

1 UNITED STATES PATENT AND TRADEMARK OFFICE

2 -----
3 BEFORE THE PATENT TRIAL AND APPEAL BOARD
4 -----

5
6 AJINOMOTO CO., INC.

7 Petitioner

8 v.

9 ABTIS CO., LTD.

10 Patent Owner

11 Patent No. 11,896,675
12
13
14

15 VIDEOTAPED DEPOSITION OF
16 ZHAOHUI SUNNY ZHOU, PH.D.
17 TUESDAY, JANUARY 13, 2026

18 9:17 A.M. - 3:20 P.M.

19 K&L GATES LLP

20 ONE CONGRESS STREET

21 BOSTON, MASSACHUSETTS
22

23 REPORTED BY: Sandra A. Deschaine, CSR, RPR,
24 CLR, RSA

25 Job No. MW7824620

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INDEX

EXAMINATION	PAGE
Zhaohui Sunny Zhou, Ph.D.	
By Ms. Peterson	7
By Mr. Giunta	209

EXHIBITS

Exhibit	Description	Page
Exhibit 1	Petitioner's Notice of Deposition of Zhaohui Sunny Zhou	13
Exhibit 2	Curriculum Vitae of Zhaohui Sunny Zhou	14
Exhibit 3	Declaration of Zhaohui Sunny Zhou, Ph.D. dated October 31, 2025	27
Exhibit 4	Site-specific conjugation of native antibody	79
Exhibit 5	PepTalk: Technology of Site-Specific Conjugation, AJICAP for next Generation ADCs	97
Exhibit 6	Development of a Novel Chemical Site-Specific Conjugation Platform for ADCs - AJICAP Technology	122
Exhibit 7	U.S. Patent App. No. 16-980,503	142
Exhibit 8	Translator's Declaration	175

(Exhibits continued.)

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

INDEX		
EXHIBIT	DESCRIPTION	PAGE
Exhibit 9	Translator's Declaration	198
Exhibit 10	Patent Owner's	208
	Con-Contingent Motion to	
	Amend Under 37, C.F.R.,	
	Section 42.121	

January 13, 2026

9:17 a.m.

Videotaped deposition of ZHAOHUI
SUNNY ZHOU, PH.D., held at K&L Gates, LLP, 1
Congress Street, Boston, Massachusetts,
pursuant to Notice, before Sandra A.
Deschaine, a Shorthand Reporter, Registered
Professional Reporter, Certified LiveNote
Reporter, and Notary Public in and for the
Commonwealth of Massachusetts.

P R O C E E D I N G S

THE VIDEOGRAPHER: Good morning.
We are now on the record. This is the
videographer speaking, Gayle Ashton with
Veritext Legal Solutions.

Today's date is January 13th,
2026, and the time is 9:17 a.m. We are
here at K&L Gates, 1 Congress Street,
Boston, Massachusetts, to take the video
deposition of Zhaohui Sunny Zhou, Ph.D.,
in the matter of Ajinomoto Company, Inc.
versus AbTis Co., Limited.

Would counsel please introduce
themselves for the record?

MS. PETERSON: Liane Peterson from
Foley & Lardner on behalf of the
petitioner, Ajinomoto Company, Inc., and
I'm also joined remotely by my Foley
colleagues Stephen Maebius and Jason
Mock.

MR. GIUNTA: Peter Giunta of
K&L Gates, LLP, representing the patent
owner AbTis Company, Limited.

MS. HILL: And Rebekah Hill of
K&L Gates also representing patent owner

1 AbTis Co., Limited.

2 MR. GIUNTA: And each of us also
3 represent the witness here.

4 THE VIDEOGRAPHER: Would the court
5 reporter, Sandra Deschaine, please swear
6 in the witness?

7 ZHAOHUI SUNNY ZHOU, Ph.D.,
8 Deponent, having first been satisfactorily
9 identified by the production of his
10 Massachusetts driver's license and duly sworn
11 by the Notary Public, was examined and
12 testified as follows:

13 EXAMINATION

14 BY MS. PETERSON:

15 Q. Good morning. Can you please
16 state your full name and address for the
17 record?

18 A. Yes. My full first name is
19 Z-h-a-o-h-u-i, Zhaohui. My legal middle name
20 is Sunny, S-u-n-n-y. My last name spells as
21 Z-h-o-u and pronounced as J-o-e, Zhou.

22 My address is 30 Hunting Circle,
23 Wellesley, Massachusetts 02481.

24 Q. Thank you. And have you ever had
25 your deposition taken before?

1 A. Yes.

2 Q. How many times?

3 A. About seven times.

4 Q. Okay. Well, it sounds like you've
5 gone through this before, but just to be
6 clear we'll cover a few rules.

7 So while I'm asking you questions
8 today, I would ask that you wait until I
9 finish my question before you respond so that
10 we can have a clear record.

11 Is that okay?

12 A. Yes, that's clear.

13 Q. And for all of your responses to
14 my questions, we will need a verbal answer
15 rather than shaking your head or nodding,
16 okay?

17 A. Yes, got it.

18 Q. You understand that you are
19 testifying today under oath?

20 A. Yes, I do.

21 Q. And if you find at any point that
22 one of my questions is unclear, I'd like you
23 to please let me know so that I can rephrase
24 the question. Otherwise I will assume that
25 you understand; is that okay?

1 A. Sure.

2 Q. Is there any reason today why you
3 cannot provide complete and truthful
4 testimony?

5 A. No, there's no reason.

6 Q. I mentioned before we started that
7 I have the deposition set up so that we
8 have -- we can introduce the exhibits
9 electronically. You do have a laptop in
10 front of where you can access the documents
11 that way. I do have one extra set of paper
12 copies, so we have that available as well, if
13 needed.

14 But for some of the exhibits I
15 think it might be easier to use the
16 electronic version because you can zoom in
17 and look at things a little bit more closely,
18 okay?

19 A. Sure, yeah.

20 Q. But if you have any issues with
21 that or need the paper copy, just let me
22 know.

23 A. I think I have both the paper
24 copy, electronic copy will be helpful, yeah.

25 Q. Okay. When we have the paper

1 copies I can try to accommodate that.

2 A. Yeah.

3 Q. So you mentioned that you have
4 been deposed seven times before; is that
5 right?

6 A. That's about right, yeah.

7 Q. And were those depositions taken
8 in your capacity as a fact witness or an
9 expert witness?

10 A. In all cases I think it's an
11 expert witness, not a fact witness.

12 Q. Okay. So all seven depositions
13 were as an expert witness?

14 A. Yes, that's as I recall, yeah.

15 Q. And for what types of proceedings
16 were those depositions? Were they patent?
17 Were they cases involving patents?

18 A. Most cases will relate to patent
19 litigation. There may be one to two cases
20 related to class action lawsuit.

21 Q. And what was the nature of your
22 expert testimony in those class action
23 lawsuits?

24 MR. GIUNTA: Objection, form.
25 You can answer.

1 A. What do you mean "the nature of"?

2 BY MS. PETERSON:

3 Q. Well, what were you providing
4 opinions about in the class action lawsuits?

5 Go ahead.

6 A. It depends on the nature of the
7 case, so I respond to the request from the
8 client and the attorney, and they ask a
9 certain aspect of size, drug development, for
10 example, so I specifically respond to those
11 questions they asked.

12 Q. Okay. So those class action
13 lawsuits related to some aspect of drug
14 development process?

15 A. No. I want to just clarify, when
16 I say the drug development those are related
17 to IP issues. For class action it's not
18 related to IP issues, no drug development
19 either.

20 Q. Okay. So what type of issues were
21 involved in those cases?

22 A. What do you mean, "those cases"?

23 Q. The two class action cases. If
24 they were not IP issues, what type of issues
25 were they?

1 A. As I said, I don't remember
2 whether I did one deposition or two
3 deposition for the class action lawsuit. For
4 the class action lawsuit, I was involved --
5 mostly involved with the definition of
6 natural, what is a natural product, what is
7 natural.

8 Q. And for the rest of the
9 depositions, you said that those -- I guess
10 it would be approximately five cases.

11 Those involve patent or IP
12 issues?

13 A. All the case relate -- some way of
14 relate to patent or IP, yeah.

15 Q. So was that patent specifically or
16 some other type of IP issue?

17 A. I think mostly are patents, yeah.

18 Q. And do you recall out of those
19 five other instances where you were deposed
20 in a patent matter, were those involving an
21 IPR proceeding at the PTAB or District Court
22 litigation or something else?

23 A. Both, yeah.

24 Q. Okay. How many times have you had
25 your deposition taken in connection with an

1 IPR proceeding?

2 A. I don't remember what is IPR.
3 Some relate to the court case. I don't
4 remember.

5 I do remember some relate to IPR,
6 some relate to court cases.

7 Q. Okay.

8 MS. PETERSON: So for the record,
9 I'm just going to go ahead and introduce
10 the Notice of Deposition for today just
11 so we have that on the record.

12 I'll mark that as Zhou 1.
13 (Exhibit 1, Petitioner's Notice of
14 Deposition of Zhaohui Sunny Zhou, marked for
15 identification.)

16 BY MS. PETERSON:

17 Q. And, Dr. Zhou, maybe we can just
18 double-check to see that that's working.

19 If you open that folder, do you
20 see an exhibit placed in there?

21 A. It's loading now. It's really
22 small here. Yeah, the file is loading.

23 It's a three-page?

24 Q. Yes. So you are able to open it?

25 A. Yes.

1 Q. Okay.

2 A. I think paper copy work much
3 better. On the screen it's very small. Even
4 though I can -- it's harder to read.

5 Q. Well, this is -- we'll just use
6 this as a backup, as I said.

7 A. Yeah, sure.

8 Q. So I wanted to make sure that it
9 was working for you.

10 Okay. I am going to --

11 MS. PETERSON: Next we'll mark as
12 Zhou Exhibit 2, get this loaded.
13 (Exhibit 2, Curriculum Vitae of Zhaohui
14 Sunny Zhou, marked for identification.)

15 MS. PETERSON: Okay. I've got
16 marked as Exhibit Zhou 2 a copy of
17 Dr. Zhou's CV.

18 BY MS. PETERSON:

19 Q. Here's a copy for you as well.

20 A. Thank you.

21 Q. Do you recognize this Exhibit 2?

22 A. Let me take a quick look.

23 Yes, this is my CV dated 2025,
24 September 22nd.

25 Q. And if you could turn to page 3 of

1 your CV, please.

2 A. Page 3 of my CV? Yes, I'm here.

3 Q. Do you see about two-thirds of the
4 way down you have a paragraph that starts
5 "Expert Witness"?

6 A. Yes, I see that paragraph.

7 Q. And do the cases listed in this
8 paragraph of your CV describe the various
9 times that you have had your deposition taken
10 in patent cases?

11 A. Let me take a quick look.

12 The list has some cases I was
13 involved, deposed, but not a complete list.

14 Q. Do you have a complete list
15 somewhere else in your CV on each of these
16 times that you've had your deposition taken?

17 A. No, not in my CV. I provided a
18 list of depositions I did in the past four
19 year to my counsel. I think that's what's
20 listed somewhere.

