

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD

4
5 AJINOMOTO CO., INC,

6 Petitioner,

7 vs.

8 ABTIS CO., LTD.,

9 Patent Owner.

10
11 Case: IPR2025-00283

12 U.S. Patent No. 11,896,675

13
14
15 DEPOSITION OF LAWRENCE TUMEY, Ph.D.

16 Friday, October 17, 2025

17
18
19 Job No.: 604730

20 Pages: 1 - 209

21 Stenographically Reported By:

22 Alison C. Webster, CSR, RPR, RMR, CRR, RDR

1
2
3
4
5 Videoconference deposition of LAWRENCE
6 TUMEY, Ph.D., produced as a witness at the instance
7 of the Patent Owner, and duly sworn, was taken in
8 the above-styled and numbered cause on Friday,
9 October 17, 2025, from 9:05 a.m. to 3:25 p.m.
10 Eastern Time, before Alison C. Webster, RPR, CRR,
11 RMR, RDR, CSR-6266 (Michigan); License No. 14559
12 (California); License No. 084.004953 (Illinois);
13 CSR-12432 (Texas), reported by stenographic method,
14 via videoconference, pursuant to the Federal Rules
15 of Civil Procedure and the provisions stated on the
16 record or attached hereto.
17
18
19
20
21
22

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T A B L E O F C O N T E N T S

Witness	Page
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LAWRENCE TUMEY, Ph.D.	
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EXAMINATION

BY MR. GIUNTA:	8
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E X H I B I T I N D E X

Exhibit	Page
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(Exhibits attached to transcript.)

EXHIBIT 1	16
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Declaration of Dr. Lawrence Nathan

Tumey in Support of Petition For

Inter Partes Review

EXHIBIT 2	37
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Patent No.: US 11,896,675 B2 - Chung

E X H I B I T I N D E X C O N T I N U E D

EXHIBIT 3

Document, Demande De Brevet Canadien

Canadian Patent Application

IPR2025-00283

EXHIBIT 4

97

Development of a Novel Chemical

Site-Specific Conjugation Platform

for ADCs- AJICAP Technology

IPR2025-00283

EXHIBIT 5

112

Technology of site-specific

Conjugation, AJICAP for Next

Generation ADCs, IPR2025-00283

EXHIBIT 6

117

IPR2025-0283, U.S. Patent No.

11,896,675 Translator'S Declaration

EXHIBIT 7

175

IPR2025-0283 U.S. Patent No.

11,896,675 Translator'S Declaration

Transcript of Lawrence Tumey, Ph.D.
Conducted on October 17, 2025

7

1 DEPOSITION OF LAWRENCE TUMEY, Ph.D.

2 Friday, October 17, 2025

3
4 STENOGRAPHER: The attorneys
5 participating in this deposition and the
6 witness have verified that he is Lawrence
7 Tumey, Ph.D. In lieu of an oath administered
8 in person, the witness will visually affirm
9 his testimony in this matter is under penalty
10 of perjury.

11 The parties and their counsel consent
12 to this arrangement and waive any objections
13 to this manner of reporting or admissibility
14 of the transcript.

15 Would counsel please state their
16 appearance and any objections to proceeding in
17 this manner, starting with scheduling counsel.

09:05:07

18 MR. GIUNTA: This is Peter Giunta of
19 K&L Gates LLP, representing the patent owner
20 AbTis. With me is Rebekah Hill, and Mincheol
21 Kim, also from K&L Gates, may join at some
22 point through the deposition.

09:05:07

09:05:10

09:05:16

09:05:20

09:05:23

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Transcript of Lawrence Tumey, Ph.D.
Conducted on October 17, 2025

8

1 MS. PETERSON: Liane Petersen from
2 Foley & Lardner LLP, representing the
3 petitioner Ajinomoto Company, Incorporated,
4 also representing the witness, Dr. Tumey. And
5 then with me from Foley & Lardner, I also have
6 Stephen Maebius and Jason Mock.

09:05:24

09:05:30

09:05:32

09:05:37

09:05:39

09:05:43

7 STENOGRAPHER: Hearing no objections,
8 Dr. Tumey, would you please raise your right
9 hand.

10 Do you swear or affirm the testimony
11 you are about to give in this matter will be
12 the truth, the whole truth, and nothing but
13 the truth?

14 DR. TUMEY: Yes, I do.

15 STENOGRAPHER: Thank you.

16 You may proceed.

17 LAWRENCE TUMEY, Ph.D.,
18 was thereupon called as a witness herein, and
19 after having first been duly sworn to testify
20 to the truth, the whole truth and nothing but
21 the truth, was examined and testified as
22 follows:

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Transcript of Lawrence Tumey, Ph.D.
Conducted on October 17, 2025

9

EXAMINATION

BY MR. GIUNTA:

Q. Can you state your full name and current
residence address for the record?

A. Lawrence Nathan Tumey, 3916 Fuller Hollow
Road, Vestal, New York 13850.

Q. Have you ever been known by any other names?

A. No.

Q. Have you been deposed before?

A. Yes.

Q. About how many times?

A. I believe twice.

Q. So then you understand that you have to answer
all my questions audibly so that the court
reporter can generate an accurate transcript?

A. Yes.

Q. And you understand that you're under oath here
today?

A. Yes.

Q. And that oath is just as binding here as it
would be if you were in a courtroom in front
of a judge, jury, or panel of board of judges?

09:06:04

09:06:06

09:06:11

09:06:16

09:06:20

09:06:24

09:06:24

09:06:28

09:06:29

09:06:33

09:06:33

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09:06:41

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09:06:48

09:06:48

09:06:51

09:06:53

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Transcript of Lawrence Tumey, Ph.D.
Conducted on October 17, 2025

10

1	A. Yes.	09:07:00
2	Q. There may be a question today that you answer	09:07:00
3	and then remember additional information about	09:07:02
4	later. If that happens, can you let me know	09:07:04
5	so we can find an opportunity to let you	09:07:08
6	revisit the topic while it's fresh on your	09:07:11
7	mind?	09:07:15
8	A. Yes.	09:07:15
9	Q. And if I give you a question that I ask that	09:07:15
10	is unclear or that you don't understand, and	09:07:18
11	that happens, can you please let me know so I	09:07:21
12	can try and ask it more clearly?	09:07:22
13	A. Yes.	09:07:25
14	Q. If at any point you'd like to take a break,	09:07:25
15	can you let me know so that we can find a good	09:07:30
16	opportunity to take one?	09:07:33
17	A. Yes, I will.	09:07:35
18	Q. Are you taking any medications that might make	09:07:35
19	it difficult for you to answer my questions	09:07:40
20	today?	09:07:42
21	A. No.	09:07:42
22	Q. Is there any other reason you may not be able	09:07:42

Transcript of Lawrence Tumey, Ph.D.
Conducted on October 17, 2025

11

1	to testify fully and truthfully today?	09:07:45
2	A. No.	09:07:49
3	Q. Now, since you're connected remotely, can you	09:07:50
4	please describe how you're connected to this	09:07:56
5	deposition?	09:07:58
6	A. I have a Starlink satellite -- satellite	09:08:00
7	Internet connection. It's been pretty	09:08:07
8	reliable, but, you know, we'll see how it	09:08:10
9	goes. I'm in a camper right now in the	09:08:12
10	middle of the desert in Moab.	09:08:15
11	Q. Yeah, that's what I was -- that was my next	09:08:19
12	question, where are you located now; so it's a	09:08:21
13	camper in the middle of the desert in Moab.	09:08:25
14	A. Yeah.	09:08:27
15	Q. Okay. Are you connected to anyone else	09:08:28
16	through any other device right now? In other	09:08:36
17	words, are you on any other audio, phone line,	09:08:39
18	or texting with anybody?	09:08:42
19	A. No.	09:08:44
20	Q. Is anyone in the room that you're in right	09:08:44
21	now?	09:08:54
22	A. Yes.	09:08:55

Transcript of Lawrence Tumey, Ph.D.
Conducted on October 17, 2025

12

1	Q. And who is?	09:08:56
2	A. My wife.	09:08:58
3	Q. Okay. Throughout the deposition we'll be	09:08:58
4	using the Zoom Chat window to view exhibits,	09:09:05
5	and you can download those from the Chat	09:09:08
6	window and be able to scroll around in them	09:09:12
7	and use them just like you would be able to	09:09:14
8	page through a document during an in-person	09:09:16
9	deposition.	09:09:18
10	A. Okay.	09:09:18
11	Q. Will you let me know if you have any trouble	09:09:19
12	viewing a document?	09:09:21
13	A. Okay, I will.	09:09:22
14	Q. If we run into any issues with you viewing a	09:09:29
15	document, downloading time and so on, just let	09:09:32
16	me know and we can try some screen sharing.	09:09:35
17	Either myself or Rebekah will be able to share	09:09:38
18	a screen. Does that work?	09:09:41
19	A. Yes.	09:09:42
20	Q. Now, you say you've been deposed at least	09:09:42
21	twice before. Was that as a fact witness or	09:09:45
22	as an expert?	09:09:47

1	A. As an expert.	09:09:53
2	Q. And how many of those were patent cases?	09:09:53
3	A. Let's see here. I believe they both were.	09:10:04
4	Q. And how many of those were antibody-drug	09:10:09
5	conjugate cases?	09:10:17
6	A. They both were.	09:10:17
7	Q. And how many of them were you on the	09:10:17
8	petitioner's side, patent challenger's side?	09:10:19
9	A. It was the same case. I was deposed twice.	09:10:34
10	I don't recall who was challenging and who	09:10:38
11	was petitioning. Yeah, I don't recall. I	09:10:42
12	believe that's a matter of public record.	09:10:49
13	Q. Okay. But you don't recall as you sit here?	09:10:50
14	A. No.	09:10:53
15	Q. And can you give me more description as to	09:10:53
16	what those products involved in the -- in the	09:11:05
17	litigation were aside from that they were	09:11:08
18	antibody-drug conjugates?	09:11:13
19	A. No, that's not something I recall. I mean, I	09:11:31
20	am -- I regularly consult with various legal	09:11:36
21	groups and companies dealing with ADC	09:11:41
22	technology in particular when it comes to the	09:11:47

1	linker and some of the chemistry aspects of	09:11:50
2	it, but I don't recall specifically what that	09:11:53
3	case was. I'd have to -- I don't know.	09:11:56
4	It's -- yeah. This was some months ago, and	09:11:59
5	I don't -- I don't even remember the nature	09:12:03
6	of the case right now.	09:12:05
7	Q. And one last question about your remote setup.	09:12:11
8	Is the computer that you're connected through,	09:12:13
9	does it have a native calculator app?	09:12:15
10	A. Yes, I've got a calculator app on it.	09:12:20
11	Q. Okay.	09:12:22
12	So what's your understanding of the	09:12:26
13	reason for this proceeding between Ajinomoto	09:12:27
14	and AbTis?	09:12:29
15	A. My general understanding of the case is that	09:12:37
16	Ajinomoto filed a patent on a particular	09:12:44
17	conjugation technology and that's useful for	09:12:51
18	making antibody-drug conjugates. AbTis filed	09:12:56
19	a similar patent, also on a technology to	09:13:01
20	make antibody-drug conjugates, and this was	09:13:04
21	some couple of years later.	09:13:08
22	And so the general nature of the	09:13:13

1	case is whether the invention of AbTis is	09:13:15
2	obvious over the invention of Ajinomoto.	09:13:23
3	Q. What did you do to prepare for your deposition	09:13:30
4	today?	09:13:35
5	A. I reviewed the report that I prepared some	09:13:45
6	months ago, and I met with my attorneys, and	09:13:49
7	I reviewed some of the documents associated	09:13:56
8	with the case.	09:13:57
9	Q. Approximately how much time did you spend	09:13:59
10	preparing for your deposition today?	09:14:01
11	A. I would say around six or eight hours.	09:14:10
12	Q. And did you review any documents in	09:14:13
13	preparation for your deposition?	09:14:19
14	A. Yes.	09:14:25
15	Q. And what did you review?	09:14:25
16	A. Primarily the patents associated with the	09:14:30
17	case and of course the document that I wrote	09:14:35
18	as well.	09:14:39
19	Q. About how long did you take to review those	09:14:39
20	documents?	09:14:48
21	A. A few hours.	09:14:54
22	Q. Okay. So you mentioned a document that you	09:14:55

1	prepared. I'm dropping it in the Chat now.	09:15:03
2	A. Okay.	09:15:16
3	MARKED FOR IDENTIFICATION:	09:15:31
4	EXHIBIT 1	09:15:31
5	9:15 a.m.	09:15:31
6	BY MR. GIUNTA:	09:15:31
7	Q. Let me know when you've got that downloaded.	09:15:31
8	A. Okay.	09:15:34
9	Okay, yes, I've got the document	09:15:51
10	downloaded and I've got it pulled up now.	09:15:52
11	Q. I'm showing you what's been marked as Tumey 1	09:15:54
12	for identification purposes. It is also IPR	09:16:00
13	Exhibit 1002.	09:16:04
14	Do you recognize this document?	09:16:05
15	A. Yes, I do.	09:16:17
16	Q. What is it?	09:16:17
17	A. This is the -- this is my declaration that I	09:16:22
18	wrote in preparation for this case late last	09:16:25
19	year.	09:16:30
20	Q. And as far as you're aware, is it complete and	09:16:30
21	accurate as of today?	09:16:35
22	A. Yes.	09:16:37

1	Q. Are there any parts of it that you would like	09:16:37
2	to correct or change at this time?	09:16:41
3	A. No.	09:16:51
4	Q. I'd like for you to turn to paragraph 3, which	09:16:51
5	is on page marked 6 out of 230.	09:16:59
6	A. Yes.	09:17:06
7	Q. And it says you're being compensated at a rate	09:17:06
8	of \$350 per hour. Do you see that?	09:17:12
9	A. Yes.	09:17:14
10	Q. Have you received any other compensation from	09:17:14
11	Ajinomoto either -- either directly or	09:17:24
12	indirectly for any reason?	09:17:29
13	A. No.	09:17:31
14	Q. How about through an Ajinomoto affiliate or	09:17:31
15	partner company?	09:17:37
16	A. No.	09:17:39
17	Q. About how many hours did you spend putting	09:17:40
18	together your declaration?	09:17:48
19	A. I don't recall specifically off the top of my	09:17:57
20	head. I would say in the ballpark of maybe	09:18:00
21	40 hours or so.	09:18:03
22	Q. If you turn to paragraph 9, which is on	09:18:21

1	page 9.	09:18:27
2	A. Yes. I'm there.	09:18:29
3	Q. You say that you have -- you "possess over 30	09:18:31
4	years of expertise and experience that span	09:18:36
5	the areas of organic chemistry, medicinal	09:18:39
6	chemistry, targeted drug delivery,	09:18:44
7	bioconjugate bioanalysis, ADC design, antibody	09:18:47
8	metabolism, and site-specific conjugation	09:18:55
9	chemistry."	09:18:58
10	Do you see that?	09:18:58
11	A. Yes.	09:18:58
12	Q. Now, if you turn to -- or if you go to	09:19:14
13	page 207 of 230 in this PDF, there's a cover	09:19:20
14	sheet that says Appendix B, Curriculum Vitae.	09:19:40
15	Do you see that?	09:19:43
16	A. Oh, yes. Yeah.	09:19:44
17	Q. And on the pages that follow are your	09:19:45
18	curriculum vitae. Correct?	09:19:47
19	A. Yes.	09:19:49
20	Q. And was your CV complete and accurate as of	09:19:49
21	this December 2024 date that you submitted it?	09:19:53
22	A. Yes.	09:20:00

1	Q. Now, it says here that you received your	09:20:00
2	bachelor of science from King College in 1997.	09:20:09
3	Right?	09:20:16
4	A. Yes.	09:20:16
5	Q. And we previously talked about your 30 years	09:20:17
6	of experience. 30 years ago was 1995. Right?	09:20:22
7	A. That's -- yep. Yes.	09:20:31
8	Q. So you counted experience in the middle of	09:20:35
9	your college years, is that -- is that where	09:20:40
10	you began counting?	09:20:44
11	A. You know, I guess when you get to the age I	09:20:48
12	am, I guess I round by five years or so. I	09:20:54
13	don't -- yeah, that would -- I guess that	09:20:59
14	would be -- 25 years would probably be a more	09:21:00
15	accurate depiction than 30 years.	09:21:04
16	Q. Because your CV doesn't list any publications	09:21:06
17	going back to 1995. Right?	09:21:12
18	A. That's correct.	09:21:15
19	Q. And the earliest presentation that you list is	09:21:15
20	in 2004, which is nine years after that.	09:21:19
21	Right?	09:21:22
22	A. That is correct. Well, the earliest	09:21:24

1	publication that I -- no, that should be...	09:21:27
2	no, there would have been publications that I	09:21:31
3	am author on before two thousand and... okay.	09:21:35
4	[Simultaneous Speaking]	09:21:46
5	A. Yeah, 2000 is the earliest publication that's	09:21:47
6	listed here. That would have been my first	09:21:50
7	publications. So about 25 years.	09:21:53
8	Q. And so in about what time period did you begin	09:21:57
9	working on antibody-drug conjugates or related	09:22:18
10	work?	09:22:22
11	A. That would have been about 2010, if I'm	09:22:27
12	remembering correctly. Yeah. Yeah, that	09:22:37
13	would have been about 2010.	09:22:48
14	Q. In what context did you begin working on them?	09:22:50
15	Were you employed at that time for a company	09:22:52
16	that was working on them?	09:22:54
17	A. Yes. I was with a company called Wyeth	09:22:58
18	Pharmaceuticals. Wyeth got taken over by	09:23:03
19	Pfizer in 2010, I believe. And as part of	09:23:06
20	that reorganization, I got moved into a group	09:23:14
21	that was studying antibody-drug conjugates.	09:23:18
22	So from 2010 onwards, that's practically the	09:23:22

1	only scientific focus of my work, has been	09:23:26
2	antibody-drug conjugates.	09:23:34
3	Q. And in concise terms -- and you're free to	09:23:37
4	reference, you know, paragraphs in your	09:23:41
5	declaration where you've set this out -- what	09:23:43
6	are antibody-drug conjugates?	09:23:45
7	A. So I'll refer to them as ADC just for short,	09:23:54
8	just to keep things simple here. So an ADC	09:23:59
9	is a drug that combines an antibody-targeting	09:24:04
10	vehicle with a small molecule payload. And	09:24:07
11	so that payload is often thought of as the	09:24:13
12	thing that's doing the interesting biology,	09:24:19
13	whatever disease we're trying to impact, and	09:24:21
14	so on, whereas the antibody is serving as	09:24:26
15	essentially the targeting vehicle that gets	09:24:28
16	that drug to the right cells within the body.	09:24:31
17	Q. And so then the molecules, the compounds, that	09:24:44
18	are at issue in the patents here, they don't	09:24:49
19	have the drug portion connected to them just	09:24:53
20	yet; is that fair to say?	09:24:57
21	A. That is fair, yes.	09:24:59
22	Q. And is there -- so is there a name for those?	09:24:59

1	MS. PETERSON: Objection to form.	09:25:10
2	A. I guess, as a chemist, I would think of them	09:25:16
3	as an intermediate. I am an organic chemist,	09:25:20
4	and so we make molecules, and we make	09:25:25
5	molecules with a particular biologic goal in	09:25:32
6	mind. And part of being a medicinal chemist	09:25:36
7	is not just designing the final molecule, but	09:25:43
8	it's figuring out how you're going to get to	09:25:46
9	that final molecule.	09:25:48
10	And so there's lots of intermediates	09:25:49
11	along the way that we also study their	09:25:53
12	properties and their synthesis. So this is	09:25:55
13	one of those intermediates.	09:25:57
14	BY MR. GIUNTA:	09:26:03
15	Q. Yeah, but there's no -- there's no shorthand	09:26:04
16	term for it. Is it -- is it closer -- is it	09:26:06
17	closer to being called a bioconjugate than an	09:26:10
18	ADC, or is ADC -- does it fall under the	09:26:13
19	umbrella of ADC?	09:26:16
20	A. Most people would say it falls under the	09:26:17
21	umbrella of ADCs.	09:26:20
22	Q. And you have consultancies listed on page 209,	09:26:26

1	PDF page 209 of IPR Exhibit 1002 here.	09:26:31
2	A. Yes.	09:26:44
3	Q. And the first of them are Expert Witness and	09:26:44
4	Legal Consulting. Do you see that?	09:26:53
5	A. Yes.	09:26:55
6	Q. And is -- are these the two times that you	09:26:56
7	were deposed, listed here, when you were	09:26:58
8	working with Quinn Emanuel and Latham &	09:26:59
9	Watkins?	09:27:05
10	A. One of these -- both of the times I was	09:27:06
11	deposed was with one of these companies. I	09:27:08
12	believe it was -- I believe it was	09:27:11
13	Quinn Emanuel. Yeah, it was Quinn Emanuel.	09:27:17
14	The Latham & Watkins work was	09:27:21
15	associated with a arbitration.	09:27:26
16	Q. Okay. And then under Professional Consulting	09:27:35
17	Work, you have some companies listed here.	09:27:38
18	You have Heidelberg Pharma, and that -- is	09:27:39
19	that current? That's been going on since	09:27:43
20	2022?	09:27:45
21	A. Yes. Although I haven't done anything in	09:27:49
22	roughly a year with them, so I don't know	09:27:52

1	that -- probably a better depiction there	09:27:54
2	would be 2022 to 2024, so...	09:27:58
3	Q. Okay. So in -- on the page 211, you have	09:28:01
4	Grant Funding listed, and you have Heidelberg	09:28:08
5	Pharma there, "'Optimization of TLR7	09:28:15
6	Antagonist ADCs for the treatment of Cancer,'"	09:28:19
7	and you have that listed as December '22	09:28:22
8	through December '24.	09:28:25
9	Do you see that?	09:28:26
10	A. Yes.	09:28:27
11	Q. And is that -- does that correspond to the	09:28:27
12	consulting work that you're mentioning, or is	09:28:31
13	that separate?	09:28:33
14	A. They're overlapping. It -- I would say, yes,	09:28:33
15	it corresponds to the consulting work, yes.	09:28:37
16	Q. In your -- in your consult -- your grant there	09:28:39
17	for "Optimization of TLR7 Agonist ADCs for the	09:28:53
18	treatment of cancer," in the course of that	09:28:56
19	work, did you use technologies offered by	09:28:58
20	either -- well, let me ask it this way.	09:29:03
21	Did you use any technologies	09:29:06
22	available from Ajinomoto during that -- during	09:29:09

1	that consultancy or during that grant?	09:29:12
2	A. No.	09:29:15
3	Q. Did you use any technologies available from	09:29:17
4	AbTis during that consultancy or during that	09:29:20
5	grant?	09:29:22
6	A. No.	09:29:24
7	Q. Back on page 209, the other consulting work	09:29:24
8	that you've done, is it all in the area of	09:29:36
9	ADCs, even going down to the earliest ones	09:29:44
10	which would be Angiex Pharmaceuticals? I'm	09:29:49
11	sorry, Takeda Pharmaceuticals. Were all these	09:29:54
12	ADC work?	09:29:57
13	A. Yes. I'm trying to think. Yes, that	09:29:58
14	would -- all of it was ADC work.	09:30:03
15	Q. And so in your grants back on page 211, you	09:30:22
16	have grant funding from the NIH; is that	09:30:26
17	right?	09:30:28
18	A. Yes.	09:30:31
19	Q. And you have grant funding from certain	09:30:31
20	organizations associated with Binghamton	09:30:33
21	University; is that right?	09:30:37
22	A. Yes.	09:30:38

1	Q. And then you also have grant funding from some	09:30:40
2	private companies. Correct?	09:30:43
3	A. Yes.	09:30:48
4	Q. And in addition to Heidelberg Pharma, the	09:30:48
5	private companies include Synthesis, Inc. Is	09:30:53
6	that a private company grant?	09:30:55
7	A. Yes, it is.	09:30:57
8	Q. And how about Takeda Pharmaceuticals, is that	09:30:58
9	a private company grant?	09:31:00
10	A. Yes.	09:31:02
11	Q. What is your current job title?	09:31:11
12	A. Associate professor and vice chair.	09:31:15
13	Q. Do you have a teaching role, or are you	09:31:28
14	strictly a research professor?	09:31:30
15	A. I have a teaching role.	09:31:31
16	Q. And you've been a professor at Binghamton	09:31:33
17	since 2017; is that right?	09:31:41
18	A. Yes.	09:31:43
19	Q. And why did you make the transition from	09:31:44
20	Pfizer to Binghamton?	09:31:47
21	A. There was a number of reasons, but I think	09:31:52
22	one particular reason that's relevant here is	09:31:54

1 that ADCs -- my passion, my focus, has been
2 ADCs since 2010. And while there's a lot of
3 excitement around them now, that has not
4 always been the case.

5 And in 2015 to 2017, in that
6 time frame there was a huge clinical trial
7 failure by a couple of -- a couple of
8 different companies that led Pfizer to exit
9 the ADC research space. So to continue doing
10 ADC research, I began exploring an academic
11 career to -- so I -- yeah, to have the
12 freedom to do some of the types of research
13 that I wanted to do.

14 Q. And are there any other areas of focus besides
15 ADCs for your research?

16 A. There's a few other -- a small amount of my
17 research focuses on medicinal chemistry more
18 broadly, aside from ADCs, and that would be
19 in the cancer space. There's a particular
20 collaborator that I have that we work on
21 small molecule drugs for cancer.

22 And then there's also some

09:31:58

09:32:02

09:32:07

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09:33:15

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09:33:28

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09:33:37

1	oligonucleotide or DNA-based therapeutics	09:33:41
2	that I am also working on with a collaborator	09:33:46
3	that are not really related to ADCs.	09:33:49
4	Those are pretty small areas, I	09:33:53
5	would say constitute no more than 5 or	09:33:55
6	10 percent of my research focus.	09:33:58
7	Q. When were you first contacted in connection	09:34:01
8	with this IPR?	09:34:09
9	A. I believe it was last summer.	09:34:16
10	Q. Who contacted you?	09:34:20
11	A. From my recollection it was Liane, but I am	09:34:29
12	not certain of who made -- who reached out to	09:34:32
13	me initially.	09:34:35
14	Q. And when were you retained?	09:34:37
15	A. Sometime last summer. I believe it was	09:34:43
16	around August.	09:34:45
17	Q. Did you consider any documents or provide any	09:34:46
18	opinions before you were retained?	09:34:51
19	A. Not to my recollection.	09:34:59
20	Q. Do you understand that this IPR proceeding	09:35:02
21	concerns U.S. Patent Number 11,896,675?	09:35:04
22	A. Yes.	09:35:13

1	Q. And so if -- I'm going to probably refer to	09:35:13
2	that as the '675 patent as shorthand, and	09:35:20
3	you're welcome to do the same.	09:35:23
4	Was the '675 patent the first	09:35:26
5	document you reviewed when you began working	09:35:29
6	on this case?	09:35:31
7	A. I don't remember.	09:35:36
8	Q. Did you read the '675 patent early on in	09:35:37
9	working on this case?	09:35:42
10	A. I'm sure I would have.	09:35:49
11	Q. Do you recall whether you reviewed the '675	09:35:50
12	patent first or whether you reviewed prior art	09:35:55
13	references first?	09:35:58
14	A. I do not know. I don't recall.	09:36:09
15	Q. If you look in your declaration, there's a	09:36:17
16	little section on references. It's called	09:36:23
17	Overview of Prior Art References, and it	09:36:31
18	begins on page 38, which is PDF page 43. And	09:36:34
19	let me know when you're there.	09:36:40
20	A. Okay, yes.	09:36:49
21	Q. Now, you mention CA 313959A1 as a reference.	09:36:50
22	That's exhibit -- IPR Exhibit 1005. Do you	09:37:04

1	see that?	09:37:07
2	A. Yes.	09:37:07
3	Q. And is it your understanding that that '959	09:37:08
4	publication is a published version of an	09:37:15
5	international counterpart to the '675 patent?	09:37:18
6	A. Yes.	09:37:32
7	Q. And you also mention something that you refer	09:37:32
8	to as the "PepTalk Poster," which is an	09:37:40
9	Ajinomoto poster presentation that was	09:37:46
10	apparently given at a conference; is that	09:37:50
11	correct?	09:37:55
12	A. Yes.	09:37:55
13	Q. And do you recall whether you reviewed the	09:38:00
14	patent first or the PepTalk Poster first?	09:38:05
15	MS. PETERSON: Objection to form.	09:38:16
16	A. I do not recall which I -- which I reviewed	09:38:20
17	first.	09:38:24
18	BY MR. GIUNTA:	09:38:28
19	Q. And the next thing that you mention as a prior	09:38:29
20	art reference is what's called the "PepTalk	09:38:33
21	Presentation." Do you see that? That's	09:38:36
22	Exhibit 1007 in the IPR.	09:38:39

1	A. Yes.	09:38:40
2	Q. And is that a slide presentation that was	09:38:41
3	given at the same PepTalk conference as the	09:38:48
4	poster was presented in?	09:38:51
5	A. That is my understanding, yes.	09:38:57
6	Q. And then you refer to a patent -- an	09:38:58
7	international patent publication 2018/193337,	09:39:04
8	which you refer to as Yamada, or how do you	09:39:12
9	say it?	09:39:15
10	A. "Yamada," yes.	09:39:13
11	Q. Okay. Which you refer to as Yamada, and	09:39:18
12	that's IPR Exhibit 1008.	09:39:24
13	A. Yes.	09:39:27
14	Q. And then, lastly, you refer to another	09:39:28
15	international published patent application WO	09:39:34
16	2019/240288, which is IPR Exhibit 1010, and	09:39:39
17	you -- do you refer to that as Matsuda?	09:39:50
18	A. Yes, I do.	09:39:56
19	Q. So for these references, did you find these or	09:39:57
20	were these provided to you by counsel?	09:40:08
21	A. These were provided by counsel.	09:40:16
22	Q. Did you do any searches of your own for prior	09:40:22

1	art?	09:40:26
2	A. I did some searches. What those -- what the	09:40:31
3	searches were for, what exactly I was looking	09:40:36
4	for at that time, I don't know. That's been,	09:40:39
5	you know, six or nine months since I prepared	09:40:40
6	this document. Going on a year ago actually.	09:40:42
7	Q. Did you record your searches anywhere, your	09:40:44
8	search strategy or the search that you	09:40:48
9	performed?	09:40:50
10	A. No.	09:40:51
11	Q. Did you -- when you performed those searches,	09:40:51
12	had you reviewed the '675 patent already?	09:40:55
13	A. I can't say. I probably would have, but I	09:41:10
14	don't recall.	09:41:12
15	Q. And how would you describe the exercise that	09:41:16
16	you went through and analyzed in the prior art	09:41:18
17	references with respect to the '675 patent?	09:41:23
18	Did you first review the claims of the '675	09:41:25
19	patent?	09:41:31
20	MS. PETERSON: Objection to form.	09:41:31
21	A. Are you asking -- can you repeat the	09:41:42
22	question?	09:41:45

1 BY MR. GIUNTA:

09:41:45

2 Q. Yeah. So the -- I'd just like to ask some
3 questions about how you formed your opinions,
4 and my question -- with regard to the prior
5 art references and what they disclose and how
6 they render obvious in your opinion claims of
7 the '675 patent.

