I read that correctly?</p> <p>148:21 A. It says the terms glyphosate and Roundup 148:22 cannot be used interchangeably, nor can you use Roundup 148:23 for all glyphosate-based herbicides anymore. Yes.</p> <p>148:24 Q. Do you agree with that?</p>	Koch.60
149:3 - 149:6	<p>Koch, Michael 01-11-2019 (00:00:07)</p> <p>149:3 A. I don't know what's in all the Roundup 149:4 formulations.</p> <p>149:5 Q. (By Mr. Wisner) I'm sorry. That 149:6 sentence -- do you agree with it or not?</p>	Koch.61
149:8 - 150:2	<p>Koch, Michael 01-11-2019 (00:00:56)</p> <p>149:8 A. I don't know the composition of all the 149:9 glyphosate formulations so I can't comment.</p> <p>149:10 Q. (By Mr. Wisner) Sir, isn't it true that 149:11 the terms glyphosate and Roundup cannot be used 149:12 interchangeably nor can you use Roundup for all 149:13 glyphosate herbicides?</p> <p>149:14 A. Glyphosate is the active ingredient in 149:15 Roundup, and so that's -- they are -- there are other 149:16 things in Roundup that are not glyphosate, yes.</p> <p>149:17 Q. Great. For example -- she goes on to say, 149:18 for example, you cannot say Roundup is not a 149:19 carcinogen. We have not done the necessary testing on 149:20 the formulation to make that statement. The testing on 149:21 the formulations are not anywhere near the level of the 149:22 active ingredient. You can make that statement about 149:23 glyphosate and you can infer that there is no reason to 149:24 believe that Roundup would cause cancer. Did I read 150:1 that right?</p>	Koch.62
150:23 - 151:2	<p>Koch, Michael 01-11-2019 (00:00:09)</p> <p>150:23 Q. (By Mr. Wisner) And after Dr. Farmer made 150:24 this statement in 2003, Monsanto did not go about</p>	Koch.64

Page/Line	Source	ID
151:5 - 151:13	<p>151:1 conducting a carcinogenicity study on the Roundup 151:2 formulated product, did it?</p> <p>Koch, Michael 01-11-2019 (00:00:19)</p> <p>151:5 A. To my knowledge there is no carcinogen -- 151:6 there is not a carcinogenicity study with Roundup 151:7 because it's not necessary because the regulatory 151:8 dataset is sufficient for coming to the conclusion it's 151:9 not a carcinogen. 151:10 Q. (By Mr. Wisner) Do you agree with her 151:11 that you cannot say that Roundup is not a carcinogen? 151:12 A. I don't know what she meant by that so I 151:13 can't comment on that.</p>	Koch.65
163:15 - 163:16	<p>Koch, Michael 01-11-2019 (00:00:03)</p> <p>163:15 Q. (By Mr. Wisner) How long does it take to 163:16 do a long-term animal carcinogenicity study?</p>	Koch.66
163:20 - 164:11	<p>Koch, Michael 01-11-2019 (00:00:39)</p> <p>163:20 A. Carcinogenicity studies in mice typically 163:21 take 18 months and in rats two years. 163:22 Q. (By Mr. Wisner) And then it takes about, 163:23 what, another year or so to do all the histopathology 163:24 on those animals? 164:1 A. Yes, that's the dosing period for each of 164:2 those studies, and then there's the reporting process. 164:3 Yeah. 164:4 Q. So ballpark, to do a long-term rodent 164:5 carcinogenicity study it's approximately three years? 164:6 A. That's correct. 164:7 Q. So if Monsanto had started a long-term 164:8 animal carcinogenicity study in 2009, by the time you 164:9 arrived at Monsanto, and even today, we'd have data 164:10 about whether or not the formulated product induces 164:11 tumors; correct?</p>	Koch.67
164:16 - 164:18	<p>Koch, Michael 01-11-2019 (00:00:08)</p> <p>164:16 A. To my knowledge, Monsanto hasn't -- didn't 164:17 start a study in 2009 on the formulation, and so there 164:18 would be nothing to report.</p>	Koch.68
175:18 - 176:12	<p>Koch, Michael 01-11-2019 (00:00:54)</p> <p>175:18 Q. (By Mr. Wisner) Well, you do have grounds 175:19 for saying that we don't have an urgent need to study 175:20 the carcinogenicity of the formulated product; right?</p>	Koch.69

175:21 You have grounds for saying that; right?
 175:22 A. Because the existing dataset, which
 175:23 consists of data from multiple registrants, indicates
 175:24 that there are no carcinogenicity concerns, yes.
 176:1 Q. And in fact, there has never been a
 176:2 carcinogenicity study done by Monsanto specifically to
 176:3 look at whether the formulated product causes cancer or
 176:4 promotes cancer; correct?
 176:5 A. That's right. We believe the existing
 176:6 dataset demonstrates the safety of the active
 176:7 ingredient and that the other data available support
 176:8 the safety of a formulation. Additionally, the
 176:9 feasibility of conducting a chronic study with the
 176:10 formulation is unknown. Things like the surfactants in
 176:11 there could irritate the animals' stomachs and make it
 176:12 impossible to feed them for two years.

206:7 - 206:14

Koch, Michael 01-11-2019 (00:00:17)

Koch.70

206:7 A. So as I said, there's a wide definition of
 206:8 what people might call ghostwriting.
 206:9 Q. (By Mr. Wisner) So you --
 206:10 A. And it's hard to say what would be
 206:11 unethical or not.
 206:12 Q. So it's your testimony to this jury that
 206:13 you can't say one way or the other whether ghostwriting
 206:14 is just across the board unethical?

206:9 - 206:11

Koch, Michael 01-11-2019 (00:00:03)

Koch.71

206:9 Q. (By Mr. Wisner) So you --
 206:10 A. And it's hard to say what would be
 206:11 unethical or not.

206:17 - 206:20

Koch, Michael 01-11-2019 (00:00:11)

Koch.72

206:17 A. Yeah, I think it's -- I think that the
 206:18 fact that multiple definitions of ghostwriting exist,
 206:19 and so therefore it's hard to say whether or not it's
 206:20 entirely inappropriate.

207:1 - 207:18

Koch, Michael 01-11-2019 (00:00:47)

Koch.73

207:1 Q. When is ghostwriting appropriate, sir?
 207:2 A. I think the term -- as I said, I think the
 207:3 term means many things. Someone might use it as
 207:4 shorthand for providing background information or
 207:5 references or other things to facilitate someone else

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	207:6 writing a paper. I don't see anything wrong with that. 207:7 Ghostwriting could also be someone writing a paper and 207:8 someone else signing their name to it as them having 207:9 written it, and I would say that is probably -- that's 207:10 not appropriate. 207:11 Q. So that second one where someone else 207:12 writes it and then someone signs their name, so to 207:13 speak -- that's the unethical type? 207:14 A. I would not be comfortable doing that. 207:15 Q. And you wouldn't be comfortable for any of 207:16 the people that you work with or work under you doing 207:17 that; correct? 207:18 A. That's correct.	
221:22 - 222:2	Koch, Michael 01-11-2019 (00:00:13) 221:22 Q. Okay. Great. Now, you've repeatedly 221:23 stated that studies were not needed to study the 221:24 formulated product of Roundup; correct? 222:1 A. I've stated that carcinogenicity studies 222:2 aren't necessary with the formulated product, yes.	Koch.74
250:12 - 251:2	Koch, Michael 01-11-2019 (00:00:34) 250:12 Are you familiar with IARC? 250:13 A. I am. 250:14 Q. What is your understanding of what IARC 250:15 is? 250:16 A. The -- I know the acronym stands for the 250:17 International Agency for Research on Cancer. 250:18 Q. And when did you first learn about IARC? 250:19 A. 2014. 250:20 Q. And what was the circumstances of you 250:21 learning about it? 250:22 A. We had heard that they were going to 250:23 review glyphosate. 250:24 Q. And do you recall when in 2014 you first 251:1 heard about that? 251:2 A. I don't recall the exact date, no.	Koch.75
251:3 - 251:5	Koch, Michael 01-11-2019 (00:00:10) 251:3 Q. You understand that IARC's -- one of the 251:4 things that it does is it tries to identify the 251:5 potential causes of human cancer?	Koch.76
251:7 - 251:10	Koch, Michael 01-11-2019 (00:00:15)	Koch.77

Page/Line	Source	ID
	284:7 A. Yes. Yes.	
	284:8 Q. So we see at the bottom here you have an	KOCH18.1.2
	284:9 e-mail that's addressed to, among other people,	
	284:10 yourself as well, from Daniel Jenkins. You see that?	
	284:11 A. I do.	
	284:12 Q. And the subject is EPA glyphosate. Do you	
	284:13 see that?	
	284:14 A. Yes.	
	284:15 Q. And this is -- Mr. Jenkins -- he was a guy	
	284:16 who dealt frequently in interacting with the EPA?	
	284:17 A. Dan was a member of the Government Affairs	
	284:18 Team, yes.	
285:8 - 285:23	Koch, Michael 01-11-2019 (00:00:39)	Koch.82
	285:8 Q. And down at	
	285:9 the bottom it talks about IARC; right?	KOCH18.1.3
	285:10 A. Yes.	
	285:11 Q. And this is in January of 2015, so this is	
	285:12 before the monograph has actually met; correct?	
	285:13 A. Yes.	
	285:14 Q. And it says IARC, they are sending	
	285:15 delegates -- trying to get names -- that are	
	285:16 knowledgeable RE glyphosate from EDSP and oncogenicity	
	285:17 standpoint. Do you see that?	
	285:18 A. Yes.	
	285:19 Q. And EDSP -- that refers to endocrine	KOCH18.1.5
	285:20 disruptors?	
	285:21 A. It's my understanding that EDSP in that	
	285:22 sentence stands for the Endocrine Disruptor Screening	
	285:23 Program.	
285:24 - 289:8	Koch, Michael 01-11-2019 (00:03:49)	Koch.83
	285:24 Q. And oncogenicity -- that refers to the	
	286:1 ability of a substance to cause tumors?	
	286:2 A. Yes.	
	286:3 Q. It says the findings by IARC would likely	KOCH18.1.6
	286:4 be impactful on their analysis. Do you see that?	
	286:5 A. I do.	
	286:6 Q. Now, you actually respond to this e-mail,	
	286:7 sending it -- or you forward it to Dr. Heydens; right?	KOCH18.1.7
	286:8 A. Yes.	
	286:9 Q. And the only thing that you comment on is	

286:10 this statement about IARC; right?