21 Q. Do you know where that's listed?

22 A. Not in my CV, but I was asked for
23 that information and I provide that.

24 Q. And do you know where that
25 information was provided in this proceeding?

1 A. I don't remember. I don't recall.

2 MS. PETERSON: Counsel, I'm not
3 sure that that was included in his CV or
4 his declaration. If you have a list of
5 his cases in the last four years that
6 you could send to us later, that would
7 be good.

8 MR. GIUNTA: We'll look into
9 that.

10 MS. PETERSON: Thanks.

11 BY MS. PETERSON:

12 Q. Okay. So sticking with that same
13 paragraph in your CV, you indicate that you
14 have acted as an expert witness from 2003 in
15 over a dozen of cases on protein/peptide
16 pharmaceuticals and metabolite and
17 nutraceuticals.

18 Do you see that?

19 A. Yes, I see that.

20 Q. How many of those cases involve
21 patent issues relating to protein and peptide
22 pharmaceuticals?

23 A. I don't remember exact number, but
24 I can tell you that some of the case involve
25 antibody, some of the case involve

1 bioconjugation such as PEGylation, some
2 cases --

3 THE COURT REPORTER: Such as?

4 A. PEGylation, P-E-G-y-l-a-t-i-o-n,
5 PEGylation, and some cases involve
6 modification of peptides.

7 BY MS. PETERSON:

8 Q. How many of those cases involved
9 antibodies?

10 A. I just try to recall from my
11 memory.

12 At least two cases I can recall.

13 Q. Do you recall which company you
14 were representing or engaged by in those two
15 cases?

16 A. One case I was retained by
17 Genentech/Roche. The other case I was
18 retained by a smaller company in the
19 biosimilar-related cases. I can't recall the
20 name of the company right now.

21 Q. For the first case where you were
22 engaged by Genentech and Roche, were they the
23 patent owner; do you recall?

24 A. Yes, Genentech was the patent
25 owner.

1 Q. And do you recall if that was an
2 IPR or a district court litigation matter?

3 A. That case was actually in the UK,
4 so UK High Court, and they have, my
5 understanding, is a trial case, is that -- a
6 little bit different procedure than the U.S.

7 Q. Did you testify in any trial in
8 that case?

9 A. I was asked to testify in the
10 court case, but I wasn't called last day.

11 Q. Do you recall if that case
12 involving Genentech and Roche in the UK High
13 Court, did that involve claims of patent
14 infringement?

15 A. I cannot recall whether that
16 involving infringement or not.

17 Q. And on what types of issues were
18 you asked to provide opinions in that
19 Genentech/Roche UK High Court matter?

20 A. I was asked for a pretty broad
21 range of topics. One of the topics I
22 remember is -- relate to a particular protein
23 degradation pathway.

24 Q. And was that in the context of
25 validity of the patents at issue?

1 A. Is a while ago. I don't remember
2 the exact legal issue or what's being argued
3 in front of the court. The case was --
4 involved purification of degradation
5 products.

6 Q. And do you know if that
7 Genentech/Roche litigation in the UK High
8 Court, did that involve a specific
9 commercialized therapeutic product?

10 A. Yes.

11 Q. What was the product?

12 A. Herceptin, H-e-r-c-e-p-t-i-n.
13 Herceptin, yeah.

14 Q. Okay. The second case you
15 mentioned, you said it involved a biosimilar
16 product; is that correct?

17 A. My understanding is, one, that the
18 client who retained me is a company develop
19 some sort of biosimilar to our innovator
20 drug.

21 Q. And do you recall what innovator
22 drug was at issue in that case?

23 A. I don't remember the name now.

24 Q. Was that case a proceeding -- an
25 IPR proceeding or a District Court

1 litigation?

2 A. As I said, I don't remember
3 because it didn't go to court, trial for me,
4 so I don't remember whether it's IPR or a
5 court case.

6 Q. But you did have your deposition
7 taken?

8 A. Yes, I did.

9 Q. Do you recall approximately how
10 long ago you had your deposition taken in
11 that biosimilar matter?

12 A. I think it's about ten years ago.

13 Q. But you recall that that case
14 involved an antibody product, a therapeutic
15 antibody; is that right?

16 A. As I -- sitting here, as I recall,
17 yes, it's antibody.

18 Q. Was it a therapeutic antibody or
19 an antibody-drug conjugate product?

20 A. As I recall, it's just an
21 antibody, not --

22 THE COURT REPORTER: Just an
23 antibody?

24 A. Just antibody, not a conjugate.

25 BY MS. PETERSON:

1 Q. And do you recall if you were
2 asked to provide opinions on issues relating
3 to infringement or invalidity or anything
4 else?

5 A. I don't recall. It's been a
6 while, yeah.

7 Q. So those two cases that we just
8 walked through, the Genentech/Roche matter
9 and then the matter where you were retained
10 by the biosimilar company, those are the two
11 cases in which you had your deposition taken
12 as an expert witness in a case involving
13 antibodies, correct?

14 A. As I recall now.

15 MR. GIUNTA: Objection to form.
16 Go ahead. You can answer.

17 THE COURT REPORTER: Did you say
18 as I recall now?

19 A. As I recall now, because it's been
20 a while, so yeah.

21 BY MS. PETERSON:

22 Q. So sitting here today, you don't
23 recall any other matters in which you were
24 retained and provided expert testimony at
25 deposition or trial in a case involving

1 antibodies other than those two matters,
2 right?

3 A. Yeah, that's my recollection,
4 yeah.

5 Q. Okay. And for this particular
6 matter you have been retained by the patent
7 owner AbTis Company, Limited, correct?

8 A. That's correct, yeah.

9 Q. Have you ever consulted with or
10 worked with AbTis previously?

11 A. No, I have not.

12 Q. Had you ever heard of AbTis before
13 you were engaged to work on this matter?

14 A. Yes.

15 Q. And what was your understanding of
16 AbTis before you were asked to work on this
17 matter?

18 A. AbTis develop a site-specific
19 conjugation method, can modify anybody on
20 certain sites.

21 Q. And approximately what time frame
22 did you become aware of AbTis?

23 A. I cannot recall the exact time. I
24 think their technology had been discussed in
25 various conference I attend --

1 THE COURT REPORTER: Had been
2 what? Discussed?

3 A. In various conference I attend
4 related to antibody-drug conjugate.

5 BY MS. PETERSON:

6 Q. And prior to this proceeding, were
7 you aware of the petitioner in this case,
8 Ajinomoto?

9 A. Yes, I was aware of them.

10 Q. And when did you become aware of
11 Ajinomoto?

12 A. I actually know Ajinomoto through
13 a different product. They produce an enzyme
14 called a transglutaminase,
15 T-r-a-n-s-g-l-u-t-a-m-i-n-s-e [sic],
16 transglutaminase.

17 Q. Is that an enzyme that you have
18 studied in the course of your research over
19 the years?

20 A. Yeah, that enzyme was -- has been
21 used for antibody conjugation. My laboratory
22 also use that enzyme, yeah.

23 Q. And prior to this case, have you
24 ever heard of or were you aware of the AJICAP
25 technology developed by Ajinomoto?

1 A. Yes, I was familiar with the
2 technology.

3 Q. And when did you become familiar
4 with Ajinomoto's AJICAP technology?

5 A. One, Ajinomoto, A-j-i-n-o-m-o-t-o,
6 Ajinomoto, they publish a paper, "AJICAP,"
7 A-J-I-C-A-P, "Technology," I think back in
8 2019, so I was aware of that paper.

9 Also, they talk about their work
10 at conferences. Again, I share information
11 with my colleagues, and I was told this
12 technology.

13 Q. Okay. So you attended conferences
14 in which Ajinomoto presented information
15 regarding its AJICAP technology; is that
16 right?

17 MR. GIUNTA: Objection, form.
18 You can answer.

19 A. Not in 2019. In 2019 I did not
20 attend a PepTalk, but I was -- heard about
21 their work from colleagues who are in the
22 field.

23 BY MS. PETERSON:

24 Q. So you heard about the work from
25 the presentation at PepTalk in 2019 from your

1 colleagues; is that right?

2 A. Yes, I heard about Ajinomoto's
3 work AJICAP through my colleagues' work in
4 the field, and also read their paper
5 published in 2019.

6 Q. And do you recall which colleagues
7 you learned about the AJICAP technology
8 through?

9 A. Yeah, I don't remember which
10 colleague mentioned that, yeah.

11 Q. What's your understanding of this
12 proceeding between AbTis and Ajinomoto?

13 MR. GIUNTA: Objection to form.
14 You can answer.

15 A. My understanding is AbTis want to
16 amend their claims, and there's a proceeding
17 to whether they can amend their claims.

18 THE COURT REPORTER: Whether they
19 can?

20 A. Amend their claims.

21 BY MS. PETERSON:

22 Q. When were you retained by AbTis
23 for this matter?

24 A. If I recall correctly, it was
25 sometime last year, later last year, 2025.

1 Q. Do you recall what month?

2 A. I would say August maybe or
3 September.

4 Q. And who did you first speak with
5 in connection with your retention for this
6 matter?

7 A. If I recall correctly, a referral
8 company, which I have worked with before,
9 send the case to me first, yeah.

10 Q. In the course of your engagements
11 and work on this matter on behalf of AbTis,
12 have you had any conversations with any
13 employees of AbTis?

14 A. I don't recall I talk to any or
15 communicate with any employee of the company.

16 Q. Are you billing for your time
17 spent on this matter at a particular hourly
18 rate?

19 A. Yes, I do.

20 Q. What is your hourly rate for this
21 matter?

22 A. I think it's \$555 an hour.

23 MS. PETERSON: I'm going to mark
24 as Zhou Exhibit 3 a copy of Dr. Zhou's
25 declaration dated October 31st, 2025.

1 (Exhibit 3, Declaration of Zhaohui Sunny
2 Zhou, Ph.D., dated 10/31/25, marked for
3 identification.)

4 BY MS. PETERSON:

5 Q. Here's a copy for you.

6 A. Thank you.

7 Q. Do you recognize Exhibit 3?

8 A. Let me take a quick look.

9 Yeah, this is my declaration.

10 Q. And it was dated and executed on
11 October 31st, 2025, right?

12 A. That's right, yep.

13 Q. Is this the only declaration that
14 you have prepared in connection with this
15 proceeding?

16 A. Yes, this is only one so far.

17 Q. Approximately how much time did
18 you spend preparing this declaration marked
19 as Exhibit 3?

20 A. It might be around 50 hours.

21 Q. Sorry. Was that 50, 5-0?

22 A. 5-0, 50 hours, yeah, around 50
23 hours.

24 Q. And so those 50 hours would have
25 occurred from the time frame around, perhaps,

1 August, September 2025, through when the
2 declaration was executed in October 2025; is
3 that correct?

4 A. I don't remember exactly time
5 frame. That's about right. Probably from
6 September to October, yeah.

7 Q. So over the course of about two
8 months?

9 A. That's about right.

10 Q. Did you draft this declaration
11 yourself?

12 A. The declaration, they are legal
13 issues. Those I was informed by the counsel.
14 They are scientific issues, and those I draft
15 my opinion and share with counsel, and we
16 finalized the declaration together.

17 Q. So the portions of your
18 declaration that relate to technical issues,
19 is it your testimony that you drafted those
20 portions all by yourself?

21 MR. GIUNTA: Objection, form.
22 You can answer.

23 A. I'm not sure what you mean
24 "technical issues." They are scientific -- I
25 say scientific issues, and there are legal

1 issues, so yeah.