09:41:45

09:41:48

09:41:52

09:41:54

09:41:57

09:42:00

8 And my question is, did you review
9 the '675 patent first and then go to the
10 references, or did you review the references
11 first?

09:42:01

09:42:05

09:42:08

09:42:12

12 A. I think that's what you asked earlier, and my
13 answer is still the same. I don't recall
14 exactly what order I reviewed these documents
15 in as I was preparing the declaration.

09:42:17

09:42:19

09:42:21

09:42:27

16 Q. Sure. This question is slightly different.

09:42:30

17 In forming the opinions, in other
18 words as you're laying your opinions out here,
19 was the exercise that you took a claim of the
20 '675 patent, went to the prior art references
21 and found the things that disclosed elements
22 of the claim?

09:42:32

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09:42:43

09:42:47

1	MS. PETERSON: Objection to form.	09:42:48
2	A. So that -- again, in this case I don't	09:42:49
3	recall, but I can say that when I'm doing a	09:43:00
4	prior art analysis in general, yes, I look at	09:43:03
5	a claim and the scope of the claim, and then	09:43:06
6	I do some sort of a search to -- once I've --	09:43:11
7	once I've fully understood the claim, then I	09:43:18
8	do a search to find the relevant documents.	09:43:21
9	BY MR. GIUNTA:	09:43:23
10	Q. And so your prior art analysis begins with the	09:43:29
11	claim and its scope; is that right?	09:43:32
12	A. My prior art -- the prior art study begins	09:43:41
13	with the claim and its scope. I'm a little	09:43:50
14	unsure of how to separate that from the	09:43:54
15	analysis, but...	09:43:58
16	Q. So is the analysis different? Do you do	09:44:03
17	something different in the analysis?	09:44:05
18	A. No, I guess not. So I guess -- yes, I guess	09:44:25
19	I would begin with the -- begin with the	09:44:29
20	claim and understanding the claim, yes.	09:44:32
21	Otherwise, you're opening up a -- the world	09:44:34
22	of research out there of which there is, you	09:44:39

1	know, too much to take in. So of course your	09:44:44
2	study, your analysis, has to begin with a	09:44:46
3	claim, and then I go to the relevant prior	09:44:49
4	literature. I can't -- I can't do the	09:44:51
5	reverse, that would be kind of nonsensical	09:44:55
6	actually.	09:44:58
7	Q. Okay. So you began with -- so, for example,	09:44:58
8	here, you began with the claims of the '675	09:45:01
9	patent and then you went back and analyzed the	09:45:05
10	prior art to see what aspects of the '675	09:45:07
11	patent claims each reference disclosed; is	09:45:10
12	that right?	09:45:13
13	MS. PETERSON: Objection to form.	09:45:15
14	A. Yes. Again, I can't speak to exactly what	09:45:20
15	was going through my mind a year ago, but in	09:45:22
16	general, as I look at patents, that's the way	09:45:25
17	I approach them.	09:45:26
18	BY MR. GIUNTA:	09:45:34
19	Q. And you said you did some prior art searches	09:45:41
20	on your own. Were there any prior art	09:45:44
21	references that you found that you provided to	09:45:47
22	counsel?	09:45:48

1 A. I don't know if there was any that made it 09:46:06
2 into this document. So I don't know if there 09:46:08
3 was any that were relevant or not, but I -- 09:46:10
4 certainly I remember -- one thing in 09:46:14
5 particular I remember was -- since I've been 09:46:16
6 in the ADC field long enough, going through 09:46:20
7 some conference proceedings and some speakers 09:46:22
8 and so on at meetings from the late, say, 09:46:26
9 2018 to 2020 kind of time frame. 09:46:33

10 But I don't recall exactly what I 09:46:35
11 found or what was sent to the counsel, but 09:46:37
12 certainly I remember going through that once 09:46:42
13 I kind of understood the scope of this case. 09:46:43

14 Q. But as far as you know, none of that made it 09:46:48
15 into this declaration. The references that 09:46:50
16 you're dealing with here that we just went 09:46:54
17 through, those were provided by counsel. 09:46:56
18 Correct? 09:46:57

19 MS. PETERSON: Objection to form. 09:46:58

20 A. That's my recollection, yes. 09:47:01

21 MR. GIUNTA: Okay. I have uploaded a 09:47:32
22 document to the Chat. 09:47:34

1	MARKED FOR IDENTIFICATION:	09:47:45
2	EXHIBIT 2	09:47:45
3	9:47 a.m.	09:47:46
4	A. Okay, let's see...	09:47:46
5	Okay, yes.	09:47:51
6	BY MR. GIUNTA:	09:47:55
7	Q. Do you recognize this document?	09:47:55
8	A. Yes, I do.	09:47:59
9	MR. GIUNTA: So this is marked Tumey	09:48:01
10	2 for identification. It is Exhibit Number	09:48:05
11	IPR 1001.	09:48:08
12	BY MR. GIUNTA:	09:48:10
13	Q. What is this document?	09:48:13
14	A. This is the AbTis patent that describes the	09:48:16
15	technology in question here.	09:48:21
16	Q. Okay. And it -- so it is assigned to AbTis.	09:48:27
17	If you look on the front page of it, there's a	09:48:32
18	little Item Number 73 on the left, it says	09:48:35
19	Assignee. It says AbTis Company, Limited. Do	09:48:38
20	you see that?	09:48:44
21	A. Yes.	09:48:44
22	Q. And it names some inventors, Sang Jeon Chung,	09:48:44

1	Ju Hwan Kim, Young Geun Lee, Tae Jin Lee, and	09:48:51
2	Woo Seo.	09:48:58
3	Do you recognize any of those names?	09:49:01
4	Are you familiar with any of those inventors?	09:49:03
5	A. No.	09:49:05
6	Q. The title of this patent is Site-Specific	09:49:05
7	Antibody Conjugation and Antibody-Drug	09:49:13
8	Conjugate As Specific Embodiment Thereof. Do	09:49:17
9	you see that?	09:49:22
10	A. Yes.	09:49:22
11	Q. Now, if you could go back to your declaration.	09:49:34
12	So for your declaration, just for navigation	09:49:36
13	purposes, you probably want to keep that open	09:49:39
14	throughout the day. Other things, I might be	09:49:42
15	able to give you a heads-up on closing or not.	09:49:44
16	It will only become important if your computer	09:49:47
17	starts to get bogged down because these are	09:49:51
18	fairly large files, but otherwise I think we	09:49:53
19	should be okay to keep things open.	09:49:55
20	So in your declaration I'd like you	09:49:58
21	to turn to paragraph 16, which is on page 7.	09:50:03
22	And let me know when you're there. I'm sorry,	09:50:14

1	PDF page 12. That will help you.	09:50:19
2	A. What paragraph again?	09:50:36
3	Q. Paragraph 16.	09:50:37
4	A. Got it, yes.	09:50:38
5	Q. And, there, you state that you understand that	09:50:44
6	patent validity is assessed from the	09:50:47
7	perspective of a person of ordinary skill in	09:50:50
8	the art. Correct?	09:50:54
9	A. Yes.	09:50:55
10	Q. And you abbreviate that POSA. Is it P-O-S-A?	09:50:55
11	Is that right?	09:51:03
12	A. Yes.	09:51:03
13	Q. Now, in paragraph 34 you address this a little	09:51:19
14	further. So here I think you've laid out your	09:51:29
15	legal understanding of a person of ordinary	09:51:31
16	skill in the art, and then in paragraph 34,	09:51:33
17	which is on PDF page 19, you set out your	09:51:34
18	opinion as to what a person of ordinary skill	09:51:37
19	in the art would be for the '675 patent; is	09:51:40
20	that right?	09:51:42
21	A. Yes.	09:51:44
22	Q. And you state that you provided your opinion	09:51:46

1	on the qualifications that a POSA in the field	09:51:59
2	of the '675 patent would have had during the	09:52:01
3	2019 to 2023 time frame. Do you see that?	09:52:05
4	A. Yes.	09:52:10
5	Q. And what is that range of years based on, in	09:52:11
6	your understanding?	09:52:15
7	A. That's based on the filing dates of the AbTis	09:52:22
8	patent that's in question.	09:52:26
9	Q. And you state that "a POSA in the field of the	09:52:47
10	'675 Patent during the 2019 through 2023	09:52:51
11	time frame" -- I'm in paragraph 35 -- "would	09:52:54
12	have had specialized knowledge in the field of	09:52:57
13	antibody-drug conjugates, which would entail	09:52:59
14	either (1) a Ph.D. degree in organic	09:53:02
15	chemistry, biochemistry, medicinal chemistry,	09:53:06
16	and/or pharmacology, along with at least 1-2	09:53:09
17	years of relevant applied research and/or	09:53:12
18	industry experience in the field of antibody	09:53:14
19	or antibody-drug conjugates."	09:53:17
20	Do you see that?	09:53:21
21	A. Yes.	09:53:22
22	Q. Now, during that time frame, 2019 to 2023, did	09:53:22

1	you personally have those credentials?	09:53:32
2	A. Yes.	09:53:41
3	Q. And so in that time frame, you would have	09:53:41
4	qualified as a POSA. Correct?	09:53:42
5	A. Yes.	09:53:46
6	Q. You also have an alternative there that says,	09:53:46
7	"alternatively, a Master's or Bachelors degree	09:53:57
8	in one of the aforementioned fields with at	09:53:59
9	least 3-5 years or 5-7 years, respectively, of	09:54:02
10	relevant applied research and/or industry	09:54:06
11	experience in the field of antibodies or	09:54:08
12	antibody-drug conjugates."	09:54:12
13	Do you see that?	09:54:19
14	A. Yes.	09:54:20
15	Q. Okay. Now, so this is a degree that's not	09:54:20
16	quite as high, master's, as opposed -- or	09:54:22
17	bachelor's as opposed to Ph.D., but you're	09:54:25
18	requiring more experience in the field; is	09:54:27
19	that right?	09:54:29
20	A. Yes.	09:54:30
21	Q. Okay. For the next sentence, it says, "That	09:54:30
22	person would have familiarity gained through	09:54:35

1	study, training and/or experience, with the	09:54:37
2	design and development of antibody-drug	09:54:39
3	conjugates and antibody-drug modifications."	09:54:44
4	Does that sentence modify both your	09:54:48
5	numbered 1 set of credentials and your	09:54:50
6	numbered 2 set of credentials, or does it only	09:54:52
7	modify the later one?	09:54:55
8	A. I believe that would modify both sentences.	09:55:13
9	Q. And you say then that "People of ordinary	09:55:31
10	skill in the fields of antibodies and ADCs,	09:55:36
11	with academics and industry professionals,	09:55:38
12	routinely attend scientific conferences to	09:55:42
13	share ideas and learn about new developments	09:55:45
14	in the field."	09:55:47
15	Is that a requirement to be a person	09:55:47
16	of ordinary skill in the art, that you have to	09:55:50
17	attend conferences?	09:55:53
18	A. No.	09:56:01
19	Q. Why do you mention that here?	09:56:02
20	A. Because most do, and some of the -- I would	09:56:04
21	say that -- I would say it's because most do	09:56:23
22	attend these sorts of conferences, and those	09:56:26

1	that I would consider to have the most	09:56:29
2	expertise in the field are ones that are	09:56:34
3	attending these conferences and speaking at	09:56:39
4	these conferences.	09:56:41
5	Q. Okay. So the -- you mentioned the people with	09:56:46
6	the "most expertise in the field" are the ones	09:56:48
7	attending and speaking at these conferences,	09:56:50
8	and you're defining a person of ordinary skill	09:56:55
9	in the art, so I'm wondering if there's a	09:56:57
10	difference between those two things.	09:56:59
11	MS. PETERSON: Objection to form.	09:57:02
12	A. I guess I don't know that it's a requirement,	09:57:04
13	but I would say that the vast majority of	09:57:16
14	people who are of ordinary skill in the art	09:57:20
15	would be attending these sorts of conferences	09:57:23
16	on a fairly regular basis.	09:57:27
17	BY MR. GIUNTA:	09:57:35
18	Q. You say, "Two of the preeminent conferences in	09:57:35
19	this area are the PepTalk conference series	09:57:38
20	and the World ADC Conference series, both of	09:57:41
21	which are annual conferences that are widely	09:57:43
22	attended by those with an interest in ADCs."	09:57:46

1	Do you see that?	09:57:49
2	A. Yes.	09:57:50
3	Q. And you say you've attended both conferences.	09:57:55
4	Right; is that correct?	09:57:59
5	A. Yes.	09:58:06
6	Q. Have you ever presented at the PepTalk	09:58:06
7	conference?	09:58:08
8	A. I don't think so.	09:58:14
9	Q. Have you --	09:58:18
10	A. I can't -- I can't -- I'm sorry, go ahead.	09:58:18
11	Q. If you're -- you can finish your answer if you	09:58:21
12	have more, yeah.	09:58:25
13	A. I don't think I have presented at a PepTalk	09:58:27
14	conference, although I wouldn't swear to it	09:58:30
15	one way or the other. I present at three or	09:58:32
16	four meetings a year, and I've been in the	09:58:36
17	ADC field, you know, 15 years, so, yeah, I	09:58:38
18	can't recall exactly all the conferences I've	09:58:42
19	presented at.	09:58:43
20	Q. And have you presented at the World ADC	09:58:44
21	conference?	09:58:51
22	A. Yes, I have.	09:58:52

1	Q. What are the other conferences that you	09:58:53
2	mention -- you said that you -- that you	09:58:59
3	present, you know, somewhat frequently,	09:59:01
4	several conferences a year besides in these	09:59:04
5	two that you've mentioned in your declaration.	09:59:08
6	A. The other one that I present at quite a bit	09:59:11
7	is called the Protein Engineering Summit, or	09:59:19
8	PEGS, for short.	09:59:22
9	Q. Any others that you had in mind when you were	09:59:24
10	talking about the frequency with which you	09:59:29
11	present?	09:59:32
12	A. No. I mean, there's lots of other	09:59:37
13	conferences I've attended, but the ones that	09:59:39
14	I attend on a regular basis would be limited	09:59:45
15	to those.	09:59:49
16	Q. So why wouldn't a person of ordinary skill in	09:59:49
17	the art, as you've defined it for the '675	09:59:52
18	patent, attend the PEGS conference?	09:59:54
19	A. I did not say that they wouldn't.	10:00:02
20	Q. Why didn't you mention the PEGS conference in	10:00:03
21	with the other two conferences?	10:00:07
22	A. Why didn't I mention the PEGS conference with	10:00:15

1	the other two conferences? I don't know why.	10:00:17
2	Q. Did you mention the PepTalk conference to try	10:00:21
3	and bolster the idea that the PepTalk Poster	10:00:26
4	and PepTalk Presentation would be publicly	10:00:30
5	available to a person of ordinary skill in the	10:00:37
6	art?	10:00:38
7	MS. PETERSON: Objection to form.	10:00:41
8	A. Yes, that's one of the points we're making	10:00:44
9	here.	10:00:47
10	BY MR. GIUNTA:	10:00:47
11	Q. And why did you mention the World ADC	10:00:52
12	conference?	10:00:55
13	A. Because it is a well-known conference in the	10:01:03
14	field.	10:01:06
15	Q. But not mentioning PEGS was just an oversight?	10:01:07
16	MS. PETERSON: Objection to form.	10:01:13
17	A. I mean, I could have listed off a dozen	10:01:15
18	conferences. I -- yes, the reason we mention	10:01:18
19	PepTalk is because the documents under	10:01:21
20	consideration were presented at PepTalk, but	10:01:25
21	it -- a list like this isn't an exhaustive	10:01:28
22	list.	10:01:34

1	BY MR. GIUNTA:	10:01:34
2	Q. Now, you said you could mention a dozen other	10:01:36
3	conferences. What are some of those other	10:01:38
4	conferences besides PEGS, PepTalk, World ADC	10:01:40
5	forum -- sorry, World ADC conference?	10:01:45
6	A. Well, some of the other conferences that I	10:01:49
7	guess that I would go to would be the	10:01:51
8	national meeting of the American Chemical	10:01:55
9	Society. There's a conference -- there's a	10:01:57
10	bioorganic and medicinal chemistry conference	10:02:16
11	that's held in Steamboat Springs that I	10:02:20
12	attended recently.	10:02:23
13	Q. Does it have a name?	10:02:27
14	A. Yes, it does. I don't remember the name off	10:02:29
15	the top of my head. Just if you look up	10:02:32
16	Steamboat Springs medicinal chemistry,	10:02:36
17	that's -- it's a preeminent conference.	10:02:38
18	I guess I'm not clear what you're	10:02:43
19	looking for. There's lots and lots of	10:02:44
20	scientific conferences out there. PepTalk is	10:02:46
21	one of those conferences. I will say there	10:02:50
22	are a somewhat limited number of conferences	10:02:54

1	where ADCs are discussed just because of the	10:03:02
2	fairly niche area that this was. It's	10:03:10
3	becoming much more prominent now, but	10:03:14
4	traditionally, it's been a niche area, and	10:03:20
5	there's only been a handful of conferences	10:03:22
6	that have a focus on ADCs.	10:03:24
7	Q. Okay. So then I guess that's my question. So	10:03:28
8	aside from the PepTalk conference, the World	10:03:32
9	ADC conference, and PEGS, what other	10:03:34
10	conference series focus on ADCs?	10:03:38
11	A. I don't know of any other international-type	10:03:54
12	conferences that focus on them, at least in	10:03:59
13	this time period.	10:04:01
14	Q. If you turn to paragraph 60 of your	10:04:12
15	declaration, which is page 33 of the PDF, IPR	10:04:16
16	Exhibit 1002.	10:04:29
17	A. Paragraph 60?	10:04:36
18	Q. Correct. Yes.	10:04:37
19	A. Yes, I'm there.	10:04:38
20	Q. Here you provide some background on ADCs.	10:04:45
21	Correct?	10:04:47
22	A. Yes.	10:04:52

1	Q. And one of the things that you mentioned there	10:04:52
2	is drug antibody ratios, and then you	10:04:55
3	abbreviate that DARs. Do you see that?	10:05:03
4	A. Yes.	10:05:05
5	Q. What is drug-antibody ratio?	10:05:05
6	A. It is the number of drug molecules that are	10:05:11
7	attached to each antibody. It's usually	10:05:17
8	expressed as a -- as a ratio, basically drugs	10:05:19
9	per antibody.	10:05:22
10	Q. Okay. And are there drug-antibody ratios that	10:05:31
11	are more favorable than others? Does it vary	10:05:35
12	depending on the antibody? How do -- what do	10:05:38
13	researchers aim for when they're looking at	10:05:43
14	drug-antibody ratios?	10:05:46
15	MS. PETERSON: Objection to form.	10:05:48
16	A. This has been all over the map. We have	10:05:54
17	companies and individuals trying to develop	10:05:58
18	ADCs with DARs of 10 or 15, and we have	10:06:03
19	others developing ADCs with DARs of 1. And	10:06:10
20	so it depends on the application, it depends	10:06:17
21	on the drug, and it -- the scientific	10:06:25
22	consensus has shifted over time in terms of	10:06:29

1	what an ideal drug-antibody ratio would be.	10:06:34
2	BY MR. GIUNTA:	10:06:37
3	Q. Is there a consensus right now?	10:06:37
4	A. No, there's not really.	10:06:47
5	Q. You say there in paragraph 60, "At the time,	10:07:00
6	there was an expectation that site-specific	10:07:03
7	conjugation would decrease off-target toxicity	10:07:05
8	and improve the pharmacokinetic properties of	10:07:08
9	the ADC" --	10:07:11
10	A. Yes.	10:07:14
11	Q. -- "and thus there was a clear motivation in	10:07:15
12	the art to pursue technologies that allowed	10:07:16
13	site-specific conjugation."	10:07:19
14	Do you see that?	10:07:21
15	A. Yes.	10:07:22
16	Q. When you talk about the off-target toxicity,	10:07:22
17	is that -- what is the off-target toxicity	10:07:33
18	that you're referring to?	10:07:37
19	A. We're referring to toxicity that is driven by	10:07:40
20	something other than the natural binding of	10:07:45
21	the antibody to its corresponding target on a	10:07:51
22	cell.	10:07:57

1	Q. Okay. And so can that include off-target	10:07:58
2	infiltration of the antibody into cells that	10:08:14
3	it's not targeting?	10:08:17
4	A. Yes.	10:08:19
5	Q. And what else might it include?	10:08:19
6	A. It can refer to toxicity that's driven by	10:08:31
7	payload that is slowly coming off of the ADC.	10:08:38
8	It can also refer to toxicity that's driven	10:08:44
9	by rapid clearance of the ADC.	10:08:48
10	Q. So when you say that the payload is coming off	10:08:59
11	slowly, are you referring to the drug, the	10:09:03
12	small molecule drug that's conjugated to the	10:09:05
13	antibody?	10:09:08
14	A. Yes.	10:09:11
15	Q. And so that comes off slowly, that can have	10:09:11
16	toxicity effects; is that right?	10:09:17
17	A. If that comes off in an uncontrolled way, it	10:09:21
18	can cause toxicity. So it's not whether it	10:09:26
19	comes off slowly or quickly, it's if it comes	10:09:29
20	off without engaging with its target cell, or	10:09:32
21	before engaging with its target cell. That's	10:09:35
22	what can drive toxicity.	10:09:37

1	Q. And what about ADC purity, how does that come	10:09:40
2	into play in formulating an ADC?	10:09:49
3	A. When we are going through the scale-up	10:09:55
4	process and regulatory approval process, we	10:09:59
5	need to have a product that is	10:10:05
6	well-characterized and has consistent	10:10:07
7	batch-to-batch identity, say. And -- yeah,	10:10:13
8	without that we run the risk of, well,	10:10:23
9	inconsistent results and, of course, running	10:10:33
10	into regulatory problems when we try to get	10:10:35
11	FDA approval and so on.	10:10:37
12	Q. Do immunity -- sorry, immunogenicity issues	10:10:39
13	arise when ADC purity isn't high enough?	10:10:47
14	A. I think that's speculated to be an issue,	10:10:52
15	whether that -- immunogenicity is a tricky	10:10:58
16	one and often we can't trace the specific	10:11:05
17	reasons for immunogenicity. But, yes, I	10:11:07
18	believe it is speculated that purity may play	10:11:12
19	a role in that.	10:11:15
20	Q. And which -- when you use the term	10:11:16
21	"immunogenicity," what do you understand it to	10:11:19
22	mean?	10:11:21

1 A. I understand that to mean a -- our bodies
2 generating an immune response against the
3 drug which we are administering, which in
4 this case is an ADC.

5 Q. And is the -- is an ADC particularly
6 susceptible to an immune response as opposed
7 to a small molecule drug?

8 A. Yes.

9 Q. Why is that?

10 A. It has to do with the way antigen-presenting
11 cells take up molecules and display them for
12 our immune system. So we have these cells
13 called antigen-presenting cells that engulf
14 things that look foreign, and then display
15 little pieces of them on the surface, and
16 that is kind of the initiation of an immune
17 response against the drug.