286:11 A. Yes, I said that's what we didn't want to

286:12 hear, because we were concerned about the data that --

286:13 the amount of data they would have to review and they

286:14 might come to the wrong conclusion.

286:15 Q. Well, what you wrote -- I understand what

286:16 you just said, but what you actually wrote to Dr.

286:17 Heydens was RE IARC, precisely what we didn't want to

286:18 hear about impact, huh? That's what you wrote?

286:19 A. That's what I wrote.

286:20 Q. And then Dr. Heydens responds to this

286:21 concern that you raised to him, and he says I am --

286:22 yes, I am sitting here pondering this as we speak, dot,

286:23 dot, dot. The \$1 billion question is, how could it

286:24 impact, actually cause them to reopen their cancer

287:1 review and do their own in-depth epid evaluation? I'll

287:2 stop right there. Epid -- that's epidemiology?

287:3 A. In this context that's what I take it to

287:4 be.

287:5 Q. And so it looks like there's a concern

287:6 raised by Dr. Heydens that if IARC classified

287:7 glyphosate or Roundup as being a human carcinogen that

287:8 it might cause the EPA to actually do its own in-depth

287:9 epidemiology evaluation?

287:10 A. I think what Bill was concerned about was

287:11 that if IARC came to the wrong conclusion based on a

287:12 limited dataset that it would cause a lot of concern

287:13 and a lot of additional reviews.

287:14 Q. Yeah. Specifically he was worried that it

287:15 would cause them to reopen their cancer review and do

287:16 their own in-depth epidemiological review; correct?

287:17 A. What Bill has stated is that he had -- he

287:18 was concerned that it would cause them to reopen their

287:19 cancer review and do their own in-depth epi evaluation.

287:20 Q. And he was concerned about the EPA doing

287:21 that?

287:22 A. Well, it says he -- no, it doesn't say

287:23 concerned. It says actually cause them to reopen their

287:24 cancer review and do their own in-depth epid

288:1 evaluation.

KOCH18.1.8

288:2 Q. He refers to this as a \$1 billion

288:3 question, doesn't he?

288:4 A. That's what written.

288:5 Q. And he says this is getting huge after

288:6 what we heard on our call this morning, dot, dot, dot.

288:7 Do you see that?

288:8 A. I do. I took the \$1 billion question to

288:9 be hyperbole. I think it probably could have said the

288:10 \$64,000 question too.

288:11 Q. He could have said that, but he says a \$1

288:12 billion question, doesn't he?

288:13 A. He does.

288:14 Q. Did you have a conversation with him about

288:15 what he meant by the \$1 billion reference?

288:16 A. No.

288:17 Q. So you're just speculating?

288:18 A. I guess -- it's written \$1 billion there.

288:19 That's speculation.

288:20 Q. He says after we heard on our call this

288:21 morning. Do you know what call he's referring to?

288:22 A. I don't recall that.

288:23 Q. Were you on that call?

288:24 A. I don't recall if I was on a call nearly

289:1 four years ago on -- I don't even know -- whatever day

289:2 the 15th was. I don't recall.

289:3 Q. Sure. I understand. And then you respond

KOCH18.1.9

289:4 to this e-mail; right?

289:5 A. Yes.

289:6 Q. You said yep, I had several of the same

289:7 thoughts; right?

289:8 A. Yes.

289:9 - 289:12

Koch, Michael 01-11-2019 (00:00:12)

Koch.84

289:9 Q. Now, I want to be clear. You've read into

289:10 this in your answers that there was a concern that the

289:11 IARCs didn't have access to certain information and

clear

289:12 that was what this was all about; right?

289:17 - 289:21

Koch, Michael 01-11-2019 (00:00:12)

Koch.85

289:17 A. The concern all along is that we didn't

289:18 have our information available in the public literature

289:19 for IARC to review, and so they would be limit -- they

Page/Line	Source	ID
	289:20 would be reviewing a smaller dataset and possibly come 289:21 to the wrong conclusion.	
290:8 - 290:14	Koch, Michael 01-11-2019 (00:00:26) 290:8 Q. I'm going to hand you another document. 290:9 It's a little bit later in time. It's Exhibit 19 to 290:10 your deposition. 290:11 [Exhibit 19 marked for identification.] 290:12 Q. Have you seen this document before? 290:13 A. Well, I'm CCed on there, so I assume I've 290:14 seen it before.	Koch.86 KOCH19.1 KOCH19.1.1
290:19 - 290:22	Koch, Michael 01-11-2019 (00:00:11) 290:19 Q. And this is a series of e-mail exchanges 290:20 between Bill Heydens and numerous Monsanto employees, 290:21 including yourself; correct? 290:22 A. Yes.	Koch.87
291:8 - 291:16	Koch, Michael 01-11-2019 (00:00:24) 291:8 Q. And this is in February 2015; correct? 291:9 A. Yes. 291:10 Q. This is before Monsan -- I'm sorry -- IARC 291:11 has rendered its classification of glyphosate? 291:12 A. Yes. They met in March of 2015 and the 291:13 monograph was published later that year. 291:14 Q. So at this point Monsanto doesn't actually 291:15 know what the results of the monograph are? 291:16 A. It hadn't been held. Yeah.	Koch.88
292:1 - 292:19	Koch, Michael 01-11-2019 (00:00:44) 292:1 Q. So these e-mails appear to have been 292:2 conducted in the regular course of Monsanto's work; 292:3 correct? 292:4 A. Yes. 292:5 Q. And if we go starting from the back 292:6 forward, it appears that there was a meeting -- an IARC 292:7 planning meeting that occurred and they're exchanging 292:8 notes and thoughts about that meeting? 292:9 A. Based on the content of the e-mails, it 292:10 looks like these are steps taken to prepare for the 292:11 IARC meeting. 292:12 Q. And then on February 19th, 2015, Bill 292:13 Heydens writes an e-mail -- it's addressed to Dr. 292:14 Farmer -- and you're copied on it; correct?	Koch.89 KOCH19.3 KOCH19.3.1 KOCH19.2 KOCH19.2.1

292:15 A. Yes.

292:16 Q. As well as Dr. Saltmiras?

292:17 A. Yes.

292:18 Q. He's someone who works for you?

292:19 A. Yes.

293:1 - 293:3

Koch, Michael 01-11-2019 (00:00:06)

Koch.90

293:1 Q. And at this time Donna Farmer worked for
293:2 you as well?

293:3 A. Yes. Yes.

293:4 - 293:5

Koch, Michael 01-11-2019 (00:00:05)

Koch.91

293:4 Q. Did Dr. Heydens report to you, or no?

293:5 A. No. Dr. Heydens has never reported to me.

293:11 - 295:8

Koch, Michael 01-11-2019 (00:02:17)

Koch.92

293:11 Q. Well, it says per our call with John the

293:12 other day, the next two most important things we need

293:13 to do are the metaanalysis publication and the ag

293:14 health study follow-up publication, assuming we can get

293:15 our hands on the data in a reasonable time frame. I

293:16 feel confident that we will have organizational support

293:17 for doing these projects, so I think we need to start

293:18 setting them up now. Do you see that?

293:19 A. I do.

293:20 Q. And this is in the context of IARC

293:21 planning; right?

293:22 A. Yes.

293:23 Q. What are those two projects that are being

293:24 contemplated there?

294:1 A. It looks to me like there -- the two items

294:2 under consideration are two publications, so a

294:3 metaanalysis -- I think that was a project Exponent was

294:4 working on, and the ag health study follow-up

294:5 publication. I don't recall as much about that.

294:6 Q. It's your understanding that the

294:7 metaanalysis was in fact performed and conducted by

294:8 Exponent; right?

294:9 A. Yes.

294:10 Q. But there was never an AHS follow-up

294:11 publication by Monsanto; correct?

294:12 A. Not that I know of.

294:13 Q. But then after that it goes, for the

KOCH19.2.5

294:14 overall plausibility paper that we discussed. Do you
294:15 see that?

294:16 A. Yes.

294:17 Q. Do you know what he's referring to?

294:18 A. No, I don't recall.

294:19 Q. You do recall that there was an expert

294:20 panel convened after the IARC monograph?

294:21 A. Yes.

294:22 Q. That was done through the Intertek

294:23 Corporation?

294:24 A. Yes.

295:1 Q. And do you know if this overall

295:2 plausibility paper that Dr. Heydens is referring to is

295:3 referring to that project?

295:4 A. It's impossible to say given that this is

295:5 February of 2015 and that was done much later in the

295:6 year. I know that one of the papers published by the

295:7 expert panel looks at the overall plausibility.

295:8 Q. Is this the genesis of that idea possibly?

295:11 - 297:7

Koch, Michael 01-11-2019 (00:02:21)

295:11 A. I don't know the relationship of this

295:12 over -- Bill's mentioning it here in the actual paper.

295:13 Q. (By Mr. Wisner) Now, you recall earlier

295:14 in the day we talked about types of -- different types

295:15 of ghostwriting; right?

295:16 A. Yes.

295:17 Q. We talked about ghostwriting that in your

295:18 opinion wasn't so bad, but then certain types of

295:19 ghostwriting that you thought was inappropriate?

295:20 A. Yeah, I think there's a continuum of what

295:21 some people might call ghostwriting. Some of it is

295:22 very -- some of it is simply -- it's shorthand -- a

295:23 shorthand word for gathering information, providing it

295:24 to someone so that they can write. There's -- and then

296:1 on the far end, as we talked about, there would be I'll

296:2 write this paper, you sign your name, which is

296:3 inappropriate. I think there's a huge continuum

296:4 within -- between those two variables, and those are

296:5 just extreme examples of the continuum.

296:6 Q. So Dr. Heydens says, for the overall

clear

Koch.93

KOCH19.2.6

296:7 plausibility paper we discussed with John where he gave
296:8 the "butadeen" example. Did I say that right?

296:9 A. I would say "butadyeen."