2 BY MS. PETERSON:

3 Q. Thank you for that clarification.
4 I'll ask the question again.

5 So the portions of your
6 declaration that relate to scientific issues,
7 is it your testimony that you drafted those
8 portions all by yourself?

9 MR. GIUNTA: Objection, form.
10 You can answer.

11 A. Yes, I drafted all the sections
12 related to science myself.

13 THE COURT REPORTER: Did you say
14 related to size?

15 A. Science.

16 THE COURT REPORTER: Science.

17 A. Yeah, science, yeah. Sorry.

18 THE COURT REPORTER: That's
19 okay.

20 BY MS. PETERSON:

21 Q. If you look at the second page of
22 the document in your table of contents.

23 A. Second page?

24 Q. The table of contents.

25 A. The Roman letter?

1 Q. Yes.

2 A. Second? Yes.

3 Q. Roman -- Roman number I.

4 A. Oh, I? Okay.

5 Q. So when you refer to scientific
6 sections, I assume that that would include,
7 for example, Section IV, background of the
8 technological field at the time of the '675
9 patent; is that right?

10 A. Section IV?

11 Q. Yeah.

12 A. Yeah, that would be science
13 technology background.

14 Q. What about Section VI, your
15 opinions? Do you consider that to be
16 scientific or the legal issues?

17 A. My understanding is this is a
18 legal proceeding and I, as an expert witness,
19 I need to provide scientific opinion and
20 combined with a legal rule. I don't know how
21 to say that, and then make a legal opinion.

22 So I make -- provide -- combine
23 the scientific expertise and the legal
24 framework, and I need to provide opinions,
25 which is ultimately a legal opinion.

1 Q. So Section VI, opinions of your
2 declaration, is that a section that you
3 drafted yourself, or was that something that
4 was drafted by counsel?

5 MR. GIUNTA: Objection, form.
6 You can answer.

7 A. Let me take a look.
8 I just gave the example
9 Section VI, opinions, A, the proposed
10 substitute claims are supported by the
11 original disclosure.

12 For example, in this part, the
13 section I was asked to analyze, the original
14 application, and they are legal guidelines
15 how I need to read these documents and also
16 their scientific aspect of the work disclosed
17 in the '503 patent.

18 So to form my opinion, I have my
19 scientific expertise and combine it with the
20 legal. I use the rule guidelines provided
21 by - -

22 THE COURT REPORTER: Are you
23 saying the rule?

24 A. Yeah, the rule, and guideline
25 provided by the counsels.

1 BY MS. PETERSON:

2 Q. So would it be fair to say that
3 you drafted Section VI opinions of your
4 declaration in collaboration with counsel?

5 A. As I mentioned, there are legal
6 aspect to form my opinion, for example,
7 whether '503 is the original application or
8 not. Those information I get from the
9 counsels, and they ask me to analyze that
10 documents, whether that documents contain
11 sufficient scientific detail, specifically
12 for this section, Section VI A.

13 Q. And then after you analyzed those
14 documents to determine whether they contain
15 sufficient scientific detail for this section
16 VI A, did you draft your opinions here, or
17 were those drafted by counsel?

18 MR. GIUNTA: Objection, form.
19 You can answer.

20 A. I drafted a report, combined the
21 legal guidance from the counsel, for example,
22 which documents I should use as the original
23 patent application and combined with my
24 scientific expertise to evaluate, for
25 example, in this particular section, whether

1 there's sufficient description, technical
2 detail provided for all the claims.

3 BY MS. PETERSON:

4 Q. Looking at Section VI A still, did
5 you actually write these paragraphs of the
6 declaration yourself?

7 MR. GIUNTA: Objection, form,
8 asked and answered.

9 You can answer.

10 A. As I said, there's a certain part
11 of the sentence, for example, whether '503
12 application is the original application.
13 Those information are provided by the
14 counsels, and I write that the information
15 relate to the scientific aspect, for example,
16 which particular paragraph in the patent
17 provide what kind of information, how that
18 support the claims.

19 BY MS. PETERSON:

20 Q. What did you do to prepare for
21 your deposition today?

22 A. I review the exhibits. I review
23 my declaration, as shows over here. I met
24 with counsels online last week, and I met
25 with them in person yesterday, here.

1 Q. When you say you reviewed the
2 exhibits, what exhibits are you talking
3 about?

4 A. Some of the exhibits included
5 patent application from AbTis. Some are from
6 Ajinomoto, my declaration, Dr. Tumey's
7 declaration.

8 Q. Do you recall if you reviewed any
9 documents that have not already been marked
10 as exhibits in this IPR proceeding in
11 preparation for your deposition?

12 A. I don't recall I reviewed any
13 documents not listed as exhibits.

14 Q. So you met with counsel twice to
15 prepare for the deposition; is that correct?

16 MR. GIUNTA: Objection, form.

17 A. I don't remember exactly how many
18 times we met online last week, but we did
19 meet online last week and in person yesterday
20 here in this office.

21 BY MS. PETERSON:

22 Q. So all together for your meetings
23 with counsel to prepare for the deposition,
24 how much time did you spend in those
25 meetings?

1 A. I cannot recall the exact hours.
2 Yesterday I was here for a couple hours.

3 Q. And then for your online meetings
4 last week, approximately how long did those
5 last?

6 A. Maybe four or five hours total,
7 but as I said, I can't recall exact numbers.

8 Q. Of course.

9 A. Yeah.

10 Q. I understand.

11 Did you spend any time -- other
12 than in your meetings with counsel -- well,
13 let me start over again.

14 Other than your meetings with
15 counsel, did you spend any time on your own
16 preparing for the deposition?

17 A. Yes, I did.

18 Q. About approximately how much time?

19 A. Maybe 20 hours, go over all the
20 exhibits, yeah.

21 Q. Other than your compensation at
22 the rate of \$550 per hour for this matter,
23 have you received any other compensation
24 from -- from AbTis relating to this
25 proceeding?

1 A. No, I have not received any
2 compensation from AbTis, other than the
3 expert -- expert service.

4 Q. And that expert service is what
5 you're referring to as the work that you
6 conducted on behalf of AbTis at a rate of
7 \$550 an hour?

8 MR. GIUNTA: Objection.

9 You can answer.

10 A. The rate is \$555 an hour, I think.

11 BY MS. PETERSON:

12 Q. So other than your hourly rate
13 charge for this matter, you have not received
14 any other compensation from AbTis or its
15 lawyers in connection with this proceeding,
16 correct?

17 A. Can you repeat the question?

18 Q. Other than the compensation that
19 you're receiving at your hourly rate for this
20 matter, you haven't received any other
21 compensation in any other form from AbTis?

22 A. No, I have not received any other
23 compensations.

24 Q. Or from any other company related
25 to AbTis; is that right?

1 A. I don't know any company related
2 to AbTis or not, because I don't track which
3 company are -- have working relationship or
4 collaboration with AbTis.

5 Q. Well, have you received any
6 compensation from any other company in
7 connection with your work on this matter
8 involving the AbTis '675 patent?

9 A. No, I have not received any
10 compensation from any other company either.

11 Q. I'm still looking at Exhibit 3,
12 your declaration.

13 A. Yes, I have it here.

14 Q. Is your declaration complete and
15 accurate as of today?

16 A. I need to make a correction,
17 perhaps, or -- that relate to the --
18 actually, the part we just talk about before.

19 I think it's Section IV. Sorry.
20 Give me one second. VI.

21 So in Section VI, "Opinions,"
22 Section VI A, "The proposed substitute claims
23 are supported by the original note of
24 closure." In that section I talk about the
25 '503 applications which is marked as

1 Exhibit 202 on page 23, my declaration.

2 I think between when I prepare my
3 declaration and when we -- when we have
4 deposition today, the exhibit number has
5 changed, and I prepare a table or chart or I
6 share that with counsel about relevant
7 paragraph in '503, and also I think it's '998
8 application. And those charts, my
9 understanding, the counsel has submitted that
10 as amendment documents.

11 THE COURT REPORTER: As what?

12 A. Amendment documents. And so those
13 chart has the correct paragraph and the
14 document.

15 So what I want correction is my
16 exhibit -- my declaration on page 23 and 24
17 and 25, the documents are -- for example,
18 '503 application, the exhibit number may be
19 marked wrong. Okay. I think we changed that
20 maybe between when I prepare my declaration
21 and the deposition today.

22 So I want to make that correction.

23 BY MS. PETERSON:

24 Q. All right. I want to make sure I
25 understand.

1 So looking at your declaration
2 starting in paragraph 47 through, I guess,
3 paragraph 52, where you refer to
4 Exhibit 2002, that's the wrong exhibit
5 number?

6 A. It might be. The correct
7 document's identified in that chart.

8 MS. PETERSON: Counsel, did we get
9 that chart?

10 MR. GIUNTA: Yeah, and I can -- I
11 can give you a copy of the document now
12 if you want.

13 MS. PETERSON: So you have it now?
14 But did I --

15 MR. GIUNTA: No, there's a motion
16 to amend. There's a motion to amend.
17 There's a chart and a motion to amend
18 that he put together.

19 MS. PETERSON: Oh, okay.

20 MR. GIUNTA: Yeah. I can give you
21 two copies if you want.

22 MS. PETERSON: Yeah, that's fine.
23 That's fine.

24 BY MS. PETERSON:

25 Q. Okay. So the correction you need

1 to make to your declaration is just to fix
2 some of the exhibit citations, and
3 specifically the exhibit citations of
4 Exhibit 2002 and 2003; is that correct?

5 A. That's what I remember. That's
6 the exhibit number was maybe changed, yes.
7 That's the correction I want to make.

8 Q. So other than those corrections,
9 is your declaration complete and accurate as
10 of today?

11 A. Yes, based on the information I
12 received so far.

13 Q. Can you please turn to paragraph 4
14 of your declaration?

15 A. Paragraph 4 of my declaration?

16 Q. Yes.

17 A. Yes, I'm here.

18 Q. So at the very bottom of page 1,
19 continuing onto the next page, you state, "My
20 research over the last 35 years has involved
21 pioneering work in the areas of polypeptides
22 and proteins."

23 Do you see that?

24 A. Yes, I see that sentence.

25 Q. And you indicate that the work

1 spans a period of 35 years, correct?

2 A. Yes.

3 Q. So that goes back to about 1990?

4 A. Yeah. I graduated from college in
5 1990. I start research in that year.

6 Q. And you obtained your Ph.D. in
7 1997, correct?

8 A. Yes.

9 Q. So a portion of the 35-year period
10 you reference in paragraph 4 would have
11 occurred prior to you obtaining your Ph.D.,
12 correct?

13 A. Can you repeat the question,
14 please?

15 Q. A portion of the 35-year period
16 you reference in paragraph 4 of your
17 declaration occurred before you obtained your
18 Ph.D. in 1997, right?

19 A. As I mentioned, I started my
20 research as an undergraduate in --
21 undergraduate student since --

22 THE COURT REPORTER: In what?

23 A. Undergraduate student from 1990,
24 so yes.

25 So answer your question, my 35

1 years in research include my research before
2 my Ph.D., yes.

3 BY MS. PETERSON:

4 Q. Thank you.

5 Continuing on in that paragraph,
6 you mention that your research involved
7 peptide and protein chemistry analysis,
8 engineering and therapeutic development,
9 correct?