18 And large molecule drugs like ADCs
19 tend to be taken up and displayed much more
20 easily by these antigen-presenting cells than
21 small molecule drugs. So that's why there's
22 more of a concern for immunogenicity with

1	some of these ADCs as compared to small	10:12:57
2	molecule drugs.	10:12:59
3	Q. And what would be the ultimate result of	10:13:00
4	immunogenicity if it were to occur? Would it	10:13:04
5	make the drug inactive? Would it make the	10:13:09
6	person sick? All of the above? What would	10:13:11
7	happen?	10:13:14
8	MS. PETERSON: Objection to form.	10:13:14
9	A. Lots of different things can happen. It	10:13:27
10	could be something as innocuous as the drug	10:13:30
11	just loses its effect because our immune	10:13:35
12	system is clearing it from circulation. But	10:13:39
13	alternatively, yes, it could drive	10:13:43
14	significant toxicity.	10:13:45
15	BY MR. GIUNTA:	10:13:52
16	Q. Now is the drug-to-antibody ratio, does it	10:13:52
17	affect the efficacy of an ADC?	10:13:54
18	A. Yes.	10:14:01
19	Q. How so?	10:14:01
20	A. Well -- can you define "efficacy"?	10:14:11
21	Q. What are you -- what are you -- I can tell --	10:14:15
22	I can ask you what I'm going for, but if you	10:14:16

1 tell me what you understand efficacy to mean, 10:14:19
2 that might be more helpful. 10:14:20
3 A. The reason is is because some people are 10:14:20
4 referring to efficacy in a -- the context of 10:14:23
5 its activity against particular cells, and 10:14:28
6 then some people are referring to efficacy as 10:14:31
7 its response in a living system, in a body, 10:14:35
8 in a mouse, in a human, whatever. And 10:14:38
9 sometimes the effect of -- I think you -- the 10:14:41
10 question was about DAR. Right? 10:14:47
11 Q. Correct. Yeah. 10:14:49
12 A. And so the effect of DAR can be different 10:14:50
13 depending on which sort of efficacy you're 10:14:54
14 talking about. 10:14:56
15 Q. So you're saying that DAR might be effective 10:14:57
16 in killing cells in vitro and less effective 10:15:03
17 in vivo. Is that the issue? 10:15:07
18 A. Correct. So, for example, a high 10:15:08
19 drug-antibody ratio might cause something to 10:15:11
20 be very efficacious against cells. But 10:15:14
21 conversely in a living system, it's cleared 10:15:17
22 from circulation very rapidly, so actually 10:15:20

1 that high drug-antibody ratio causes it to be 10:15:24
2 ineffective in vivo. 10:15:27

3 And so that's kind of a tightrope 10:15:31
4 that we walk as ADC scientists trying to 10:15:33
5 figure out, okay, what's the best DAR for a 10:15:35
6 given conjugate. Because too little, we're 10:15:37
7 not going to kill the cell; too high, it's 10:15:40
8 going to get cleared too rapidly. 10:15:42

9 So that's kind of why your question 10:15:44
10 earlier about what an ideal -- you know, 10:15:46
11 what's the ideal DAR; well, it's kind of all 10:15:47
12 over the map depending on what the 10:15:50
13 application is and what the -- you know, some 10:15:52
14 of the consensus has shifted back and forth 10:15:56
15 and so on. 10:16:00

16 Q. So just to get clarity on what you just 10:16:12
17 answered, so is it the case that if you have a 10:16:14
18 DAR that is higher, meaning there's more drug 10:16:17
19 on the antibody, that it may result in that 10:16:19
20 particular ADC being cleared from the system 10:16:25
21 faster in vivo? Is that correct? 10:16:28

22 A. Yes. 10:16:44

1 Q. Now, are there strategies for this sort of 10:16:44
2 optimization of DAR that people in the field 10:16:47
3 undertake? Is there like a routine way of 10:16:49
4 doing this, or this is -- this is not routine 10:16:52
5 at this point? 10:16:55

6 MS. PETERSON: Objection to form. 10:16:56

7 A. Well, it's fairly empirical. I mean, I -- 10:17:05
8 this is something I do in my lab, so we will 10:17:08
9 evaluate a drug -- or an ADC with a DAR of 2, 10:17:10
10 4, and 8, is typically a strategy I would 10:17:16
11 take and see which one provides the best 10:17:19
12 balance of potency against the cell line that 10:17:23
13 I'm interested in, but also exposure in the 10:17:28
14 animal model that we're looking at. 10:17:32

15 BY MR. GIUNTA: 10:17:35

16 Q. And so with regard to getting a DAR, would 10:17:38
17 that -- and getting DARs of 2 versus 4 versus 10:17:42
18 8, in the context of the technology that we're 10:17:46
19 dealing with in the '675 patent, might that 10:17:52
20 require you to use that technology for one 10:17:55
21 purpose and maybe another technology for 10:17:57
22 another purpose depending on which amino acid 10:18:00

1	residue you want to target to get the number	10:18:05
2	of conjugate positions that you desire?	10:18:08
3	MS. PETERSON: Objection to form.	10:18:11
4	A. Yes. Often, it's not trivial to compare	10:18:17
5	these -- or to prepare these different ADCs	10:18:20
6	with the various DAR ratios, and we might	10:18:24
7	need to incorporate various technologies in	10:18:28
8	order to prepare the conjugates that we need	10:18:36
9	for that comparison. And that also means	10:18:39
10	that they're not apples-to-apples	10:18:41
11	comparisons.	10:18:46
12	So, for example, our DAR 2 conjugate	10:18:47
13	might have been prepared using a different	10:18:50
14	technology than a DAR 4 conjugate, but we do	10:18:52
15	the best we can, you know, in comparing those,	10:18:55
16	so... yeah.	10:18:57
17	MR. GIUNTA: We've been going about	10:19:01
18	an hour. Is this a good time for a break, or	10:19:02
19	do you want to keep going?	10:19:05
20	MS. PETERSON: I'd like to take a	10:19:07
21	break if we could.	10:19:08
22	MR. GIUNTA: Okay. Okay. Let's go	10:19:09

1	ahead and take a break.	10:19:11
2	(Off the record at 10:19 a.m.)	10:19:14
3	(Back on the record at 10:31 a.m.)	10:31:41
4	BY MR. GIUNTA:	10:31:43
5	Q. Dr. Tumey, I'd like for you to go into Tumey	10:32:02
6	Exhibit 2 and take a look at Claim 11. Let me	10:32:08
7	know when you're there.	10:32:28
8	A. Okay.	10:32:29
9	Do you know which page of the	10:32:43
10	document that's on?	10:32:44
11	Q. Sure.	10:32:45
12	A. Oh, wait, wait. Okay, I'm at it here. It's	10:32:48
13	paragraph 180. Right?	10:32:52
14	Q. I'm sorry. So I'm in Tumey Exhibit 2, which	10:32:53
15	is the patent. Sorry about that. And that	10:32:56
16	is -- and the claim itself is on page 164 of	10:32:58
17	the PDF. It's the last page.	10:33:02
18	A. Okay, yes.	10:33:04
19	Q. Now, you provided opinions on each of the 13	10:33:05
20	claims in the '675 patent. Correct?	10:33:15
21	A. Yes.	10:33:24
22	Q. Are you aware that AbTis has disclaimed all	10:33:25

1	but Claim 11 at this point?	10:33:29
2	A. Yes.	10:33:34
3	Q. So Claim 11 begins, "The modified antibody of	10:33:34
4	claim 1."	10:33:43
5	Do you see that?	10:33:43
6	A. Yes.	10:33:45
7	Q. Okay. And, there, the term "antibody" has a	10:33:45
8	definition.	10:33:56
9	Now, back in Tumey Exhibit 1, which	10:33:57
10	is your declaration, if you go to page --	10:33:59
11	paragraph 65, which is on page -- begins on	10:34:04
12	page 30, goes over to -- sorry, PDF 35, going	10:34:06
13	to PDF 36, and let me know when you're there.	10:34:10
14	A. I'm there.	10:34:17
15	Q. So you point to -- in the patent -- and you	10:34:17
16	don't have to go back to the patent now, but	10:34:25
17	you point to a section of it, column 23, lines	10:34:27
18	40 to 54, for the definition of the term	10:34:29
19	"antibody." Correct?	10:34:32
20	A. Yes.	10:34:39
21	Q. And it says that the "term 'antibody' refers	10:34:39
22	to an immunoglobulin molecule or a fragment	10:34:41

1	thereof."	10:34:46
2	Do you see that?	10:34:46
3	A. Yes.	10:34:47
4	Q. Yes. So in Claim 11 where it says "the	10:34:47
5	antibody of claim 1," does that include the	10:35:02
6	antibody and a fragment?	10:35:06
7	A. Could you repeat the question?	10:35:17
8	Q. Sure. So the definition of "antibody" we just	10:35:19
9	did, which says "the term 'antibody' refers to	10:35:21
10	an immunoglobulin molecule or a fragment	10:35:23
11	thereof." And my question to you is, where it	10:35:27
12	says, "the modified antibody of Claim 1," at	10:35:30
13	the beginning of Claim 11 --	10:35:32
14	A. Yes.	10:35:34
15	Q. -- does that include antibody and fragments	10:35:34
16	thereof?	10:35:37
17	MS. PETERSON: Objection to form.	10:35:42
18	BY MR. GIUNTA:	10:35:43
19	Q. In your understanding?	10:35:44
20	A. That is my understanding of Claim 11.	10:35:49
21	Q. Okay. Now, if you look at the structures of	10:35:51
22	the compounds in Claim 11, let's look at the	10:35:59

1 first one, the top one. One of the phrases 10:36:04
2 that's used a lot in your declaration is 10:36:09
3 "bio-orthogonal group," and another phrase is 10:36:13
4 "click chemistry group." Sometimes those are 10:36:19
5 used almost interchangeably. 10:36:21

6 My question is, what's the 10:36:23
7 relationship between bio-orthogonal group and 10:36:24
8 click chemistry group? 10:36:31

9 A. The term "click chemistry" would be a subset 10:36:43
10 of bio-orthogonal chemistry. 10:36:48

11 Q. So in general, what do you -- what are 10:36:54
12 bio-orthogonal groups? 10:36:57

13 A. These would be functional groups that we can 10:37:02
14 use in reactions under conditions that are 10:37:05
15 compatible with living systems, or at least 10:37:13
16 things from living systems; in this case, 10:37:21
17 proteins. 10:37:23

18 So the -- the term "bio-orthogonal" 10:37:24
19 as used within my declaration and from my 10:37:30
20 understanding within the patent is really 10:37:33
21 referring to chemistry that is compatible with 10:37:35
22 proteins that won't destroy the proteins in 10:37:38

1	the process of doing the chemistry.	10:37:41
2	Q. And by "destroy," does that include having	10:37:43
3	reactions, engaging in reactions with the	10:37:47
4	protein other than the one that you've set up	10:37:51
5	the reaction scheme to conduct?	10:37:53
6	A. I don't know if I would go that far, but it	10:38:01
7	would encompass reactions that would impact	10:38:03
8	the structure of the protein or the function	10:38:07
9	of the protein in an adverse way.	10:38:11
10	Q. And then -- so then, I guess, what is -- when	10:38:24
11	then is a click chemistry group?	10:38:26
12	A. The term "click chemistry" is usually used to	10:38:29
13	mean two different functional groups that	10:38:37
14	react rapidly and specifically with one	10:38:42
15	another and nothing else or virtually nothing	10:38:47
16	else.	10:38:52
17	Q. So then an antibody-drug conjugate, there's a	10:39:09
18	small molecule payload which gets added later.	10:39:14
19	Does that small molecule payload engage in	10:39:18
20	click chemistry with the conjugate group	10:39:22
21	that's been attached to the protein?	10:39:24
22	A. Within the scope of the patents we are	10:39:31

1	discussing today, yes, that's accurate. But	10:39:36
2	within the broader scope of ADCs, no, that's	10:39:39
3	not the way we think about it.	10:39:42
4	Q. If you look at the first structure of	10:39:44
5	Claim 11 --	10:39:59
6	A. Yes.	10:39:59
7	Q. -- is the end group on the left, is that the	10:40:00
8	bio-orthogonal or click chemistry group, the	10:40:02
9	N3 group?	10:40:08
10	A. Yes, that's the core bio-orthogonal	10:40:22
11	functional group. Sometimes, depending on	10:40:25
12	the context, that broader piece may be	10:40:31
13	perhaps also called the bio-orthogonal	10:40:37
14	functional group as well. The term	10:40:41
15	"functional group" within chemistry is a	10:40:42
16	little bit of a vague term and can mean a	10:40:44
17	number of things, but, yes, the N3 is what	10:40:46
18	most chemists would zero in on as the	10:40:50
19	bio-orthogonal functional group within that	10:40:53
20	first structure.	10:40:57
21	Q. Now, at the other end of the compound from --	10:41:01
22	well, let me ask you this: N3, is that	10:41:06

1	referred to as azide?	10:41:09
2	A. Yes.	10:41:10
3	Q. At the other end of the compound of Claim 11	10:41:11
4	there are these squiggly lines across the	10:41:17
5	bonds for coming off the NH and coming off the	10:41:20
6	carbonyl carbon. What do those squiggly lines	10:41:28
7	represent?	10:41:31
8	A. That essentially means that the protein	10:41:32
9	continues in either direction but that	10:41:35
10	portion of the protein is not illustrated	10:41:38
11	here because it's not relevant.	10:41:40
12	Q. Now, that portion that runs from those	10:41:48
13	squiggly lines up to the NH group which kind	10:41:53
14	of forms a -- almost a right angle there in	10:41:57
15	the structure, is that the lysine residue?	10:42:01
16	A. Yes.	10:42:09
17	Q. So between that upper NH group and the lysine	10:42:10
18	residue and the azide group, is there a name	10:42:21
19	for that -- for that chain?	10:42:25
20	A. We might call it a spacer or a linker.	10:42:32
21	Q. And are those terms used somewhat	10:42:41
22	interchangeably, or is it -- must it be either	10:42:44

1	a spacer or a linker? They're two different	10:42:49
2	things?	10:42:51
3	MS. PETERSON: Objection to form.	10:42:52
4	A. It kind of depends on the context. I would	10:42:59
5	probably call it a spacer more than a linker,	10:43:07
6	but it would be somewhat interchangeable	10:43:10
7	depending on what point the scientist is	10:43:17
8	trying to convey and maybe some of what their	10:43:19
9	background is.	10:43:21
10	BY MR. GIUNTA:	10:43:23
11	Q. So taking that into account, why do you choose	10:43:23
12	to call it a spacer?	10:43:26
13	A. Because within the ADC community we usually	10:43:29
14	refer to a linker as the portion that is	10:43:37
15	being cleaved upon internalization into a	10:43:40
16	target cell. This portion is not really	10:43:45
17	being cleaved -- it's not really part of the	10:43:51
18	biology that's happening when the ADC is	10:43:54
19	exerting its therapeutic effects.	10:43:59
20	Q. And is the term "spacer," is that there to	10:44:10
21	represent that that group is creating a	10:44:16
22	distance between the lysine residue and the	10:44:19

1	bio-orthogonal group?	10:44:23
2	A. Yes.	10:44:26
3	Q. Now, the lysine residue that we pointed to in	10:44:26
4	the reaction to form the compound of Claim 11,	10:44:48
5	is that lysine residue, is that on the protein	10:44:58
6	before the reaction to form this compound? Is	10:45:00
7	it on the antibody?	10:45:03
8	A. It's contained within the antibody. I don't	10:45:11
9	know that I would say it's on the antibody.	10:45:13
10	Q. It's part of the antibody; is that fair to	10:45:15
11	say?	10:45:18
12	A. Yes.	10:45:18
13	Q. So, here, that spacer group contains a -- an	10:45:19
14	ether oxygen functionality. Do you see that?	10:45:37
15	A. Yes.	10:45:45
16	Q. Is there a name for that besides ether oxygen	10:45:45
17	functionality?	10:45:48
18	A. No.	10:45:56
19	Q. And more broadly, would that be referred to as	10:45:56
20	a heteroatom in the -- in the spacer?	10:46:01
21	A. Yes.	10:46:05
22	Q. The second structure has a different	10:46:05

1 bio-orthogonal group there, and it looks like 10:46:34

2 the third structure has the same one as the 10:46:37

3 second. Is there a name for that? 10:46:39

4 A. Yes. It's called a norbornene. 10:46:43

5 Q. And is norbornene a bio-orthogonal group? 10:46:52

6 A. Yes. 10:47:00

7 Q. In the context of the -- of the '959 patent, 10:47:30

8 you went through and did an analysis of 10:47:34

9 locating the disclosure to reach these 10:47:36

10 structures within the specification of the 10:47:41

11 '959 patent. And we talked about the '959 -- 10:47:43

12 sorry, publication. We talked about the '959 10:47:48

13 Canadian publication being an international 10:47:51

14 counterpart to the '675 publication. 10:47:54

15 And is it your understanding that the 10:47:58

16 '959 publication shares essentially the same 10:48:06

17 disclosure as the '675 patent? 10:48:10

18 A. Yes. 10:48:20

19 Q. And so, for example, if you look in the '675 10:48:20

20 patent, which is Tumey Exhibit 2 -- you should 10:48:37

21 be on Claim 11 there -- so the first structure 10:48:39

22 here would correspond to column 96 at the top, 10:48:43

1	which is page -- PDF page 22 [sic] of the '675	10:49:00
2	patent.	10:49:07
3	A. Which column did you say again?	10:49:12
4	Q. 96, which is PDF page 122.	10:49:14
5	A. Okay. And you're asking -- what are you	10:49:40
6	asking again?	10:49:42
7	Q. So in paragraph 177 of your declaration you	10:49:44
8	pointed to the same language and the same	10:49:47
9	figures in the '959 publication and said that	10:49:50
10	that discloses the compound of Claim 11, the	10:49:54
11	first compound.	10:49:59
12	And so my question is, since this is	10:49:59
13	the same figure and the same language, does	10:50:03
14	this also disclose the first compound of	10:50:06
15	Claim 11?	10:50:12
16	MS. PETERSON: Objection to form.	10:50:14
17	A. I'm still confused what we're looking at.	10:50:20
18	I'm looking back at page 122 of the PDF --	10:50:23
19	BY MR. GIUNTA:	10:50:25
20	Q. Uh-huh.	10:50:26
21	A. -- of '675.	10:50:27
22	Q. Correct.	10:50:29

1	A. And you're asking -- and I don't see anything	10:50:29
2	that corresponds to those three structures	10:50:32
3	that were in Claim 11.	10:50:35
4	Q. Okay. So if you look at page -- PDF page 74	10:50:40
5	of your declaration.	10:50:47
6	A. Yes.	10:50:58
7	Q. Okay. Paragraph 177 -- and if you want to	10:50:59
8	read back, you see that beginning on the	10:51:05
9	previous -- beginning a few pages back on	10:51:07
10	page 67 you're talking about Claim 11 of the	10:51:12
11	'675 patent and you have the three structures	10:51:19
12	of Claim 11 there. Do you see that on page	10:51:21
13	68, which is PDF page 73?	10:51:25
14	A. Yes.	10:51:26
15	Q. Okay. And then you go over and talk about the	10:51:28
16	'959 publication disclosing the modified	10:51:31
17	lysine residue, it has one of the three	10:51:37
18	structures shown in Claim 11. And then in	10:51:39
19	paragraph 176 on the next page, you say, "In	10:51:42
20	particular, the first structure represents a	10:51:44
21	lysine residue modified with an azide group."	10:51:48
22	Do you see that?	10:51:52

1	A. No, I'm not really seeing the specific	10:52:07
2	sentence you're referring to. I think I do	10:52:09
3	understand the point here that the Compound	10:52:12
4	IV on page 69 of my declaration, which is	10:52:21
5	also on paragraph 96 of the '675, that	10:52:26
6	compound is used to make the first structure	10:52:38
7	of Claim 11.	10:52:45
8	Q. Okay. So -- and that's -- and that's	10:52:50
9	consistent with what you say in paragraph 177	10:52:52
10	and 178 of your declaration. Correct?	10:52:54
11	A. Yes.	10:53:06
12	Q. And so in your view, a person of ordinary	10:53:06
13	skill in the art would understand that the	10:53:13
14	specification of the '675 patent, that's this	10:53:15
15	column 96, would disclose the first structure	10:53:22
16	of Claim 11 for the same reasons that you said	10:53:26
17	the '959 patent -- sorry, the '959 publication	10:53:30
18	disclosed as the structures of Claim 11.	10:53:34
19	MS. PETERSON: Objection to form.	10:53:38
20	A. Could you simplify that question or repeat it	10:53:52
21	a different way?	10:53:55
22	BY MR. GIUNTA:	10:53:56

1 Q. Sure. So all I'm trying to ask is whether
2 your reasoning for the '959 publication, where
3 you go through and you point out that each of
4 the structures in Claim 11 is disclosed in the
5 '959 publication, whether -- whether those
6 same portions of the '675 patent also disclose
7 those structures.

10:53:56

10:53:59

10:54:01

10:54:03

10:54:08

10:54:11

10:54:16

8 And you have a table for it on
9 page 71 of your declaration, which is PDF
10 page 76.

10:54:17

10:54:19

10:54:28

11 A. Okay. Yes. I see the table on page 76
12 and -- but I'm still not understanding your
13 question.

10:54:35

10:54:45

10:54:47

14 Q. Yeah, so my question is, here, if you look at
15 the next page of your declaration, which is in
16 paragraph 182, you say, "For these additional
17 reasons, the '959 Publication discloses the
18 modified lysine residue having a structure as
19 recited in Claim 11."

10:54:47

10:54:52

10:54:54

10:54:58

10:55:01

10:55:04

20 Do you see that?

10:55:06

21 A. Yes.

10:55:09

22 Q. Okay. And my question is, does that same

10:55:09

1	rationale apply to the '675 patent	10:55:13
2	specification? Does it also describe each of	10:55:15
3	the -- each of the structures in Claim 11?	10:55:20
4	MS. PETERSON: Objection to form.	10:55:23
5	Scope.	10:55:26
6	A. I assume so. I did not compare the '675 and	10:55:35
7	the '959 patent word for word, but I am	10:55:38
8	assuming that they are identical, and so the	10:55:43
9	same reasoning would apply.	10:55:45
10	BY MR. GIUNTA:	10:55:46
11	Q. So in paragraph 41 of your declaration, which	10:55:46
12	is on page 20 -- PDF page 22 --	10:56:21
13	A. Yes.	10:56:30
14	Q. -- you point out that Claim 1 has a Negative	10:56:30
15	Limitation. Correct?	10:56:35
16	A. Yes.	10:56:40
17	Q. And it states, "A modified antibody or its	10:56:41
18	fragment comprising bio-orthogonal click	10:56:49
19	chemistry functional group," and this is --	10:56:54
20	you're -- you replicated on page 21, going to	10:56:58
21	page 22 of your declaration.	10:57:01
22	Do you see that's paragraphs 39 and	10:57:04

1	-- 39 is the entire claim? Do you see that?	10:57:07
2	A. Which page of the declaration?	10:57:25
3	Q. So PDF page 21, going to PDF page 22. The	10:57:26
4	claim begins on 21, spreads over to 22.	10:57:30
5	A. Okay, yes, I see that.	10:57:35
6	Q. Okay. Do you see that Claim 1 is replicated	10:57:36
7	there in paragraph 39?	10:57:39
8	A. Yes.	10:57:41
9	Q. Now, there is a first, second, third, and	10:57:41
10	fourth clause there as you've broken it up,	10:57:47
11	each -- the first starts with, "A modified	10:57:49
12	antibody," and then a wherein clause, a	10:57:51
13	wherein clause, a wherein clause.	10:57:55
14	The last wherein clause, "wherein the	10:57:57
15	modified lysine residue does not comprise a	10:58:00
16	terminal bio-reactive functional group," do	10:58:03
17	you see that?	10:58:06
18	A. Yes, I do.	10:58:06
19	Q. And is it your understanding that that is the	10:58:07
20	Negative Limitation that you refer to?	10:58:09
21	A. Yes.	10:58:14
22	Q. All right. And you say that in paragraph 41,	10:58:14

1	you say, "I will refer to the final limitation	10:58:23
2	of claim 1, reciting the 'modified lysine	10:58:25
3	residue does not comprise,' as the 'Negative	10:58:29
4	Limitation.'"	10:58:33
5	Do you see that?	10:58:34
6	A. Yes.	10:58:34
7	Q. Now, Claim 1, Claim 1 recites a genus of	10:58:35
8	modified antibody groups. Correct?	10:58:45
9	A. Yes.	10:58:59
10	Q. And it sets out the characteristics defining	10:58:59
11	that group of compounds that -- that it's	10:59:01
12	encompassing. Correct?	10:59:05
13	MS. PETERSON: Objection to form.	10:59:12
14	A. Yes.	10:59:12
15	BY MR. GIUNTA:	10:59:13
16	Q. And one of those characteristics is this	10:59:13
17	Negative Limitation that you point to; is that	10:59:20
18	fair to say?	10:59:21
19	A. Yes.	10:59:23
20	Q. Now, Claim 11 claims three individual chemical	10:59:24
21	compounds. Correct?	10:59:34
22	MS. PETERSON: Objection to form.	10:59:38

1	A. No.	10:59:47
2	BY MR. GIUNTA:	10:59:48
3	Q. Okay. What's your understanding as to what	10:59:48
4	Claim 11 claims?	10:59:52
5	A. Claiming three individual generic structures.	10:59:54
6	Those are not three structures; those are	11:00:05
7	three different groups of structures.	11:00:08
8	Q. I see. And so the grouping would be that they	11:00:10
9	could be attached to different -- different	11:00:13
10	antibodies. Is that -- is that why they each	11:00:18
11	represent a group?	11:00:21
12	A. Yes.	11:00:22
13	Q. Okay. But in terms of the conjugate structure	11:00:23
14	itself, that's an individual chemical	11:00:32
15	structure, right, that conjugate piece?	11:00:37
16	Everything touching the squiggly lines,	11:00:40
17	everything but the squiggly lines?	11:00:43
18	A. Yes.	11:00:46
19	Q. And a chemical can be defined in words like	11:00:46
20	Claim 1 attempts to do, and it can be defined	11:00:56
21	by a structure as in Claim 11; is that fair to	11:00:58
22	say?	11:01:02

1	MS. PETERSON: Objection to form.	11:01:05
2	A. Yes.	11:01:08
3	BY MR. GIUNTA:	11:01:21
4	Q. And a person of ordinary skill in the art	11:01:21
5	would understand what the individual	11:01:22
6	structure -- structures in Claim 11 define; is	11:01:26
7	that -- is that right?	11:01:29
8	A. Yes.	11:01:38
9	Q. So a person of ordinary skill in the art can	11:01:38
10	look at Claim 11 and they can see, you know,	11:01:40
11	what would be included in Claim 11, with that	11:01:45
12	specific bioconjugate structure, and some	11:01:50
13	ideas as to what the proteins might be, and	11:01:55
14	they could also tell what would not be	11:01:57
15	included in Claim 11 with regard to that	11:01:59
16	bioconjugate structure; is that correct?	11:02:01
17	MS. PETERSON: Objection to form.	11:02:03
18	A. With regard to the modified lysine, yes.	11:02:12
19	BY MR. GIUNTA:	11:02:16
20	Q. Right. And so for purposes of Claim 11 where	11:02:16
21	the modified lysine has a -- has a group on	11:02:27
22	it -- that modified lysine structure -- so if	11:02:33

1	we are -- let me just make sure we're talking	11:02:35
2	about the same thing.	11:02:38
3	So you're referring to the structure	11:02:40
4	in Claim 11, everything pictured there but the	11:02:41
5	squiggly lines, what's beyond the squiggly	11:02:47
6	lines, to be the modified lysine structures	11:02:49
7	from the bio-orthogonal group to where the	11:02:52
8	lysine meets the antibody. Is that the	11:02:55
9	modified lysine structure?	11:02:58
10	A. Yes.	11:02:59
11	Q. Okay. So a person of ordinary skill in the	11:03:00
12	art would understand that these modified	11:03:05
13	lysine structures in Claim 11, for example,	11:03:07
14	don't have terminal thiol groups. Correct?	11:03:12
15	A. That's correct.	11:03:20
16	Q. And then you would also understand that the	11:03:20
17	structures of Claim 11, just by looking at the	11:03:23
18	structure of Claim 11, don't have the terminal	11:03:25
19	hydroxy group; is that right?	11:03:33
20	MS. PETERSON: Objection to form.	11:03:34
21	Outside the scope.	11:03:37
22	A. Correct.	11:03:39

1	BY MR. GIUNTA:	11:03:40
2	Q. And, again, just looking at the structures, a	11:03:40
3	person of ordinary skill in the art would be	11:03:43
4	able to determine that the compounds claimed	11:03:44
5	in Claim 11 don't have a terminal amino group;	11:03:50
6	is that right?	11:03:56
7	MS. PETERSON: Same objection.	11:04:00
8	A. Correct.	11:04:03
9	BY MR. GIUNTA:	11:04:07
10	Q. And the same would be true that the structures	11:04:07
11	of Claim 11 don't include a terminal aldehyde	11:04:10
12	group. Right?	11:04:17
13	MS. PETERSON: Same objection.	11:04:18
14	A. Correct.	11:04:18
15	BY MR. GIUNTA:	11:04:19
16	Q. And so with regard to the structures in	11:04:19
17	Claim 11, is it fair to say that the Negative	11:04:21
18	Limitation of Claim 1 is superfluous because	11:04:24
19	defining things by structure in the way	11:04:30
20	they're done in Claim 11 is so specific that	11:04:33
21	you don't really need that Negative Limitation	11:04:36
22	to know what you have?	11:04:39

1	MS. PETERSON: Objection to form and	11:04:41
2	outside the scope of his opinions.	11:04:41
3	A. I guess I'm not a legal expert, so I guess	11:05:02
4	when it comes to the way claims are	11:05:07
5	constructed I don't know whether this	11:05:09
6	"negative" language is important or	11:05:13
7	necessary.	11:05:16
8	I can just say in my opinion as a	11:05:18
9	chemist, I can look at Claim 11 and see what	11:05:20
10	modified antibodies are encompassed by	11:05:27
11	claim -- whether a modified antibody is	11:05:33
12	encompassed by Claim 11 or not, merely by	11:05:35
13	looking at Claim 11, without that language,	11:05:37
14	but there -- there could be a myriad of other	11:05:40
15	reasons that that language is still	11:05:43
16	important.	11:05:45
17	BY MR. GIUNTA:	11:05:45
18	Q. But from a scientific perspective, you can see	11:05:45
19	what's in Claim 11 and what's not based on	11:05:52
20	this structural description; you don't need	11:05:54
21	the Negative Limitation to determine the scope	11:05:56
22	of the structures in Claim 11?	11:05:59

1	MS. PETERSON: Objection to form.	11:06:01
2	Outside the scope.	11:06:03
3	A. That is correct.	11:06:07
4	BY MR. GIUNTA:	11:06:20
5	Q. Okay. You state that Claim 11 would have been	11:06:20
6	obvious over certain prior art references; is	11:06:23
7	that correct?	11:06:26
8	A. Yes.	11:06:29
9	Q. I can point you to -- I want to take you to	11:06:29
10	your declaration where you set out some	11:06:32
11	standards for how you did the analysis, and	11:06:35
12	I'd like for you to go to paragraph 28 of your	11:06:38
13	declaration which is on page PDF 16.	11:06:40
14	A. 26?	11:06:49
15	Q. 16. It's paragraph 28. Sorry.	11:06:50
16	A. Paragraph 28.	11:06:52
17	Q. PDF --	11:06:53
18	A. Yes.	11:06:53
19	Q. There's, like, three sets of numbering here,	11:06:53
20	and I'm still not in the rhythm for it yet.	11:06:56
21	A. Yeah.	11:07:00
22	Q. Trying to give you paragraphs, but then you've	11:07:01