296:10 Q. Let me read that again. For the overall

296:11 plausibility paper that we discussed with John where he

296:12 gave the butadiene example, I'm still having a little

296:13 trouble wrapping my mind around that. If we went full

KOCH19.2.7

296:14 bore involving experts from all the major areas -- epi,

296:15 tox, genotox, MOA, exposure -- not sure who we'd get.

296:16 We could be pushing \$250,000 or maybe even more.

296:17 A. less expensive, more palatable approach

296:18 might be to involve experts only for the areas of

296:19 contention -- epidemiology and possibly MOA, depending

296:20 on what comes out of the IARC meeting -- and we

296:21 ghostwrite the exposure, tox, and genotox sections. An

296:22 option would be to add Greim and Kier or Kirkland to

296:23 have their names on the publication, but we would be

296:24 keeping the costs down by us doing the writing and they

297:1 would just edit and sign their names, so to speak. Do

297:2 you see that?

297:3 A. I do.

297:4 Q. So he is actually describing the latter

297:5 type of ghostwriting where Monsanto would write the

297:6 material and the authors would just edit and sign their

297:7 name, so to speak?

297:10 - 297:24

Koch, Michael 01-11-2019 (00:00:32)

Koch.94

297:10 A. You read what is written there, but I

297:11 don't know what was in Bill's mind.

297:12 Q. (By Mr. Wisner) Sure. But that's what he

297:13 wrote?

297:14 A. That's what's on the page.

297:15 Q. And that's the unethical type of

297:16 ghostwriting we established a second ago?

297:17 A. If that's indeed what happened, that would

297:18 be inappropriate.

297:19 Q. He goes on to say recall that is how we

KOCH19.2.8

297:20 handled Williams, Kroes, & Munro, 2000. Do you see

297:21 that?

297:22 A. I do.

297:23 Q. So he's stating there that that's what

Page/Line	Source	ID
298:2 - 298:15	<p>297:24 they did with that particular publication; correct?</p> <p>Koch, Michael 01-11-2019 (00:00:43)</p> <p>298:2 A. That's what written.</p> <p>298:3 Q. (By Mr. Wisner) Did you ever talk to Dr.</p> <p>298:4 Heydens about this e-mail that you received?</p> <p>298:5 A. I did not.</p> <p>298:6 Q. Did you ever call up and say hey, Bill,</p> <p>298:7 what are you talking about? We don't do that kind of</p> <p>298:8 stuff here?</p> <p>298:9 A. I did not.</p> <p>298:10 Q. When you read that e-mail back in 2015,</p> <p>298:11 did it concern you?</p> <p>298:12 A. I don't recall what I felt specifically</p> <p>298:13 that day.</p> <p>298:14 Q. Let me hand you another document. This is</p> <p>298:15 Exhibit 20 to your deposition.</p>	Koch.95
300:21 - 301:4	<p>Koch, Michael 01-11-2019 (00:00:21)</p> <p>300:21 Q. Okay, great. And so this was a document</p> <p>300:22 and a series of e-mails that were done in the regular</p> <p>300:23 course of Monsanto's work; right?</p> <p>300:24 A. Yes.</p> <p>301:1 Q. And at the bottom you talk about people</p> <p>301:2 having to catch other meetings, and that's for a</p> <p>301:3 meeting to take place on Monday, May 11th, 2015?</p> <p>301:4 A. Yes.</p>	<p>Koch.96</p> <p>KOCH21.1</p> <p>KOCH21.1.1</p>
301:15 - 303:5	<p>Koch, Michael 01-11-2019 (00:01:49)</p> <p>301:15 Q. So what we have here is your original</p> <p>301:16 e-mails on May 8th and then Bill Heydens writes all,</p> <p>301:17 see attached, which reflects the results of</p> <p>301:18 conversations Donna and I had with various</p> <p>301:19 stakeholders -- e.g., law, CE, RPSA. Do you see that?</p> <p>301:20 A. I do.</p> <p>301:21 Q. Do you know what law refers to?</p> <p>301:22 A. That's typical shorthand for the legal</p> <p>301:23 team.</p> <p>301:24 Q. Do you know if that related to glyphosate</p> <p>302:1 litigation?</p> <p>302:2 A. I don't know that.</p> <p>302:3 Q. And then CE. What does that refer to?</p> <p>302:4 A. Corporate engagement, typically.</p>	<p>Koch.97</p> <p>KOCH21.1.2</p>

302:5 Q. What's that?

302:6 A. It's how we talk with other corporations

302:7 who are stakeholders for the downstream products of ag.

302:8 Q. Got you. And then RPSA?

302:9 A. Regulatory policy and scientific affairs.

302:10 Q. He writes this will be the basis of our

302:11 discussion today. Thanks. Do you see that?

302:12 A. I do.

302:13 Q. So it appears that Dr. Heydens is sharing

KOCH21.1.3

302:14 this document in anticipation of a meeting that you're

302:15 going to be having later that day on May 11th?

302:16 A. Yes, that's my interpretation as well.

302:17 Q. So if we look at the attachment, the title

KOCH21.2

302:18 of the document is proposal for post-IARC meeting

302:19 scientific projects draft, May 11th, 2015. Do you see

302:20 that?

302:21 A. Yes.

302:22 Q. And then if we turn to the next page, it

KOCH21.3

302:23 starts off with, why do more? The first bullet point

302:24 says severe stigma attached to Group 2A classification.

KOCH21.3.1

303:1 Do you see that?

303:2 A. I see it written there.

303:3 Q. Did you agree that when IARC classified

303:4 glyphosate as a Class 2A carcinogen that it put a

303:5 stigma on Roundup?

303:7 - 303:20

Koch, Michael 01-11-2019 (00:00:38)

Koch.98

303:7 A. When they came to the 2A conclusion I

303:8 thought they got the wrong answer and a potentially bad

303:9 answer, and so that's what I thought at the time.

303:10 Q. (By Mr. Wisner) If we go down here, this

303:11 is in response -- these bullet points -- is a response

303:12 to the question, why do more; right? And if you read

303:13 the bullet point it says provide additional support,

KOCH21.3.2

303:14 quote, air cover to future regulatory reviews. Do you

303:15 see that?

303:16 A. I do.

303:17 Q. What does that mean?

303:18 A. I don't know.

303:19 Q. What does it mean to provide air cover to

303:20 a regulatory review?

Page/Line	Source	ID
303:22 - 304:11	Koch, Michael 01-11-2019 (00:00:29) 303:22 A. I don't know what he meant. 303:23 Q. (By Mr. Wisner) The next one is the ASTDR 303:24 evaluation. Do you see that? 304:1 A. Uh-huh. 304:2 Q. And it was your understanding that the 304:3 ASTDR, which is a -- you understand that's an agency 304:4 within the CDC? 304:5 A. Yes. 304:6 Q. And you understand that they had proposed 304:7 doing a risk assessment or hazard assessment for 304:8 glyphosate? 304:9 A. I was aware they were considering 304:10 additional work. I don't recall what that additional 304:11 work was comprised of.	Koch.99 KOCH21.3.3
304:16 - 305:2	Koch, Michael 01-11-2019 (00:00:28) 304:16 Q. Do you know if Monsanto requested aid or 304:17 enlisted the help of any members of the EPA to shut 304:18 that investigation down? 304:19 A. No. 304:20 Q. The next one is Prop 65. Do you see that? 304:21 A. Yes. 304:22 Q. Do you know what that refers to? 304:23 A. I think that's shorthand for Proposition 304:24 65 in California. 305:1 Q. And that's the law in California that 305:2 basically follows IARC; right?	Koch.100 KOCH21.3.4
305:4 - 305:5	Koch, Michael 01-11-2019 (00:00:06) 305:4 A. As I understand it, Proposition 65 uses 305:5 IARC as one of the criteria for evaluation.	Koch.101
305:16 - 305:20	Koch, Michael 01-11-2019 (00:00:16) 305:16 Q. So you don't know sitting here today 305:17 whether or not glyphosate is one of the listed 305:18 chemicals under Proposition 65? 305:19 A. With absolute certainty, no, I don't. 305:20 Q. Well, with general certainty do you know?	Koch.102
305:24 - 305:24	Koch, Michael 01-11-2019 (00:00:01) 305:24 A. Yeah, I don't know.	Koch.103
306:7 - 306:13	Koch, Michael 01-11-2019 (00:00:15) 306:7 Q. The last one is -- in response to the	Koch.104 KOCH21.3.5

Page/Line	Source	ID
306:8 question, why do more, is litigation support. Do you 306:9 see that?		
306:10 A. I do.		
306:11 Q. And this was specifically referring to 306:12 lawsuits against Monsanto for Roundup causing 306:13 non-Hodgkin's lymphoma; correct?		
306:15 - 306:18	Koch, Michael 01-11-2019 (00:00:10)	Koch.105
306:15 A. No, I think it might have related to the 306:16 Prop 65 case as well. I think when talking about 306:17 litigation support it's helping the legal team 306:18 understand some of the science sometimes.		
306:19 - 308:13	Koch, Michael 01-11-2019 (00:01:23)	Koch.106
306:19 Q. (By Mr. Wisner) So if we turn to the next 306:20 page, the first says -- the first two words are counter 306:21 IARC; right?		KOCH21.4
306:22 A. Yes.		KOCH21.4.1
306:23 Q. And it says it wants to counter all this 306:24 data and it lists some possibilities; right?		KOCH21.4.2
307:1 A. Yes.		
307:2 Q. The first one is conduct and publish a new 307:3 metaanalysis; right?		KOCH21.4.3
307:4 A. Yes.		
307:5 Q. Actually talked about that possibility in 307:6 one of those previous e-mails?		
307:7 A. Yes.		
307:8 Q. The next one is publication on animal data 307:9 cited by IARC?		KOCH21.4.4
307:10 A. Yes.		
307:11 Q. The other one was published an updated AHS 307:12 study data. Do you see that?		KOCH21.4.5
307:13 A. Yes.		
307:14 Q. That's another one that we discussed a 307:15 minute ago?		
307:16 A. I recall that.		
307:17 Q. Published a weight of the evidence 307:18 plausibility paper? Do you see that?		KOCH21.4.6
307:19 A. Yes.		
307:20 Q. That's another one that we discussed 307:21 previously in that e-mail?		
307:22 A. Yes.		