10 A. Yes, that's the sentence there.

11 Q. And you go on to say that it also
12 included work on peptide and protein drugs,
13 right?

14 A. That's correct.

15 Q. And you provide an example of a
16 peptide and protein drug as being an ADC; is
17 that correct?

18 A. Yes, ADC, yes.

19 Q. And what are ADCs?

20 A. ADC is mentioned in paragraph 3,
21 is antibody-drug conjugate, so the shorthand
22 is ADC.

23 Q. What are antibody-drug conjugates?

24 A. As the name indicate, this is a --
25 contains antibody. Also a drug, and the drug

1 can be defined very broadly. The classic
2 antibody-drug conjugates, the drug is a small
3 molecule, a toxic molecule.

4 Now the definition of the drug has
5 expanded dramatically, but the classic
6 definition is an antibody link or conjugate
7 to a small molecule toxic drug.

8 Q. You said an antibody linked or
9 conjugated to a small molecule toxic drug?

10 A. Yes, that's a classic definition
11 of ADC.

12 Q. Right. You also indicated that
13 the definition of the drug has expanded
14 dramatically.

15 At what point in time did the
16 definition of the drug expand? Or at what
17 point in time did the definition of ADC
18 expand?

19 MR. GIUNTA: Objection, form.

20 Go ahead, you can answer.

21 A. You know, in the very beginning,
22 if you look back at the history of what
23 people called antibody-drug conjugate, I
24 think in the 1980s or early 1990s people
25 actually used protein toxin as a drug instead

1 of small molecule.

2 So if we actually go back to the
3 early days of antibody-drug conjugate, one
4 can already see that instead of narrowly use
5 a small molecule drug we have called payload,
6 people have used other modalities as a drug
7 component.

8 Q. Those are modalities that have
9 been used as the drug component, you gave an
10 example of -- of a peptide therapeutic?

11 A. A protein toxin. What I mentioned
12 in the late '80s or early '90s, it's a
13 protein toxin.

14 Q. Looking at your reference to
15 peptide and protein drugs in paragraph 4,
16 therapeutic antibodies would be a subclass of
17 a protein drug, right?

18 A. Yes, antibody is a subclass of
19 therapeutic protein drugs, yes.

20 Q. And then antibody-drug conjugates
21 are another type of category of therapeutic
22 antibodies, right?

23 A. I think people distinguish
24 antibody from antibody-drug conjugates
25 because they're a different type of

1 modalities, but I don't think people put them
2 together, typically.

3 Q. So a therapeutic antibody and an
4 antibody-drug conjugate, those would be like
5 a subcategory of the broader class of
6 therapeutic protein drugs, correct?

7 MR. GIUNTA: Objection, form.
8 You can answer.

9 A. Again, because antibody-drug
10 conjugate is a conjugate drug, people treat
11 that a little bit differently than just
12 protein therapeutics. Yes, it does contain
13 antibody, which is a protein, but we
14 typically treat that as a different category
15 than pure protein-based drug.

16 BY MS. PETERSON:

17 Q. So in other words, what you're
18 saying is that antibody-drug conjugates are
19 actually something entirely different than a
20 protein drug, different category altogether?

21 A. There's no clear definition. They
22 are not entirely different.

23 As -- as I mentioned,
24 antibody-drug conjugates, as you know,
25 antibody is a protein drug, so they are

1 different.

2 Q. So it includes a protein drug
3 component along with other components?

4 A. The antibody-drug conjugate
5 include a protein component. Together it is
6 drug. The antibody-drug together is a drug,
7 yeah.

8 Q. Would you say that most or
9 entirely all of your research work over this
10 35-year period has been in the area of
11 polypeptides and proteins?

12 A. My work certainly include peptide
13 and proteins, but also include other
14 different molecules. I work on small
15 molecule chemistry, bioorganic chemist by
16 training, and also trained as an
17 enzymologist. I work on enzymes.

18 So -- and also different work
19 at -- work being working on.

20 Q. Approximately what percentage of
21 your research over the last 35 years has
22 involved polypeptides and proteins?

23 A. It's hard to divide that. I start
24 to work on conjugation since 1990, and I work
25 on antibody for my Ph.D. work, so that's

1 antibody protein work. For my postdoc work I
2 work on enzymes, so those are proteins.

3 So I've been working with enzymes
4 all my career. So that's been how many
5 years, 30 years, yeah, 35 years.

6 Q. Well, looking back at what you
7 said, you explained that your research work
8 included peptides and proteins, but also
9 other types of molecules, like small
10 molecules, bioorganic chemistry, and you gave
11 some other examples.

12 Do you recall that?

13 A. Yes.

14 Q. I'm just wondering approximately
15 what percentage of your research has been
16 specifically in the area of peptide and
17 protein drugs.

18 A. My work are not disconnected, why
19 I work on small molecules that can be as a
20 reagent to modify protein or peptides. They
21 can be a substrate or inhibitor --

22 THE COURT REPORTER: They can be?

23 A. Substrate or inhibitors of enzyme.
24 So -- so it's really the interaction between
25 small molecules and proteins.

1 So, yeah, my work has given --
2 it's on the small molecule side. Almost all
3 cases somehow relate to how they interact
4 with specific proteins.

5 BY MS. PETERSON:

6 Q. And out of your research work
7 involving peptide and protein drugs, how much
8 of that research approximately was
9 specifically directed to therapeutic
10 antibodies?

11 A. It's a continuum. Some of the
12 work are basic research to understand the
13 protein antibody's function and their
14 stability, and some have more direct impact
15 on therapeutic development.

16 For example, I start a company, so
17 the whole focus is to make a therapeutic
18 conjugate. In fact, it's antibody-drug
19 conjugate.

20 So yeah, it's hard to tell what
21 the fundamental research -- what part is more
22 what people call translational research,
23 yeah.

24 Q. Looking at both the fundamental
25 and translational research aspects of your

1 work relating to antibodies, I mean, can you
2 put a percentage on how much of your time
3 overall has been spent in that area?

4 A. I mean, it's hard to put the
5 percentage of time. And also, it's really
6 hard to see the impact of my work to drug
7 development.

8 For example, I discover a protein
9 chemistry, or is a chemical reaction that
10 people have not reported before. We
11 reporting the amount of protein peptides, and
12 later on other pharmaceutical company found
13 that interactions involve an antibody
14 chemistry.

15 So that work start as a chemistry
16 fundamental research, but very quickly people
17 found out the direct impact for
18 pharmaceutical development.

19 Q. Well, putting aside some of this,
20 I guess, fundamental research that you
21 described, how much -- or what percentage of
22 your research over the 35-year period has
23 been directly related to I think what you
24 called translational research in terms of
25 development of a therapeutic antibody?

1 A. As I mentioned, it's very
2 difficult to separate what people --
3 tradition called fundamental research or
4 transitional research.

5 For example, my postdoc work, my
6 laboratory study a metabolic pathway. Well,
7 that work directly relate to a fortification
8 of flour with folic acid. That is a -- were
9 health impact work. So, you know, the work
10 we do, you can label that a basic research,
11 but the basic research set the foundation for
12 health intervention in the U.S. and
13 worldwide.

14 So it's really hard to separate
15 those.

16 Q. When you're talking about your
17 basic research setting the foundation for
18 later developments, those would be later
19 developments and later research by others
20 researchers, though, right?

21 MR. GIUNTA: Objection, form.

22 A. No. My postdoc research advisory
23 Professor Rowena --

24 THE COURT REPORTER: My postdoc
25 research what?

1 A. Advisor. Professor Rowena
2 Matthews, because her fundamental work she
3 elect to the National Academy of Science, and
4 because that directly translated to health
5 impact, she also elect a member of National
6 Academy of Medicine.

7 So just is the same work in my
8 laboratory, and that have a both impact on
9 fundamental research, whether a direct impact
10 on health, and actually it's health
11 intervention.

12 BY MS. PETERSON:

13 Q. I think we're getting a little off
14 topic here. I was talking about
15 development -- research and development
16 activities directed to therapeutic
17 antibodies.

18 So what percentage of your
19 research work over your 35-period has been
20 specifically related to the synthesis and
21 development of a therapeutic antibody?

22 A. So can I say my post-Ph.D. work,
23 my doctoral research, was on catalytic
24 antibodies, so that's related to antibody
25 work.

1 And I started working on protein
2 chemistry since I've become a faculty member,
3 and I started working with industry as early
4 as 2009, and that directly on antibodies,
5 so --

6 THE COURT REPORTER: Not directly?

7 A. Directly, 2009, directly on
8 antibodies. And I have been working with
9 antibodies, various aspect antibodies, since
10 then, yeah.

11 BY MS. PETERSON:

12 Q. When you referred to starting to
13 work on protein chemistry, again, that's --
14 that's a broader category than just
15 antibodies, right?

16 A. That's correct. Protein chemistry
17 can apply to antibodies, can apply to other
18 proteins.

19 Q. Can you turn back to Exhibit 2,
20 your CV?

21 A. Yes, my CV, I have it here.

22 Q. Is your CV complete as of today?

23 A. My CV was updated on September
24 22nd, 2025. I think since then I published
25 maybe one or two more papers. Other than

1 that, the information were -- is mostly the
2 same, yeah.

3 Q. Okay. So you're saying that this
4 version of your CV was last update -- or this
5 particular version of your CV was updated in
6 September of 2025; is that correct?

7 A. It's on -- yes. It's on the last
8 page on my CV.

9 Q. And it's up to date other than,
10 perhaps, one or two more papers having
11 published since that time?

12 A. Yes, and maybe some more
13 conference talk I -- talk I was invited to
14 deliver.

15 Q. Looking at your positions and
16 research experiences, would it be fair to say
17 that since obtaining your Ph.D. in 1997
18 you've held various positions in academia?

19 A. Yeah. My main appointment has
20 been academia. Since 2000 I become an
21 independent researcher. At the same time I
22 work very extensively with industry, yeah.

23 Q. When you say you work very
24 extensively with industry, you're talking in
25 terms of consultations with industry?

1 A. Including consulting,
2 collaboration.

3 Q. You have not been directly
4 employed by any pharmaceutical or biotech
5 companies in the industry, correct?

6 A. Not employed, but I also cofounded
7 company, so I'm an advisor, cofounder of a
8 company as well, yeah.

9 Q. Yeah, I saw those listed in your
10 CV. Thank you for clarifying that.

11 But I just wanted to confirm that
12 you have collaborated with and consulted with
13 industry, but you have not been directly
14 employed by the biotech or pharmaceutical
15 industry in terms of actual employment,
16 right?

17 MR. GIUNTA: Objection, form.
18 You can answer.

19 A. Not as employee, yeah.

20 BY MS. PETERSON:

21 Q. Let's take a look at those
22 companies that you mentioned. I think
23 they're on page 2 of your CV, down at the
24 bottom. I believe they're listed under the
25 section titled "Entrepreneurship"; is that

1 correct?

2 A. Yes, I list some of my roles with
3 various companies.

4 Q. And what type of business was
5 Alycorn Biosciences engaged in?

6 A. Yeah. Alycorn spells
7 A-l-y-c-o-r-n Biosciences. This is a company
8 I started with my wife in 2023, so this
9 company is -- part is for consulting work,
10 part is we have contract work with
11 pharmaceutical companies.