1	got to find the page. That's the downside of	11:07:03
2	the remote depo, is the navigation.	11:07:05
3	A. Yep.	11:07:07
4	Q. All right. So paragraph 28, you give your	11:07:08
5	understanding of obviousness; is that correct?	11:07:17
6	A. Yes.	11:07:23
7	Q. Now, for this declaration here, you know,	11:07:24
8	you've got an understanding of obviousness.	11:07:26
9	Presumably, that's not something you studied	11:07:28
10	and learned on your own. At some point,	11:07:30
11	somebody explained that to you; is that right?	11:07:32
12	A. Yes.	11:07:34
13	Q. Okay. Now, with regard to the entirety of	11:07:34
14	this declaration, did you write this	11:07:38
15	declaration or was it given to you by counsel	11:07:39
16	to sign? What -- who -- what was your role in	11:07:44
17	preparing this declaration?	11:07:47
18	A. It was a collaborative effort. I reviewed	11:07:52
19	drafts and made changes and -- so there was	11:07:55
20	certainly a back and forth over the course of	11:08:00
21	some weeks.	11:08:05
22	Q. And did you draft any parts of this?	11:08:06

1	A. I drafted the entire thing, in a broad sense.	11:08:15
2	Q. What do you mean by "in a broad sense"?	11:08:18
3	A. That I had assistance and significant help	11:08:22
4	from counsel, but this entire document, I	11:08:32
5	have read every word, agree with every word,	11:08:36
6	edited, you know, various things to make sure	11:08:40
7	that everything within this document is my	11:08:42
8	opinion.	11:08:44
9	Q. And that includes the references too. Right?	11:08:46
10	So each prior art reference that you -- or	11:08:49
11	purported, alleged, whatever, prior art	11:08:52
12	reference that you analyzed, each of the	11:08:54
13	references that you analyzed, you made sure	11:08:55
14	that you were completely accurate in your	11:08:57
15	analysis that everything stated in this	11:08:59
16	declaration is accurate, correct to the best	11:09:01
17	of your knowledge; is that right?	11:09:04
18	MS. PETERSON: Objection to form.	11:09:07
19	A. Everything within this document. I can't	11:09:12
20	espouse to accuracy of references that we	11:09:17
21	cite. I kind of take them at face value and	11:09:22
22	I did not read every word of every document	11:09:25

1	that we cited here, only relevant parts of	11:09:32
2	them.	11:09:36
3	BY MR. GIUNTA:	11:09:36
4	Q. When you say "relevant parts," how did you	11:09:36
5	locate the relevant parts? Were those pointed	11:09:39
6	out to you, or did you find them yourself?	11:09:42
7	A. It was probably a mixture of both. I don't	11:09:54
8	recall.	11:09:57
9	Q. But the parts that you do cite and the ways	11:10:25
10	that you do use the references, those you're a	11:10:29
11	hundred percent confident about. Those you	11:10:35
12	reviewed and you are sure are technically	11:10:37
13	accurate, scientifically accurate, from a	11:10:40
14	scientific perspective? Your analysis is	11:10:42
15	scientifically sound; is that correct?	11:10:44
16	MS. PETERSON: Objection to form.	11:10:46
17	A. To the best of my knowledge, yes. I mean,	11:10:48
18	I'm a scientist so nothing is ever a	11:10:50
19	hundred percent, but yes.	11:10:54
20	BY MR. GIUNTA:	11:10:55
21	Q. Okay. In paragraph 28 there you provide this	11:11:09
22	understanding of obviousness, and it says, the	11:11:16

1 "patent claim is invalid if it would have been 11:11:19
2 'obvious' to a POSA at the time the 11:11:21
3 application was filed. I understand that, 11:11:24
4 unlike anticipation, obviousness does not 11:11:25
5 require that each and every element of a claim 11:11:28
6 be found in a single prior art reference." 11:11:30

7 You see that? 11:11:34

8 A. Yes. 11:11:37

9 Q. Okay. And so what is your understanding of 11:11:37
10 how the obviousness analysis works? Can -- 11:11:44
11 particularly with regard to a chemical 11:11:49
12 structure like Claim 11. Can you just kind of 11:11:54
13 like pick and choose on an atom-by-atom basis 11:11:57
14 from prior art references and combine them 11:12:01
15 together, or does there need to be something 11:12:03
16 more to tell you to combine them together? 11:12:05

17 Does it have to be at least a 11:12:09
18 functional group to put it together or should 11:12:11
19 it be something more than that? 11:12:14

20 MS. PETERSON: Objection to form. I 11:12:15
21 mean, he's not a legal expert, and that 11:12:16
22 question was so compound with multiple parts. 11:12:18

1	BY MR. GIUNTA:	11:12:21
2	Q. What's your understanding as to the level at	11:12:21
3	which you can put things together?	11:12:23
4	A. I guess if I look at a reference and I see	11:12:37
5	significant structural similarities and	11:12:45
6	overlaps that involve usually multiple	11:12:53
7	functional groups that are strung together,	11:12:57
8	that's kind of where I, as a chemist, would	11:13:01
9	kind of say, yeah, that's kind of obvious; I	11:13:04
10	could swap out this little piece for that	11:13:07
11	little piece and now I've got something that	11:13:10
12	is very similar to this other -- this other	11:13:13
13	reference that I cited or this other	11:13:18
14	structure out there.	11:13:22
15	So it -- I think it would be	11:13:22
16	multiple functional groups.	11:13:24
17	Q. In paragraph 29, you say, "I understand there	11:13:30
18	are a variety of rationales that can render a	11:13:32
19	claimed invention obvious based on prior art,"	11:13:35
20	and then you give six different examples of	11:13:39
21	these rationales.	11:13:45
22	Do you see that?	11:13:47

1	A. Yes.	11:13:49
2	Q. Which of the six rationales did you apply in	11:13:49
3	reaching your conclusions that Claim 11 of the	11:13:54
4	'675 patent is unpatentable due to	11:14:00
5	obviousness?	11:14:05
6	A. I'll need a minute to review those six things	11:14:10
7	to -- in order to think through that.	11:14:15
8	Q. Sure. It would be okay if we -- do you want	11:14:20
9	us to read them off? Would that help you? Or	11:14:22
10	do you just want to read them to yourself?	11:14:27
11	A. I'll just read them to myself if you can just	11:14:31
12	give me two minutes or so.	11:14:33
13	Q. Sure.	11:14:35
14	A. I would say nearly all of those apply to the	11:15:16
15	case here. Maybe not the first bullet point,	11:15:18
16	but just about all the other bullet points	11:15:22
17	apply.	11:15:26
18	Q. So the first one is, "whether the teachings of	11:15:26
19	the prior art references disclosed known	11:15:28
20	concepts combined in familiar ways which, when	11:15:31
21	combined, would yield predictable results."	11:15:33
22	Why does that one not apply?	11:15:36

1	MS. PETERSON: Objection to form.	11:15:42
2	A. Because my analysis focused on structures,	11:15:43
3	not concepts.	11:15:45
4	BY MR. GIUNTA:	11:15:55
5	Q. Okay. And what about the second one, "whether	11:15:55
6	a person of ordinary skill in the art could	11:15:57
7	implement a predictable variation and would	11:16:00
8	see the benefit of doing so"?	11:16:04
9	A. So what about that?	11:16:08
10	Q. Did that one apply to your analysis?	11:16:09
11	A. Yes.	11:16:11
12	Q. Okay. And predictable, what was the -- so	11:16:12
13	you're saying that the claims are a	11:16:19
14	predictable variation of something. What are	11:16:20
15	the claims a predictable -- what are the	11:16:22
16	structures of Claim 11 a predictable variation	11:16:24
17	of?	11:16:28
18	MS. PETERSON: Objection to form.	11:16:29
19	Mischaracterizes his testimony.	11:16:31
20	A. The structures in Claim 11 seem to be minor	11:16:46
21	variations of what was disclosed previously,	11:16:53
22	as we talked about in the PepTalk	11:16:56

1	Presentation and poster, as well as the	11:17:00
2	patent disclosure from Ajinomoto. They	11:17:02
3	seemed to be predictable variations of the	11:17:05
4	structures that were already disclosed by	11:17:09
5	Ajinomoto.	11:17:11
6	BY MR. GIUNTA:	11:17:12
7	Q. Now, what about the third bullet, where it	11:17:24
8	says, "whether the claimed elements represent	11:17:25
9	one of a limited number of known design	11:17:28
10	choices, and would have a reasonable	11:17:30
11	expectation of success by a person of ordinary	11:17:33
12	skill in the art"?	11:17:33
13	Does that apply?	11:17:40
14	A. Yes.	11:17:41
15	Q. And so which of the references do you believe	11:17:41
16	presents a limited number of design choices?	11:17:51
17	A. The concept that was presented by Ajinomoto	11:18:09
18	involved a click sort of reaction to a lysine	11:18:13
19	that was modified at position 248, and so	11:18:21
20	there's a limited number of design choices	11:18:24
21	because we're limited to cite number 248,	11:18:27
22	we're limited to the lysine, and we're	11:18:30

1 limited to click chemistry choices. 11:18:31

2 And so all of that was encompassed 11:18:34

3 within those prior art references, and so the 11:18:37

4 compounds disclosed by AbTis are kind of 11:18:44

5 really broadly encompassed within that 11:18:54

6 original disclosure by Ajinomoto. 11:18:56

7 Q. Now, we'll take a look -- and I guess this 11:19:10

8 might be a good time to do it. So I guess 11:19:15

9 we'll take a look at that in a second. 11:19:17

10 So the next one is, "whether a person 11:19:19

11 of ordinary skill in the art would have 11:19:20

12 recognized the reason to combine known 11:19:22

13 elements in the manner described in the 11:19:24

14 claim." 11:19:27

15 Does that apply here? 11:19:27

16 A. Yes. 11:19:32

17 Q. And so what were some of the reasons to 11:19:32

18 combine elements to make the compounds of 11:19:37

19 Claim 11? 11:19:40

20 A. So some of the -- as a medicinal chemist, one 11:19:43

21 of the things that we try to do with ADCs is 11:19:54

22 to keep a very simple spacer element and to 11:19:59

1	incorporate polarity into that spacer	11:20:04
2	element, and those three structures within	11:20:10
3	Claim 11 do exactly that; they keep a very,	11:20:16
4	very simple spacer element and they	11:20:20
5	incorporate a polar element, which is a	11:20:24
6	favorable property for the development of	11:20:27
7	ADCs and was known to be a favorable element	11:20:30
8	in the 2019 to 2023 time frame.	11:20:33
9	Q. When you say "polar element," which aspect of	11:20:36
10	the modified lysine residue structures were	11:20:45
11	you referring to?	11:20:49
12	A. Specifically, I'm referring to the ether	11:20:52
13	oxygen.	11:20:54
14	Q. The next one is, "whether there is some	11:20:58
15	teaching or suggestion in the prior art to	11:21:12
16	make the modification or combination of	11:21:14
17	elements in the patent."	11:21:16
18	Do you see that?	11:21:18
19	A. Yes.	11:21:19
20	Q. Was there teaching or suggestion in the prior	11:21:20
21	art references that you analyzed?	11:21:23
22	A. There is teaching and suggestion within the	11:21:35

1 prior art that would inspire the design of 11:21:37
2 the three compounds of Claim 11 based on the 11:21:52
3 prior disclosures from Ajinomoto. And some 11:21:56
4 of that is what we just talked about in terms 11:22:02
5 of polarity, in terms of simplicity, and in 11:22:05
6 terms of just which click or bio-orthogonal 11:22:11
7 functional groups react most easily, most 11:22:18
8 readily. 11:22:21

9 Q. And the last one is, "whether the innovation 11:22:21
10 applies to a known technique that has been 11:22:31
11 used to improve a similar device or method in 11:22:34
12 a similar way." 11:22:38

13 Does that -- does that apply here to 11:22:39
14 the structures of Claim 11? 11:22:41

15 A. I guess I'm thinking of that in a broad way, 11:22:53
16 very similar to the previous point, just that 11:22:56
17 there's some prior teaching or suggestion in 11:22:58
18 the literature that we know what sorts of 11:23:00
19 structural elements to include in order to 11:23:06
20 improve a -- the technology. 11:23:13

21 MR. GIUNTA: Okay, I'm putting an 11:23:45
22 exhibit in the Chat, and let me know when 11:23:46

1	you've -- you're able to see it and then	11:23:48
2	download it.	11:23:49
3	MARKED FOR IDENTIFICATION:	11:23:51
4	EXHIBIT 3	11:23:51
5	11:23 a.m.	11:24:04
6	A. Okay, yes, I can see it.	11:24:04
7	BY MR. GIUNTA:	11:24:06
8	Q. Okay.	11:24:07
9	A. I've got it pulled up here.	11:24:07
10	Q. Okay. I'm showing you what's been marked as	11:24:08
11	Tumey Exhibit 3 for identification purposes.	11:24:11
12	It is IPR Exhibit Number 1005.	11:24:15
13	A. Yes.	11:24:22
14	Q. It is labeled CA 3132959. Do you recognize	11:24:23
15	this document?	11:24:28
16	A. Yes.	11:24:35
17	Q. And what is it?	11:24:36
18	A. This is the -- this is the Canadian version	11:24:49
19	of the AbTis patent.	11:24:55
20	Q. Okay. And so do you see that it has the same	11:25:01
21	four inventors as the '675 patent?	11:25:06
22	A. Yes.	11:25:15

1	Q. Okay. And when did it publish?	11:25:16
2	A. It looks like -- it looks like this published	11:25:28
3	September 17th of 2020.	11:25:32
4	Q. Okay. And we've already said that this is the	11:25:35
5	Canadian counterpart to the '675 patent.	11:25:45
6	Correct?	11:25:48
7	A. Yes.	11:25:48
8	Q. And in your analysis when you said that it	11:25:49
9	anticipates the '675 patent, assuming that --	11:25:54
10	a scenario where it's prior art to the '675	11:25:57
11	patent claims, you stated -- you opine that	11:26:02
12	each and every element of the claims of the	11:26:05
13	'675 patent is disclosed in this '959	11:26:08
14	publication. Correct?	11:26:12
15	A. Yes.	11:26:16
16	Q. And is it your understanding that you can only	11:26:17
17	use this reference as an anticipatory	11:26:26
18	reference if the '675 patent is not entitled	11:26:28
19	to priority for each of the claims there to	11:26:34
20	its filing date. Correct?	11:26:39
21	MS. PETERSON: Objection to form.	11:26:46
22	A. Yes, I think that is my understanding, that	11:26:56

1	that's kind of getting into the legal side of	11:26:58
2	things. I'm just kind of taking my counsel's	11:27:02
3	word for that, yes.	11:27:06
4	BY MR. GIUNTA:	11:27:06
5	Q. One of the reasons why you're saying it's not	11:27:07
6	entitled to its priority -- the '675 patent is	11:27:09
7	not entitled to an earlier priority date is	11:27:11
8	because of that Negative Limitation in Claim 1	11:27:14
9	that we were just talking about; is that	11:27:17
10	correct?	11:27:19
11	A. That is one of the reasons, yes.	11:27:25
12	Q. Okay. So -- right. And then there's also a	11:27:27
13	reason for Claim 2, a separate reason, and you	11:27:31
14	call that the modified lysine group reason.	11:27:35
15	Correct?	11:27:39
16	A. You'd have to point me to -- I believe so,	11:27:47
17	yes, but you'd have to point me to	11:27:49
18	specifically what I'm saying.	11:27:51
19	Q. Of course, yeah, happy to do that.	11:27:52
20	Okay. So if you go to paragraph 116	11:28:20
21	of your declaration, which is on PDF page 57.	11:28:22
22	A. Okay.	11:28:41

1 Q. So here you're talking about all the aspects
2 of this particular -- of this particular claim
3 element, which is the Negative Limitation that
4 the '959 patent does disclose. Do you see
5 that?

6 A. Yes.

7 Q. And so my question for you is, if lack of
8 support for the Negative Limitation is the
9 reason why the '675 patent is not entitled to
10 its priority date, then how can the '959
11 publication anticipate that Negative
12 Limitation as you're explaining here in
13 paragraph 116?

14 MS. PETERSON: Objection to form.

15 A. You're going to have to reword that. I don't
16 really understand what you're asking.

17 BY MR. GIUNTA:

18 Q. So if you go to PDF page 41 of your
19 declaration --

20 A. Yes.

21 Q. -- paragraph 75 and 76, 77, may talk about the
22 Negative Limitation. Do you see that?

1	A. Wait a minute. Paragraph 76?	11:31:40
2	Q. Correct.	11:31:41
3	A. Yes, paragraph 75 through 77, yes.	11:31:42
4	Q. And so there you're saying that the Negative	11:31:55
5	Limitation has no support in the '675 patent	11:32:03
6	specification.	11:32:05
7	A. Yes.	11:32:10
8	Q. All right. And so my question is, up in	11:32:11
9	paragraph 116, if that's the case, and it's	11:32:15
10	identical to the '959 publication, how does	11:32:23
11	the '959 publication anticipate that negative	11:32:25
12	group?	11:32:28
13	A. I don't know.	11:32:47
14	MR. GIUNTA: I'm putting another	11:33:13
15	exhibit in the Chat.	11:33:14
16	MARKED FOR IDENTIFICATION:	11:33:16
17	EXHIBIT 4	11:33:16
18	11:33 a.m.	11:33:16
19	BY MR. GIUNTA:	11:33:16
20	Q. I'm showing you what's been marked as Tumey 4	11:33:30
21	for identification purposes. It is IPR	11:33:33
22	Exhibit 1006.	11:33:39

1	Do you recognize this document?	11:33:40
2	A. Yes.	11:33:45
3	Q. And what is it?	11:33:45
4	A. This is the poster presented by Ajinomoto at	11:33:50
5	the PepTalk conference in 2019.	11:33:53
6	Q. And so it's your understanding that this	11:33:55
7	document was prepared by employees of	11:34:05
8	Ajinomoto?	11:34:07
9	A. Yes.	11:34:11
10	Q. Now, did you attend the PepTalk conference in	11:34:12
11	2019 where this poster was allegedly	11:34:23
12	presented?	11:34:30
13	A. To my knowledge, no, but I can't -- I'm not	11:34:31
14	absolutely certain about that.	11:34:34
15	Q. And before you were asked to work on this	11:34:36
16	case, did you have this poster?	11:34:38
17	A. No.	11:34:48
18	Q. Now, if you didn't have it, why do you think	11:34:48
19	that -- why is it your opinion that a person	11:34:55
20	of ordinary skill in the art would have it?	11:34:57
21	MS. PETERSON: Objection to form.	11:35:02
22	A. Because a person of ordinary skill in the --	11:35:03

1	MS. PETERSON: Go ahead.	11:35:05
2	A. Because a person of ordinary skill in the	11:35:06
3	art, by definition, is defined as someone who	11:35:08
4	has access and knowledge to all relevant	11:35:14
5	knowledge in the field, and this is certainly	11:35:16
6	relevant knowledge in the field.	11:35:18
7	BY MR. GIUNTA:	11:35:19
8	Q. And so that's really the question, is, you	11:35:25
9	know, is this -- was this accessible to	11:35:26
10	everybody? In other words, why didn't you	11:35:29
11	have it?	11:35:30
12	MS. PETERSON: Objection to form.	11:35:34
13	A. Why didn't I have this?	11:35:41
14	BY MR. GIUNTA:	11:35:41
15	Q. Yeah.	11:35:42
16	A. So at a PepTalk conference like this there	11:35:42
17	would be 200, 300 different posters, and so	11:35:44
18	people go around asking for copies or taking	11:35:52
19	pictures of what is most relevant to their	11:35:55
20	work. I certainly was familiar with this.	11:36:00
21	So in 2019, Ajinomoto began	11:36:05
22	presenting this very broadly. They were --	11:36:09

1	I'm quite familiar with Ajinomoto, even from	11:36:11
2	this time frame. They were seeking partners	11:36:14
3	to develop their technology, and so they were	11:36:17
4	widely talking about this and presenting this	11:36:19
5	at scientific meetings like PepTalk.	11:36:24
6	Q. Okay. So you had seen it elsewhere? You had	11:36:30
7	seen something like this elsewhere?	11:36:32
8	A. Yes. Now, whether -- specifically the date,	11:36:37
9	I'm not sure, but absolutely, around 2019 to	11:36:39
10	2020 I became aware of this technology, yes.	11:36:42
11	Q. Then why did you use this reference as opposed	11:36:44
12	to one that you had actually seen?	11:36:50
13	A. My understanding is this is the first public	11:36:57
14	disclosure, so it goes back to the earliest	11:37:00
15	time point, but... yeah.	11:37:05
16	Q. And it's titled the Development of a Novel	11:37:13
17	Chemical Site-Specific Conjugation Platform	11:37:15
18	For ADCs, and it says AJICAP technology.	11:37:18
19	What's your understanding of what AJICAP	11:37:22
20	technology is?	11:37:25
21	A. My broad understanding of AJICAP technology	11:37:28
22	is that they are employing acyclic peptide	11:37:33

1	that binds non-covalently to the FC domain of	11:37:40
2	an antibody, and this peptide can be used to	11:37:48
3	transfer a bio-orthogonal functional group to	11:37:56
4	lysine 248, and then that can be used to	11:38:03
5	generate antibody-drug conjugates.	11:38:13
6	Q. Now, is it -- is one of the aspects of AJICAP	11:38:55
7	technology that it uses FC affinity reagents?	11:39:01
8	Is that -- is that one of the aspects of it,	11:39:04
9	FC affinity reagents?	11:39:06
10	A. Yes.	11:39:10
11	Q. And what are FC affinity reagents?	11:39:11
12	A. This would be a reagent that binds	11:39:16
13	non-covalently to the FC domain.	11:39:19
14	Q. And so what is the FC domain?	11:39:25
15	A. It's the bottom half of an antibody. So if	11:39:30
16	we look at the antibody as a Y structure that	11:39:38
17	we usually depict it as, the FC domain is	11:39:42
18	that lower part of the Y before it branches.	11:39:45
19	Q. Okay. If you go to the Conclusion part of the	11:39:50
20	poster, which is on the right side toward the	11:40:14
21	bottom --	11:40:23
22	A. Yes.	11:40:23

1	Q. -- one benefit of a -- of a remote deposition	11:40:24
2	is you can zoom in on this.	11:40:27
3	A. Yes.	11:40:30
4	Q. At least for me.	11:40:31
5	So it discusses features of AJICAP.	11:40:35
6	Correct?	11:40:40
7	A. Yes.	11:40:46
8	Q. And it disclosed site-specific DAR. Right?	11:40:46
9	A. Yes.	11:40:55
10	Q. Now, is there DAR 2, meaning drug-to-antibody	11:40:55
11	ratio to two drug components per antibody?	11:41:00
12	A. Yes.	11:41:03
13	Q. And below that, it says there is a wide --	11:41:12
14	item 3 says there's a "Wide drug-linker	11:41:17
15	compatibility: reactive group compatibility	11:41:21
16	includes thiol, alkyne, azide, et cetera."	11:41:23
17	Do you see that?	11:41:25
18	A. Yes.	11:41:26
19	Q. And what do you understand that to mean, a	11:41:31
20	"wide drug-linker compatibility"?	11:41:34
21	A. Within this context, it seems to be referring	11:41:45
22	to a variety of bio-orthogonal and click	11:41:48

1	functional groups that are compatible with	11:41:56
2	this chemistry.	11:42:00
3	Q. So in this Conclusion section there's this	11:42:16
4	Section 1, Features of AJICAP, that we've been	11:42:19
5	talking about, and then on the right, it says,	11:42:21
6	"A glance at second generation AJICAP	11:42:24
7	technology."	11:42:25
8	What do you understand AJICAP	11:42:26
9	second-generation technology to be, and how is	11:42:29
10	it different from the first generation?	11:42:31
11	A. I mean, it looks to me like it is a -- just	11:43:02
12	slight modifications of the chemistry to	11:43:11
13	improve some aspects of the ADC, so lower	11:43:13
14	aggregation making the chemistry a little bit	11:43:18
15	easier, you know, and so on. Yeah.	11:43:21
16	Q. Okay. And where it says "no redox chemistry,"	11:43:36
17	what's "redox chemistry" refer to in the	11:43:38
18	context of these -- of these technologies?	11:43:40
19	A. So this is specifically referring back to the	11:43:58
20	Methods section in section number 3, and	11:44:06
21	there's a sequence here, and then it says,	11:44:15
22	"TCEP, then DHAA."	11:44:20

1	That's the step that it's referring	11:44:24
2	to.	11:44:25
3	Q. Uh-huh.	11:44:25
4	A. And so, in other words, this poster seems to	11:44:30
5	be describing or is primarily focused on this	11:44:32
6	file chemistry that's, again, presented in	11:44:38
7	Methods section number 3, and they're saying	11:44:42
8	second-generation technology uses things	11:44:48
9	other than this reduction, reoxidation	11:44:52
10	method.	11:45:01
11	And that's -- seems to be alluded to	11:45:02
12	up in the next area where it talks about some	11:45:07
13	of the click reagents, the bile azides,	11:45:12
14	aldehydes, you know, and so on, up in -- I	11:45:17
15	guess in the Results section, Section 1.	11:45:19
16	Q. Okay. So in that Section 1 Results section	11:45:22
17	on -- where it says, "Capability of AJICAP,"	11:45:26
18	is that where you're pointing to?	11:45:29
19	A. Yes.	11:45:31
20	Q. Okay. And so it then shows a modified	11:45:31
21	residue, and in this case that happens to be a	11:45:43
22	lysine -- modified lysine residue broken up in	11:45:45

1 these block groups where one of the blocks is 11:45:48
2 attachment, one of the blocks is linker, and 11:45:52
3 one of the blocks is payload; is that right? 11:45:55
4 A. Yes. 11:45:57
5 Q. And below each of the blocks is a little table 11:45:57
6 that lists components that can be -- where 11:45:59
7 that block is; is that fair to say? 11:46:03
8 A. Yes. 11:46:09
9 Q. So under Attachment -- and there's -- there's 11:46:10
10 two columns. One says Attachment, on the 11:46:24
11 left, and then the one on the right says 11:46:26
12 Structure. 11:46:28
13 Do those two things correspond to 11:46:30
14 each other? 11:46:32
15 A. Yes, they do. 11:46:35
16 Q. Okay. So, for example, the first pair 11:46:35
17 attachment structure is thiol, and it says 11:46:39
18 maleimide, and then there's a structure there 11:46:45
19 next to it. And so what does thiol have to do 11:46:47
20 with that structure next to it? 11:46:50
21 A. The action of the thiol within the maleimide 11:46:55
22 forms the structure that's there on the 11:47:02

1 right-hand side of that column. 11:47:05

2 Q. Okay. And then for the next one down, it says 11:47:17

3 azide cycloalkyne. What does -- 11:47:20

4 A. Yes. 11:47:24

5 Q. -- that refer to? How does that structure 11:47:26

6 correspond to the azide? 11:47:28

7 A. The same thing. The azide is one reaction 11:47:32

8 partner, the cycloalkyne is on another, and 11:47:36

9 when they react they form that structure 11:47:38

10 that's on the right. 11:47:42

11 Q. So the azide attachment would be the 11:47:43

12 bio-orthogonal group there on that modified 11:47:48

13 lysine residue. Is that how this technology 11:47:52

14 works? 11:47:55

15 A. I think it could be either way. I don't 11:47:59

16 think they are limiting it to one way or the 11:48:02

17 other. So the azide could be on the lysine 11:48:07

18 or the cycloalkyne could be on the lysine. 11:48:11

19 Q. Okay. The PepTalk Poster here does not 11:48:31

20 disclose norbornene. Right? 11:48:38

21 A. To my knowledge, it does not. 11:48:46

22 Q. And none of the spacer groups here have oxygen 11:48:48

1	in them; is that fair to say? This ether	11:49:06
2	oxygen.	11:49:13
3	A. The spacer element is not really shown in	11:49:15
4	that diagram, so I don't think you could say	11:49:21
5	one way or the other.	11:49:26
6	Q. And what about the rest --	11:49:27
7	[Simultaneous Speaking]	11:49:30
8	A. It's not explicitly displayed.	11:49:30
9	Q. Right. Yeah, what about the rest of the	11:49:34
10	poster? Is that ether element in the spacer	11:49:36
11	displayed anywhere on here?	11:49:39
12	A. No, not as far as I can see.	11:49:48
13	Q. So your primary purpose in using this	11:49:51
14	reference against Claim 11 are that it	11:50:02
15	discloses conjugation at lysine 248; is that	11:50:04
16	right?	11:50:07
17	MS. PETERSON: Objection to form.	11:50:11
18	A. No.	11:50:16
19	BY MR. GIUNTA:	11:50:19
20	Q. Okay. Then what is your purpose in using this	11:50:19
21	reference?	11:50:23
22	A. That this combines conjugation at 248 with	11:50:24