Page/Line	Source	ID
307:23	Q. And then it just says genotox, MOA. Do	KOCH21.4.7
307:24	you see that?	
308:1	A. I do.	
308:2	Q. Do you know what that refers to?	
308:3	A. It's more vague than the others and I	
308:4	don't recall exactly what that refers to.	
308:5	Q. So we turn to the next page. It discusses	KOCH21.5
308:6	the proposal of the -- of a metaanalysis; right?	KOCH21.5.1
308:7	A. Yes.	
308:8	Q. Turn to the next page. It discusses	KOCH21.6
308:9	publication on animal carcinogenicity data; right?	KOCH21.6.1
308:10	A. Yes.	
308:11	Q. And then it has the description of the	
308:12	project; right?	KOCH21.6.2
308:13	A. It does.	
309:13 - 310:16	Koch, Michael 01-11-2019 (00:01:04)	Koch.107
309:13	Q. It says Greim and one other two other	KOCH21.6.3
309:14	external authors, question mark. Do you see that?	
309:15	A. Yes.	
309:16	Q. And it has the cost. Do you see that	KOCH21.6.4
309:17	section about cost?	
309:18	A. Yes.	
309:19	Q. And this is about how much it would	
309:20	cost Monsanto to put this publication together?	
309:21	A. Yes.	
309:22	Q. And then it says majority of writing can	KOCH21.6.5
309:23	be done by Monsanto keeping OS, dollar sign, down. Do	
309:24	you see that?	
310:1	A. I do.	
310:2	Q. What is OS, dollar sign? Is that a --	KOCH21.6.6
310:3	A. That's usual shorthand for outside spend.	
310:4	Q. So this is suggesting that the majority of	
310:5	writing can be done by Monsanto so we can keep outside	
310:6	spend costs down?	
310:7	A. That's what's written.	
310:8	Q. Turn to the next page, AHS collaboration	KOCH21.7
310:9	is addressed; right?	
310:10	A. Yes.	
310:11	Q. And it describes the project. It says the	KOCH21.7.1
310:12	risk is low; right?	

Page/Line	Source	ID
	310:13 A. Yes.	
	310:14 Q. The downside -- it's a longer-term	KOCH21.7.2
	310:15 project, won't get quick results. Do you see that?	
	310:16 A. I see that written there, yes.	
311:18 - 311:24	Koch, Michael 01-11-2019 (00:00:18)	Koch.108
	311:18 Q. Yeah. So we have the overall	KOCH21.8
	311:19 weight of evidence plausibility publication, possibly	KOCH21.8.1
	311:20 via expert panel concept; right?	
	311:21 A. Yes.	
	311:22 Q. And this is where the idea of an expert	
	311:23 panel sort of comes more clearly into view in what will	
	311:24 later become the Intertek project?	
312:4 - 312:18	Koch, Michael 01-11-2019 (00:00:39)	Koch.109
	312:4 A. It's a consistent theme in the documents	
	312:5 we've looked at. It's impossible to say, but it's a	
	312:6 consistent theme.	
	312:7 Q. And the product description is a	KOCH21.8.2
	312:8 comprehensive evaluation of carcinogenic potential by	
	312:9 credible scientists; right? Project description?	
	312:10 A. That's what's written.	
	312:11 Q. It actually lists possible panelists and	
	312:12 authors; right?	KOCH21.8.3
	312:13 A. It does.	
	312:14 Q. Dr. Solomon?	
	312:15 A. Solomon is a name there.	
	312:16 Q. And Dr. Solomon actually is -- ultimately	
	312:17 goes on to become part of the Intertek panel; right?	
	312:18 A. If this is Keith Solomon, then yes.	
313:2 - 314:18	Koch, Michael 01-11-2019 (00:01:09)	Koch.110
	313:2 Q. (By Mr. Wisner) Dr. Sorohan for	
	313:3 epidemiology. Do you see that?	
	313:4 A. Yes.	
	313:5 Q. And then we have Dr. Greim, animal	
	313:6 bioassay. Do you see that?	
	313:7 A. I do.	
	313:8 Q. Dr. Greim actually was part of the	
	313:9 Intertek panel?	
	313:10 A. If by Helmut Greim -- that's what we	
	313:11 mean -- yes.	
	313:12 Q. Do you know any other Greims by any	

313:13 chance?

313:14 A. Not off the top of my head.

313:15 Q. And then G. Williams -- that's Gary

313:16 Williams. You understand who that is?

313:17 A. Another panel member.

313:18 Q. He also ended up being on the expert panel

313:19 for Intertek?

313:20 A. Uh-huh.

313:21 Q. Is that right?

313:22 A. Yes.

313:23 Q. And then Dr. Kirkland also on the expert

313:24 panel?

314:1 A. There's Dr. Kirkland on the expert panel,

314:2 yes.

314:3 Q. And both Dr. Williams, Dr. Kirkland --

314:4 they actually did a genotox method-of-action paper?

314:5 A. I'd have to go back and review which

314:6 papers were which, but --

314:7 Q. We will get there very soon.

314:8 A. Okay.

314:9 Q. So the cost is between \$200,000 and

314:10 \$250,000 depending on. Do you see that?

314:11 A. I do.

314:12 Q. It says who slash how many scientists we

314:13 include. Do you see that?

314:14 A. I do.

314:15 Q. And then it says, how much writing can be

314:16 done by Monsanto scientists to help keep costs down?

314:17 Do you see that?

314:18 A. I do.

314:19 - 314:22

Koch, Michael 01-11-2019 (00:00:08)

Koch.111

314:19 Q. And it says an alternative would be one or

314:20 two separate publications with a subset of authors;

314:21 right?

314:22 A. That's what's written.

KOCH21.8.4

KOCH21.8.5

KOCH21.8.6

314:23 - 315:13

Koch, Michael 01-11-2019 (00:00:38)

Koch.112

314:23 Q. So turning to the last project described

314:24 in this PowerPoint, genotox slash MOA. Do you see

315:1 that?

315:2 A. Yes.

KOCH21.9

KOCH21.9.1

Page/Line	Source	ID
315:3 Q. And the first bullet point is counter 315:4 IARC's claim of strong evidence of DNA damage slash 315:5 oxidative stress; right?		KOCH21.9.2
315:6 A. Yes. 315:7 Q. And it says right here could be important 315:8 for future litigation support. See that?		KOCH21.9.3
315:9 A. I do. 315:10 Q. So even at this point Monsanto and your 315:11 group that are meeting for this meeting on May 11th are 315:12 contemplating that at least one of these projects could 315:13 be important for future litigation?		
315:15 - 316:1	Koch, Michael 01-11-2019 (00:00:24)	Koch.113
315:15 A. I didn't put the slide together, but that 315:16 is what is written there. 315:17 Q. (By Mr. Wisner) But you were at the 315:18 meeting; right?		
315:19 A. I was. 315:20 Q. And you were sent this presentation to 315:21 review and consider before the meeting?		
315:22 A. I was. 315:23 Q. And it was your understanding at that time 315:24 that part of the work you were doing in responding to 316:1 IARC would be important for future litigation?		
316:4 - 316:5	Koch, Michael 01-11-2019 (00:00:02)	Koch.114
316:4 A. I don't recall exactly what litigation 316:5 they're referring to there, so --		
316:6 - 317:9	Koch, Michael 01-11-2019 (00:01:04)	Koch.115
316:6 Q. (By Mr. Wisner) So then after the 316:7 description of all these projects there's like a sort 316:8 of quick rundown, do you see, in the next two pages 316:9 called feedback? Do you see that?		KOCH21.10.1
316:10 A. Yes. 316:11 Q. And it has it looks like sort of entries 316:12 related to feedback from these various stakeholders; 316:13 right?		
316:14 A. Uh-huh. 316:15 Q. Is that a yes?		
316:16 A. Sorry. 316:17 Q. I know you're chewing on ice.		
316:18 A. Yes.		

Page/Line	Source	ID
	316:19 Q. The first one is the metaanalysis; right?	KOCH21.10.2
	316:20 You see that?	
	316:21 A. Yes.	
	316:22 Q. And then the next one is updated AHS	KOCH21.10.3
	316:23 study; right?	
	316:24 A. Yes.	
	317:1 Q. And that one, based on what it says here,	KOCH21.10.4
	317:2 was most appealing to the legal group; right?	
	317:3 A. Yes.	
	317:4 Q. And it explains Monsanto somewhat	KOCH21.10.5
	317:5 distanced and AHS involved. Do you see that?	
	317:6 A. Yes.	
	317:7 Q. Do you recall that legal was -- that legal	
	317:8 thought that an updated AHS study would be beneficial	
	317:9 for its work?	
317:16 - 318:11	Koch, Michael 01-11-2019 (00:00:53)	Koch.116
	317:16 A. I don't recall having conversations with	
	317:17 them about this.	
	317:18 Q. (By Mr. Wisner) Well, based here it's --	KOCH21.10.6
	317:19 for the legal group it says most appealing; right?	
	317:20 A. That's what's written.	
	317:21 Q. And then if we go on the next one, publish	KOCH21.11
	317:22 weight of the evidence plausibility paper. Do you see	KOCH21.11.1
	317:23 that?	
	317:24 A. I do.	
	318:1 Q. And it says legal appealing, best if use	KOCH21.11.2
	318:2 big names, better sponsored by some group; right?	
	318:3 A. That's what written.	
	318:4 Q. And so in this kind of weight of the	
	318:5 evidence plausibility paper, ultimately Monsanto did in	
	318:6 fact retain Intertek to put it together; right?	
	318:7 A. There is an overall review of the weight	
	318:8 of evidence and plausibility paper as part of the	
	318:9 expert panel.	
	318:10 Q. And you guys put some big names on that	
	318:11 panel; right?	
318:13 - 318:19	Koch, Michael 01-11-2019 (00:00:23)	Koch.117
	318:13 A. We -- Intertek gathered some very well	
	318:14 acknowledged or very highly thought of independent	
	318:15 experts to be a part of that panel, yes.	