12 Q. What about the next one, Nira
13 Biosciences? What type of business was that
14 entity engaged in?

15 A. Yeah. Nira is N-i-r-a, Nira
16 Biosciences. So this is a startup company I
17 cofounded at the end of 2020, and we receive
18 a venture capital investment to develop an
19 antibody-drug conjugate drug.

20 Q. All right. To make sure I
21 understand, Nira Biosciences, it was formed
22 in 2020 and received funding to develop an
23 antibody-drug conjugate drug; is that
24 correct?

25 A. Develop antibody-drug conjugate --

1 THE COURT REPORTER: I'm sorry?

2 A. Develop antibody-drug conjugate as
3 a therapeutics, yeah.

4 BY MS. PETERSON:

5 Q. And that was over the time frame
6 2020 through 2024?

7 A. The company was acquired by Alys
8 Pharmaceuticals. Alys is A-l-y-s
9 Pharmaceuticals in 2024.

10 Q. The development work conducted by
11 Nira Biosciences to develop an antibody-drug
12 conjugate therapeutic, that was work that
13 took place between 2020 and 2024, right?

14 A. It still continue nowadays, and
15 Alys Pharmaceuticals.

16 Q. Okay. But it started in 2020,
17 right?

18 A. That's right.

19 Q. And continued through 2024 until
20 the company was acquired by Alys
21 Pharmaceuticals?

22 A. That's right, yep.

23 Q. Has that product entered into
24 clinical trials?

25 A. No, it has not yet.

1 Q. How about the next company on the
2 list? It just says NewCo Stealth Mode.

3 Can you tell me about that -- that
4 entity?

5 A. Yeah, Newco is N-e-w-c-o.
6 Basically it means a new company. Stealth
7 Mode is because of the intellectual property
8 issues. Some company are not ready to
9 disclose any detail about what they are
10 doing, so that's -- we're allowed to mention
11 that. So this is a company I was -- a friend
12 of mine founded, asked me to start from the
13 very beginning to lead their chemistry
14 program, particularly on conjugation.

15 Q. And this was in the 2021 to 2023
16 time frame?

17 A. That's right.

18 Q. Then looking at the last company
19 on the list, Amethyst Isotopes, what type of
20 business was that entity engaged in?

21 A. Yeah, Amethyst just like the
22 stone, A-m-e-t-h-y-s-t, Isotopes,
23 I-s-o-t-o-p-e-s. This is a company I
24 founded, tried to develop a method to
25 isotopically label small molecule drugs or

1 other drugs like proteins as a way for
2 analysis. It is a modification conjugation
3 method to label molecules.

4 Q. Thank you.

5 MS. PETERSON: How about we go off
6 the record and take a short break?

7 THE VIDEOGRAPHER: The time is
8 10:31. We are going off the record.

9 (Recess taken at 10:31 a.m. to 10:45 a.m.)

10 THE VIDEOGRAPHER: We are back on
11 the record. The time is 10:45.

12 BY MS. PETERSON:

13 Q. Welcome back.

14 A. Hello.

15 Q. Let's stick with Exhibit 2, your
16 CV. If you can turn to page 3.

17 A. Yes, page 3 of my CV, yes, I'm
18 here.

19 Q. And I see you have a list of
20 activities where you were a consultant for
21 various companies.

22 Do you see that?

23 A. Yes, I see that paragraph.

24 Q. Which, if any of those, consulting
25 arrangements involved work specifically

1 concerning antibody-drug conjugates?

2 A. So start from the early ones at
3 AbbVie, A-b-b-v-i-e. They changed the name.
4 They were Abbott. That's -- I was consultant
5 for the company from 2009 to 2017, and during
6 that time AbbVie had an active collaboration
7 with Seattle Genetics, antibody-drug
8 conjugate program, so I was involved in some
9 of the chemistry of antibody-drug conjugate
10 during that time.

11 Q. And specifically what were you
12 doing with respect to the chemistry of
13 antibody-drug conjugates during that time
14 frame?

15 A. We have not published the results,
16 so I cannot disclose all the details, but I
17 can tell you that it involved in the
18 chemistry of antibody-drug conjugates, such
19 as the stability of linkers.

20 THE COURT REPORTER: The what?

21 A. Stability of linkers.

22 BY MS. PETERSON:

23 Q. Did any of the other consulting
24 arrangements listed on page 3 of your CV
25 involve work specifically relating to

1 antibody-drug conjugates?

2 A. The other work is Takeda, so I was
3 a consultant in 2016 to work with them on the
4 development of antibody-drug conjugates.

5 Q. Can you be any more specific about
6 what you were doing with respect to the
7 development of antibody-drug conjugates with
8 Takeda during that time frame?

9 A. Takeda launch an antibody-drug
10 conjugate with other company, but they did
11 not have in-house expertise for the chemistry
12 analysis of antibody-drug conjugate, so I was
13 brought in as a consultant to work with the
14 analytical and the chemistry team on, you
15 know, those aspect of antibody-drug conjugate
16 chemistry and analysis.

17 Q. And what was the product?

18 A. They colaunch a -- I forgot which
19 one they colaunch. I think it was a -- I
20 forgot what product -- I wasn't involved in
21 developing that commercial product.

22 They co-developed with that ADC
23 product with other company, and then Takeda
24 themself want to develop their own
25 antibody-drug conjugate. So my role is to

1 get involved in the chemistry and analysis of
2 ADCs, yeah.

3 I wasn't involved in launching
4 that commercial product.

5 Q. So for your work with Takeda, when
6 they were looking to develop their own
7 antibody-drug conjugate, did that result in a
8 commercial therapeutic ADC?

9 A. I have not followed up with them
10 on the subsequent work.

11 Q. And what about the work with
12 AbbVie? Did that relate -- or did that
13 result in a commercial therapeutic ADC
14 product?

15 A. I don't follow their collaborative
16 program, so I don't know what's the outcome
17 of those products, whether they are
18 commercialized or not.

19 Q. So for AbbVie you list a time
20 frame of 2009 to 2017.

21 Were you working with AbbVie
22 continuously during that time period?

23 A. Yes, I was working with them
24 continuously during that period.

25 Q. Were you working with AbbVie

1 during that time period on a number of
2 different projects?

3 A. Yes.

4 Q. What other types of projects were
5 you working on with AbbVie during that time
6 period of 2009 to '17?

7 A. As I said, a lot of the industry
8 collaboration I cannot fully disclose. We
9 did publish three papers, and one of the
10 paper -- publication are -- the work was on
11 Humira, H-u-m-i-r-a, so that's a very
12 successful commercial antibody drug.

13 Q. Were you a coauthor on those
14 papers relating to Humira?

15 A. Yes. We published, I think, four
16 paper total with AbbVie, and one of the paper
17 explicitly lists Humira as an antibody, and
18 the others we only list as antibody, so I
19 cannot disclose whether they are Humira or
20 not.

21 Q. Are those papers listed on your
22 CV?

23 A. They should be.

24 Q. Can you take a look at your
25 publication list and let me know which papers

1 you're referring to?

2 A. Let me take a look.

3 So one of the paper we publish is
4 listed on page 13 of my CV, in the middle
5 part of that page. The title of the paper is
6 "Detection of Alkynes Via Click Chemistry
7 with a Brominate Coumarin Azide," and is --
8 the first author's name is Yang, Y-a-n-g.
9 That work is related to antibody conjugation.
10 That's the first one.

11 Another paper is listed on page
12 14. The title is "When Good Intentions Go
13 Awry." The first author's last is Chumsae,
14 C-h-m-s-a-e [sic], published in 2015 in
15 Analytical Chemistry. That's the second
16 paper.

17 The third paper, the title is
18 "Discovery of a Chemical Modification by
19 Citric Acid." Again, the first author's last
20 name is Chumsae, C-h-u-m-s-a-e, published
21 2014 in Analytical Chemistry.

22 THE COURT REPORTER: In what?

23 A. Analytical Chemistry.

24 Another paper from AbbVie is
25 listed on page 14 as well, the second one

1 from bottom. The title of the paper is
2 "Arginine," A-r-g-i-n-i-n-e, "Modifications
3 by Methylglyoxal," M-e-t-h-y-g-l-y-o-x-a-l
4 [sic]. Again, the first author's last name
5 is Chumsae, C-h-u-m-s-a-e. Again, it is --
6 was published in Analytical Chemistry in
7 2013.

8 I think these are the three --
9 four research paper we published, and we
10 publish review with one of the authors.

11 BY MS. PETERSON:

12 Q. For the three articles that you
13 identified on page 14, each of those
14 related -- related to a monoclonal antibody,
15 not an ADC, right?

16 A. That's right. Those are related
17 to antibodies alone, yeah.

18 Q. Now, you mentioned that some of
19 your work with AbbVie over this time frame
20 did involve studying the chemistry of
21 antibody-drug conjugates. I assume that
22 wasn't over that entire time frame that you
23 have listed in your CV for the AbbVie work?

24 A. I don't remember the exactly time
25 when we started the project, but the first

1 paper I mentioned, that is toward that
2 program for antibody-drug conjugate.

3 Q. So was it just that one project
4 that you handled with AbbVie related to
5 antibody-drug conjugates?

6 A. I cannot disclose how many
7 project -- I can tell you we published a
8 paper related to antibody-drug conjugate as
9 the first paper I mentioned, and I can tell
10 you this is popular information that AbbVie
11 had a collaboration with Seattle Genetics on
12 antibody-drug conjugate, so I was involved
13 through that collaboration through -- with
14 AbbVie and the Seattle Genetics.

15 Q. So that paper that you identified
16 on page 13 of your CV, that related to the
17 work involving the collaboration with Seattle
18 Genetics?

19 A. No, not specifically. What I
20 mentioned is AbbVie had the collaborative
21 program with Seattle Genetics. Seattle
22 Genetics, as you know, one of the two
23 company --

24 THE COURT REPORTER: Seattle
25 Genetics what?

1 A. Is one of the company pioneered in
2 antibody-drug conjugate. So that paper is
3 part of the antibody-drug conjugate program
4 at AbbVie.

5 BY MS. PETERSON:

6 Q. I guess I'm not -- not quite
7 understanding.

8 That paper, it relates to the
9 antibody-drug conjugate program at AbbVie,
10 but it's unrelated to the collaboration with
11 Seattle Genetics; is that what you're
12 saying?

13 A. The collaboration with Seattle
14 Genetics was clearly to develop antibody-drug
15 conjugate as therapeutics, and the research
16 involved different aspect of antibody-drug
17 conjugates, how you make it, how you identify
18 target, how you characterize the conjugate,
19 how you purify them.

20 So this paper is related to one
21 aspect of antibody-drug conjugate.

22 Q. How long did that project take
23 place?

24 A. Which project?

25 Q. The project that you were

1 mentioning that you were involved -- how long
2 did your involvement last with this project
3 at AbbVie related to antibody-drug
4 conjugates?

5 A. Several years.

6 Q. What time frame?

7 A. I don't know -- remember exactly
8 when we started, when Seattle Genetics and
9 AbbVie had the collaboration and I was
10 involved, and then we published that paper, I
11 think, 2017.