1	this FC affinity reagent and a bio-orthogonal	11:50:28
2	functional group. Those three elements are	11:50:37
3	all present here, and those three elements	11:50:42
4	are all present in the AbTis patent.	11:50:44
5	Q. Okay.	11:50:53
6	MS. PETERSON: Peter, when we have a	11:50:54
7	good time, could we take a break? We've been	11:50:55
8	going like an hour and 20 minutes.	11:50:59
9	MR. GIUNTA: Yeah, let me -- just a	11:51:02
10	couple more questions and then we can do that.	11:51:04
11	MS. PETERSON: Sure. Thanks.	11:51:06
12	BY MR. GIUNTA:	11:51:18
13	Q. So Claim 11 doesn't require a particular FC	11:51:18
14	affinity agent, does it?	11:51:23
15	A. No, it doesn't.	11:51:25
16	Q. And there are two bio-orthogonal functional	11:51:27
17	groups in Claim 11, but only one of them is	11:51:42
18	disclosed in the poster. Correct?	11:51:44
19	A. That is correct.	11:51:49
20	Q. Okay. And even though the linkers aren't	11:51:52
21	necessarily -- sorry, the spacers aren't	11:51:55
22	necessarily shown in lots of places, or at	11:51:57

1	least not in that table under Results	11:52:02
2	Section 1, nothing on this poster shows an	11:52:06
3	ether oxygen in the spacer; is that fair?	11:52:10
4	MS. PETERSON: Objection to form.	11:52:16
5	A. That is correct.	11:52:19
6	MR. GIUNTA: We can take a short	11:52:20
7	break. We can go off the record and talk	11:52:22
8	about what it will be.	11:52:23
9	(Off the record at 11:52 a.m.)	11:52:24
10	(Back on the record at 12:03 p.m.)	12:03:53
11	BY MR. GIUNTA:	12:04:15
12	Q. Now, for Claim 11, Dr. Tumey, I'm looking in	12:04:19
13	your declaration, which is Tumey 1. I am	12:04:22
14	looking at page 103, which is PDF page 108,	12:04:53
15	and I'm looking at your analysis of Claim 11	12:04:57
16	there.	12:05:04
17	A. Okay.	12:05:07
18	Q. And so you have the structures of Claim 11 on	12:05:08
19	page 104, going to -- sorry, PDF page 109,	12:05:19
20	going to PDF page 110. That's paragraph 269	12:05:22
21	of your report -- of your declaration. Do you	12:05:26
22	see that?	12:05:28

1	A. Yes.	12:05:29
2	Q. Now, in paragraph 271, to reach a conclusion	12:05:29
3	of obviousness into the PepTalk Poster, you	12:05:55
4	combine the PepTalk Poster with Yamada.	12:06:03
5	Right?	12:06:08
6	A. Yes.	12:06:09
7	Q. Okay. So there you say -- in paragraph 2771,	12:06:09
8	you say the "PepTalk Poster discloses a	12:06:31
9	modified antibody with lysine residues 248	12:06:34
10	modified with an azide group." Right?	12:06:38
11	A. Yes.	12:06:41
12	Q. Okay. And so at least in your declaration,	12:06:41
13	you began to rely on Yamada rather than go	12:07:04
14	through the explanation that you gave me a few	12:07:08
15	moments ago about FC infinity group, spacer	12:07:11
16	group, and then bio-orthogonal functional	12:07:19
17	group. Right?	12:07:23
18	MS. PETERSON: Objection to form.	12:07:30
19	A. You're going to have to remind me -- you're	12:07:37
20	saying I said something different in 270 than	12:07:40
21	what I said previously?	12:07:43
22	BY MR. GIUNTA:	12:07:44

1	Q. Well, I think you provided more detail	12:07:44
2	previously as to why you think the PepTalk	12:07:46
3	Poster would render Claim 11 structures	12:07:49
4	obvious. Because here in 271, you seem to be	12:07:50
5	pointing specifically to the modified lysine	12:07:55
6	residue at 248 modified with an azide group.	12:07:58
7	A. Okay. Yes.	12:08:09
8	Q. So, again, with the structures here, I just --	12:08:11
9	I was asking a few questions about what was	12:08:21
10	clearly within the structure and outside the	12:08:24
11	structure, and so just a couple of quick	12:08:26
12	questions.	12:08:31
13	A chemist would understand that the	12:08:32
14	structures in Claim 11 don't include a	12:08:37
15	terminal hydroxy group; is that fair to say?	12:08:41
16	A. Correct.	12:08:47
17	Q. And the structures within Claim 11 would not	12:08:48
18	include a terminal aldehyde group. Correct?	12:08:50
19	A. Correct.	12:08:54
20	Q. And the structures would not include a	12:08:54
21	terminal carboxyl group. Correct?	12:08:56
22	A. Correct.	12:09:02

1	Q. And that's evident from the structures.	12:09:02
2	Right? You don't need somebody to tell you	12:09:04
3	that they don't include that, with words.	12:09:06
4	A. Correct.	12:09:10
5	Q. Showing you another exhibit.	12:09:10
6	MR. GIUNTA: This, we'll mark Tumey	12:09:19
7	5. It's IPR Exhibit 1007.	12:09:22
8	MARKED FOR IDENTIFICATION:	12:09:28
9	EXHIBIT 5	12:09:28
10	12:09 p.m.	12:09:28
11	BY MR. GIUNTA:	12:09:41
12	Q. Do you recognize this document?	12:09:41
13	A. Yes.	12:09:43
14	Q. What is it?	12:09:44
15	A. This is the presentation that was given at	12:09:52
16	PepTalk covering much of the same material or	12:09:54
17	same type of material that was presented in	12:09:58
18	the poster.	12:10:00
19	Q. Okay. And, now, was this something that you	12:10:00
20	had before you were working on the case, or	12:10:06
21	was this provided to you by counsel?	12:10:08
22	A. This was provided by counsel.	12:10:11

1 Q. And for what reason -- let me ask this: How 12:10:12
2 are presentations like this published? Are 12:10:26
3 they presented or do they -- are they 12:10:29
4 otherwise made available? 12:10:32
5 A. Well, they are presented. Sometimes they are 12:10:38
6 distributed after the conference by the 12:10:41
7 speaker. Sometimes conferences post 12:10:45
8 recordings or electronic versions of the 12:10:50
9 presentations online for conference 12:10:56
10 attendees. 12:11:00
11 Q. Do you know whether this one was made 12:11:06
12 available in any of those ways or whether -- 12:11:09
13 or do you only know that it was presented? 12:11:12
14 A. My understanding is that the speaker 12:11:19
15 distributed copies to multiple people after 12:11:21
16 the event, and that is consistent with my 12:11:23
17 understanding of the Ajinomoto business plan 12:11:35
18 for this technology. They were looking for 12:11:38
19 partners at this point. 12:11:40
20 This is -- what they're presenting 12:11:41
21 in this presentation and the poster is not a 12:11:43
22 drug; it's a technology for making a drug. 12:11:46

1	So they need a -- they need a partner who's	12:11:48
2	going to bring some other expertise to the	12:11:51
3	table in order to fully develop it, so they	12:11:55
4	need -- they wanted to distribute it.	12:11:58
5	Q. Okay. And what other expertise would they	12:12:00
6	need somebody to bring to the table?	12:12:05
7	A. Probably a -- in particular, maybe a unique	12:12:10
8	antibody asset or maybe a unique payload	12:12:18
9	asset or maybe a unique clinical expertise	12:12:21
10	that Ajinomoto did not have.	12:12:28
11	Q. If you go to page 27 of this slide	12:12:35
12	presentation, which is Exhibit 1007 --	12:12:41
13	A. Yes.	12:12:50
14	Q. -- do you see that there's a partner listed	12:12:50
15	there, Heidelberg Pharma?	12:12:58
16	A. Yes.	12:13:01
17	Q. And is that the same organization that you	12:13:01
18	consult with?	12:13:04
19	A. Yes. I want to reiterate what I said	12:13:05
20	earlier, and that is that I had no consulting	12:13:13
21	relationship with anything related to the	12:13:17
22	Ajinomoto technology. My consulting related	12:13:18

1	specifically to the funded project that	12:13:25
2	Heidelberg funded in my lab, which was a	12:13:28
3	completely different project absolutely	12:13:33
4	unrelated to this.	12:13:35
5	Q. Okay. So you, again, on page -- PDF page 153	12:13:43
6	of your declaration, which is in	12:13:47
7	paragraph 366, where you present the PepTalk	12:13:53
8	Presentation with regard to Claim 11 -- let me	12:13:58
9	know when you're there. Page 153 of your dec.	12:14:01
10	A. Yes.	12:14:07
11	Q. So paragraph 366, you say the "PepTalk	12:14:07
12	Presentation discloses a modified antibody	12:14:12
13	with lysine residues 248, modified with an	12:14:13
14	azide group."	12:14:16
15	Do you see that?	12:14:17
16	A. Yes.	12:14:20
17	Q. And so much like the poster, the PepTalk	12:14:20
18	Presentation did not disclose the norbornene	12:14:33
19	bio-orthogonal group. Correct?	12:14:42
20	A. Correct.	12:14:44
21	Q. And it also did not disclose a spacer -- a	12:14:46
22	spacer group with an ether oxygen in the	12:14:50

1	chain. Correct?	12:14:55
2	MS. PETERSON: Objection to form.	12:14:59
3	A. I would -- I would want to go through the	12:15:00
4	presentation quickly before I say that,	12:15:03
5	but --	12:15:06
6	BY MR. GIUNTA:	12:15:07
7	Q. You can -- it's not in your -- wouldn't you	12:15:07
8	have noted -- would you have noted that if you	12:15:10
9	had -- if you had seen it now?	12:15:13
10	A. No, not necessarily.	12:15:14
11	Q. Okay. Well, then, please go ahead and go	12:15:15
12	through and confirm whether it's there or not.	12:15:17
13	A. Okay, that's correct. I don't see it	12:15:52
14	anywhere in that presentation.	12:15:55
15	Q. Okay. Now, again, you also combine this with	12:15:56
16	Yamada, correct, to say that the -- that	12:16:03
17	Claim 11 is obvious?	12:16:06
18	A. Yes.	12:16:08
19	Q. Okay. What does the PepTalk Presentation	12:16:09
20	disclose that the PepTalk Poster does not? Is	12:16:17
21	there any difference in disclosure?	12:16:19
22	A. I didn't hold those up side by side to look	12:16:27

1	at the differences.	12:16:30
2	Let's see. Just quickly glancing	12:16:34
3	through -- well -- yeah, it looks like some	12:16:38
4	things dealing with the therapeutic index and	12:16:46
5	safety and some of the animal studies, if --	12:16:49
6	yeah, particularly when it comes to the	12:16:56
7	toxicology side, it looks like that is in the	12:16:58
8	presentation but not in the poster.	12:17:00
9	Q. Okay. Now, do you rely on any aspects of that	12:17:09
10	toxicology side in your declaration here?	12:17:13
11	A. Not to my recollection.	12:17:18
12	MR. GIUNTA: Okay, I'm loading	12:17:20
13	another exhibit here.	12:18:06
14	MARKED FOR IDENTIFICATION:	12:18:19
15	EXHIBIT 6	12:18:19
16	12:18 p.m.	12:18:26
17	A. Okay.	12:18:26
18	BY MR. GIUNTA:	12:18:26
19	Q. I'm showing you what's been marked as Tumey	12:18:33
20	Exhibit 6 for identification purposes. It is	12:18:36
21	IPR Exhibit 1009.	12:18:41
22	Do you recognize this to be national	12:18:46

1	stage publication of a patent application by	12:19:00
2	Yamada?	12:19:08
3	A. Yes.	12:19:12
4	Q. Do you see there's a translator's declaration	12:19:13
5	here?	12:19:17
6	A. Yes.	12:19:17
7	Q. And what it's saying is that there's a	12:19:17
8	Japanese language reference, which is WO	12:19:29
9	2018/199337, which is exhibit -- IPR	12:19:33
10	Exhibit 1008, and it's saying that this U.S.	12:19:39
11	2020/019165 [sic] document, which is	12:19:43
12	Exhibit 1009 that we're looking at, is a true,	12:19:49
13	faithful, and accurate translation of the	12:19:53
14	corresponding Japanese language Exhibit 1008.	12:19:57
15	Do you see that?	12:20:00
16	A. Yes.	12:20:02
17	Q. And do you have any reason to disagree with	12:20:02
18	that?	12:20:04
19	A. No.	12:20:17
20	Q. This application is assigned to Ajinomoto.	12:20:17
21	Correct?	12:20:20
22	A. Yes.	12:20:22

1	Q. And, again, this reference was provided to you	12:20:23
2	by counsel. Right? This is not something	12:20:32
3	that you turned up on your own?	12:20:34
4	A. To my recollection, yes.	12:20:36
5	Q. In the searches that you did perform for	12:20:38
6	references concerning the claims, did you turn	12:20:45
7	up anything that was not prior art that	12:20:51
8	influenced your opinions?	12:20:54
9	A. Any that was not prior art? Well, searches	12:21:08
10	pull up lots and lots of stuff, so it's...	12:21:12
11	I'm sure I pulled up things that were not	12:21:18
12	prior art, but how exactly those would have	12:21:20
13	influenced my opinion, I would not be able to	12:21:25
14	say at this point.	12:21:29
15	Q. And the title of this patent application is	12:21:29
16	Compound Having Affinity Substance to Soluble	12:21:38
17	Protein, Cleavable Portion and Reactive Group,	12:21:42
18	Or Salt Thereof.	12:21:46
19	Do you see that?	12:21:47
20	A. Yes.	12:21:48
21	Q. And you combined this with the PepTalk Poster	12:21:48
22	to opine that Claim 11 is obvious. Right?	12:22:09

1	A. Yes.	12:22:13
2	Q. And you combined it with the PepTalk	12:22:13
3	Presentation to opine that Claim 11 is	12:22:16
4	obvious. Correct?	12:22:20
5	A. Yes. Yes.	12:22:21
6	Q. And then you also applied this reference alone	12:22:22
7	to opine that Claim 11 is obvious; is that	12:22:24
8	right? And I can show you in your declaration	12:22:27
9	if you want to take a look.	12:22:29
10	A. I believe that's -- yeah, I can take your	12:22:32
11	word for it. Yeah, that sounds right.	12:22:34
12	Q. Okay. So there's -- in one -- in the ground	12:22:36
13	where you rely on Yamada alone there's another	12:22:43
14	reference used for other claims, and that	12:22:46
15	reference is referred to as Matsuda. We	12:22:47
16	talked about it a little bit earlier. But it	12:22:50
17	doesn't seem that you used Matsuda in	12:22:53
18	addressing Claim 11.	12:22:59
19	Is that your understanding, that you	12:23:05
20	did not rely on Matsuda to render Claim 11	12:23:07
21	obvious?	12:23:10
22	A. I would want to review my deposition, but,	12:23:18

1	again, I can take your word for it that --	12:23:22
2	yeah.	12:23:25
3	Q. And I'll just show you. In your declaration	12:23:46
4	you have a Section D which is -- I'll get you	12:23:55
5	the PDF page before I begin shouting out	12:24:00
6	the... PDF page 163.	12:24:05
7	A. Okay.	12:24:19
8	Q. There, you have subheading D, which says,	12:24:20
9	"Claims 1-13 of the '675 Patent Are	12:24:23
10	Unpatentable in View of Yamada, (Exhibit 1008)	12:24:25
11	and Matsuda (Exhibit 1009)."	12:24:28
12	Do you see that?	12:24:32
13	A. Yes.	12:24:35
14	Q. Okay. Now, when you actually go through and	12:24:35
15	do the analysis, you go through each of the	12:24:40
16	aspects of Claim 1, 2, 3, and then you	12:24:47
17	group 5, 6, and 11 together. Correct? So	12:25:06
18	that one I'm specifically referring to the	12:25:12
19	analysis that's on PDF pages 181 through --	12:25:16
20	sorry, 186 -- PDF 186, which is page 181, PDF	12:25:22
21	186 through PDF 190.	12:25:28
22	MS. PETERSON: Objection to form.	12:25:37

1	A. Is there a question or -- I'm at page 181.	12:25:49
2	BY MR. GIUNTA:	12:25:52
3	Q. I'm sorry, PDF 195. So PDF 181 through PDF	12:25:53
4	190. And my question is, is it correct that	12:25:58
5	you rely only on Yamada to say that Claim 11	12:26:00
6	is obvious and do not combine it with Matsuda	12:26:02
7	here? And I'm specifically pointing to	12:26:06
8	paragraph 454, which is your conclusion, but	12:26:11
9	I'm showing you that entire section of your	12:26:13
10	declaration.	12:26:15
11	A. Yes, I believe that is relying -- that --	12:26:45
12	those pages and that discussion are relying	12:26:50
13	on Yamada and not on Matsuda.	12:26:52
14	Q. One of the things you reviewed in forming your	12:27:01
15	opinions in this case is the prosecution	12:27:10
16	history of the '675 patent; is that correct?	12:27:13
17	A. Yes.	12:27:18
18	Q. And so you're aware that the examiner had the	12:27:18
19	Yamada reference before it during the	12:27:25
20	prosecution; is that -- do you recall that?	12:27:26
21	A. Can you repeat that? You were breaking up	12:27:34
22	for a minute.	12:27:36

Transcript of Lawrence Tumey, Ph.D.
Conducted on October 17, 2025

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1	Q. Sure. The examiner --	12:27:38
2	STENOGRAPHER: It's still -- we might	12:27:38
3	need to go off the record.	12:27:40
4	MS. PETERSON: Yeah. I'm having the	12:27:41
5	same issue.	12:27:46
6	(Off the record at 12:27 p.m.)	12:29:37
7	(Back on the record at 12:29 p.m.)	12:29:37
8	BY MR. GIUNTA:	12:29:42
9	Q. Okay, Dr. Tumey, so you reviewed the	12:29:46
10	prosecution history of the '675 patent.	12:29:48
11	Correct?	12:29:51
12	A. Yes.	12:29:53
13	Q. Okay. And are you aware that Yamada was cited	12:29:54
14	against the claims of the '675 -- certain	12:29:56
15	claims of the '675 patent?	12:30:00
16	A. Yes.	12:30:03
17	Q. Okay. And that -- so it was in front of the	12:30:03
18	examiner, the examiner had the opportunity to	12:30:06
19	review it just as you did; is that -- is that	12:30:08
20	right?	12:30:13
21	A. Yes.	12:30:24
22	Q. And the examiner never rejected Claim 11 or	12:30:27

1	the claims that led up to it over Yamada. Are	12:30:34
2	you aware of that?	12:30:38
3	A. Yes, I believe I am aware of that.	12:30:45
4	Q. Okay. So if the examiner didn't reject	12:30:47
5	Claim 11 for obviousness, why should the	12:30:57
6	examiner's opinion -- or the examiner's	12:31:06
7	judgment as to obvious be supplanted by yours?	12:31:09
8	MS. PETERSON: Objection to form.	12:31:15
9	A. I don't know the background of the examiner,	12:31:17
10	and we each come to our various opinions. I	12:31:26
11	would say this is my opinion about something	12:31:32
12	that is obvious based on a skill of the	12:31:34
13	art -- based on someone skilled in the art.	12:31:41
14	Actually, I don't know who examined	12:31:45
15	this, and I -- I don't know if the examiner	12:31:47
16	would be considered a person of skill in the	12:31:51
17	art based on our definition. I don't know.	12:31:57
18	BY MR. GIUNTA:	12:32:07
19	Q. Okay. If we're -- I'm still on page -- I'd	12:32:07
20	like to go to PDF page 153 of your	12:32:10
21	declaration.	12:32:13
22	A. 153. Okay.	12:32:18

1	Q. And there you start to talk about the	12:32:32
2	combination of the PepTalk Presentation and	12:32:34
3	Yamada. Right?	12:32:36
4	A. Yes.	12:32:42
5	Q. And in paragraph 367 on the next page, you say	12:32:42
6	that Yamada discloses an antibody of Formula	12:32:46
7	IV. Correct?	12:32:51
8	MS. PETERSON: Objection to form.	12:32:54
9	A. Yes.	12:32:55
10	BY MR. GIUNTA:	12:33:00
11	Q. Okay. And we're on that front -- that PDF	12:33:01
12	page 3 of Yamada, you can see that there's a	12:33:04
13	diagram and that the diagram shows a series of	12:33:15
14	reactions. And this is on -- this is on the	12:33:17
15	face of the patent publication. Are you with	12:33:24
16	me there?	12:33:26
17	A. Yes.	12:33:26
18	Q. Yeah. So this is Exhibit Tumey 6, which is	12:33:27
19	exhibit -- IPR Exhibit 1009.	12:33:32
20	So on the face of the patent, there's	12:33:35
21	diagram -- that diagram is also Figure 2 of	12:33:37
22	the patent, so you refer to it as Figure 2.	12:33:39

1	But this "Reaction (4)," which is on	12:33:45
2	the right-hand side, leads to something -- the	12:33:47
3	Formula IV -- it's named Formula IV, and	12:33:51
4	that's -- is that what you're referring to	12:33:54
5	there in paragraph 367 of your declaration,	12:34:01
6	that Formula IV?	12:34:04
7	A. Yes, although that Formula IV is recounted	12:34:05
8	multiple times --	12:34:08
9	Q. Right.	12:34:09
10	A. -- through Yamada.	12:34:10
11	Q. Right. Yeah.	12:34:11
12	So when you -- when you mention it	12:34:12
13	being recounted multiple times, is it	12:34:13
14	recounted differently each time, or is it --	12:34:16
15	is it -- is it all the same Formula IV?	12:34:20
16	A. To my recollection it's all the same Formula	12:34:29
17	IV, but different areas go into different	12:34:31
18	levels of detail about the elements of	12:34:33
19	Formula IV, so L1-b, and so on.	12:34:37
20	Q. Okay. In paragraph 368 of your declaration	12:34:40
21	you point to L1, and you say that it can be C1	12:34:51
22	or C1-Lb, and you're citing there to	12:34:56

1	paragraph 616 through 624 of Exhibit 1009	12:35:02
2	here.	12:35:16
3	And then I'll give you the PDF page.	12:35:16
4	A. Yes, I'm there. It's --	12:35:31
5	Q. 96.	12:35:32
6	A. 96, yeah.	12:35:33
7	Q. Okay. So if you look, there's these	12:35:35
8	paragraphs 616 through 624 which you cited to	12:35:50
9	for that Formula IV.	12:35:59
10	And if we go for a simpler part of	12:36:08
11	this, 620 says -- well, 619 is talking about	12:36:11
12	Lb. Right? So you have this Formula IV, it's	12:36:19
13	got L1, Yamada breaks L1 down into two	12:36:28
14	potential components, one of which is C1-Lb	12:36:33
15	and the other which is C1, and those are both	12:36:37
16	exemplified in paragraph 616 of Yamada.	12:36:39
17	Correct?	12:36:43
18	A. Yes.	12:36:44
19	MS. PETERSON: Objection to form.	12:36:44
20	BY MR. GIUNTA:	12:36:49
21	Q. And it says wherein Lb is a divalent group.	12:36:49
22	Do you see that?	12:36:53

1	A. Yes.	12:36:54
2	Q. Okay. And does that mean that it's connected	12:36:55
3	to two things; in other words, Lb is not a	12:36:59
4	terminal group?	12:37:01
5	A. Correct.	12:37:06
6	Q. And then it says, "C1 is a bioorthogonal	12:37:06
7	functional group, or a group other than a	12:37:18
8	bioorthogonal functional group."	12:37:20
9	Do you see that?	12:37:22
10	A. Yes.	12:37:23
11	Q. And then 619, it says, "The soluble protein or	12:37:23
12	salt thereof according to 19" -- which appears	12:37:33
13	to refer to paragraph 616 in terms of the	12:37:36
14	numbering scheme -- "wherein Lb is represented	12:37:41
15	by the following (Lb prime)," and it's got a	12:37:47
16	structure there.	12:37:52
17	It's got a structure that has some	12:37:53
18	substituents that can be varied. Do you see	12:37:56
19	that?	12:37:58
20	A. Yes.	12:38:01
21	Q. That structure Lb prime?	12:38:01
22	Now, it says that an Lb prime -- and	12:38:10

1	then let's go to where... you have that in	12:38:18
2	paragraph -- the next page in paragraph 368 in	12:38:19
3	your declaration.	12:38:22
4	A. Yes.	12:38:29
5	Q. Okay. And you essentially replicate what's	12:38:29
6	here in the -- in the document itself with	12:38:33
7	regard to what these groups can be. So Lb	12:38:36
8	prime is the structure, and it says what the	12:38:41
9	structure can be varied to be.	12:38:49
10	So if we just take this one component	12:38:50
11	of the structure, it says, "P is any integer	12:38:52
12	of 0 to 10."	12:38:56
13	Do you see that?	12:38:59
14	A. Yes.	12:39:00
15	Q. Okay. And so you agree with me, then, that if	12:39:00
16	you -- all else being exactly the same,	12:39:05
17	identical, in a molecule, and you're only	12:39:08
18	going to vary P, that there would be 11	12:39:14
19	possibilities, at least for P, assuming you	12:39:19
20	made -- assuming the group was the same	12:39:27
21	everywhere, P0 to 10, that's 11 possibilities.	12:39:28
22	Correct?	12:39:33

1	MS. PETERSON: Objection to form.	12:39:35
2	A. Yes.	12:39:36
3	BY MR. GIUNTA:	12:39:36
4	Q. And if you go to 621, there's another variable	12:39:37
5	that's similarly labeled Q, and its ending	12:39:43
6	integer 0 to 10. Correct?	12:39:48
7	A. Yes.	12:39:50
8	Q. Okay. And that's -- again, that's 11	12:39:50
9	possibilities for Q. Correct?	12:39:53
10	A. Yes.	12:39:56
11	Q. And then 622, it says that "X," which is in	12:39:56
12	the middle of that Lb prime structure, there's	12:40:09
13	a carbon atom, a nitrogen atom, or a single	12:40:14
14	bond. Do you see that?	12:40:18
15	A. Yes.	12:40:22
16	Q. And it gives some constraints around that, but	12:40:23
17	for now, is it fair to say that if you're only	12:40:26
18	varying X, all else being equal in the group,	12:40:32
19	then that could be at least three things --	12:40:36
20	A. Yes.	12:40:37
21	Q. -- three possibilities. Right?	12:40:38
22	And so I did ask if you have a	12:41:07

1 calculator. I can represent math to you and 12:41:10
2 you can question it or you can check it, 12:41:12
3 whatever you want to do. 12:41:14
4 But if we said 11 possibilities for 12:41:15
5 P, 11 possibilities for Q, and three 12:41:17
6 possibilities for X, that's -- 11 times 11 12:41:20
7 times 3 is 363. And I can represent that to 12:41:25
8 you. You can check it if you want to open 12:41:31
9 your calculator. 12:41:33
10 A. Yes, I believe you. 12:41:34
11 Q. And that's only for this one Lb group. Right? 12:41:40
12 And we've got more to Formula IV than that. 12:41:45
13 Correct? 12:41:54
14 Because we've kind of glossed over 12:41:54
15 the fact that when Lb is present, C1 is 12:41:56
16 present, and C1 can be a bio-orthogonal 12:42:02
17 functional group or a group that's not a 12:42:07
18 bio-orthogonal functional group. I mean, 12:42:08
19 that's kind of another way of saying C1 can be 12:42:12
20 anything. Right? 12:42:14
21 MS. PETERSON: Objection to form. 12:42:16
22 A. That is correct. 12:42:22

1	BY MR. GIUNTA:	12:42:28
2	Q. So I -- you know, I'd like to see if we can	12:42:28
3	get some additional constraints on that, but	12:42:31
4	at this point in time, just varying this Lb	12:42:38
5	constituent which is, you know, part of that	12:42:42
6	group L1 Formula IV, we're up to 363 possible	12:42:44
7	combinations. Right?	12:42:54
8	A. Yep.	12:42:56
9	Q. So if you really wanted to go to the most	12:42:56
10	fixed universe of C1 that you can, because it	12:43:12
11	seems like you have this scheme -- and I'm not	12:43:15
12	trying to hide any of your analysis from you;	12:43:18
13	I'm just trying to keep this questioning as	12:43:20
14	simple as I can.	12:43:21
15	On PDF page 158 you have this	12:43:22
16	Option 1 scheme that you have -- you have this	12:43:28
17	sort of flowchart that goes from Formula IV,	12:43:31
18	and it breaks down the components, the first	12:43:35
19	one being the one we're discussing now in	12:43:39
20	terms of 363 options, at least for the Lb	12:43:41
21	piece of it.	12:43:45
22	And you go from there to two of the	12:43:45

1	compounds of Claim 11 -- or two of the	12:43:53
2	structures of Claim 11. Correct?	12:43:58
3	MS. PETERSON: Objection to form.	12:44:01
4	A. Yes.	12:44:02
5	BY MR. GIUNTA:	12:44:02
6	Q. All right. Now, for the C1 group, you've, I	12:44:03
7	think, narrowed -- or you do cite the part	12:44:14
8	where it can be anything, but you also cite	12:44:16
9	627. And if you go to Exhibit 1009, that	12:44:20
10	paragraph 627, nearby where we were, there are	12:44:31
11	23 structures, some of which are generic --	12:44:44
12	sorry, 21 structures, some of which are	12:44:59
13	generic.	12:45:01
14	Do you see those, paragraph 27?	12:45:03
15	A. Yes.	12:45:06
16	Q. Okay. And so in the first row there's a thiol	12:45:06
17	group, there's a azide group, and then there's	12:45:22
18	two other potential bio-orthogonal groups but	12:45:28
19	they have the Rs, the variable substituents.	12:45:33
20	Correct?	12:45:38
21	A. Yes.	12:45:38
22	Q. And then the paragraphs that follow 628, R1 can	12:45:39