Page/Line	Source	ID
318:21 - 318:22	<p>318:16 Q. (By Mr. Wisner) And so it appears that 318:17 legal's statement here, best if use big names, better 318:18 sponsored by some group -- those two suggestions appear 318:19 to have been implemented?</p> <p>Koch, Michael 01-11-2019 (00:00:06)</p>	Koch.118
320:23 - 321:6	<p>318:21 A. I wasn't a part of those conversations and 318:22 so I don't know if what was done met that guidance.</p> <p>Koch, Michael 01-11-2019 (00:00:17)</p>	Koch.119
	<p>320:23 Q. (By Mr. Wisner) So Doctor, I've handed 320:24 you Exhibit 22. This is a series of e-mail exchanges. 321:1 It's dated May 11th, 2015. Do you see that? 321:2 [Exhibit 22 marked for identification.]</p>	KOCH22.1
	<p>321:3 A. Yes. 321:4 Q. And it's from Dr. Heydens and it's to you 321:5 and others; right?</p>	KOCH22.1.1
321:16 - 322:19	<p>321:6 A. Correct.</p> <p>Koch, Michael 01-11-2019 (00:01:11)</p> <p>321:16 Q. And these e-mail exchanges -- they occur 321:17 in the regular course of your work at Monsanto; right?</p>	Koch.120
	<p>321:18 A. Yes. 321:19 Q. It reads all, here's what I think I heard 321:20 and one question in our meeting today. Please send any 321:21 corrections slash additions. Do you see that?</p>	KOCH22.1.2
	<p>321:22 A. I do. 321:23 Q. So it appears that he's actually talking 321:24 about the meeting you guys had on the 11th?</p>	
	<p>322:1 A. That's my interpretation as well. 322:2 Q. And he's talking about really the five 322:3 different projects that we just went through from that 322:4 PowerPoint? Do you see that? I'm sorry. Four 322:5 different projects?</p>	KOCH22.1.5
	<p>322:6 A. I see projects that I recognize from 322:7 seeing them in the PowerPoint earlier, yes. 322:8 Q. And for example, on the publication on 322:9 animal data cited by IARC. Do you see that?</p>	KOCH22.1.3
	<p>322:10 A. I do. 322:11 Q. And he says this is the only other idea 322:12 that could be done prior to monograph publication. Do 322:13 you see that?</p>	
	<p>322:14 A. Yes.</p>	

Page/Line	Source	ID
	322:15 Q. And he said it would be more powerful if 322:16 authored by non-Monsanto scientists, Kirkland, Kier, 322:17 Williams, Greim, and maybe Solo -- Keith Solomon. Do 322:18 you see that? 322:19 A. I do.	KOCH22.1.4
322:20 - 323:1	Koch, Michael 01-11-2019 (00:00:17) 322:20 Q. So it looks -- during this meeting do you 322:21 guys recall discussing getting the animal data 322:22 published by some reputable scientists such as Dr. 322:23 Kirkland, Kier, Williams, Greim, and Solomon? 322:24 A. Publication of the animal data cited by 323:1 IARC was an idea at the time.	Koch.121
323:5 - 323:12	Koch, Michael 01-11-2019 (00:00:13) 323:5 Q. Do you recall if you responded to this 323:6 e-mail? 323:7 A. I believe so. 323:8 Q. Do you know what you said in response? 323:9 A. I'm not 100 percent certain. 323:10 Q. Well, I'm going to show you what's Exhibit 323:11 23 to your deposition. 323:12 [Exhibit 23 marked for identification.]	Koch.122
324:2 - 326:17	Koch, Michael 01-11-2019 (00:02:49) 324:2 Q. Great. So this is -- this e-mail, Exhibit 324:3 23, reflects your response to Bill Heydens's e-mail? 324:4 A. It does. 324:5 Q. And you write -- and this is an e-mail you 324:6 sent in the regular course of your work; right? 324:7 A. It is. 324:8 Q. And you write, Bill, I agree with 324:9 everything you've written and have a couple of 324:10 suggested additions. Please see green text below. 324:11 Thanks, Mike. Do you see that? 324:12 A. That is correct. Yeah. 324:13 Q. And then it appears that in his e-mail you 324:14 have added in stuff. Although this isn't in color, you 324:15 can see that the font is more faded? 324:16 A. The lighter font color, yes. 324:17 Q. And for example, under the genotox/MOA 324:18 thing -- section, you write I think this was Donna's 324:19 action item; right?	Koch.123
		KOCH23.1
		KOCH23.1.1
		KOCH23.1.2

324:20 A. Yes.

324:21 Q. And she was someone that worked for you at
324:22 the time?

324:23 A. Yes, Donna Farmer.

324:24 Q. And then -- and I was looking through the

325:1 rest of this, and the only other addition I see was

325:2 under the publication on animal data cited by IARC. Do

325:3 you see that?

325:4 A. I do.

325:5 Q. And you added, quote, manuscript to be

325:6 initiated by MON as ghostwriters; correct?

325:7 A. That's what I see, yes.

325:8 Q. And so MON -- that refers to Monsanto;

325:9 right?

325:10 A. It does.

325:11 Q. And so the only addition that you added

325:12 based on the suggestions or corrections that Bill

325:13 Heydens asked for was to mention that Donna would do

325:14 the genotox/MOA and that you wanted the manuscript on

325:15 the animal data to be issued by Monsanto as

325:16 ghostwriters?

325:17 A. There's a couple of things about that

325:18 publication. So as I mentioned earlier, the

325:19 publication on animal data cited by IARC was an idea at

325:20 the time. It was never actually published, and when I

325:21 mentioned that ghostwriting has many definitions

325:22 from -- on the one end being -- providing

325:23 information -- background information, data, things

325:24 like that, to facilitate an author writing an article

326:1 on a short period of time.

326:2 Q. Well, I don't want to fight with you about

326:3 what you meant when you wrote this. Do you actually

326:4 recall what you were thinking when you wrote this?

326:5 A. Yeah, I knew we had very tight timeline --

326:6 if it was going to get out, if it was going to get

326:7 done, we needed to facilitate providing information to

326:8 them, and so that's what I was -- that was my intention

326:9 there.

326:10 Q. So you actually recall what you were

326:11 thinking when you wrote this?

KOCH23.1.3

Page/Line	Source	ID
	326:12 A. Yeah.	
	326:13 Q. From four years ago?	
	326:14 A. I recall that I thought that we needed to	
	326:15 enable timelines, and I would not be comfortable with	
	326:16 the other definition of ghostwriting that's been	
	326:17 provided today.	
327:7 - 327:12	Koch, Michael 01-11-2019 (00:00:17)	Koch.124
	327:7 Q. (By Mr. Wisner) And if you read it in the	
	327:8 context of the sentence immediately afterwards, it was	KOCH23.1.4
	327:9 noted that this would be more powerful if authored by	
	327:10 non-Monsanto scientists and it lists a couple of	
	327:11 scientists; right?	
	327:12 A. You've read that correctly.	
328:1 - 328:13	Koch, Michael 01-11-2019 (00:00:33)	Koch.125
	328:1 Q. (By Mr. Wisner) Earlier I showed you that	
	328:2 e-mail from Dr. Heydens where he talked about	
	328:3 ghostwriting; right?	
	328:4 A. Yes.	
	328:5 Q. And you didn't raise any alarm or concern	
	328:6 with him in his description of what he was thinking	
	328:7 about doing?	
	328:8 A. No.	
	328:9 Q. And in the same set of meetings related to	
	328:10 IARC, you've now written that a manuscript should be	
	328:11 initiated by MON as ghostwriters; correct?	
	328:12 A. It was a note I made on a project that we	
	328:13 were considering at the time that was never conducted.	
329:1 - 329:10	Koch, Michael 01-11-2019 (00:00:37)	Koch.126
	329:1 Q. But now, 2019, January, after lawsuits	
	329:2 have been filed against your employer where allegations	
	329:3 of ghostwriting have been alleged, you remember what	
	329:4 you meant when you wrote this sentence that a	
	329:5 manuscript should be initiated by MON as a ghostwriter?	
	329:6 A. I recall that I felt that my -- that	
	329:7 ghostwriting in this sense was providing information	
	329:8 like background information, references, things like	
	329:9 that, to an author to facilitate publication of a	
	329:10 paper, because that's what I would be comfortable with.	
329:16 - 329:20	Koch, Michael 01-11-2019 (00:00:14)	Koch.127
	329:16 Q. So we discussed this earlier about this	

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Source

ID

329:17 overall weight and plausibility publication.

329:18 Ultimately there was an expert panel convened through

329:19 Intertek; correct?

329:20 A. Yes.

330:4 - 330:23

Koch, Michael 01-11-2019 (00:00:52)

Koch.128

330:4 Q. (By Mr. Wisner) I understand that there

clear

330:5 was a series of articles published in the journal of

330:6 Critical Reviews in Toxicology; correct?

330:7 A. Yes.

330:8 Q. And these articles reflected the work and

330:9 opinions of the Intertek panel; correct?

330:10 A. Yes.

330:11 Q. Isn't it true that Monsanto directly

330:12 selected people who would participate in that panel?

330:13 A. It's my understanding that Monsanto

330:14 provided some names to Intertek, but I don't know that

330:15 all the people on it were specifically selected.

330:16 Q. And we saw on the document just a few

KOCH23.1.5

330:17 minutes ago several of the names that were even thrown

330:18 about at the very beginning of this project. They

330:19 ultimately made it on the panel; correct?

330:20 A. People like Helmut Greim, Larry Kier.

clear

330:21 Yes, I recall reading those names earlier.

330:22 Q. And these were people who were within

330:23 Monsanto's toxicology network; correct?

331:1 - 331:8

Koch, Michael 01-11-2019 (00:00:26)

Koch.129

331:1 A. The members of the expert panel are

331:2 acknowledged experts in their field, and so when we

331:3 want independent thoughts on things -- different things

331:4 that we might do, we seek out the best minds in the

331:5 field, and so the fact that some of the people

331:6 overlapped between the expert panel and people we've

331:7 consulted with in the past is a matter of their

331:8 expertise.

331:24 - 332:1

Koch, Michael 01-11-2019 (00:00:07)

Koch.130

331:24 Q. (By Mr. Wisner) All right, Doctor. I'm

332:1 handing you Exhibits 24, 25, 26, and 27.