12 Q. You didn't work full-time on that
13 project over that period of time with AbbVie,
14 correct?

15 MR. GIUNTA: Objection, form.
16 You can answer.

17 BY MS. PETERSON:

18 Q. Actually, let me ask that
19 question.

20 Over that time frame when you were
21 collaborating with AbbVie, that was not
22 your -- you were not working full-time with
23 AbbVie over that time frame, right?

24 MR. GIUNTA: Objection, form.
25 You can answer.

1 A. I was a consultant. I was not
2 full-time employee there.

3 BY MS. PETERSON:

4 Q. So you were doing other research
5 at the time as well?

6 A. Yes. I -- I mentioned during that
7 period of time we were working on antibodies
8 as well, as we show in the publication with
9 AbbVie and Amgen, which is also antibody.

10 Q. Yeah. So you were -- during that
11 time frame when you were consulting with
12 AbbVie on their antibody-drug conjugate work,
13 you were also consulting with other companies
14 and doing your own research, right?

15 A. Right, my other work with other
16 company also involving antibodies, and my
17 own laboratory.

18 Q. But that's not what I'm asking.
19 I'm just asking more simply, you
20 identified a very long time frame of
21 consulting work with AbbVie from 2009 to
22 2017, correct?

23 A. That's right, yeah.

24 Q. And over that time frame of 2009
25 to '17, you were doing additional research

1 beyond what you were doing in that consulting
2 work for AbbVie, right?

3 A. Of course.

4 MR. GIUNTA: Objection, form.

5 BY MS. PETERSON:

6 Q. So your work with AbbVie was not a
7 full-time -- not taking up your time
8 full-time, correct?

9 A. That's right. I was a consultant,
10 yes, not a full-time employee at AbbVie.

11 THE COURT REPORTER: Not a
12 full-time?

13 A. Not a full-time employee.

14 BY MS. PETERSON:

15 Q. Okay. Now, looking specifically
16 at the time frame that you mentioned that you
17 can't recall when it was, but there is a
18 period of time where you were working on
19 their antibody-drug conjugate program, you
20 also were not working full-time on that
21 project, correct?

22 MR. GIUNTA: Objection, form.

23 You can answer.

24 A. The antibody-drug conjugate, part
25 of it's antibodies, so my work with AbbVie

1 always involved antibody. So whether that is
2 antibody alone, whether it's antibody-drug
3 conjugate, it always involved some aspect of
4 antibody.

5 BY MS. PETERSON:

6 Q. I understand.

7 A. Yeah.

8 Q. But I'm asking specifically about
9 antibody-drug conjugates now.

10 There was a period of time where
11 you were working on antibody-drug conjugates
12 as part of your consulting with AbbVie,
13 correct?

14 A. That's right.

15 Q. And when you were consulting with
16 AbbVie on the antibody-drug conjugate
17 program, that was not a full-time job for
18 you, correct?

19 A. That was not. I was a consultant,
20 so it's not full-time employment.

21 Q. And you don't recall the specific
22 time frame when you were doing that research
23 with AbbVie as a consultant on their
24 antibody-drug conjugate program, correct?

25 MR. GIUNTA: Objection, form.

1 You can answer.

2 A. Can you repeat the question?

3 Sorry, I didn't catch it.

4 BY MS. PETERSON:

5 Q. And you don't recall the specific
6 time frame when you were doing that research
7 with AbbVie as a consultant on their
8 antibody-drug conjugate program?

9 MR. GIUNTA: Same objection.

10 Go ahead.

11 A. I don't remember when they start
12 the collaboration, but I was involved when
13 they start the collaboration with Seattle
14 Genetics.

15 BY MS. PETERSON:

16 Q. So you don't recall the specific
17 time period when you were personally
18 consulting with AbbVie in connection with
19 their antibody-drug conjugate program, right?

20 MR. GIUNTA: Objection, form.

21 You can answer.

22 A. As I said, we can check when
23 Seattle Genetics and AbbVie start
24 collaboration. That's the time I start
25 getting involved in antibody-drug conjugate

1 through AbbVie.

2 BY MS. PETERSON:

3 Q. But other than that, you don't
4 have a recollection right now about that
5 specific time frame, what it was?

6 A. I cannot recall the exact date.

7 Q. Did the consulting work that you
8 conducted with AbbVie involving antibody-drug
9 conjugates, did that include site-specific
10 conjugation?

11 A. I cannot disclose more than what
12 we published, unfortunately.

13 Q. Did that work with AbbVie on
14 antibody-drug conjugates include click
15 chemistry or the use of bioorthogonal
16 functional groups?

17 A. I cannot disclose exactly what I
18 did with AbbVie, because of the consulting.
19 I can tell you what publication. You can
20 look at my publication, 2017. The title is
21 "The Detection of Alkynes Via Click Chemistry
22 with a Brominated Coumarin," C-o-u-m-a-r-n
23 [sic], "Azide," so that involved click
24 chemistry. I disclosed that in that paper.

25 Q. Other than what's disclosed in

1 that paper, you can't identify whether your
2 work with AbbVie involved site-specific
3 antibody conjugation or the use of
4 bioorthogonal functional groups?

5 A. As you understand, as a consultant
6 I cannot disclose.

7 Q. Yes, I understand. I just want to
8 make sure that the record's clear.

9 A. Yeah.

10 Q. So -- so other than what's
11 disclosed in that paper, you can't explain
12 because of confidentiality obligations what
13 the nature of any other work might have
14 related to?

15 MR. GIUNTA: Objection, form.

16 A. Yeah, as a consultant, I cannot
17 disclose more than what is publicly
18 available, yeah.

19 BY MS. PETERSON:

20 Q. Fair enough.

21 If you could turn to page 10 of
22 your CV.

23 A. Page 10 of my CV?

24 Q. Yes.

25 A. Yes, I'm here.

1 Q. I'm sorry, page 12.

2 A. Page 12.

3 Yes, I'm on page 12.

4 Q. At the bottom of the page I see a
5 couple of articles that list someone named
6 Amissi Sadiki as the first listed author.

7 Do you see those?

8 A. Yes. Amissi Sadiki was
9 my graduate student.

10 Q. So that was a graduate student
11 working in your lab at the time?

12 A. He was a graduate student, also
13 cofounded the company with me.

14 Q. Which company was that?

15 A. Nira Biosciences, N-i-r-a
16 Biosciences.

17 Q. If you could go back to your
18 declaration and turn to paragraph 16.

19 A. Paragraph 16 on page 6?

20 Q. Yes.

21 A. Yes, I'm here.

22 Q. And here in paragraph 16 you state
23 your understanding that "the patent claims
24 must be read as they would be -- or as they
25 would have been understood by a person of

1 skill in the art at the time of the claimed
2 invention"; right?

3 A. I'll just quickly review this
4 part.

5 Okay. Repeat your question,
6 please, Ms. Peterson. Sorry.

7 Q. So it's your understanding that
8 patent claims must be read as they would have
9 been understood by a person of skill in the
10 art at the time of the claimed invention?

11 A. Right, that's right.

12 Q. And for purposes of this case you
13 have assumed the date of invention is March
14 9 -- oh, sorry, March 8th, 2019?

15 A. I was told by counsel that the
16 priority date is March 8th, 2019, yeah.

17 Q. And that's the earliest priority
18 date claimed by AbTis, right?

19 MR. GIUNTA: Objection, form.
20 You can answer.

21 A. I was told by the counsel that's
22 the date I should use.

23 BY MS. PETERSON:

24 Q. To confirm, you did not consider
25 any other later date with respect to the date

1 of the invention in forming your opinions,
2 correct?

3 A. What's the later date? Can you
4 repeat your question?

5 Q. You did not consider any date
6 later in time other than March 8, 2019, in
7 forming your opinions, right?

8 A. You mean date?

9 Q. Date.

10 A. I was told the priority date,
11 right, that's the term used here, was
12 March 8th, 2019, so I consider that date.

13 Q. So your opinions are 100 percent
14 based on considering the date of invention as
15 March 8th, 2019; is that correct?

16 MR. GIUNTA: Objection, form.

17 A. Sorry. Could you repeat the
18 question, Ms. Peterson?

19 BY MS. PETERSON:

20 Q. The opinions contained in your
21 declaration --

22 A. Yeah.

23 Q. -- those are entirely dependent on
24 a date of invention of March 8th, 2019,
25 right?

1 MR. GIUNTA: Objection, form.

2 A. I'm not clear about your question
3 means completely, so I would use that date to
4 form my opinion, yeah.

5 BY MS. PETERSON:

6 Q. You used that one date to form
7 your opinions. You did not consider any
8 other dates, right?

9 A. I thought -- my understanding on
10 legal are you have to have a specific date to
11 a particular day, not even month --

12 THE COURT REPORTER: To predict a
13 day?

14 A. Particular day, not even month, so
15 I thought that's a legal -- a rule that you
16 have to use a day. If anything published
17 after that day, it cannot be counted as
18 priority, for example. So those are some
19 legal ramification for a particular day.
20 That's my understanding.

21 BY MS. PETERSON:

22 Q. Maybe I can ask some other
23 questions to clarify that.

24 You did not provide any, like,
25 alternate opinions based on a different date

1 of invention, right?

2 MR. GIUNTA: Objection, form.

3 A. I can't recall I was asked to
4 consider if a different priority date,
5 whether my opinion be different or not. I
6 was not asked to do that.

7 BY MS. PETERSON:

8 Q. Okay. If you could turn to page
9 18 of your declaration.

10 A. Right here. I'm here, yeah,
11 paragraph 18.

12 Q. And in paragraph 18 you repeat the
13 definition of a POSA that Dr. Tumey provided
14 in his declaration, right?

15 A. Yes. As I recalled, I copied
16 Dr. Tumey's definition of a POSA.

17 Q. And you don't have any
18 disagreement with Dr. Tumey's definition of a
19 POSA, right?

20 A. I use Dr. Tumey's definition. I
21 think there's -- they're slightly different,
22 more or less experience, one could change my
23 opinion, so that's why I did not change his
24 definition of a POSA.

25 Q. You so applied his definition --

1 you applied Dr. Tumey's definition of a POSA
2 in forming your opinions, correct?

3 MR. GIUNTA: Objection, form.

4 A. Yeah, so I -- I adopt his
5 definition for a POSA for my analysis.

6 BY MS. PETERSON:

7 Q. Would you consider yourself to
8 have satisfied the definition of a POSA as of
9 March 8th, 2019?

10 A. Certainly, I do. I'm -- I'm an
11 expert -- I'm a POSA. By this definition I'm
12 probably a super expert by -- but -- but by
13 the same criteria, yeah.

14 Q. But you didn't -- you didn't say
15 that in your declaration, right?

16 A. My declaration didn't ask me to do
17 that. I'm an expert witness. I'm an expert
18 in the field, so I have expertise beyond what
19 a POSA would have at that time.

20 (Exhibit 4, Site-specific conjugation of
21 native antibody, marked for identification.)

22 MS. PETERSON: I just marked as
23 Zhou Exhibit 4 a copy of an article
24 titled "Site-Specific Conjugation of
25 Native Antibody."