1	be -- I guess it looks like it's an R1f	12:45:54
2	there -- "can be one or a plurality of R1g, and	12:45:57
3	one of a plurality of R1h."	12:46:05
4	And so here even if we assume one	12:46:12
5	pairing of each of these at 21 structures as	12:46:16
6	that C1 group, and if we're connected to Lb,	12:46:22
7	then we're pretty quickly in the range of,	12:46:25
8	like, 6- or 7,000 structures. Right?	12:46:30
9	A. Yes.	12:46:34
10	Q. Okay. Now, for that C1 group, your flowchart	12:46:35
11	kind of takes it down, and at the end there	12:46:44
12	you say, C1 is norbornene and P is 0. And	12:46:48
13	then you also say C1 is azide and P is 1.	12:46:55
14	Right? Do you see those two?	12:46:59
15	A. Yes.	12:47:06
16	Q. Okay. This is on paragraph -- this is on	12:47:06
17	page 158 of your dec, paragraph 371.	12:47:11
18	A. Yep.	12:47:15
19	Q. And so for what -- why would a person of	12:47:16
20	ordinary skill in the art choose the	12:47:18
21	norbornene as the C1 group?	12:47:22
22	Because it doesn't look like you give	12:47:26

1	any particular reason why in your declaration,	12:47:28
2	and I'm wondering, did you -- why didn't you	12:47:34
3	include a reason to choose norbornene from	12:47:37
4	among at least the group of 21 bio-orthogonal	12:47:43
5	functional groups that can be C1?	12:47:50
6	A. Well, I think there's two different	12:47:53
7	questions. I'm not sure which one you're	12:47:55
8	asking. You're asking why would somebody	12:47:56
9	choose norbornene, or why did I not include	12:47:59
10	an explanation on why somebody would include	12:48:01
11	norbornene? Which one of those are you	12:48:04
12	asking me?	12:48:06
13	Q. Let's start with the first one, why would	12:48:07
14	somebody choose norbornene?	12:48:09
15	A. It is a click chemistry functional group that	12:48:11
16	reacts very rapidly with a reaction partner.	12:48:18
17	I've forgotten the name of it here, but	12:48:29
18	basically it's a diene, so it undergoes	12:48:33
19	what's called a Diels-Alder reaction. And	12:48:36
20	it's a -- it has become a very well-known	12:48:41
21	bio-orthogonal click reaction over the last,	12:48:48
22	say, eight to ten years.	12:48:51

1	And so aside from it being very	12:48:55
2	rapid and bio-orthogonal, another feature	12:49:00
3	that is beneficial to that and has become	12:49:04
4	known as beneficial in the last, say, five or	12:49:16
5	ten years has been the fact that it is more	12:49:18
6	polar, or the resulting product is more polar	12:49:21
7	than some of the traditional click	12:49:24
8	chemistries, in particular the azide DBCO	12:49:34
9	chemistry.	12:49:37
10	Q. Okay. But you don't -- you don't say that in	12:49:38
11	your declaration. Right?	12:49:40
12	A. To my recollection, no, I did not.	12:49:42
13	Q. Okay. And you don't cite any reference for	12:49:46
14	that proposition in your declaration to	12:49:49
15	explain that -- teaching toward norbornene.	12:49:51
16	Right?	12:49:54
17	A. No, I do not.	12:49:54
18	Q. And so we don't know -- what we don't have is	12:49:59
19	a prior art reference with that teaching	12:50:05
20	toward norbornene. Correct? At least not in	12:50:07
21	your declaration?	12:50:10
22	MS. PETERSON: Objection to form.	12:50:10

1	A. Correct.	12:50:14
2	BY MR. GIUNTA:	12:50:15
3	Q. Now, for the azide group, that's -- you're	12:50:15
4	relying on the PepTalk Poster for that	12:50:38
5	portion. Right? Is that...	12:50:42
6	A. In terms of selecting azide from among the	12:50:49
7	list of possible bio-orthogonal functional	12:50:53
8	groups?	12:50:57
9	Q. Right.	12:50:57
10	A. Whether I'm relying on the PepTalk Poster or	12:51:08
11	the presentation or the patent itself I'm not	12:51:11
12	really sure because they all specifically	12:51:18
13	disclose azide.	12:51:19
14	Q. Yeah, so we can put aside the patent. Because	12:51:20
15	you're talking about the Canadian publication.	12:51:24
16	Is that what you're referring to?	12:51:27
17	A. Yes.	12:51:29
18	Q. Let's put that one aside for now. Let's talk	12:51:29
19	about the PepTalk Poster, the PepTalk	12:51:34
20	Presentation. So, that, you're saying, would	12:51:39
21	be your reason to use azide in terms of the	12:51:41
22	references you've disclosed.	12:51:44

1	A. Yes.	12:51:45
2	Q. Because the -- I don't see anything in your	12:51:46
3	declaration that teaches a desire for azide	12:51:52
4	more generally, background journal articles or	12:51:56
5	anything like that, so -- you know, so what	12:51:58
6	you're relying on here is the poster and the	12:52:01
7	presentation for that azide group in addition	12:52:05
8	to, I guess, its disclosure in Yamada.	12:52:08
9	Correct?	12:52:10
10	MS. PETERSON: Objection to form.	12:52:13
11	A. Yes.	12:52:23
12	BY MR. GIUNTA:	12:52:39
13	Q. So if you go back to that section of Yamada,	12:52:39
14	there -- it goes on with another group that	12:52:47
15	you have here. So for your B group in your	12:52:49
16	Option 1 on page 158 --	12:52:57
17	A. Uh-huh.	12:53:03
18	Q. -- you cite -- in your flowchart, you cite 631	12:53:04
19	to 639, those paragraphs, and they have this	12:53:07
20	structure with a Y and a Z in it. Do you see	12:53:11
21	that?	12:53:13
22	A. Yes.	12:53:18

1	Q. Okay. And so that structure with a Y and a Z	12:53:18
2	says that Y can be one of four things: NH	12:53:26
3	oxygen, CH ₂ , for this other group with more	12:53:32
4	substituents. Do you see that?	12:53:40
5	A. Yes.	12:53:41
6	Q. And it's got this V and V prime in it. Right?	12:53:42
7	A. Yes.	12:53:48
8	Q. And V and V prime can be the same or different	12:53:48
9	from each other and are -- and NH oxygen CH ₂ or	12:53:53
10	single bond. Correct?	12:53:58
11	A. Yes.	12:54:02
12	Q. And there's also this S group on a carb in	12:54:02
13	between V and V prime, and that S group can be	12:54:09
14	any integer of 0 to 10. Correct?	12:54:12
15	A. Yes.	12:54:16
16	Q. So is it fair to say, then, that this	12:54:16
17	functional group, the options for this Y-Z	12:54:22
18	functional group, are in the hundreds?	12:54:28
19	A. Yes.	12:54:34
20	Q. Okay. And if you combine that with the about	12:54:34
21	7,000 options we had for the L1 group, is it	12:54:40
22	fair to say that you're in the hundreds of	12:54:42

1	thousands, if not millions, for the options	12:54:46
2	that are disclosed in Yamada?	12:54:48
3	A. Yes. And that's very common. That's the way	12:54:55
4	Markush structures work, and that's the way	12:54:59
5	that virtually all chemistry-related patents	12:55:01
6	work. They cover in the millions to billions	12:55:04
7	to even tens of billions of compounds.	12:55:07
8	Q. Now, is it -- is it your opinion that all of	12:55:10
9	the millions of compounds disclosed in Yamada	12:55:13
10	would be obvious if they weren't specifically	12:55:21
11	claimed in a later patent?	12:55:25
12	MS. PETERSON: Objection to form.	12:55:27
13	Outside the scope of his declaration.	12:55:31
14	A. No.	12:55:38
15	BY MR. GIUNTA:	12:55:40
16	Q. Okay. And which ones would not be obvious?	12:55:40
17	A. Normally when we do kind of a patentability	12:55:49
18	analysis we look for lack of anticipation, so	12:55:53
19	it -- you know, for example, if I substitute	12:56:03
20	some compound with a methyl group and I get a	12:56:06
21	compound that has very similar properties,	12:56:12
22	then I would say that's usually nonobvious --	12:56:18

1 or, sorry, I would say that's obvious. I 12:56:23

2 would say that's obvious. 12:56:25

3 However, if I make a change -- add 12:56:29

4 this methyl group and I get some 12:56:31

5 extraordinary change in potency selectively, 12:56:33

6 something like that, I might say that that is 12:56:39

7 nonobvious or was not predictable based on 12:56:43

8 what I had previously discovered. 12:56:47

9 So usually you're looking at either 12:56:54

10 significant unexpected activity, or maybe 12:57:03

11 you're looking -- maybe, like in this case, 12:57:10

12 you're looking at some really obscure 12:57:13

13 combination, P equals 12, X equals 11, and -- 12:57:20

14 I don't know. Whereas the compounds that are 12:57:24

15 in Claim 11 are very simple derivations of 12:57:27

16 what's reported here. 12:57:36

17 Yes, there are lots and lots of 12:57:37

18 compounds claimed, but they're very -- yeah, 12:57:38

19 they're very simple derivations of what is 12:57:47

20 already disclosed in Yamada in the examples. 12:57:50

21 Q. So then I guess within this group of 12:57:53

22 bio-orthogonal substituents disclosed in 12:58:12

1	paragraph 627, are those groups similar to	12:58:16
2	each other or simple derivations from each	12:58:21
3	other?	12:58:25
4	A. Those are all similar to one another, and I	12:58:32
5	would anticipate that they would have similar	12:58:34
6	properties, although -- they would have	12:58:39
7	similar reactivity, I should say. They	12:58:45
8	should have similar reactivity, but not	12:58:48
9	necessarily similar biological properties.	12:58:50
10	Q. So the relationship between these would be	12:58:56
11	similar to the methyl-ethyl relationship that	12:58:59
12	you --	12:59:02
13	A. Yes.	12:59:03
14	Q. -- that you analogize to?	12:59:03
15	A. Yes. As long as we're leaving biological	12:59:05
16	activity aside, then all of those functional	12:59:08
17	groups that are listed here would be, I would	12:59:14
18	say, just trivial differences from one	12:59:16
19	another.	12:59:19
20	Q. So -- but why would we leave the potential	12:59:19
21	biological activities aside?	12:59:25
22	A. Because biological activity is not really	12:59:27

1	encompassed in these claims. You need a	12:59:32
2	payload on board before you can meaningfully	12:59:35
3	talk about biological activity.	12:59:37
4	Q. So you're talking about norbornene, and you	12:59:41
5	were talking about how it engages in this	12:59:45
6	quick, sort of, reaction. Is it true that it	12:59:47
7	can engage in that sort of a quick reaction at	12:59:51
8	certain places in the immunoglobulin antibody	12:59:54
9	itself?	13:00:03
10	A. No.	13:00:10
11	Q. Okay. So there's no reaction between that	13:00:11
12	norbornene and, you know, assisting sulfurs	13:00:16
13	and assisting amino acid?	13:00:23
14	A. Not a meaningful one, and that's why we call	13:00:28
15	it a bio-orthogonal functional group is	13:00:32
16	because it doesn't significantly react with	13:00:34
17	natural amino acid residues.	13:00:36
18	Q. So you -- in your flowchart, you say -- this	13:00:39
19	Option 1 flowchart, you say that Z equals H.	13:00:55
20	That's from among an oxygen atom, a sulfur	13:01:10
21	atom, a hydrogen atom. Right? Among four	13:01:16
22	options, you say Z equals H. Correct? So	13:01:20

1	it's CH ₂ .	13:01:22
2	A. Yes.	13:01:22
3	Q. Right?	13:01:24
4	A. Yes.	13:01:24
5	Q. And then from among the options we just	13:01:25
6	discussed for Y, which were hundreds, you	13:01:28
7	chose oxygen. Just -- Y is oxygen. Correct?	13:01:33
8	A. Yes.	13:01:39
9	Q. Okay. So Y is oxygen here, and you've chosen	13:01:39
10	that there -- even though in that lower Y	13:01:52
11	group, the one that can be substituted, you	13:01:57
12	could have had oxygens in there. Correct?	13:02:00
13	A. Yes.	13:02:06
14	Q. Okay. And so is there a reason why you	13:02:06
15	would -- you would choose oxygen at Y when it	13:02:09
16	can be just oxygen as opposed to going down to	13:02:15
17	that formula B-2 and making the -- making that	13:02:18
18	being the oxygen there?	13:02:25
19	A. Instead of -- so right now the oxygen is V1.	13:02:31
20	Right?	13:02:35
21	Q. Right.	13:02:36
22	A. And so you're asking why would I make V1 the	13:02:37

1	oxygen and not Y the oxygen; is that correct?	13:02:42
2	Q. Let me back up from that.	13:02:47
3	So I'm in your flowchart. Okay?	13:02:49
4	A. Uh-huh.	13:02:51
5	Q. And in your flowchart, there's a box that says	13:02:51
6	Y is oxygen. Okay?	13:02:54
7	A. Y -- which part of the flowchart are you in?	13:03:01
8	Q. I'm on page --	13:03:06
9	A. Are we on page --	13:03:07
10	Q. 158, PDF.	13:03:09
11	A. Oh.	13:03:10
12	MS. PETERSON: I'm not sure which	13:03:10
13	flowchart you're talking about either because	13:03:12
14	there's two flowcharts.	13:03:13
15	MR. GIUNTA: That's right, Option 1	13:03:14
16	flowchart, PDF page 158.	13:03:16
17	A. Okay. I was looking at the wrong flowchart.	13:03:20
18	Okay. Okay.	13:03:23
19	Okay, so Y is oxygen. Now I'm	13:03:30
20	following you. Okay.	13:03:32
21	BY MR. GIUNTA:	13:03:33
22	Q. So Y can be oxygen, Y can be also this B-2	13:03:33

1 structure which can also itself include 13:03:37

2 oxygen. And so my question was, what reason 13:03:42

3 would somebody -- a person of ordinary skill 13:03:44

4 in the art choose to have Y the oxygen not 13:03:47

5 only from among the other options of NH, CH₂, 13:03:49

6 but also from among everything encompassed by 13:03:53

7 formula B-2? 13:03:57

8 A. Well, when we make these kind of Markush 13:04:03

9 structures we often end up with nonsensical 13:04:05

10 things that are -- we end up -- okay, Y can 13:04:11

11 be oxygen, but -- okay, we can't really 13:04:18

12 attach that directly to some of those click 13:04:22

13 chemistry functional groups, so it -- I guess 13:04:26

14 maybe the simple way to say it would be 13:04:30

15 synthetic tractability. 13:04:32

16 There are certain molecules you can 13:04:34

17 make easily and other molecules that would be 13:04:36

18 either impossible to make or, even if you 13:04:42

19 could make them, would be unstable. 13:04:44

20 And so somebody kind of skilled in 13:04:48

21 the art would look at this and say, well, 13:04:51

22 what's kind of a relatively simple combination 13:04:53

1	of things that I can tractably make and that	13:04:57
2	would be stable. And so this would be -- this	13:05:01
3	would definitely be one of those.	13:05:08
4	You know, I think scientists often	13:05:10
5	operate by, kind of, Occam's razor. You know,	13:05:12
6	yes, that P function could be 0 to 11 or 0 to	13:05:15
7	10, you know. Right? But why in the world	13:05:19
8	would I make it 7, 8, or 9, you know; let's	13:05:22
9	just keep that either 0 or 1. You know, let's	13:05:25
10	keep things simple unless there's a reason to	13:05:28
11	make it complicated.	13:05:30
12	Q. And if that were true, then why would Yamada	13:05:31
13	be disclosing 7, 8, and 9?	13:05:35
14	A. I don't know.	13:05:46
15	Q. So --	13:05:46
16	A. I mean, we try to -- we can't make every	13:05:49
17	single combination. We try to keep things	13:05:51
18	simple unless we have to.	13:05:54
19	And remember that the end goal of	13:05:56
20	Yamada is making a biologically active drug,	13:06:00
21	something that has therapeutic potential, and	13:06:04
22	so on, so you want to cast as broad of a net	13:06:08

1 as you can because you don't know what's 13:06:11
2 going to be biological tractable, but until 13:06:13
3 you start doing that biology, I'm going to 13:06:16
4 keep things simple. 13:06:18

5 Q. Okay. But even among the options for Y, 13:06:21
6 would -- is there any reason to think that 13:06:24
7 having an NH or a CH₂ would be impossible or 13:06:26
8 unstable in these proposed structures? 13:06:30

9 A. An NH₂, yes, that would be impossible. 13:06:39

10 Q. Sorry, let me -- 13:06:42

11 A. CH₂? 13:06:46

12 Q. The things disclosed there, NH or CH₂, yeah. 13:06:47

13 A. Okay. So choosing among a CH₂, an oxygen, or 13:06:50
14 an NH, the NH would be far more synthetically 13:06:55
15 challenging, a CH₂ would be more hydrophobic. 13:06:59
16 So oxygen at that position would actually be 13:07:03
17 a -- my intuition would tell me, would lead 13:07:08
18 me towards oxygen. Yes. 13:07:16

19 Q. Even though they're synthetically challenging, 13:07:17
20 would they be impossible or unstable, the NH 13:07:20
21 and the CH₂? 13:07:22

22 A. The CH₂ would not be synthetically 13:07:24

1	challenging. That would have problems in	13:07:27
2	terms of its overall properties. It could be	13:07:29
3	more hydrophobic and so on.	13:07:31
4	The NH could be more -- would be more	13:07:33
5	synthetically challenging. Would it be	13:07:36
6	impossible to make? I can't say one way or	13:07:38
7	the other.	13:07:45
8	Q. Okay. But you're not saying that Yamada	13:07:46
9	disclosed something that even at its simplest	13:07:51
10	form, if any -- if Y were NH, that it would be	13:07:54
11	impossible? Is that -- is that what you're	13:07:56
12	saying?	13:07:58
13	A. Right, no, I'm not saying that it is	13:08:00
14	impossible, no.	13:08:02
15	Q. Now, S can be -- in this structure B-2, you	13:08:03
16	can vary S. Right? So S can be any integer	13:08:09
17	from 0 to 10, so it's extending the	13:08:13
18	hydrocarbon chain. Right?	13:08:15
19	A. Which S? Where is S?	13:08:17
20	Q. It's really small. It's between V and	13:08:20
21	V prime.	13:08:25
22	A. We're not -- okay, are you moving on to a	13:08:25

1	different diagram? Because Option 1 doesn't	13:08:28
2	have V and V prime anywhere.	13:08:29
3	Q. Oh, my question -- yeah, my question is, so	13:08:32
4	you have -- you have oxygen as Y in Option 1.	13:08:34
5	Right?	13:08:39
6	A. Yes.	13:08:40
7	Q. And so I asked you about why it was, and you	13:08:40
8	told me because it was a simple option needs	13:08:42
9	to make, not impossible, and so on.	13:08:44
10	And I guess the first question I	13:08:47
11	would have is, is the oxygen itself	13:08:50
12	synthetically challenging or no? When Y is	13:08:52
13	oxygen, is that synthetically challenging?	13:08:57
14	A. No.	13:09:04
15	Q. Why not?	13:09:04
16	A. The nice thing is, with oxygen, when it's	13:09:08
17	contained in an ether like that, is that it	13:09:11
18	is nonreactive. I would say it's -- a more	13:09:13
19	technical thing would be non-nucleophilic,	13:09:21
20	which means I could use lots of different	13:09:25
21	reaction conditions and expect that it's	13:09:26
22	going to be happy, not be transformed into	13:09:28

1 something else. Yeah. 13:09:34

2 Q. So if that's the case, if you go to B-2 -- so 13:09:35

3 now I'm asking that question. So you said Y 13:09:43

4 is oxygen. My question is, Y can also be B-2. 13:09:46

5 And if you go to B-2, V and V prime can each 13:09:49

6 be the same options; NH, oxygen, CH₂. 13:09:53

7 So my question is, why wouldn't 13:10:00

8 you -- why wouldn't a person of ordinary skill 13:10:01

9 in the art make a B-2 formulation where, you 13:10:03

10 know, V or V prime are oxygen? In other 13:10:08

11 words, you could extend that hydrocarbon chain 13:10:10

12 a little bit within that B functionality. 13:10:13

13 A. I guess the -- I guess the main reason I can 13:10:16

14 think is it goes back again to Occam's razor; 13:10:41

15 I mean, let's keep things simple unless we 13:10:44

16 have a reason for making them complicated. 13:10:46

17 Extending the hydrocarbon chain, having 13:10:48

18 multiple oxygens, I don't know, there's a 13:10:51

19 variety of things you could do, sure, but 13:10:54

20 why? 13:10:56

21 Q. Well, that's really it. So your declaration 13:11:05

22 doesn't give any reasoning like that, right? 13:11:08

1 And you don't give any sources for why a 13:11:10
2 person of ordinary skill in the art would 13:11:12
3 constrain the chemistry in that way. 13:11:13

4 And that's why I'm asking, you know, 13:11:19
5 why -- why would it be constrained in that 13:11:21
6 way? 13:11:23

7 MS. PETERSON: Objection to form. 13:11:23

8 A. Well, again, as a chemist, when I'm taking 13:11:25
9 something, I'm going to make the simplest 13:11:29
10 thing first and see if it works, and then if 13:11:34
11 I have a reason to make something more 13:11:36
12 complicated, then I will make it. 13:11:38

13 And so those constructs that are 13:11:41
14 shown are very simple. In fact, probably 13:11:43
15 just about the simplest permutations that we 13:11:48
16 could do that connects the lysine nitrogen 13:11:51
17 with the bio-orthogonal functional group. 13:11:54

18 So, again, unless there's a 13:12:00
19 biological reason for doing so, I would keep 13:12:06
20 these spacer elements nice and short, nice 13:12:09
21 and simple, synthetically tractable, and so 13:12:11
22 on. 13:12:14

1	BY MR. GIUNTA:	13:12:15
2	Q. Well, if you were going to keep it simple,	13:12:15
3	right, in your Option 1 chart there for this	13:12:30
4	Y-Z structure which is B-1, why would you	13:12:32
5	insert hydrocarbon bonds on either side of the	13:12:38
6	oxygen as opposed to having one on one side or	13:12:44
7	one on the other?	13:12:47
8	A. You mean why not eliminate the hydrocarbon	13:12:52
9	chains and just have the oxygen?	13:12:55
10	Q. Yeah. Or eliminate the oxygen and just have	13:12:57
11	the hydrocarbon chain.	13:12:59
12	A. Well, again, oxygen is beneficial, so	13:13:00
13	incorporating this, it adds an element of	13:13:03
14	polarity which has been known for many years	13:13:07
15	to be beneficial to ADC linkers.	13:13:11
16	Now, why not eliminate the	13:13:16
17	hydrocarbons? At some point we end up with a	13:13:18
18	functional group that is going to be unstable.	13:13:27
19	Actually -- let me think here.	13:13:31
20	I'm looking at the structure in	13:13:33
21	Option 1 -- yeah, yeah. If we look at the	13:13:35
22	oxygen, the ether oxygen in the flowchart	13:13:44

1 diagram in Option 1, so that compound kind of 13:13:48
2 on the right-hand side, halfway down the page, 13:13:53
3 there's really no other place you can move 13:13:59
4 that oxygen. You cannot eliminate either one 13:14:01
5 of the hydrocarbons without the molecule 13:14:05
6 becoming unstable or essentially impossible to 13:14:11
7 make. 13:14:13

8 Q. So -- 13:14:23

9 A. Well, you know, let me -- that -- that's kind 13:14:24
10 of speculation. You know, I'm kind of going 13:14:27
11 out on a limb here. I'm just kind of 13:14:29
12 thinking off the fly so maybe I shouldn't go 13:14:31
13 down that road, but that -- 13:14:33

14 As I am looking at that, to me, 13:14:34
15 that's the obvious place to put the oxygen. 13:14:37
16 My intuition says moving that oxygen anywhere 13:14:40
17 else in that -- in that chain is going to 13:14:43
18 cause major problems. I would want to kind 13:14:46
19 of think through it to -- you know, before 13:14:49
20 really asserting that with confidence. But 13:14:53
21 that's my gut instincts here. 13:14:58

22 Q. Okay. So you have these concerns about 13:15:00

1	stability and then also biological off-target	13:15:03
2	effects of these substitutions for B-1 and	13:15:07
3	B-2. Why don't you have those same concerns	13:15:11
4	for selecting the C group, C1 group, which is	13:15:14
5	part of L1?	13:15:21
6	A. Isn't that the bio-orthogonal group?	13:15:22
7	Q. Well, it is, but there are -- there are	13:15:27
8	options for it.	13:15:29
9	A. Right.	13:15:31
10	Q. So why don't you have the same concerns for	13:15:34
11	the bio-orthogonal group?	13:15:36
12	A. Because as I'm looking -- so we're back in	13:15:49
13	paragraph 627 of Yamada. I don't see any of	13:15:56
14	them that, off the top of my head, would	13:16:26
15	cause a chemical tractability issue. I think	13:16:28
16	they would all -- if you take the norbornene	13:16:36
17	and swap out, say, one of these, they all	13:16:40
18	seem like very reasonable structures,	13:16:47
19	reasonably well-behaved structures,	13:16:49
20	chemically accessible structures.	13:16:53
21	Q. And what about their biology? I mean, do they	13:16:56
22	all have reasonable biological effects?	13:16:59

1 A. Well, we would have no -- there's not 13:17:03
2 biological effects that are discussed within 13:17:06
3 this -- within this patent, so I would have 13:17:09
4 no idea. 13:17:15

5 Q. All right. So there wouldn't be any discussed 13:17:15
6 for norbornene, there wouldn't be any 13:17:18
7 discussed for azide either. Correct? 13:17:20

8 A. I would need to go back through the patent 13:17:30
9 and kind of look for information about 13:17:32
10 biological activity. To my recollection, 13:17:37
11 there was not a lot of that in here. This 13:17:39
12 was really more focused on the preparation of 13:17:41
13 these key intermediates that are used to make 13:17:46
14 ADCs, but -- and that was the focus of my 13:17:48
15 analysis, but I don't -- I wouldn't want to 13:17:51
16 speculate a whole lot about biology. 13:17:54

17 Q. Okay. But if you go to -- now, you said this 13:17:58
18 gets replicated in a few places. If you go to 13:18:03
19 paragraph 1692, which is of the Yamada 13:18:06
20 references, Exhibit 1009, if you go to PDF 13:18:09
21 page 147, there's this paragraph 1692 there. 13:18:15
22 Let me know when you're there. 13:18:26

1	A. Okay. Yes. I'm there.	13:18:27
2	Q. All right. So here is another iteration of	13:18:28
3	Formula IV, if you look at that	13:18:37
4	paragraph 1686. Do you see that?	13:18:41
5	A. Yes.	13:18:41
6	Q. All right. And it says that "L1 is a	13:18:42
7	monovalent group comprising a bioorthogonal	13:18:45
8	functional group or (ii) a monovalent group	13:18:49
9	comprising no orthogonal functional group."	13:18:53
10	Do you see that?	13:18:55
11	A. Yes.	13:18:57
12	Q. And so then if you go down to paragraph 1693,	13:18:57
13	it's got the same C1-Lb combination, L1-1. Do	13:19:09
14	you see that?	13:19:14
15	A. Yes.	13:19:15
16	Q. And if you look at 1694, it says, "Lb is a	13:19:15
17	divalent group." Right?	13:19:26
18	You see that?	13:19:28
19	A. Yes.	13:19:29
20	Q. And then 1696 says, "Examples of the divalent	13:19:29
21	group include a divalent hydrocarbon	13:19:33
22	optionally having a substituent, divalent	13:19:38

1	heterocyclic group optionally having a	13:19:42
2	substituent" [as read]: C double bond O,	13:19:47
3	NR -- I'm sorry, NRa, where Ra indicates	13:19:56
4	hydrogen atom for a substituent, oxygen,	13:20:00
5	sulfur, or C double bond S in a group	13:20:08
6	consisting of any combination of two or more.	13:20:13
7	And then it says [as read]: e.g.,	13:20:17
8	two to eight of these, preferably two to six,	13:20:20
9	and more preferably two or four of these.	13:20:24
10	Do you see that?	13:20:29
11	A. Yes.	13:20:30
12	Q. Yeah. So, there, this L1 group, as defined by	13:20:31
13	that Lb, if you use that two to eight	13:20:40
14	hydrocarbon across those six different options	13:20:46
15	of divalent hydrocarbon, C double bond O, NR,	13:20:50
16	so on, to the C double bond S, if you have	13:20:56
17	eight links in the chain and you have six	13:20:59
18	options to mix and match there, you're looking	13:21:03
19	at six to the eighth power, you're looking at	13:21:08
20	like 1.7 million of options at that one Lb	13:21:12
21	variable. Right?	13:21:16
22	MS. PETERSON: Objection to form --	13:21:18