KOCH4DOCS.1
.1

332:12 - 332:22

Koch, Michael 01-11-2019 (00:00:30)

Koch.131

332:12 Q. (By Mr. Wisner) All right, sir. So these

332:13 are the four Intertek publications that we were just

Page/Line	Source	ID
	332:14 discussing; correct?	
	332:15 A. Yes.	
	332:16 Q. I want to be just very frank with you.	clear
	332:17 Did Monsanto employees review these manuscripts before	
	332:18 they were published?	
	332:19 A. I don't know.	
	332:20 Q. Did Monsanto's employees write, edit, or	
	332:21 make any contributions to any portions of these	
	332:22 manuscripts?	
332:24 - 333:2	Koch, Michael 01-11-2019 (00:00:13)	Koch.132
	332:24 A. Would you read the question back?	
	333:1 [The pending question was read by the	
	333:2 reporter.]	
333:4 - 333:21	Koch, Michael 01-11-2019 (00:00:47)	Koch.133
	333:4 A. Can you clarify any contribution?	
	333:5 Q. (By Mr. Wisner) Let me just be clear.	
	333:6 Did they write any of the words that occurred in any of	
	333:7 these manuscripts?	
	333:8 A. I don't know.	
	333:9 Q. Were you in charge or did you oversee this	
	333:10 Intertek panel at all?	
	333:11 A. No, I received some notifications on what	
	333:12 it would cost, but I was not in charge of the panel.	
	333:13 Q. But you know Dr. Farmer was heavily	
	333:14 involved in it?	
	333:15 A. Dr. Farmer was involved with a lot of the	
	333:16 glyphosate effort at that time, yes.	
	333:17 Q. And she was a toxicologist working under	
	333:18 you at the time?	
	333:19 A. Dr. Farmer has considerable experience	
	333:20 with glyphosate, and so I give her a wide path to do	
	333:21 what she needs to do. I don't micromanage her.	
333:22 - 334:5	Koch, Michael 01-11-2019 (00:00:22)	Koch.134
	333:22 Q. Sure. Fair enough. I wasn't -- I didn't	
	333:23 mean to suggest that you did. I was just asking that	
	333:24 at the time Dr. Farmer was working on the Intertek	
	334:1 panel or working with the Intertek panel, she was	
	334:2 working as a toxicologist under you; that's all?	
	334:3 A. I know that Donna was working on	
	334:4 glyphosate-related matters. I'm not sure how close she	

Page/Line	Source	ID
334:6 - 334:10	<p>334:5 was to the panel.</p> <p>Koch, Michael 01-11-2019 (00:00:15)</p> <p>334:6 Q. So let's turn to the first one, which I</p> <p>334:7 believe is Number 24. This is the glyphosate rodent</p> <p>334:8 carcinogenicity bioassay expert panel review. Do you</p> <p>334:9 see that?</p> <p>334:10 A. I do.</p>	<p>Koch.135</p> <p>KOCH24.1</p> <p>KOCH24.1.1</p>
334:13 - 335:2	<p>Koch, Michael 01-11-2019 (00:01:06)</p> <p>334:13 This is a paper</p> <p>334:14 that reviews the long-term animal carcinogenicity</p> <p>334:15 studies conducted on glyphosate; correct?</p> <p>334:16 A. The paper -- that's the title and the</p> <p>334:17 contents. There's rat information on Table 1. There</p> <p>334:18 looks like there is mouse information in Table 2.</p> <p>334:19 Q. That's a lot of tables here.</p> <p>334:20 A. There's discussion of hemangiosarcomas in</p> <p>334:21 Table 3, liver tumor incidence in Table 4,</p> <p>334:22 hepatocellular tumor rates and Cochran-Armitage trend</p> <p>334:23 and Fisher's exact results in Table 5, and tumor</p> <p>334:24 incidence, number of animals examined in Table 6. So</p> <p>335:1 yes, I think it's fair to say it's a review of the carc</p> <p>335:2 data.</p>	<p>Koch.136</p> <p>KOCH24.4.1</p> <p>KOCH24.6.1</p> <p>KOCH24.7.1</p> <p>KOCH24.8.1</p> <p>KOCH24.9.1</p> <p>KOCH24.9.2</p>
335:3 - 335:22	<p>Koch, Michael 01-11-2019 (00:01:00)</p> <p>335:3 Q. So just to do a short answer to the</p> <p>335:4 question there, this paper appears to be a review of</p> <p>335:5 the animal carcinogenicity data related to glyphosate?</p> <p>335:6 A. Yes, it seems to be a review of all of the</p> <p>335:7 available information.</p> <p>335:8 Q. And if you look at starting on Page 53,</p> <p>335:9 the top right of the article, there is something called</p> <p>335:10 a declaration of interest. Do you see that?</p> <p>335:11 A. I do.</p> <p>335:12 Q. And if you read the second paragraph of</p> <p>335:13 that declaration of interest, it says the expert panel</p> <p>335:14 members' recruitment and evaluation of the data was</p> <p>335:15 organized and conducted by Intertek Scientific &</p> <p>335:16 Regulatory Consultancy, Intertek. Do you see that?</p> <p>335:17 A. I do.</p> <p>335:18 Q. The expert panelists were engaged by and</p> <p>335:19 acted as consultants to Intertek and were not directly</p>	<p>Koch.137</p> <p>clear</p> <p>KOCH24.11</p> <p>KOCH24.11.1</p> <p>KOCH24.11.2</p>

Page/Line	Source	ID
335:24 - 336:2	<p>335:20 contacted by the Monsanto Company. Do you see that? 335:21 A. I do see that. 335:22 Q. That's a false statement; right?</p>	Koch.138
338:6 - 338:23	<p>Koch, Michael 01-11-2019 (00:00:04) 335:24 A. I don't know. 336:1 Q. (By Mr. Wisner) You don't know? 336:2 A. I don't know. Koch, Michael 01-11-2019 (00:00:48) 338:6 Q. So we're on Exhibit 24. We're looking at 338:7 the declaration of interest, and the second paragraph 338:8 reads the expert panel members' recruitment and 338:9 evaluation of the data was organized and conducted by 338:10 Intertek Scientific & Regulatory Consultancy, Intertek. 338:11 The expert panelists were engaged by and acted as 338:12 consultants to Intertek and were not directly contacted 338:13 by the Monsanto Company. 338:14 Funding for this evaluation was provided 338:15 to Intertek by the Monsanto Company, which is a primary 338:16 producer of glyphosate and products containing this 338:17 active ingredient. Neither any Monsanto Company 338:18 employees nor any attorneys reviewed any of the expert 338:19 panel's manuscripts prior to submission to the journal. 338:20 Do you see that? 338:21 A. I do. 338:22 Q. Is your understanding -- is that a true 338:23 statement -- are those statements in that paragraph?</p>	Koch.139
339:1 - 339:10	<p>Koch, Michael 01-11-2019 (00:00:26) 339:1 A. I can speak for myself, and I didn't 339:2 review or comment on any of the documents there, and I 339:3 don't know that anyone else did. 339:4 Q. (By Mr. Wisner) Do you know if any of the 339:5 panelists on the Intertek panel were directly 339:6 contracted with Monsanto at the time? 339:7 A. As we talked about earlier, I know there 339:8 were some consulting agreements for other projects. I 339:9 don't know how that relates to the membership on the 339:10 expert panel.</p>	Koch.140
339:17 - 340:4	<p>Koch, Michael 01-11-2019 (00:00:37) 339:17 Okay. I'm handing you Exhibit 28, sir. Do 339:18 you recognize this document?</p>	Koch.141 KOCH28.1

Page/Line	Source	ID
	339:19 A. It looks like a standard project amendment	
	339:20 letter from a consulting agreement.	
	339:21 Q. And this is between Dr. Larry Kier and the	KOCH28.1.1
	339:22 Monsanto Company?	
	339:23 A. Yes.	
	339:24 Q. And in fact, you signed this agreement,	KOCH28.2.1
	340:1 haven't you?	
	340:2 A. I did.	
	340:3 Q. And this was dated August 2015; correct?	KOCH28.1.2
	340:4 A. August two thou -- August 17, 2015, yes.	
340:16 - 341:19	Koch, Michael 01-11-2019 (00:01:30)	Koch.142
	340:16 Q. And in here it actually says specifically	
	340:17 project name, glyphosate expert panel; correct?	
	340:18 A. Item 2. Yes.	
	340:19 Q. Well, I was actually under the -- that's	
	340:20 correct. Under project it says name, glyphosate expert	
	340:21 panel. Do you see that?	
	340:22 A. Oh. Yes.	
	340:23 Q. And then under deliverables, Number 2 is	KOCH28.1.3
	340:24 to attend the Intertek Scientific & Regulatory	
	341:1 Consultancy expert panel meeting either in person or	
	341:2 via teleconference; right?	
	341:3 A. Yes.	
	341:4 Q. And the project contemplates payment not	KOCH28.1.4
	341:5 to exceed \$27,400; correct?	
	341:6 A. I don't -- twenty -- total project cost,	
	341:7 \$27,400, yes.	
	341:8 Q. So in fact, Monsanto had contracted to	
	341:9 potentially pay Dr. Kier \$27,000 specifically for his	
	341:10 work on the Intertek panel?	
	341:11 A. When I mentioned previously that I was	
	341:12 unsure of what was handled directly through the	
	341:13 Intertek panel payment-wise and what was handled by	
	341:14 amendment to existing agreements, that's what I was	
	341:15 referring to.	
	341:16 Q. So when we read in the Intertek panel	clear
	341:17 where it said all the panelists were directly contacted	
	341:18 through Intertek and not through Monsanto, that's just	
	341:19 not accurate?	
341:22 - 342:3	Koch, Michael 01-11-2019 (00:00:14)	Koch.143

Page/Line	Source	ID
341:22 A. With the writing of the paper I don't know 341:23 who reached out to them. We -- I did sign a project 341:24 amendment letter at that time, but I had no 342:1 communication with Dr. Kier other than that. 342:2 Q. (By Mr. Wisner) I'm going to hand you 342:3 Exhibit 29.	Koch, Michael 01-11-2019 (00:01:40)	KOCH29.1 Koch.144
342:6 - 343:15	342:6 Q. Sir, do you recognize this document? 342:7 A. Looks like an amendment to a consulting 342:8 agreement, yes. 342:9 Q. And this is a consulting agreement with 342:10 Dr. Acquavella and Monsanto; correct? 342:11 A. Yes. 342:12 Q. It's signed by you? 342:13 A. It is. 342:14 Q. And if you look at the last page of it, 342:15 there's a statement of work? 342:16 A. Statement of work. 342:17 Q. Last page. Keep going. Do you see that? 342:18 A. Yes. 342:19 Q. And again, like with Dr. Kier, it 342:20 specifically states the project name, glyphosate expert 342:21 panel. Do you see that? 342:22 A. It does. 342:23 Q. And it also says attend -- under detailed 342:24 objectives, Number 2, attend the Intertek Scientific & 343:1 Regulatory Consultancy expert panel meeting. Do you 343:2 see that? 343:3 A. I do. 343:4 Q. And it says Number 3, coordinate the 343:5 epidemiology portion of Intertek and generate a draft 343:6 manuscript on glyphosate exposure and risk; right? 343:7 A. Coordinate the epide -- yes. 343:8 Q. And this was -- it looks like Dr. 343:9 Acquavella was slightly less expensive. This project 343:10 with Dr. Acquavella was not to exceed \$24,000; correct? 343:11 A. That's what's written. 343:12 Q. And you signed this document? 343:13 A. I did. 343:14 Q. And Dr. Acquavella and Dr. Kier are both	KOCH29.1.1 KOCH29.5.1 KOCH29.5.2 KOCH29.5.3 KOCH29.5.4 KOCH29.6.1

345:9 contributions to the above supplement and in the
 345:10 declarations of interest provided by the named
 345:11 contributors for the following articles. You see that?
 345:12 A. Yes.