1 BY MS. PETERSON:

2 Q. Here's a copy of that for you as
3 well, Doctor.

4 A. Thank you, Ms. Peterson.

5 Q. Do you recognize Exhibit 4?

6 A. Let me take a quick look.

7 Yeah, this is a review article my
8 students and myself published in 2020 in the
9 Journal of Antibody Therapeutics.

10 The first author's last name is
11 Sadiki, S-a-d-i-k-i.

12 Q. And that's the grad student that
13 you were just referencing that was working in
14 your lab?

15 A. Yeah, at that time he was still my
16 graduate student.

17 THE COURT REPORTER: At that time
18 he was?

19 A. Still my graduate student.

20 BY MS. PETERSON:

21 Q. Looking at the abstract of
22 Exhibit 4, in the third sentence you
23 acknowledge that "site-specific methods
24 produce well-defined and more homogeneous
25 antibody conjugates, ensuring developability

1 and clinical applications," correct?

2 MR. GIUNTA: Objection, form.

3 You can answer.

4 A. You mean the sentence,
5 "Conversely, site-specific methods" --

6 BY MS. PETERSON:

7 Q. Yes.

8 A. -- "produce well-defined and more
9 homogeneous antibody conjugates, ensuring
10 developability and clinical applications."

11 Yes, that's the sentence. Was
12 there a question? Sorry. Could you repeat
13 that, Ms. Peterson?

14 Q. I just wanted to make sure that I
15 had that sentence stated correctly.

16 So in the abstract of your paper,
17 Exhibit 4, you're acknowledging that
18 "site-specific methods produce well-defined
19 and more homogeneous antibody conjugates,
20 ensuring developability and clinical
21 applications," correct?

22 A. This is a high-level summary of
23 the site-specific approach.

24 Q. Yeah. I think you said this was a
25 review article?

1 A. Yes, this was a review article.

2 Q. So you're reviewing work that had
3 been conducted previously in this area?

4 A. Yes. We may have perspective on
5 some of the future direction. Yes, we have a
6 paragraph on future perspectives, but the
7 majority of the article were -- was on the
8 past work.

9 Q. And in that sentence, what did you
10 mean by "ensuring developability
11 and clinical" -- sorry. Let me strike that.

12 In that one sentence that we just
13 looked at, what does that mean to ensure
14 developability?

15 A. Again, this is a review article.
16 This is the general thought, so this is a
17 high-level summary. Developability, the
18 general definition of developability is
19 enable pharmaceutical industry to make a drug
20 in a practical low-cost way, so not only they
21 can make it, but they can make it relatively
22 fast, relatively reproducibly, relatively
23 lower cost. So developabilities not define
24 the word, but it's kind of meant things like
25 that here, yeah.

1 Q. Okay. Thank you?

2 A. Yeah.

3 Q. In the next sentence you report
4 that "several recent side-by-side comparisons
5 of site-specific and stochastic methods have
6 demonstrated that site-specific approaches
7 are more likely to achieve their desired
8 properties and functions."

9 A. Yeah. Stochastic,
10 s-t-o-c-h-a-s-t-i-c, are -- basically means
11 nonsite-specific method --

12 THE COURT REPORTER: Non?

13 A. Nonsite, s-i-t-e, specific method
14 in this context.

15 So this sentence means that are
16 more likely, because we don't have all the
17 data, and people think are -- because the
18 site-specific conjugation is more
19 homogeneous, make a development a little bit
20 easier because they're dealing with more pure
21 homogeneous species.

22 So this sentence said that people
23 thought at that time that is more likely to
24 move along the pipeline.

25 BY MS. PETERSON:

1 Q. And that was on the basis of some
2 side-by-side comparisons of the site-specific
3 and nonsite-specific methods, correct?

4 A. Some are -- you know, that time
5 was very limited data for site-specific and
6 nonspecific approach, part of because
7 industry don't publish everything, you know,
8 so it's a very new field. So people still
9 trying many different things.

10 So people -- really, not a lot of
11 data to do all the comparison, but there's
12 some kind of thought at that time that
13 site-specific will be better than
14 nonsite-specific method.

15 Q. But you do report in the abstract
16 here that there have been side-by-side
17 comparisons with the two methods, correct?

18 A. Right. The site-specific method
19 approach are limited because many of the work
20 are then not necessarily or in the exact
21 content of developing ADCs.

22 There are some early work
23 methodologies, so it could be just a method,
24 compared method that may not have the animal
25 data yet. So it's just a emerging trend that

1 people were thinking at that time, yeah.

2 What I was trying to say here,
3 this review article, is people thought that
4 the site-specific would be more likely, but
5 we need a data, and there is some data, but
6 very limited data.

7 Q. I -- I appreciate that
8 explanation.

9 A. Yeah, okay.

10 Q. I just want to make it clear for
11 the record that you have acknowledged that
12 there were side-by-side comparisons at the
13 site-specific and nonsite-specific antibody
14 conjugates, correct?

15 A. Yeah. The thought of that is more
16 likely, meaning that people thought that is
17 possibly be better, but we don't have all the
18 data to assure that is better.

19 Q. I understand you're saying that
20 there was limited data.

21 A. Yeah.

22 Q. But certainly there were some
23 side-by-side comparisons of the two
24 technologies that had occurred at this time,
25 correct?

1 A. That's right. There were some
2 side-by-side comparisons of these methods,
3 yeah.

4 Q. Thank you. You had also mentioned
5 that it was relatively new technology, but if
6 you look at Figure 7 of your paper at page
7 280, looking at the legend for Figure 7, you
8 are acknowledging that site-specific ADCs
9 entering clinical trials via conjugation
10 technology over the years has been increasing
11 from 2011 to 2020, right?

12 A. That Figure 7 is from a database
13 or -- I think that database is from Beacon
14 Target Therapies. So this figure is provided
15 by them, and they have a little bit different
16 definition of site-specific than our --
17 people use in the field and what I define
18 site-specific. So we got this figure from
19 that database, yeah.

20 Q. So you got this figure from the
21 database from Beacon Targeted Therapeutics,
22 but you did include it in your review
23 article, correct?

24 A. Right. Because it is a commercial
25 database we don't have direct access to the

1 database, and so this is the figure they
2 published, and I got permission to use this
3 figure.

4 Q. Looking at the figure, it appears
5 that from 2016 on at least 50 percent of ADCs
6 entering the clinic were prepared by
7 site-specific conjugation technology,
8 correct?

9 A. By Beacon, the database or
10 definition, yes, so they're more --

11 THE COURT REPORTER: I'm sorry.
12 Can you repeat your answer?

13 A. By Beacon, the database --

14 THE COURT REPORTER: By Beacon?

15 A. A definition, site-specific they
16 are more into the clinical study.

17 BY MS. PETERSON:

18 Q. So Beacon was reporting that by
19 2016 at least 50 percent of ADCs entering the
20 clinic were prepared through site-specific
21 conjugation technology, correct?

22 A. Right, by their definition.

23 Q. And you don't report here in
24 Figure 7 what Beacon's definition of
25 site-specific conjugation was, correct?

1 A. No, I did not. I don't recall we
2 spent that much detail. This just gave a
3 general trend what -- Beacon is a leading
4 database for industry, what they consider
5 site-specific method, just to show that
6 general trend.

7 Q. Going back to the abstract.

8 A. Yes.

9 Q. About halfway down, do you see the
10 sentence that starts "Herein"?

11 A. "Herein we review several standard
12 and practical site-specific bioconjugation
13 methods for native antibodies," that
14 sentence?

15 Q. Yes.

16 A. Yes, okay.

17 Q. So based on that sentence, it
18 sounds like you, at least as part of this
19 review article, had considered several
20 standard site-specific bioconjugation
21 methods, correct?

22 A. Now reading back, we probably call
23 it -- we shouldn't called it standard.
24 There's nobody set the standard.

25 I think what it really means is

1 more practical. That's probably a more
2 accurate description of the --

3 Q. But you did refer to them as
4 standard at the time, right?

5 A. And my students are coauthors as
6 well, so --

7 THE COURT REPORTER: And my what?

8 A. My students are coauthors, so the
9 word standard -- yeah. I use the word
10 "standard practical." I really meant is more
11 for practical or people more commonly used,
12 yeah.

13 What I'm trying to say there, for
14 pharmaceutical development FDA has no --

15 THE COURT REPORTER: For what
16 development?

17 A. For pharmaceutical development,
18 FDA, had no standard for what method we
19 should use.

20 BY MS. PETERSON:

21 Q. But that's not what you said in
22 this article, right?

23 A. Right, yeah. That's what I mean,
24 what I try to explain to you, what I meant
25 here, "standard" and "practical."

1 Q. Okay. But you did use the word
2 "standard" in this article on which you are
3 the last named author, correct?

4 A. Yes, I did use the word
5 "standard."

6 Q. And you would agree that at the
7 time that you prepared this review article,
8 there were several recognized advantages to
9 site-specific conjugated methods, correct?

10 MR. GIUNTA: Objection, form.

11 A. Compared to what method?

12 BY MS. PETERSON:

13 Q. Compared to nonspecific
14 conjugation methods.

15 A. There are some advantage for
16 site-specific conjugation, for some aspect an
17 advantage.

18 Q. And do those advantages include
19 producing homogeneous and better-defined
20 conjugates?

21 A. That's right, yeah.

22 Q. Another advantage of site-specific
23 conjugation is that it would be less likely
24 to compromise the conjugate's biological
25 activity?

1 A. We don't know that, that time
2 or -- by the time we write -- we wrote a
3 review in 2000, we just don't have enough
4 data or especially animal testing, let alone
5 human. So we don't have data for those
6 method.

7 Q. Can you take a look at page 272 of
8 Exhibit 4?

9 A. 272?

10 Q. Yep, the first column in the
11 second-to-last paragraph that starts "To
12 overcome."

13 Do you see that paragraph?

14 A. Yes, "To overcome nonspecific
15 conjugation hurdles."

16 Q. Yep. So in this paragraph you're
17 reporting that "To overcome nonspecific
18 conjugation hurdles, site-specific methods to
19 modify antibodies produced homogeneous and
20 well-defined conjugate and do not compromise
21 the conjugate's biological activity."

22 That's what you reported here,
23 right?

24 A. Let me just real quickly review
25 that.

1 Yes, so this sentence is about
2 degrees of activities. It's not yes and no,
3 or on/off our activity. You can see the
4 sentence -- next sentence here, "to show
5 increased binding efficiency."

6 THE COURT REPORTER: Binding?

7 A. Binding, yeah, efficiency.

8 So any two method may have certain
9 degrees of difference, yeah.

10 BY MS. PETERSON:

11 Q. But one of the -- one of the
12 potential advantages you're reporting here
13 about site-specific conjugation is the
14 ability to produce homogeneous and
15 well-defined conjugates, correct?

16 A. Well-defined and homogeneous,
17 that's correct, yeah.

18 Q. And also potentially the -- this
19 lack of impact on the biological activity of
20 the conjugate as well, right?

21 A. As I said, do not compromise -- we
22 wrote that way, but really, you know, in
23 sciences means that has maybe less, maybe
24 have less degree of impact. But never is yes
25 or no or on and off, right, black and white.

1 Q. So perhaps not a lack of impact,
2 but a lesser degree of impact on the
3 conjugate's biological activity; that's what
4 you mean here?

5 A. Yeah, compromise, right,
6 compromised, you know, in some ways, you
7 know, implies somewhat affect -- affected
8 activities.