1	BY MR. GIUNTA:	13:21:18
2	Q. You can check my math.	13:21:19
3	A. Let me read that paragraph just a second.	13:21:25
4	I'm trying to grasp what it's saying.	13:21:27
5	Q. Sure. Okay.	13:21:30
6	A. Okay. So, yes, there's lots of combinations	13:22:01
7	there, and that last clause, "and a group	13:22:06
8	consisting of a combination of two or	13:22:11
9	more" --	13:22:14
10	Q. Uh-huh.	13:22:14
11	A. -- yes, that's just kind of saying, okay,	13:22:15
12	yeah, you could combine these in various	13:22:19
13	ways. That's not saying that that	13:22:22
14	combination is a preferred version of this.	13:22:23
15	Q. Right. So -- but that -- again, if you --	13:22:33
16	even if you're talking about the Lb group	13:22:42
17	which, you know, in the other iteration was	13:22:47
18	some other number, right, we're talking about	13:22:50
19	a potential for 1.7 million options here, just	13:22:53
20	this one group. Right?	13:22:56
21	MS. PETERSON: Objection to form.	13:22:59
22	Objection to scope.	13:23:03

1	A. Yes.	13:23:07
2	BY MR. GIUNTA:	13:23:07
3	Q. And then at paragraph 627 that lists the 21	13:23:07
4	bio-orthogonal groups that we looked at,	13:23:13
5	that's not all of the bio-orthogonal groups	13:23:14
6	that exist. Right? There's other ones	13:23:18
7	somewhere in the literature?	13:23:20
8	A. That's -- yes, I would not view that list as	13:23:23
9	all-encompassing.	13:23:30
10	Q. Right. So then, you know, when C1 in	13:23:32
11	paragraph 1692 talks about it more broadly	13:23:39
12	than limiting it to those structures, and then	13:23:42
13	you wind up with a lot more combinations.	13:23:44
14	Right?	13:23:46
15	A. There are lots and lots of combinations, yes.	13:23:53
16	Q. Yeah. So, again, for Option 1, you know, you	13:23:55
17	have this one set of things. Now, why would	13:24:03
18	somebody choose Option 1 over Option 2? Are	13:24:06
19	you trying to say that all roads will lead to	13:24:10
20	the same place, or are you saying there's a	13:24:13
21	reason to choose what you have as Option 1 on	13:24:15
22	page -- PDF page 159 Option 2 versus Option 1	13:24:18

1	there?	13:24:24
2	MS. PETERSON: Objection to form.	13:24:25
3	A. This is showing that there are two different	13:24:35
4	ways to analyze that Markush structure and	13:24:40
5	arrive at the two compounds of Claim 11.	13:24:47
6	And so kind of going back to your	13:24:51
7	analysis of all of these, you know, millions	13:24:54
8	of different permutations, some of the	13:25:00
9	permutations are actually identical within	13:25:03
10	each other, so it becomes kind of a	13:25:05
11	computational nightmare to sort out exactly	13:25:07
12	how many permutations there are because you	13:25:10
13	could define the same compound multiple ways.	13:25:13
14	And so that's kind of what we're	13:25:16
15	getting at here, is that these two compounds	13:25:18
16	of Claim 11 can be arrived at by defining the	13:25:21
17	different terms within Formula IV, different	13:25:29
18	allowable ways, and still arrive at those	13:25:33
19	same structures.	13:25:36
20	MS. PETERSON: Peter, when you're at	13:25:52
21	a good stopping point, can we take another	13:25:54
22	break?	13:25:56

1	MR. GIUNTA: Yeah, why don't we take	13:25:56
2	a quick ten-minute break now.	13:25:58
3	(Off the record at 1:26 p.m.)	13:26:00
4	(Back on the record at 2:02 p.m.)	14:02:28
5	BY MR. GIUNTA:	14:02:32
6	Q. Dr. Tumey, when we left off we were discussing	14:02:33
7	the Yamada reference and the options	14:02:36
8	available.	14:02:46
9	A. Yes.	14:02:46
10	Q. And that we had discussed that there were	14:02:46
11	many, many options available.	14:02:50
12	And you were saying that having an	14:03:10
13	ether oxygen was desirable. And why was that?	14:03:17
14	That was for polarity? What was the reason	14:03:21
15	for that?	14:03:24
16	MS. PETERSON: Objection to form.	14:03:24
17	A. Polarity, yes.	14:03:29
18	BY MR. GIUNTA:	14:03:30
19	Q. And is there a preference, then, for like what	14:03:30
20	position that oxygen would be at for either	14:03:34
21	polarity or for any other purpose?	14:03:36
22	A. Probably not for polarity, but as we	14:03:44

1	discussed, synthetic tractability and	14:03:48
2	stability, like just chemical stability, is a	14:03:53
3	factor.	14:03:58
4	Q. So what would that do in terms of having you	14:03:58
5	position it in one place on the residue versus	14:04:05
6	another?	14:04:09
7	A. Well, for instance, if we -- I'm looking at	14:04:23
8	Option 1 --	14:04:26
9	Q. Uh-huh.	14:04:26
10	A. -- on, I guess it's, page -- PDF page 158.	14:04:28
11	And in that structure that's on the right,	14:04:35
12	halfway down, and so if we move that oxygen	14:04:38
13	to the left, that compound is probably not	14:04:42
14	going to be stable. If we move it to the	14:04:48
15	right, it's not going to be synthetically	14:04:52
16	tractable. At least -- at least not under	14:04:58
17	the current schemes that the -- that are	14:05:00
18	outlined in this patent.	14:05:04
19	And, you know, this is, again, just	14:05:05
20	kind of off the cuff here, so maybe I	14:05:07
21	shouldn't be speculating here. But that's --	14:05:09
22	my intuition is kind of moving the oxygen	14:05:11

1	either to the left or to the right could be	14:05:14
2	problematic here. This seems like the	14:05:16
3	intuitive place to put it as a -- as a	14:05:19
4	chemist.	14:05:22
5	Q. And oxygen -- you're saying, as among the NH	14:05:22
6	and CH ₂ groups, oxygen would be preferred for	14:05:36
7	inclusion in the linker there. Right? Or in	14:05:40
8	the spacer. Right?	14:05:43
9	A. Again, my intuition as a chemist would say,	14:05:45
10	yes, that oxygen would be preferred over NH	14:05:48
11	and CH ₂ . Intuition is wrong sometimes and,	14:05:52
12	you know, there's lots of factors that come	14:05:57
13	into making these things and designing them.	14:05:58
14	But, yeah, that would be my intuition, would	14:06:01
15	be oxygen as preferred over the other two.	14:06:04
16	Q. Okay. But, again, we've established that you	14:06:09
17	didn't cite any source for preferring that	14:06:12
18	oxygen over the other two or anything else.	14:06:15
19	Right?	14:06:17
20	A. That's correct.	14:06:17
21	Q. All right. So Yamada itself -- and you point	14:06:18
22	to this in other places -- beginning on PDF	14:06:27

1	page 223, so that's IPR Exhibit 1009.	14:06:31
2	A. What paragraph again? What page?	14:06:42
3	Q. Page 223 of the PDF.	14:06:43
4	A. Okay.	14:06:50
5	Q. It has a series of one side reaction, the	14:06:50
6	other side product. And if you look at the	14:06:57
7	products that it's forming on pages 223	14:07:00
8	through 228, or even 229 -- 229, those are the	14:07:04
9	examples. Just like the PepTalk Poster, none	14:07:11
10	of these have oxygen -- that ether oxygen in	14:07:18
11	the spacer.	14:07:28
12	A. Correct.	14:07:33
13	Q. Yeah. So if -- and if it were obvious, why	14:07:33
14	wouldn't Yamada do it?	14:07:35
15	MS. PETERSON: Objection to form.	14:07:42
16	A. There are lots and lots of things that are	14:07:43
17	obvious and we're, of course, limited by time	14:07:50
18	and resources to what we can actually test.	14:07:52
19	But in addition to that, as I look	14:07:53
20	at these structures, each of them -- I don't	14:07:56
21	know about each of them, but at least most of	14:08:01
22	them, seem to incorporate another polar	14:08:03

1	feature other than oxygen that suits that	14:08:06
2	purpose.	14:08:10
3	BY MR. GIUNTA:	14:08:16
4	Q. I see. So then there are other options for	14:08:16
5	the polar feature aside from the ether oxygen;	14:08:20
6	is that right?	14:08:23
7	A. Yes.	14:08:27
8	Q. Okay. So what are some of the examples that	14:08:27
9	Yamada gives that have that polar feature?	14:08:29
10	MS. PETERSON: Objection to form.	14:08:34
11	Scope.	14:08:34
12	A. If we look at Example 53, it's page 225.	14:08:38
13	BY MR. GIUNTA:	14:08:46
14	Q. Okay.	14:08:47
15	A. There is a carboxylic acid within that spacer	14:08:47
16	region. That's also a polar element, and	14:08:54
17	that's a feature that sometimes people try to	14:08:58
18	include to add polarity similar to adding	14:09:00
19	that oxygen.	14:09:03
20	Q. Okay. So, presumably, that carboxylic acid	14:09:04
21	option is available within those combinations	14:09:16
22	that were disclosed earlier in the Formula IV	14:09:20

1	compounds, and so -- right.	14:09:23
2	If we think about that Y-Z construct	14:09:27
3	that we had probably some would easily fit in	14:09:29
4	there, and I imagine if we get to the point	14:09:33
5	where, you know, C1 can be bio-orthogonal	14:09:35
6	group or not a bio-orthogonal group, in other	14:09:39
7	words, anything, then we could probably	14:09:42
8	squeeze in a carboxylic acid there as well.	14:09:46
9	So why then would a person choose	14:09:48
10	ether oxygen over carboxylic acid group?	14:09:50
11	MS. PETERSON: Objection to form.	14:09:55
12	A. I guess I -- you know, I don't know. I don't	14:10:12
13	know.	14:10:15
14	BY MR. GIUNTA:	14:10:18
15	Q. So then if you turn back to Option 1, even if	14:10:18
16	you were inclined to select that ether oxygen,	14:10:25
17	you know, would you necessarily be inclined to	14:10:30
18	select all of these options at once, meaning	14:10:34
19	norbornene, the spacer of a hydrocarbon on	14:10:40
20	either side of the ether oxygen, as opposed to	14:10:44
21	creating an ester group or a carboxylic acid	14:10:49
22	group that could be inserted there? What	14:10:53

1	would be the reason for choosing all of them	14:10:56
2	all at once?	14:10:57
3	MS. PETERSON: Objection to form.	14:10:58
4	A. Again, I can't speak to what was in the mind	14:11:09
5	of the folks at Ajinomoto, but when I look at	14:11:11
6	the required elements of the invention of	14:11:19
7	Ajinomoto then I think about, okay, we've got	14:11:30
8	this lysine 248, we've got a bio-orthogonal	14:11:36
9	group, and we've got some sort of a spacer.	14:11:41
10	Again, my intuition would be, let's	14:11:45
11	keep things as simple as possible, so some	14:11:47
12	very short spacer element with a little bit	14:11:50
13	of polarity in it, like an oxygen.	14:11:53
14	And then if I look at all of	14:11:57
15	those -- the list of bio-orthogonal	14:11:58
16	functional groups, norbornene is one of the	14:12:02
17	most well-validated of the click chemistry	14:12:06
18	functional group.	14:12:11
19	So not all of those that were listed	14:12:12
20	as possibilities for the bio-orthogonal group	14:12:14
21	have equal support in the literature and in,	14:12:20
22	kind of, development history, so norbornene	14:12:27

1 along with azide DBCO would be really top of 14:12:34
2 the list for me so it would be one of the 14:12:37
3 first ones I would try. 14:12:39

4 BY MR. GIUNTA: 14:12:42

5 Q. There's another structure inside of Claim 11. 14:12:42

6 There's a middle structure that does not have 14:13:12

7 that ether oxygen in it. Why would that -- if 14:13:14

8 there were a motivation to choose the ether 14:13:18

9 oxygen, why would that structure, the second 14:13:20

10 structure in Claim 11, have been obvious? 14:13:25

11 A. I mean, this is just a structure where we 14:13:30

12 essentially eliminate the spacer element. 14:13:32

13 So, you know, I mean, Occam's razor, again, 14:13:36

14 teaches unless there's a reason for 14:13:40

15 incorporating an element let's not even 14:13:43

16 include it, so why even include the spacer 14:13:45

17 element. 14:13:47

18 So, again, to me, intuitively I'd 14:13:48

19 say, yeah, let's just eliminate that spacer 14:13:50

20 element and attach the norbornene directly to 14:13:53

21 the lysine 248. That seems like a very 14:13:56

22 straightforward permutation to try given 14:14:00

1	what's disclosed in Yamada.	14:14:06
2	Q. And then you -- when you say it's	14:14:10
3	straightforward to try, is there anything that	14:14:16
4	would make you expect that to succeed?	14:14:19
5	A. It's a little bit hard for me to know what	14:14:29
6	success means here. Yeah, could you -- could	14:14:31
7	you define what you mean by "succeed"?	14:14:40
8	Q. Yeah. Part of one of your obvious	14:14:42
9	standards -- a few of them, actually, included	14:14:43
10	reasonable expectation of success. And I can	14:14:46
11	point you back to it.	14:14:49
12	A. Okay, yes.	14:14:50
13	Q. I think that was paragraph 28. 29. So	14:15:01
14	paragraph 29, which is PDF 17 of your	14:15:04
15	declaration, and your declaration being	14:15:05
16	Exhibit IPR 1002.	14:15:07
17	A. Okay. So, basically, what standard of	14:15:21
18	success did I use for these -- for the	14:15:23
19	obviousness analysis, is kind of what you're	14:15:27
20	asking here?	14:15:30
21	Q. Yeah.	14:15:34
22	A. Okay. So I'm assuming there's no -- I guess	14:15:35

1	there's a long view and a short view of this.	14:15:45
2	The short view is "success" means just making	14:15:47
3	the shown structure. The long view is, is it	14:15:50
4	going to have -- is it going to be useful as	14:15:56
5	a therapeutic agent or useful in the	14:16:00
6	construction of a therapeutic agent.	14:16:05
7	So I guess those are two different	14:16:12
8	ways, but kind of -- it's hard for me to	14:16:14
9	separate those completely and I don't know	14:16:17
10	that I've used one or the other in my	14:16:19
11	analysis; probably both or some combination of	14:16:21
12	both.	14:16:23
13	But the -- in terms of eliminating	14:16:25
14	that spacer element, certainly in terms of the	14:16:30
15	biological rationale, that seems to -- that	14:16:36
16	would definitely be something obvious to try,	14:16:41
17	that -- okay, let's keep this as simple as	14:16:46
18	possible, keep the payload tucked in as close	14:16:49
19	to the antibody as possible. That's something	14:16:52
20	that generally is desirable.	14:16:54
21	But in terms of the other definition	14:16:58
22	of "success," which would just simply be	14:17:01

1 making it, that I don't know because I don't 14:17:04
2 know the -- I didn't really do an analysis on 14:17:07
3 the process by which Ajinomoto was making 14:17:14
4 these things sufficiently to know whether that 14:17:18
5 compound could be made by the methods that 14:17:24
6 Ajinomoto was utilizing. 14:17:27

7 I suspect it could, but I don't know 14:17:33
8 right off the top of my head. 14:17:35

9 Q. Okay. So, you know, if you in your own work 14:17:40
10 are coming up with something, among them, you 14:17:44
11 know, could you possibly make it versus would 14:17:48
12 you expect it to be useful in, you know, 14:17:51
13 connecting to payloads after you've made it? 14:17:57
14 I mean, is it fair to say that it would be the 14:18:00
15 latter? Right? 14:18:07

16 If only making it is your end goal as 14:18:08
17 an organic chemist, right, is all you need 14:18:12
18 here, and you're not really distinguishing, 14:18:14
19 you know, an idea with any insight from going 14:18:20
20 through every possible permutation among the 14:18:22
21 millions or billions that Yamada has to offer 14:18:25
22 here, so is there a reason to expect that the 14:18:26

1	compounds of Claim 11, if you were to go in	14:18:33
2	that direction, would work for their purpose	14:18:35
3	of, you know, being attachable to potential	14:18:42
4	payloads?	14:18:51
5	A. Yes.	14:18:53
6	MS. PETERSON: Objection to form.	14:18:53
7	BY MR. GIUNTA:	14:18:55
8	Q. And so what would -- what would that reason	14:18:55
9	be? You're going to put these things	14:18:58
10	together, why would you expect them to -- why	14:19:00
11	would you expect these to succeed among all	14:19:02
12	things in terms of, you know, getting the	14:19:06
13	right DAR, getting the right attachments, and	14:19:09
14	so on?	14:19:11
15	A. Well, getting them to work and being optimal	14:19:14
16	are two different things. So would it work?	14:19:17
17	Yeah, I have a very high degree of confidence	14:19:20
18	that that would work.	14:19:22
19	Again, just given my intuition in	14:19:23
20	terms of making something that's biologically	14:19:25
21	active, could I make an ADC that, you know,	14:19:27
22	has some toxicity against a particular cancer	14:19:33

1 cell, whatever, yes. 14:19:38

2 The -- but there's a lot more to it 14:19:39

3 than that when it comes to making a drug of 14:19:46

4 course. 14:19:48

5 Q. And so among these different options that 14:19:58

6 you've put together here, the Option 1, Option 14:20:01

7 2, charts, you've relied on Yamada, you've 14:20:04

8 combined it with the PepTalk Poster and the 14:20:11

9 PepTalk Presentation, but you haven't pointed 14:20:14

10 to anything else that provides, you know, a 14:20:18

11 reason to make these particular structures 14:20:21

12 to -- a reason -- you don't cite any prior art 14:20:24

13 as the reason to make the ether link in the 14:20:28

14 chain, and you also don't provide any prior 14:20:34

15 art -- well, let me stop there. 14:20:37

16 You don't provide any prior art to 14:20:39

17 make the ether link in the chain. Correct? 14:20:42

18 In that spacer? 14:20:45

19 MS. PETERSON: Objection to form. 14:20:45

20 Mischaracterizes testimony. 14:20:46

21 A. Within this document, I did not provide -- 14:20:49

22 again, to my recollection -- any references 14:20:53

1	of why we would make an ether over something	14:20:57
2	else. But I did explain a little bit ago why	14:21:02
3	intuitively, as a chemist, that I would.	14:21:08
4	BY MR. GIUNTA:	14:21:13
5	Q. Okay. And then the same thing for no linker.	14:21:13
6	Right? There's the bond from the carbonyl to	14:21:18
7	the norbornene group, the second structure,	14:21:21
8	Claim 11. You don't provide any reason -- any	14:21:24
9	prior art that gives a reason to do that.	14:21:26
10	Right?	14:21:28
11	A. I did not provide any prior art in that	14:21:29
12	document providing a reason for that, that is	14:21:31
13	correct.	14:21:34
14	MR. GIUNTA: I've uploaded Tumey 7.	14:21:59
15	MARKED FOR IDENTIFICATION:	14:22:05
16	EXHIBIT 7	14:22:05
17	2:22 p.m.	14:22:05
18	BY MR. GIUNTA:	14:22:05
19	Q. Do you recognize this document?	14:22:05
20	A. Just give me one second here.	14:22:11
21	Yes, I do.	14:22:26
22	Q. Okay. And I'm showing you what's been marked	14:22:26

1	as Tumey 7. It's IPR Exhibit 1011.	14:22:36
2	And is this that Matsuda reference	14:22:41
3	that you refer to in your declaration?	14:22:43
4	A. Yes.	14:22:48
5	Q. And if you turn to PDF page 3, Matsuda is a	14:22:49
6	published patent application. Correct?	14:23:02
7	A. Yes.	14:23:04
8	Q. And it is assigned to Ajinomoto; is that	14:23:04
9	right?	14:23:12
10	A. Yes.	14:23:13
11	Q. And it published on May 13th, 2021. Correct?	14:23:17
12	A. Yes.	14:23:31
13	Q. If you go up to page 1, page 1 has this	14:23:32
14	translator's declaration and it says that	14:23:35
15	"Exhibit 1011 is a true, faithful, and	14:23:41
16	accurate translation of the corresponding	14:23:43
17	Japanese language WIPO publication, WO	14:23:45
18	2019/240288," which is Exhibit 1010.	14:23:49
19	Do you see that?	14:23:53
20	A. Yes.	14:23:54
21	Q. Now, you've pointed to Matsuda for other	14:23:54
22	claims, and we've already discussed that you	14:24:09

1	didn't really rely on Matsuda for Claim 11, so	14:24:11
2	I wanted to ask you if in your review of	14:24:20
3	Matsuda whether you saw any reason not to	14:24:25
4	include it for Claim 11.	14:24:34
5	A. Not to my recollection.	14:24:44
6	Q. So Matsuda is also concerned with	14:24:51
7	antibody-drug conjugates. Correct?	14:25:04
8	A. Yes.	14:25:06
9	Q. It's got a title which is Compound Having	14:25:06
10	Affinity Substance to Antibody and	14:25:07
11	Bioorthogonal Functional Group or Salt	14:25:10
12	Thereof. Right? That's the title?	14:25:15
13	A. Yes.	14:25:17
14	Q. And what's your understanding of what	14:25:17
15	"affinity substance to antibody" refers to?	14:25:22
16	A. Well, this is -- in this context, it is	14:25:33
17	referring to the peptide that has a	14:25:38
18	noncovalent interaction with the FC domain of	14:25:43
19	the antibody.	14:25:48
20	Q. Okay. So that peptide is used to get the	14:25:56
21	modified -- the group that is going to modify	14:26:01
22	the lysine residue close to the lysine	14:26:05

1	residue; is that right?	14:26:07
2	A. Yes.	14:26:08
3	Q. And if you turn to page PDF 134 of Matsuda --	14:26:08
4	A. Yes.	14:26:35
5	Q. -- there is a compound here labeled compound	14:26:35
6	26. Do you see that?	14:26:38
7	A. Yes.	14:26:43
8	Q. And compound 26 has oxygens in the spacer.	14:26:43
9	Right?	14:26:50
10	A. Yes.	14:26:51
11	Q. And it's those ether oxygens that you were	14:26:52
12	talking about earlier. Correct?	14:26:57
13	A. Yes.	14:26:58
14	Q. And it's got an azide bio-orthogonal group at	14:26:58
15	the end. Right?	14:27:04
16	A. Yes.	14:27:05
17	Q. Now, if you turn to page PDF 147 -- that's PDF	14:27:05
18	page 147 of Exhibit 1011 -- there's a title	14:27:38
19	above paragraph 1150. Let me know when you're	14:27:45
20	there.	14:27:50
21	A. Yes.	14:27:50
22	Q. It says, "Comparative Example 1: Modification	14:27:51

1	Reaction of IgG1 Fc with Peptide Reagent	14:27:58
2	Having Hetero Atom at beta Position and	14:28:02
3	Analysis by ESI-TOFMS."	14:28:04
4	Do you see that?	14:28:09
5	A. Yes.	14:28:09
6	Q. What is ESI-TOFMS?	14:28:09
7	A. That is electrospray time-of-flight mass	14:28:15
8	spectroscopy.	14:28:20
9	Q. Paragraph 1150 says, "The peptide reagent	14:28:22
10	having a heteroatom at a beta position	14:28:34
11	(compound 26) synthesized in Example 5 was	14:28:40
12	dissolved," and then it goes on.	14:28:43
13	Do you see that?	14:28:45
14	A. Yes.	14:28:46
15	Q. Now, is the heteroatom at the beta position	14:28:46
16	compound 26, is that -- is that an ether	14:28:51
17	oxygen? And I can tell you what page.	14:28:58
18	A. Yes, it is. I remember the structure.	14:29:00
19	Q. Okay. Now, in the compounds of Claim 11, is	14:29:02
20	the ether oxygen also at the beta position?	14:29:07
21	A. Let's go to compound...	14:29:14
22	Q. By that, I mean the first and third compounds,	14:29:17

1	not the middle one with --	14:29:19
2	A. Right. Right, right, right, right.	14:29:20
3	Can you remind me which page compound	14:29:37
4	26 was on?	14:29:40
5	Q. Yeah, if you -- yeah, if you want to -- or	14:29:41
6	which document? Are you in your declaration	14:29:43
7	or are you in --	14:29:45
8	A. No, in Matsuda. Looking at that.	14:29:46
9	Q. Oh, compound 26 is on page 134, yeah.	14:29:49
10	A. Okay. There we are. Okay. I just wanted to	14:29:52
11	double-check.	14:29:56
12	So, yes, it's both the compound --	14:29:57
13	compounds of Claim 11 and compound 26 have an	14:30:02
14	oxygen at that beta position.	14:30:09
15	Q. Okay. Now, if you go back to page -- Matsuda,	14:30:11
16	which is Exhibit 1011, page 147, PDF page 147.	14:30:18
17	A. I'm there.	14:30:35
18	Q. They talk about that reaction involving that	14:30:35
19	compound 26. We were at 1150. And you can	14:30:37
20	read if you want, but I want to direct your	14:30:42
21	attention to the last two words in that	14:30:44
22	column, where 1150 is, that go up to the next	14:30:46

1	page.	14:30:50
2	It says, "It was determined." And	14:30:50
3	let me know when you see that. "It was	14:30:52
4	determined that an antibody..."	14:30:54
5	A. Okay.	14:30:58
6	Q. Okay. "It was determined that an antibody	14:30:59
7	modification reaction with compound 26 having	14:31:01
8	a heteroatom at the beta position, a beta	14:31:03
9	position of an antibody-modifying group	14:31:07
10	(electrophilic group) had not progressed."	14:31:10
11	You see that?	14:31:15
12	A. Yes.	14:31:16
13	Q. And then they say they similarly had an	14:31:16
14	antibody -- that "Similarly, an antibody	14:31:19
15	modification [reaction] was performed using a	14:31:21
16	peptide reagent (compound 60) having a hetero	14:31:23
17	base paper at a beta position."	14:31:28
18	I can show you compound 60 if you	14:31:32
19	want, if that doesn't register with you.	14:31:37
20	A. Yes, where is compound 60?	14:31:40
21	Q. Yeah, so compound 60 is on PDF page 135.	14:31:45
22	A. Okay.	14:31:51

1	Okay.	14:32:06
2	Q. And so compound 60, what is the beta	14:32:06
3	heteroatom there?	14:32:11
4	A. That is a nitrogen.	14:32:11
5	Q. And so when it says for compound 26 that the	14:32:23
6	reaction "had not progressed," I mean, that	14:32:31
7	means that it didn't work. Right? It didn't	14:32:35
8	do what it was supposed to do in terms of	14:32:37
9	modifying the lysine residue. Right? Or	14:32:39
10	modifying the residue on the -- the target	14:32:41
11	residue?	14:32:43
12	MS. PETERSON: Objection to form.	14:32:44
13	Outside the scope.	14:32:45
14	A. Let me just read that entire example for a	14:32:52
15	second here.	14:32:55
16	BY MR. GIUNTA:	14:32:55
17	Q. Uh-huh.	14:32:55
18	A. Okay. So I've read that example. Now, can	14:34:17
19	you -- is there a question associated with	14:34:20
20	that?	14:34:23
21	Q. Right. Yeah. It says that it "had not	14:34:24
22	progressed," so that means that the reaction	14:34:26

1	did not occur for that one. Correct?	14:34:28
2	MS. PETERSON: Objection to form.	14:34:30
3	Scope.	14:34:31
4	A. The implication is it didn't perform as well	14:34:36
5	as they were hoping or wanting. Whether it	14:34:39
6	didn't occur at all, you know, I -- you know,	14:34:44
7	I don't know. But the -- yeah, it certainly	14:34:46
8	was not -- they're certainly saying it did	14:34:48
9	not give the desired full action that they	14:34:52
10	were hoping for or anticipating.	14:34:58
11	BY MR. GIUNTA:	14:35:01
12	Q. All right. And so -- and they also had a	14:35:04
13	similar issue with another beta heteroatom.	14:35:07
14	Right? And that one was the compound 60 I	14:35:12
15	showed you which was a nitrogen as the	14:35:14
16	heteroatom. Correct?	14:35:19
17	MS. PETERSON: Objection to form and	14:35:20
18	scope.	14:35:21
19	A. Yes.	14:35:24
20	BY MR. GIUNTA:	14:35:30
21	Q. Is it fair to say, then, that at least in this	14:35:30
22	regard, Matsuda teaches that a beta hetero --	14:35:33