345:22 - 347:4

Koch, Michael 01-11-2019 (00:01:29)

Koch.148
 KOCH30.2.3

345:22 Q. And it goes on and says we have requested
 345:23 corrigenda from the authors to provide additional
 345:24 disclosure as to the contributions to the articles. To
 346:1 date, we have only received corrigenda for three of the
 346:2 five articles that have been agreed by all authors. We
 346:3 have not received an adequate explanation as to why the
 346:4 necessary level of transparency was not met on the
 346:5 first submission. We thank those who brought this
 346:6 matter to our attention. When reading the articles, we
 346:7 recommend that readers take this context into account.
 346:8 We will continue to work to update these articles and
 346:9 ensure full disclosures of all contributions to them.
 346:10 Do you see that?

346:11 A. I see that.

346:12 Q. In your time as a researcher and scientist
 346:13 at Monsanto, have you ever seen an expression of
 346:14 concern issued before?

clear

346:15 A. I've seen addenda for articles,
 346:16 corrigenda, things like that.

346:17 Q. Have you ever seen a journal article issue
 346:18 an expression of concern over the disclosure
 346:19 statements?

346:20 A. I have not.

346:21 Q. And so this journal article did issue one
 346:22 specifically about the articles put out by the Intertek
 346:23 panel?

346:24 A. These appear to be those articles.

347:1 Q. And for what it's worth, this is the very
 347:2 weight of evidence plausibility-type paper that Bill
 347:3 Heydens talked about ghostwriting back in 2015; isn't
 347:4 that true?

KOCH21.4.8

347:6 - 347:12

Koch, Michael 01-11-2019 (00:00:20)

Koch.149
 clear

347:6 A. I have no way of knowing what was
 347:7 published here -- how similar or different it is from
 347:8 what Bill might have been thinking about.

Page/Line	Source	ID
347:15 - 348:2	<p>347:9 Q. (By Mr. Wisner) But when we talked about 347:10 those e-mails from Dr. Heydens, we talked about how 347:11 this potentially was the genesis of what ultimately 347:12 became the Intertek panel; correct?</p> <p>Koch, Michael 01-11-2019 (00:00:39)</p>	Koch.150
348:9 - 348:14	<p>347:15 A. There was a theme of doing an overall 347:16 review of the dataset that IARC looked at, but the 347:17 relationship between that and this is impossible to 347:18 determine based on the information in front of me. 347:19 Q. (By Mr. Wisner) And in that e-mail from 347:20 Dr. Heydens he talks about -- he literally talks about 347:21 ghostwriting; right?</p> <p>347:22 A. That phrase is included in there. I took 347:23 that to mean a range of things. 347:24 Q. And if we -- well, I mean, it's 348:1 interesting because -- well, let's just go on. I'm 348:2 handing you Exhibits 31.</p> <p>Koch, Michael 01-11-2019 (00:00:16)</p>	<p>KOCH31.1 Koch.151 KOCH31.1.1</p>
349:6 - 349:19	<p>348:9 Q. Are you looking at 31, sir?</p> <p>348:10 A. I am now.</p> <p>348:11 Q. And that one is authored -- it was a 348:12 corrigendum authored by the authors of the Acquavella 348:13 article?</p> <p>348:14 A. Yes.</p> <p>Koch, Michael 01-11-2019 (00:00:42)</p>	KOCH31.2.3
351:22 - 352:15	<p>349:6 Q. And this is the same Dr. Acquavella that 349:7 had actually engaged in a contractual relationship with 349:8 Monsanto for \$24,000 to participate in an Intertek 349:9 panel?</p> <p>349:10 A. As part of an extension of a consulting 349:11 agreement, yes.</p> <p>349:12 Q. And if we look through the declaration of 349:13 interest -- I don't really want to read the whole 349:14 thing. It is -- it's particularly long and it 349:15 discusses all sorts of various interests that these 349:16 authors had with corporations like Beyer CropScience 349:17 Holding, Inc., Dow AgroSciences, Syngenta. Do you see 349:18 that?</p> <p>349:19 A. Yes.</p> <p>Koch, Michael 01-11-2019 (00:00:56)</p>	KOCH31.2.1
		Koch.153

351:22 Q. And at the very bottom of the corrigendum,
351:23 it reads the authors apologize for these errors. Do
351:24 you see that?

KOCH31.2.2

352:1 A. I do.

352:2 Q. And if you look at the other corrigendums
352:3 that I've given you, in each one of them it concludes
352:4 with the authors apologizing for these errors. Do you
352:5 see that?

352:6 A. Give me one moment. I'm just trying to
352:7 make sure I've got all the relevant information in
352:8 front of me. 31 through 33?

352:9 Q. That's right. And so if you look at
352:10 all -- the last sentence in all the corrigendums, the
352:11 authors apologize for these errors. Do you see that?

352:12 A. I do.

352:13 Q. And I guess my question for you, Doctor,
352:14 is, are you aware if Monsanto has issued any apologies
352:15 for its role in causing any of these errors?

clear

352:18 - 352:18 **Koch, Michael 01-11-2019 (00:00:00)**

Koch.154

352:18 A. I'm not aware.

357:11 - 357:18 **Koch, Michael 01-11-2019 (00:00:15)**

Koch.155

357:11 Q. Let's start with your background. Where
357:12 do you live now?

357:13 A. I live in the suburbs of St. Louis.

357:14 Q. And how long have you lived there?

357:15 A. I've lived there for about ten years.

357:16 Q. Are you married?

357:17 A. I am married and I have two children and
357:18 two dogs.

358:9 - 363:15 **Koch, Michael 01-11-2019 (00:07:01)**

Koch.156

358:9 Q. Let's talk a little bit about your
358:10 education. Where did you get your undergraduate
358:11 degree?

358:12 A. I did -- I have a bachelor's in science
358:13 and biology from Maryville University in St. Louis.

358:14 Q. And where did you get your PhD?

358:15 A. From the University of Iowa.

358:16 Q. After you got done working at -- earning
358:17 your PhD, where'd you first work?

358:18 A. My first role was at WIL Research in

358:19 Ashland, Ohio -- it's not part of the Charles River
358:20 system of labs, but they're still located in Ashland --
358:21 doing regulatory toxicology studies in mice, rats,
358:22 guinea pigs, dogs, nonhuman primate -- nonhuman
358:23 primates.

358:24 Q. Did any of your work there have anything
359:1 to do with glyphosate?

359:2 A. It did not.

359:3 Q. What kind of regulatory -- when you say
359:4 regulatory toxicology, what is that?

359:5 A. Regulatory toxicology is a field of
359:6 toxicology that generates data according to
359:7 international guidelines, and we've mentioned the OECD
359:8 test guidelines previously, and those are
359:9 internationally agreed-upon guidelines of how to
359:10 conduct a certain type of study, whether it's a
359:11 carcinogenicity study, a genotoxicity study, an acute
359:12 oral toxicity study. All those types of studies and
359:13 more have international guidelines on how to conduct a
359:14 study.

359:15 Q. What's the benefit of using OECD standards
359:16 for your regulatory toxicology?

359:17 A. So the endpoints in OECD studies are known
359:18 to be accurate predictors of toxicity, whereas
359:19 investigative science, they may have -- they may detect
359:20 a difference, but its relevance to toxicity is unknown.

359:21 Q. Does -- do regulatory bodies accept
359:22 toxicology that doesn't comply with international
359:23 standards?

359:24 A. No, the test guidelines are international
360:1 standards and then there are typically national
360:2 standards to which they're harmonized. For example,
360:3 the EPA expects that studies be conducted in accordance
360:4 with OECD test guidelines and also any guidance that
360:5 they have issued as well on that type of study.

360:6 Q. And in your practice both at Monsanto and
360:7 before, have you made an effort to adhere to good lab
360:8 practices and international lab guidelines?

360:9 A. Yeah, the good lab practices are sort of a
360:10 cook book for how to make a study reproducible. They

360:11 ensure that accurate records are kept on what was done,
360:12 and should the study need to be repeated, you would
360:13 know exactly how to do it. The OECD test guidelines
360:14 likewise ensure quality by making minimal suggestions
360:15 of animal number and the endpoints to include.
360:16 Q. Are those both good lab practices and
360:17 international study guidelines -- are those things that
360:18 you've endeavored to abide by when you've conducted or
360:19 overseen research?
360:20 A. Yes.
360:21 Q. Let's get back to your work history. What
360:22 did you do after working for WIL Labs?
360:23 A. I took a job with Seventh Wave Labs, where
360:24 we did short-term toxicity studies and some work with
361:1 pharmacokinetics. That was typically done in rats.
361:2 Q. How long did you stay at Seventh Wave?
361:3 A. I -- so Seven -- I should also mention
361:4 that Seventh Wave -- that's where I sort of first
361:5 became involved in people management. I started
361:6 leading the animal tech group as well as some of the
361:7 adjacent study directors, and so that was sort of my
361:8 first experience with oversight, and I stayed there
361:9 from February of 2018 until -- I'm sorry -- February of
361:10 2008 until June of 2010.
361:11 Q. And in June of 2010, is that when you were
361:12 recruited to Monsanto to participate in their Emerging
361:13 Leaders Program?
361:14 A. The recruitment process for the Emerging
361:15 Leaders in Science Program I started a little bit
361:16 before June, and I think I accepted a position sometime
361:17 in that June timeframe with the understanding that I
361:18 would start in July, as indicated on my CV.
361:19 Q. Was the Emerging Leaders Program in your
361:20 view an honor to participate in?
361:21 A. It was a select group of individuals
361:22 selected for technical backgrounds but also leadership
361:23 potential, and so I don't ever know what those criteria
361:24 were, but apparently I possess them, and they asked me
362:1 to join. I had a good experience with it. I got to
362:2 rotate through three adjacent groups internally and

362:3 learn a little bit more about what each did, and I
 362:4 think that's benefited me in the long term.
 362:5 Q. After you were done with the Emerging
 362:6 Leaders Program, you started working as -- in the
 362:7 toxicology department of Monsanto?
 362:8 A. Yes. So my first position once I came out
 362:9 of the Emerging Leaders in Science Program was the new
 362:10 technologies in toxicology lead, and that was related
 362:11 to our biotech products. So different varieties, GM
 362:12 varieties of corn or soy or cotton or canola, as well
 362:13 as the traits that were added to those products,
 362:14 demonstrating the safety of the trait and the grain or
 362:15 other commodity from the crop as well.
 362:16 Q. So at that point your work at Monsanto was
 362:17 directed toward crops, not toward pesticides?
 362:18 A. Yes, it was strict -- there was sort of a
 362:19 strict line between the two disciplines, and I was
 362:20 working solely on the biotech side at that point.
 362:21 Q. Did you stay in that position for about
 362:22 two years?
 362:23 A. Yes. I was in that position until I
 362:24 became the Toxicology and Nutrition Center lead in the
 363:1 summer of 2014.
 363:2 Q. In 2014, when you became the Toxicology
 363:3 and Nutrition Center lead, how did that change your
 363:4 responsibilities?
 363:5 A. Was more oversight of individuals, a
 363:6 larger team to work with them on both business and
 363:7 development goals. Monsanto places an unusual
 363:8 emphasis, at least for the different places I've
 363:9 worked, on developing people and things they're good
 363:10 at, and so that was a big emphasis in my leadership
 363:11 roles of developing people.
 363:12 Q. Was that the first time that you had
 363:13 glyphosate as part of your responsibilities and
 363:14 portfolio?
 363:15 A. Yes, it was.

364:5 - 364:9

Koch, Michael 01-11-2019 (00:00:13)

Koch.157

364:5 Q. Was it part of your responsibilities to
 364:6 ensure that any products Monsanto was pushing to -- was

364:7 moving forward with development on were -- could be
364:8 used safely?

364:9 A. Yes.

364:10 - 365:1

Koch, Michael 01-11-2019 (00:00:52)

Koch.158

364:10 Q. Did you stay in the Toxicology and
364:11 Nutrition Center through November of 2015?

364:12 A. Yeah. In November of 2015 we added -- a
364:13 team was added to the teams that comprise the
364:14 Toxicology and Nutrition Center to re-create what had
364:15 been called the Product Safety Center. That brought
364:16 the people reporting to me up to about 12 or 13. We're
364:17 at -- I think we're at 11 employees right now with two
364:18 open roles, so I think we were right at 13 when the
364:19 Product Safety Center was re-created.

364:20 So I had oversight of the biotech tox, the
364:21 small molecule tox, and the compositional biology.
364:22 Compositional biology is something a lot of people
364:23 aren't familiar with, but it looks at nutritional
364:24 endpoints in GM and non-GM crops to determine if they
365:1 have similar nutritional profiles.

365:8 - 365:14

Koch, Michael 01-11-2019 (00:00:12)

Koch.159

365:8 Q. And you've stayed in that position till
365:9 the present day?

365:10 A. That's correct.

365:11 Q. So is that approximately eight years at
365:12 Monsanto?

365:13 A. Yes, it will be nine this July. Well, now
365:14 that Bayer owns Monsanto, so --

372:5 - 374:9

Koch, Michael 01-11-2019 (00:03:00)

Koch.160

372:5 Q. We talked some about the body named IARC?

372:6 A. Yes.

372:7 Q. And you were involved in Monsanto's
372:8 becoming aware that IARC was going to look at
372:9 glyphosate and then responding once IARC had evaluated
372:10 glyphosate?

372:11 A. That's correct.

372:12 Q. Was part of what you did in your job to
372:13 understand how IARC was going to review glyphosate?

372:14 A. We had some conversations about the review
372:15 and the fact that it would be based on publicly

372:16 available literature.

372:17 Q. And I believe you mentioned a number of
372:18 times during your testimony that there was another body
372:19 of knowledge, the regulatory data, that accompanies
372:20 products like glyphosate that are heavily regulated.
372:21 Is that right?

372:22 A. Yes, that's correct. I made reference to
372:23 the regulatory dataset for glyphosate because it's an
372:24 unusually large dataset. It has both the Monsanto
373:1 safety data as well as safety data from other
373:2 registrants of glyphosate. Since glyphosate went off
373:3 patent, many other chemical manufacturers have begun
373:4 manufacturing glyphosate as well, and they've generated
373:5 safety data in addition to what Monsanto has, so it has
373:6 a larger safety dataset than usual.

373:7 Q. What kind of data is in the regulatory
373:8 safety data?

373:9 A. So there's an extensive toxicology
373:10 database. There's acute, there's repeat dose, there's
373:11 developmental and reproductive toxicology, there's
373:12 genotoxicity, there's carcinogenicity, and quite a few
373:13 other studies. In addition to human safety studies,
373:14 there's ecotox studies, residue studies, and just a
373:15 considerable amount of data.

373:16 Q. And that's all generated for each
373:17 registrant that wants to be allowed to make glyphosate?

373:18 A. So now that the joint -- the glyphosate
373:19 task force has been formed they're sharing data, but
373:20 that is a pool of data from which members can pull
373:21 from.

373:22 Q. Do you know when Monsanto first pulled
373:23 together a package of all of this information and
373:24 provided it to a regulatory body?

374:1 A. I don't.

374:2 Q. But glyphosate was first approved sometime
374:3 in 1975; is that right?

374:4 A. Yeah, I know that glyphosate was
374:5 originally approved by regulatory authorities in the
374:6 1970s and has been reapproved since then, in the U.S.,
374:7 in Canada, in Europe, in Japan, and Australia. So it's

374:20 - 375:23	<p>374:8 been successfully registered and reregistered around 374:9 the world based on the regulatory dataset.</p> <p>Koch, Michael 01-11-2019 (00:01:18)</p> <p>374:20 Q. Do -- and then you said it's been 374:21 reregistered a number of times -- glyphosate? 374:22 A. Yes. 374:23 Q. Does -- when glyphosate is reregistered, 374:24 does that require supplementing the regulatory database 375:1 that's provided to the regulators? 375:2 A. When new data requirements evolve, we have 375:3 to meet those data requirements, and so over time 375:4 additional data has been generated as regulatory 375:5 requirements have been put in place. 375:6 Q. If -- am I right that the regulatory data 375:7 package needs to be submitted before a product is 375:8 approved by the EPA? 375:9 A. Yes. Regulatory agencies expect to review 375:10 the data. It takes us a couple years, maybe three, 375:11 four years to typically generate a full dataset based 375:12 on the timing of the studies and how they need to be 375:13 run sequentially, and then the EPA conducts their 375:14 review, which can take another two to three years. 375:15 Q. And so that would have happened at least 375:16 for the first time before 1975, for glyphosate? 375:17 A. If the first approval was in 1975, I would 375:18 imagine it was submitted well before that, but I don't 375:19 know for a fact. 375:20 Q. Yeah. I mean, obviously you weren't there 375:21 at the time, but you know that to get approval you have 375:22 to submit this information?</p>	Koch.161
385:13 - 385:13	<p>Koch, Michael 01-11-2019 (00:00:02)</p>	Koch.162
385:15 - 386:6	<p>385:13 What's a six-pack in toxicological terms?</p> <p>Koch, Michael 01-11-2019 (00:00:48)</p> <p>385:15 A. A six-pack is shorthand for a group of 385:16 studies. Those are acute oral studies, acute dermal 385:17 studies, acute inhalation studies, eye irritation, skin 385:18 irritation, and skin sensitization. 385:19 Q. (By Mr. Brenza) With respect to 385:20 glyphosate, when are those six-pack studies done?</p>	Koch.163

385:21 A. For any chemical typically you're doing
 385:22 your single-dose work early in the process. Those
 385:23 studies are also conducted for formulation.
 385:24 Q. And when you say formulations, that's the
 386:1 chemical mixture of glyphosate and something else that
 386:2 is sold as Roundup?

386:3 A. That's correct.

386:4 Q. So those tests do apply to formulated
 386:5 product?

386:6 A. That is correct.

386:10 - 387:13

Koch, Michael 01-11-2019 (00:01:10)

Koch.164

386:10 Q. Can you just refresh me on what you
 386:11 understand synergy to be between two chemicals?

386:12 A. When there's a potential for synergy I
 386:13 typically think of two chemicals who have a similar
 386:14 mode of action, so if they're present together they
 386:15 might have a greater than additive effect on whatever
 386:16 system they act on.

386:17 Q. And when you say mode of action, what does
 386:18 that mean?

386:19 A. How it works. For example, glyphosate
 386:20 inhibits the enzyme EPSPS in plants.

386:21 Q. EPSPS?

386:22 A. Yes.

386:23 Q. And that's an enzyme that plants use to
 386:24 make amino acids?

387:1 A. It is.

387:2 Q. What's the other primary constituent of
 387:3 Roundup besides glyphosate?

387:4 A. There's water, there are dyes, and there
 387:5 are surfactants as well.

387:6 Q. How does a surfactant -- what's the mode
 387:7 of action of a surfactant?

387:8 A. Surfactants aid in dispersal of the
 387:9 herbicide across the leaf.

387:10 Q. Is that the same mode of action as
 387:11 glyphosate?

387:12 A. It's not. Glyphosate specifically
 387:13 inhibits EPSPS.

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