1	a beta oxygen, ether oxygen at the beta	14:35:39
2	position, doesn't necessarily work?	14:35:40
3	MS. PETERSON: Same objection.	14:35:50
4	A. It is teaching that there are problems with	14:35:56
5	these two compounds. How generalizable that	14:35:58
6	result is, I can't say without looking	14:36:02
7	through the other examples that did work.	14:36:04
8	BY MR. GIUNTA:	14:36:12
9	Q. Okay. Well, I guess, then, you know, there	14:36:12
10	are other examples, but I -- you didn't -- so	14:36:17
11	it's fair to say, then, that in determining	14:36:23
12	that the compounds of Claim 11, which include	14:36:26
13	beta heteroatoms, in particular beta ether	14:36:30
14	oxygens, and then -- and also in reviewing	14:36:36
15	Matsuda, that you didn't check to see whether	14:36:38
16	this ether oxygen at the beta position worked?	14:36:40
17	MS. PETERSON: Objection to form.	14:36:49
18	A. I had not noticed that those two examples did	14:37:00
19	not work. Yeah.	14:37:02
20	MR. GIUNTA: All right, I'd like to	14:37:11
21	take just a short break. I may be wrapping up	14:37:12
22	soon. Can we do that?	14:37:15

Transcript of Lawrence Tumey, Ph.D.
Conducted on October 17, 2025

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1	MS. PETERSON: Yeah, sure.	14:37:17
2	MR. GIUNTA: Let's do -- let's go off	14:37:18
3	the record.	14:37:19
4	(Off the record at 2:37 p.m.)	14:37:20
5	(Back on the record at 2:48 p.m.)	14:48:24
6	BY MR. GIUNTA:	14:48:26
7	Q. Dr. Tumey, just looking at the Matsuda	14:48:27
8	reference, I'd like for you to go to PDF	14:48:30
9	page 165.	14:48:39
10	A. Okay.	14:48:50
11	Q. And there's a middle structure there, and it's	14:48:51
12	5-2-1. Do you see that?	14:48:54
13	A. Yes.	14:48:56
14	Q. And it corresponds -- well, the group there,	14:48:56
15	the spacer is similar to one of the spacers in	14:49:04
16	Claim 11 except that it's a hydrocarbon chain	14:49:10
17	instead of oxygen.	14:49:12
18	A. Right.	14:49:17
19	Q. Is that right?	14:49:17
20	A. Yes.	14:49:18
21	Q. And maybe one less, but it's similar.	14:49:18
22	A. Yep.	14:49:23

1 Q. And, you know, that one works. 14:49:24

2 So if you turn the page to 166, you 14:49:27

3 can see that they have it in its 14:49:31

4 down-to-lysine form. Do you see that? 14:49:37

5 A. Yes. 14:49:45

6 Q. And so, you know, that one progressed, and 14:49:46

7 would there really be a preference for oxygen 14:49:54

8 given that this one worked and the oxygen did 14:49:58

9 not? 14:50:01

10 A. In regards to simply making the compound, no, 14:50:06

11 there would not be a preference. But in 14:50:11

12 regards to making a useful therapeutic agent, 14:50:13

13 which is the long-term goal, I still say, 14:50:19

14 yes, there is an advantage to incorporating 14:50:21

15 that oxygen. 14:50:23

16 And kind of going back to a question 14:50:26

17 that you asked before the break about this 14:50:30

18 beta oxygen, I went back through Yamada 14:50:33

19 quickly and there are examples in Yamada where 14:50:36

20 they successfully coupled spacers with a beta 14:50:39

21 heteroatom, so it is not a universal maxim 14:50:47

22 that incorporation of a beta heteroatom is 14:50:51

1	detrimental to the progression of this	14:50:55
2	reaction. It seems something unique to the	14:50:57
3	chemistry that was reported in that one	14:50:59
4	example.	14:51:02
5	Q. So you mentioned Yamada. I would like for you	14:51:02
6	to point to me where you saw it. First off,	14:51:06
7	you know, was what you saw in Yamada, was	14:51:11
8	it -- was the beta heteroatom an ether oxygen?	14:51:13
9	A. No, it was not.	14:51:17
10	Q. All right.	14:51:18
11	A. This is page 224 -- oh, sorry, let's see	14:51:19
12	here. Where are we at? Here PDF page 225 of	14:51:31
13	Yamada.	14:51:45
14	Q. And just for navigational purposes, we are in	14:51:45
15	Yamada, which is IPR Exhibit 1009 and Tumey 6.	14:51:47
16	Okay. So 224 --	14:51:55
17	A. 225, PDF page 225. And it's --	14:51:59
18	Q. 225, yeah.	14:52:02
19	A. -- Example 53.	14:52:04
20	Q. Okay.	14:52:06
21	A. Is it Example fifty -- hold on here. No, no,	14:52:07
22	that's -- hold on here. Nope, I take that	14:52:13

1	back. That's not a beta position; that's the	14:52:22
2	gamma position.	14:52:26
3	Nope, I think I --	14:52:33
4	Q. While we're --	14:52:35
5	A. Sorry, I --	14:52:35
6	Q. -- in Yamada, I do have a couple of quick	14:52:36
7	questions for you.	14:52:38
8	A. Sure.	14:52:39
9	Q. All right. So I need to do this with	14:52:40
10	reference to your declaration here.	14:52:44
11	So Yamada has this Figure 2, and, you	14:52:46
12	know, we've been using -- kind of cheating for	14:52:51
13	shorthand, using the front cover because it's	14:52:56
14	got Figure 2 in it, but we might as well go to	14:52:58
15	actual Figure 2 which is on page 7 of Yamada.	14:53:02
16	And what I'd like to do --	14:53:05
17	A. Sorry. Sorry, 57. Example 57, that has the	14:53:07
18	beta -- that has the beta NH in it, so...	14:53:10
19	beta heteroatom.	14:53:14
20	Sorry to interrupt.	14:53:16
21	Q. Not a problem. I said, hey, if you remember	14:53:17
22	some stuff later in the day, I put it in the	14:53:20

1	instructions at the beginning, so fair game.	14:53:23
2	A. Yep.	14:53:25
3	Q. Okay. So the NH there is a beta heteroatom;	14:53:26
4	is that right?	14:53:46
5	A. That's correct. Example 59 as well.	14:53:47
6	Q. Right. So then if you're looking at Yamada,	14:53:49
7	right, doesn't that teach toward this NH group	14:53:52
8	as opposed to an ether? Ether oxygen?	14:53:55
9	A. Maybe if you combine Yamada with Matsuda, you	14:54:06
10	might be able to come to that conclusion.	14:54:13
11	Let's see here.	14:54:22
12	Yeah. Maybe if you combine those	14:54:29
13	two, I suppose you might be able to ascertain	14:54:31
14	something like that.	14:54:35
15	But there's a beta oxygen. It's not	14:54:36
16	ether, but a beta oxygen, in Example 59 as	14:54:39
17	well.	14:54:42
18	Q. Okay. So then which one's the beta oxygen in	14:54:44
19	Example 59? So I'm there. Let's talk about	14:54:49
20	what structure -- the structure on the left?	14:54:52
21	The structure on the right?	14:54:55
22	A. The structure on the right.	14:54:56

1	Q. Okay. So the structure on the right. And	14:54:57
2	then which -- you're talking about -- so the	14:54:59
3	beta oxygen is also the terminal group.	14:55:02
4	Correct?	14:55:05
5	A. Correct.	14:55:06
6	Q. Okay. And it's a carbonyl group; is that	14:55:06
7	right?	14:55:09
8	A. Yes.	14:55:10
9	Q. Okay. So the -- might this also teach a	14:55:10
10	preference for the carbonyl as opposed to the	14:55:15
11	ether oxygen?	14:55:17
12	MS. PETERSON: Objection to form.	14:55:22
13	A. Well, since within this patent I don't see	14:55:24
14	any ethers there, I don't know that this	14:55:27
15	patent alone would do it. But, again,	14:55:29
16	combining that with Matsuda, I suppose you	14:55:31
17	could -- you could use -- you could come up	14:55:34
18	with a logical pathway towards that, yes.	14:55:37
19	BY MR. GIUNTA:	14:55:39
20	Q. Now, if we go back to Figure 2, which is PDF	14:55:39
21	page 7.	14:55:45
22	A. Sorry, which exhibit?	14:55:50

1	Q. So I'm in Yamada.	14:55:54
2	A. Okay.	14:55:56
3	Q. I'm trying to go to Figure 2, so that's	14:55:56
4	Exhibit 1009 which is Tumey 6.	14:55:59
5	A. And which page?	14:56:14
6	Q. 7.	14:56:16
7	A. Okay.	14:56:17
8	Okay. I'm there.	14:56:29
9	Q. All right. So there's this Figure 2 scheme	14:56:31
10	and it has that compound Formula IV on the	14:56:34
11	lower right-hand side. Do you see that?	14:56:39
12	A. Yes.	14:56:40
13	Q. Okay. And that's that L1-B-R prime-T	14:56:41
14	structure that we were looking at before.	14:56:46
15	Right?	14:56:48
16	A. Yes.	14:56:49
17	Q. All right. Now, if you go to page 150- -- go	14:56:49
18	to your declaration, which is Tumey 1,	14:57:04
19	Exhibit 1002 in the IPR, and you go to page	14:57:08
20	PDF 158.	14:57:12
21	A. Okay. Yes.	14:57:17
22	Q. You see that there -- you have the structure	14:57:31

1	for Option 1. Your results are that L1 is --	14:57:34
2	this norbornene group, L1 is the azide group.	14:57:40
3	And you do that again for Option 2, L1, L1.	14:57:44
4	Right?	14:57:51
5	A. Okay. Yep.	14:57:52
6	Q. And Formula IV is the top of both Option 1 and	14:57:53
7	Option 2. Right? That's the -- that's the	14:57:57
8	starting point for both. Right?	14:57:59
9	A. Yep.	14:58:01
10	Q. And if you look at Figure 2 in Yamada, there's	14:58:02
11	a -- Formula IV is that Roman IV, there's a	14:58:09
12	Formula 2 that comes before it. Right? It's	14:58:12
13	got the groups A-L-B-R prime, and T. Do you	14:58:15
14	see that?	14:58:19
15	A. Yes.	14:58:20
16	Q. And L forms L1 by being cleaved. It forms L1	14:58:20
17	and it also forms an L2, which leaves with the	14:58:31
18	affinity substance according to that line	14:58:37
19	where Formula IV appears; is that right?	14:58:39
20	A. Yes. Yep.	14:58:46
21	Q. All right. And that's referred to -- L is	14:58:48
22	referred to as a cleavable linker. Right? Or	14:58:52

1	a cleavable portion here?	14:58:54
2	A. Yes.	14:58:58
3	Q. So if you go back to paragraph 387 of your	14:58:59
4	declaration --	14:59:10
5	A. Okay.	14:59:24
6	Q. -- you -- and that's on PDF page 165, it says,	14:59:24
7	"Cleavage of a cleavable portion in a linker	14:59:32
8	(L) produces a soluble protein (antibody)	14:59:36
9	regiospecifically modified with bioorthogonal	14:59:39
10	functional groups," as shown in 1-2.	14:59:45
11	A. Okay.	14:59:49
12	Q. Now, in each of your structures, your	14:59:49
13	resulting structures that are Claim 11, right,	15:00:00
14	the Claim 11 structures that you have listed	15:00:03
15	on page 155 and on page 153 --	15:00:05
16	A. Uh-huh.	15:00:11
17	Q. -- you have L1 as the bio-orthogonal group.	15:00:12
18	Correct?	15:00:26
19	A. Yes, I believe so.	15:00:37
20	Q. Okay. So for the first option there -- so I'm	15:00:38
21	on page 155. I'm looking at your results for	15:00:45
22	Option 2. I'm also on page 153. I'm looking	15:00:48

1	at your results for Option 1.	15:00:51
2	So, I guess, starting with your	15:00:56
3	results for Option 1, the first result, L1 is	15:00:57
4	norbornene. Correct?	15:01:00
5	A. Let's see here. We're in Option 1, you said?	15:01:04
6	Q. Yes.	15:01:08
7	A. Yes, L1 is the norbornene.	15:01:08
8	Q. All right. And if you -- we were at this	15:01:12
9	explanation in Yamada a little earlier. It's	15:01:19
10	on PDF page 147. It's paragraph 1692.	15:01:22
11	A. PDF page what, 111?	15:01:32
12	Q. 147. It's in Yamada, which is Exhibit 1009 in	15:01:35
13	the IPR.	15:01:44
14	A. Okay.	15:01:50
15	Q. In about the middle of paragraph 1692, it	15:01:51
16	says, "Such a monovalent group is a monovalent	15:01:59
17	group that can be formed by cleavage of the	15:02:09
18	cleavable linker which is a divalent group	15:02:11
19	comprising a cleavable portion described	15:02:14
20	above. Consequently, L1 may be a monovalent	15:02:17
21	group that can be formed by cleavage of the	15:02:21
22	residue or chemical structure of the cleavable	15:02:21

1	portion described above."	15:02:24
2	All right. So for example -- and so	15:02:28
3	the question I have for you is, for example,	15:02:31
4	if there's a disulfide group, you can cleave	15:02:38
5	the disulfide group to create the thiol group	15:02:41
6	as your L1. Correct?	15:02:45
7	MS. PETERSON: Objection to form.	15:02:48
8	A. Yes.	15:02:49
9	BY MR. GIUNTA:	15:02:50
10	Q. All right. But there is no group that can be	15:02:50
11	cleaved to form azide, for example. Right?	15:02:53
12	MS. PETERSON: Objection to form.	15:03:01
13	A. I don't know that I can say that with	15:03:01
14	certainty.	15:03:03
15	BY MR. GIUNTA:	15:03:06
16	Q. Well, you haven't pointed to one that could be	15:03:07
17	cleaved to form azide. Right?	15:03:09
18	A. No, I have not pointed to one.	15:03:11
19	Q. Okay. And there is no group that can be	15:03:12
20	cleaved to form norbornene. Right?	15:03:14
21	MS. PETERSON: Objection to form.	15:03:17
22	A. I don't know whether there is or not.	15:03:18

1	BY MR. GIUNTA:	15:03:22
2	Q. Okay, but you haven't pointed to one in your	15:03:22
3	declaration. Correct?	15:03:24
4	A. Correct.	15:03:26
5	Q. And so as you sit here today, are you aware of	15:03:26
6	a compound that you could use in this reaction	15:03:36
7	that could form either -- well, let's start	15:03:40
8	with one -- that could form norbornene by	15:03:44
9	cleavage of a cleavable linker?	15:03:47
10	A. Am I aware of a functional group that could	15:04:03
11	be cleaved to form a norbornene?	15:04:05
12	Q. Yes.	15:04:07
13	A. I am not, but that's not a topic that I	15:04:12
14	researched so I can't say with certainty that	15:04:14
15	none exist.	15:04:18
16	Q. Well, here you have norbornene listed as L1.	15:04:21
17	Right? And L1 is something that is formed by	15:04:23
18	being cleaved. Right?	15:04:25
19	A. Let's see.	15:04:49
20	Q. I mean, I think it's in Figure 2, which is why	15:04:50
21	I started by showing you Figure 2, that it was	15:04:53
22	cleaved to L. It's cleaved to form L1 and L2.	15:04:56

1	MS. PETERSON: And objection to form.	15:04:58
2	Mischaracterizes the document.	15:04:59
3	A. Yeah, I mean, L1 is talked about throughout	15:05:02
4	this document, so I don't really -- I don't	15:05:05
5	know if that's a universal statement that L1	15:05:10
6	is always formed by cleavage. I would want	15:05:14
7	to -- before I would offer an opinion on	15:05:17
8	that, I would want to do a full analysis of	15:05:19
9	the document in light of that definition of	15:05:21
10	L1.	15:05:24
11	BY MR. GIUNTA:	15:05:26
12	Q. Okay. But you haven't done that already?	15:05:26
13	A. No, I have not.	15:05:34
14	Q. Okay. But is it clear to you that from	15:05:34
15	Figure 2, which is what you point to in	15:05:38
16	getting to this point, is it -- is it clear	15:05:42
17	that Figure 2 calls for L1 to be formed by	15:05:45
18	cleavage of a cleavable linker L?	15:05:49
19	MS. PETERSON: Objection to form and	15:05:55
20	mischaracterization.	15:05:57
21	A. Let's see here. I would want to look at the	15:06:04
22	figure legend for Figure 2, which is not	15:06:12

1 here, to know exactly what's stated because 15:06:16
2 the -- when we define a chemical for the 15:06:18
3 purposes of patent protection, we typically 15:06:29
4 offer a synthetic -- a feasible synthetic 15:06:37
5 route to get there. However, it's just 15:06:44
6 assumed that that's not the only feasible 15:06:45
7 synthetic route to get there. 15:06:48

8 So I -- I'm looking in Figure 2, 15:06:50
9 and, yes, it's describing what they did and 15:06:53
10 it's describing a way to get to compounds of 15:06:56
11 Formula IV. I don't know if they had in mind 15:07:00
12 that that was the only way to get to 15:07:06
13 compounds of Formula IV. 15:07:07

14 BY MR. GIUNTA: 15:07:10

15 Q. Well, it's fair to say that, as you sit here 15:07:10
16 today, then, that, let's say -- I want to ask 15:07:14
17 about the other compound. Is it fair to say, 15:07:17
18 then, that as you sit here today you're 15:07:19
19 unaware of a group that can be cleaved to form 15:07:20
20 azide? 15:07:23

21 MS. PETERSON: Objection to form. 15:07:30

22 A. I'm unaware of a group that can be cleaved to 15:07:36

1	form an azide, that's true.	15:07:40
2	BY MR. GIUNTA:	15:07:44
3	Q. Okay. So if you're not aware of what's	15:07:44
4	required to make the results of your Option 1	15:07:46
5	and your Option 2, how would they have been	15:07:51
6	obvious to a person of ordinary skill in the	15:07:53
7	art?	15:07:56
8	MS. PETERSON: Objection to form.	15:07:57
9	Mischaracterizes his opinions.	15:07:58
10	A. How would have it -- those of us who are	15:08:07
11	familiar with ADCs have lots and lots of	15:08:09
12	tools at our disposal to make various	15:08:15
13	compounds. I haven't gone through the	15:08:20
14	exercise of doing a synthetic analysis for	15:08:25
15	those three compounds of Claim 11 to see how	15:08:29
16	exactly I would make them.	15:08:34
17	As you pointed out earlier, that's	15:08:36
18	often the trivial portion of design for	15:08:37
19	drugs. Most of the time we're looking at, do	15:08:44
20	they work. Right? Are they safe? Are they	15:08:49
21	efficacious? Do they react -- in this case,	15:08:52
22	react with the payload that we intend them to	15:08:55

1 react with? You know, all that kind of 15:08:57
2 stuff. 15:08:59

3 So, yes, there are lots -- synthetic 15:09:00
4 chemists are very creative, and I've seldom 15:09:03
5 seen a situation where a structure is proposed 15:09:08
6 and it simply can't be made, with the 15:09:10
7 exception of something that is just physically 15:09:13
8 or chemically unstable. That's a different 15:09:17
9 story. 15:09:18

10 But something that is, you know, 15:09:19
11 within the realm of chemically stable 15:09:22
12 entities, it's very seldom to come up with a 15:09:26
13 molecule that we simply cannot make. Chemists 15:09:28
14 are incredibly creative. 15:09:33

15 BY MR. GIUNTA: 15:09:36

16 Q. So you've analyzed this Formula IV, it's the 15:09:36
17 basis for your analysis, and you went through 15:09:40
18 and you assigned parts of the claimed 15:09:41
19 compounds in Claim 11, to L1, to be -- and to 15:09:45
20 R prime to arrive at that claim structure, and 15:09:51
21 you put together two options for doing it -- 15:09:53

22 A. Yeah. 15:09:57

1	Q. -- but you don't have the required L group,	15:09:57
2	the synthetic reagent that gets cleaved to	15:10:00
3	form; is that right? You didn't think through	15:10:03
4	the --	15:10:06
5	MS. PETERSON: Objection to the --	15:10:06
6	BY MR. GIUNTA:	15:10:07
7	Q. -- synthetic route that this requires?	15:10:07
8	MS. PETERSON: Objection to form.	15:10:14
9	Mischaracterization of the document.	15:10:15
10	A. Again, I didn't do a synthetic analysis for	15:10:17
11	this.	15:10:22
12	BY MR. GIUNTA:	15:10:22
13	Q. So if you didn't do a synthetic analysis for	15:10:22
14	it, what you essentially did amounted to using	15:10:25
15	Yamada as a grocery list of different	15:10:30
16	substituents that you stuck together to make	15:10:33
17	the compounds of Claim 11. Right?	15:10:35
18	MS. PETERSON: Objection to form.	15:10:37
19	A. I'm not sure how to answer that question.	15:10:53
20	Did I use it as a grocery list? I mean --	15:10:56
21	BY MR. GIUNTA:	15:10:59
22	Q. If you didn't do -- yeah. If you didn't go	15:10:59

1 through the synthetic feasibility, you were 15:11:00
2 taking a little bit of this group and one of 15:11:02
3 this option, one of those options. 15:11:05

4 And we said earlier that those 15:11:06
5 options stack up into the millions when you 15:11:08
6 take them cumulatively, but your analysis was 15:11:10
7 pick and choose the ones that get to Claim 11 15:11:12
8 without even knowing how to get their 15:11:15
9 synthetically? 15:11:18

10 MS. PETERSON: Objection to form. 15:11:19

11 A. But remember we had a long discussion about 15:11:21
12 why things like an ether oxygen might be 15:11:26
13 favorable to include; why keeping that linker 15:11:29
14 length fairly simple, fairly short is a good 15:11:32
15 thing; Occam's razor. We talked about how 15:11:36
16 norbornene is a preferable click reagent. 15:11:40

17 Yes, there's lots and lots of 15:11:44
18 possibilities, but that would be definitely 15:11:45
19 one towards the top of the list. 15:11:48

20 So, no, there's lots of reasons that 15:11:49
21 would have steered me, somebody else, to 15:11:51
22 choose those -- that -- those specific 15:11:58

1 combinations of structural features that are 15:12:00
2 enumerated in Claim 11. 15:12:06

3 BY MR. GIUNTA: 15:12:09

4 Q. But you chose an L1 group that cannot be 15:12:10
5 formed by the reaction scheme to form the 15:12:14
6 formula that you have assigned it. 15:12:19

7 In other words, you assigned the 15:12:21
8 bio-orthogonal group, this L1, and you never 15:12:23
9 looked to see that the reaction scheme 15:12:30
10 requires cleavage of a group, and you had no 15:12:31
11 way to get to these two bio-orthogonal groups 15:12:34
12 by that reaction. 15:12:39

13 MS. PETERSON: Objection to form. 15:12:40

14 A. The only time that I do an analysis of claims 15:12:46
15 that involve synthetic feasibility is if the 15:12:53
16 claim itself talks about the synthetic 15:12:56
17 reaction. There are those sorts of patents, 15:12:59
18 of course, that cover, you know, reactions. 15:13:02
19 But my understanding is the claims in Yamada 15:13:04
20 are not covering a particular synthetic 15:13:08
21 approach. 15:13:14

22 And likewise, the claims in the 15:13:18

1 AbTis patent were not a particular synthetic 15:13:22
2 approach. It's more of a composition of 15:13:25
3 matter. So when you do a composition of 15:13:32
4 matter analysis -- I was thinking through 15:13:34
5 this as a composition of matter analysis -- 15:13:36
6 no, we don't necessarily think about 15:13:38
7 synthetic feasibility. 15:13:40
8 BY MR. GIUNTA: 15:13:41
9 Q. I think even short of that, though, you've 15:13:41
10 assigned -- you've said that it's obvious, 15:13:44
11 you've assigned to it this L1 group, and I 15:13:46
12 think you'll agree that these can't be formed 15:13:53
13 by linkage and so they cannot possibly be the 15:13:55
14 L1; is that right? 15:14:00
15 A. They cannot be the L1 group within what 15:14:04
16 structure? I guess I -- 15:14:09
17 Q. Sure. Yeah. 15:14:10
18 So assume for me this: That the L1 15:14:11
19 group must be formed by cleavage of the L 15:14:13
20 group; that that's the way this scheme works 15:14:17
21 in Figure 2; that there's an L group, it gets 15:14:19
22 cleaved, it forms L1. 15:14:22

1	A. Yes, that's certainly the way that --	15:14:23
2	Q. Can you assume that for me?	15:14:24
3	MS. PETERSON: Objection to form.	15:14:26
4	Improper hypothetical.	15:14:27
5	BY MR. GIUNTA:	15:14:29
6	Q. So if you assume that for me, then is it fair	15:14:29
7	to say that they're -- that you do not have a	15:14:31
8	synthetic route to make either of those	15:14:34
9	compounds with the bio-orthogonal group being	15:14:37
10	L1?	15:14:41
11	MS. PETERSON: Same objection and he	15:14:42
12	already answered.	15:14:47
13	A. Right, I do not have a synthetic scheme to	15:14:48
14	make the compounds of Claim 11.	15:14:50
15	BY MR. GIUNTA:	15:14:54
16	Q. So how could you have a reasonable expectation	15:14:55
17	of success for these compounds if you don't	15:14:57
18	have a synthetic scheme for them?	15:14:59
19	A. Again, it comes back to what we think of as	15:15:03
20	success. We can think of success as making	15:15:07
21	the compound or having a compound that is	15:15:09
22	useful. And so we have compounds all the	15:15:12

1 time within the chemistry field that I have a 15:15:16
2 reasonable -- if I could make it, I would 15:15:18
3 have a very reasonable belief that the 15:15:24
4 compound would be successful in a biological 15:15:28
5 sense. 15:15:32

6 Now, I've got to come up with a way 15:15:32
7 of making it. So those are two different -- 15:15:35
8 two different metrics of establishing success. 15:15:37

9 Q. So if you've analyzed this and you've gotten 15:15:41
10 to the point where the compound that you've 15:15:43
11 chosen can't be made in the way that this 15:15:46
12 Yamada reference calls for that's cleavage to 15:15:51
13 form a norbornene or cleavage to form an azide 15:15:55
14 group, is it fair to say, then, a person of 15:15:57
15 ordinary skill in the art wouldn't be able to 15:16:01
16 make these compounds either? 15:16:02

17 MS. PETERSON: Objection to form. 15:16:07
18 Mischaracterization and improper hypothetical. 15:16:08

19 A. Again, I didn't do the analysis so I can't 15:16:11
20 say that -- it could be entirely feasible 15:16:13
21 that these compounds could be made using the 15:16:18
22 methodology reported by -- in Yamada and 15:16:23

1 Matsuda. That's not an analysis that I did, 15:16:30

2 and I can't say one way or the other. 15:16:32

3 BY MR. GIUNTA: 15:16:35

4 Q. Well, is it fair to say that a compound can't 15:16:35

5 be useful to you if you can never make it? 15:16:37

6 A. Yes, that's a fair statement. 15:16:41

7 MR. GIUNTA: All right, I have no 15:16:46

8 further questions. 15:16:47

9 MS. PETERSON: Can we take a break 15:16:52

10 for just a few minutes? Go off the record? 15:16:53

11 MR. GIUNTA: Yes. 15:16:55

12 (Off the record at 3:16 p.m.) 15:25:02

13 (Back on the record at 3:25 p.m.) 15:25:02

14 MS. PETERSON: I don't have any 15:25:03

15 questions either so I think we can conclude 15:25:04

16 the deposition now. Thank you. 15:25:06

17 MR. GIUNTA: Okay. 15:25:09

18 (Proceedings concluded at 3:25 p.m..

19

20

21

22

1 CERTIFICATE OF SHORTHAND REPORTER - NOTARY PUBLIC

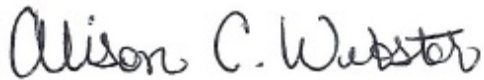
2
3 I, ALISON C. WEBSTER, Certified Reporter and
4 Notary Public within and for the State of Michigan
5 do hereby certify:
6
7

8 That Lawrence Tumey, Ph.D, the
9 witness whose deposition is hereinbefore set forth,
10 was duly sworn by me before the commencement of such
11 deposition and that such deposition was taken before
12 me and is a true record of the testimony given by such
13 witness.
14
15
16

17 I further certify that the adverse party,
18 was represented by counsel at the
19 deposition.
20
21
22

1 I further certify that the deposition of
2 Lawrence Tumey, Ph.D., occurred REMOTELY
3 on Friday, [October 17th, 2025, commencing at
4 9:05 A.M. to 3:25 P.M.

5
6
7
8 IN WITNESS WHEREOF, I have hereunto set my
9
10 hand this 24th day of October, 2025.

11
12
13 
14 _____

15 ALISON C. WEBSTER, CSR NO. 6266

16 ACKNOWLEDGMENT OF DEPONENT
17
18
19
20
21

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Conducted on October 17, 2025

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