9 THE COURT REPORTER: Affected?

10 A. Yeah, affected different
11 activities.

12 BY MS. PETERSON:

13 Q. And in the last sentence of that
14 paragraph you refer to "the advents of click
15 and other bioorthogonal chemistries, which
16 are fast, high yielding, and with
17 commercially available reagents that allowed
18 the construction of various antibody
19 conjugates via site-specific conjugation,"
20 correct?

21 A. That's right. You're right, that
22 sentence, right.

23 Q. Looking at that sentence, it
24 appears that you're citing three references
25 that are identified as 19 through 21,

1 correct?

2 A. That's the citation I list in that
3 paragraph.

4 Q. Yeah. That citation refers to
5 numbers 19 to 21, correct?

6 A. Yeah. I'm just checking the
7 reference in the back, on the back of paper,
8 19 to 21. 19 is our Sharpless paper. Number
9 20 is -- I'm sure that's also by Sharpless
10 paper. Number 21 is Carolyn Bertozzi's
11 paper, yes. That's the -- that's the correct
12 citations.

13 Q. I'm sorry. Were you just
14 referring to the authors on the papers?

15 A. Yes. I'm referring to
16 corresponding author. So 19 is K. Barry
17 Sharpless, K.B. Sharpless, and 20, sharpless'
18 name was not listed. I'm pretty sure he was
19 coauthor on that one.

20 But anyway, 19, 20 and 21 citation
21 are the correct citation.

22 Q. Okay. And those articles were
23 published in the time frame between 2001 to
24 2004, correct?

25 A. That's right.

1 Q. Moving on into the next paragraph,
2 you go on to describe some other previously
3 reported site-specific conjugation
4 technologies, right?

5 A. Yes.

6 Q. And you're citing reference
7 numbers 22 through 24, correct?

8 A. That's right.

9 I'll just make sure those are the
10 proper listing. 22.

11 THE COURT REPORTER: Just try to
12 keep your voice up, okay?

13 A. Yeah. 22, 23, and 24.

14 BY MS. PETERSON:

15 Q. It references 22 and 24. Those
16 were published in 2018, right?

17 MR. GIUNTA: Objection, form.

18 A. Citation 22 published in 2018, and
19 Citation 23 was published in 2019.

20 BY MS. PETERSON:

21 Q. I said 22 and 24.

22 A. Oh, 24. Sorry. Yeah, 24 is 2018,
23 yes.

24 Q. So references 22 and 24, which you
25 are citing for previously reported

1 site-specific conjugation technologies, those
2 are articles that were published in 2018,
3 correct?

4 A. That's correct.

5 Q. And then going on, you state, "In
6 2019, a novel proprietary technology,
7 affinity peptide-mediated regiodivergent
8 functionalization (AJICAP) was reported."

9 Do you see that?

10 A. Yes, I see that.

11 Q. And that would be the AJICAP
12 technology developed by Ajinomoto that was
13 introduced in 2019, correct?

14 A. The citation is 25, and
15 specifically Citation 25 is a publication in
16 2019.

17 Q. And this would be the AJICAP
18 technology that you mentioned earlier at the
19 beginning of the deposition when you said you
20 were aware of a publication by Ajinomoto
21 relating to the technology, correct?

22 A. Yes, that's the paper I refer to,
23 yep.

24 Q. You can put that away. I think
25 we're done with that one.

1 A. Thank you.

2 Q. Sorry. Bear with me for a second.
3 I'm trying to mark this next exhibit.

4 A. Oh, don't worry. So many
5 documents, hard to track.

6 MS. PETERSON: All right. I'm
7 going to mark as Zhou Exhibit 5 a copy
8 of what's been marked in the IPR
9 proceeding as Exhibit 1007, which is the
10 PepTalk presentation.

11 (Exhibit 5, PepTalk: Technology of
12 Site-Specific Conjugation, AJICAP for next
13 Generation ADCs, marked for identification.)

14 BY MS. PETERSON:

15 Q. Here's a copy of that for you,
16 Dr. Zhou.

17 A. Thank you, Ms. Peterson.

18 Q. Do you recognize what I've marked
19 as Exhibit 5?

20 A. Yeah, this is what I refer to as a
21 PepTalk presentation.

22 Q. And looking at the first page, it
23 shows that this presentation -- or there's a
24 legend down at the bottom that says "PepTalk
25 2019."

1 Do you see that?

2 A. Yes, I see that.

3 Q. Is that referring to the PepTalk
4 conference that you mentioned earlier in your
5 deposition?

6 MR. GIUNTA: Objection, form.

7 A. I don't -- I don't recall which
8 PepTalk I mentioned earlier.

9 BY MS. PETERSON:

10 Q. But you did refer to PepTalk, and
11 that's a conference, right?

12 A. Yes, it is a conference.

13 Q. And I think you said that you were
14 not at this particular PepTalk in 2019; is
15 that correct?

16 A. I wasn't at this particular
17 PepTalk conference.

18 Q. But that some colleagues had been
19 at this conference and told you about the
20 AJICAP presentation; is that right?

21 A. I don't recall my colleague,
22 whether the colleague -- yeah, I don't even
23 remember which colleague told me about this
24 method, whether the colleague hear from other
25 people or not, because this conference and

1 the publication are pretty close to each
2 other, both in 2019, so I don't recall even
3 which colleague mentioned this method to me,
4 and whether that colleague attend this
5 conference or heard about this method through
6 someone else who attend this conference.

7 Q. But you did say earlier today that
8 a colleague, you don't remember, did tell you
9 about hearing about the technology at the
10 conference, correct?

11 A. What I should say, that I heard
12 about this technology through a colleague,
13 and I remember that colleague mentioned
14 that -- he or she mentioned that they heard
15 about this method in a conference, I think
16 this conference, yeah.

17 Q. Okay.

18 A. Yeah.

19 Q. And regardless, you're at least
20 familiar with Exhibit 5 in the course of your
21 work on this IPR proceeding, right?

22 A. Of course. I reviewed this
23 presentation deck multiple times.

24 Q. Okay. Can you turn to page 13,
25 please?

1 A. Page 13?

2 Q. 13.

3 A. 13, yes.

4 Q. It's titled "Summary of Advantage
5 of AJICAP."

6 Do you see that?

7 A. Yes, I see that.

8 Q. Here on page 13, one of the
9 advantages that's reported for the AJICAP
10 technology is under point 2, "Enhancement of
11 therapeutic window compared to stochastic
12 ADCs."

13 Do you see that?

14 A. Yes, I see that sentence.

15 Q. And that would be, I think you
16 explained earlier, comparison to
17 nonsite-specific conjugation methods, right?

18 Let me ask that question again.

19 The reference to stochastic ADCs,
20 that's nonsite-specific?

21 A. Yeah, the word stochastic means
22 nonspecific conjugation in this context.

23 Q. Okay. So one of the advantages
24 that's being reported in PepTalk presentation
25 is an enhancement of a therapeutic window as

1 compared to those nonsite-specific
2 conjugation methods, correct?

3 MR. GIUNTA: Objection, form.

4 A. As reported for -- under their
5 testing conditions, yeah.

6 THE COURT REPORTER: As reported?

7 A. As they're reported under their
8 testing conditions, yeah.

9 BY MS. PETERSON:

10 Q. And they report that through the
11 site-specific conjugation method, I guess
12 they were able to have a controlled DAR of
13 two.

14 Do you see that?

15 A. Yes, control the DAR, I would call
16 DAR, drug antibody ratio.

17 Q. So DAR. Tell me what that is,
18 again?

19 A. Drug antibody ratio. So it's the
20 amount of drug compared to the amount of
21 antibody, and you divide that and that's a
22 ratio, and there's two, so that means that --
23 DAR 2 means there are two payload or drug per
24 antibody.

25 Q. Thank you.

1 So at least here Ajinomoto is
2 reporting that through the AJICAP technology
3 they were able to achieve a controlled DAR of
4 2, right?

5 A. Right.

6 Q. Also listed under bullet point 3
7 it states, "Wide drug linker compatibility
8 with reactive group compatibility includes
9 thiol, alkyne and azide," right?

10 A. That's right.

11 Q. So they list three specific types
12 of reactive groups for which the technology
13 is compatible with for use in the linkers,
14 right?

15 A. They said their reactive group --
16 their reactive group was compatible with
17 thiol, alkyne, and azide. Yeah, that's what
18 it said there.

19 Q. And the technology has high
20 yields, short conjugation reaction times, and
21 easy to manufacture as well, correct?

22 A. That's their statement, yeah.

23 Q. But that's what's being disclosed
24 in -- in this PepTalk presentation, correct?

25 MR. GIUNTA: Objection, form.

1 A. That's their summary. I -- I
2 don't know whether they have data or not.
3 I'd be happy to go through the data, but
4 that's their summary of their technology.

5 BY MS. PETERSON:

6 Q. Okay. If you go to the next page,
7 page 14.

8 A. Yes, I'm on page 14.

9 Q. The process that's described on
10 page 14, that shows a modification of the
11 antibody at lysine position 248, correct?

12 A. There's multiple part of the
13 information.

14 Which part do you refer to?

15 Q. Well, do you see the reaction
16 scheme kind of in the middle towards the
17 bottom?

18 A. With an arrow?

19 Q. Okay. Let's -- if you really need
20 to, we can go through this in detail.

21 Looking at the image all the way
22 at the far left, that's an antibody, like
23 a --

24 A. It is a schematic view of
25 antibody, yes.

1 Q. So do you see those same antibody
2 figures at the bottom of the page, kind of
3 towards the right?

4 MR. GIUNTA: Objection, form.

5 A. You mean LYS248?

6 BY MS. PETERSON:

7 Q. Yes.

8 A. Yes, I see that, yeah, okay.

9 Q. That is referring to the lysine
10 248 residue of the antibody, correct?

11 MR. GIUNTA: Objection, form.

12 A. I assume so, yes, yeah.

13 BY MS. PETERSON:

14 Q. And then the reactions that are
15 being shown here, those are a modification of
16 that lysine 248 residue of the antibody,
17 correct?

18 A. I think this is a schematic
19 illustration of one -- one of the lysine
20 residue is 248.

21 Q. And it specifically mentions the
22 lysine residue as 248, right?

23 A. In this illustration it's labeled
24 248.

25 Q. They're not referring to any other

1 lysine residue of the antibody, right?

2 A. Not on this slide.

3 Q. Okay. And they're not referring
4 to any other lysine residue of the antibody
5 anywhere in this presentation, right?

6 A. No. It did mention other lysine
7 residues in this presentation.

8 Q. By number?

9 A. Not by number, but it mention more
10 than just one lysine residues in this talk.

11 Q. And you're talking about the
12 future development work?

13 A. It's an ongoing work they mention,
14 not future work. I think it's ongoing work.

15 Q. Okay, yeah.

16 So let's -- we can take a look at
17 that.

18 A. Yeah.

19 Q. I think perhaps you're referring
20 to page 34. If you can look there.

21 A. Yes, on page 34, they mention that
22 additional site are -- and labeled LYS XX,
23 and LYS YYY, so that means they have multiple
24 lysine sites.

25 Q. Okay. And this is what they're

1 referring to as the second-generation AJICAP
2 technology, right?

3 A. Yes.

4 Q. So this would be the ongoing
5 development work that you referred to?

6 A. I assume the one they mention this
7 one, and they already have done this work.

8 Q. Well, then, what were you -- you
9 characterized it as -- what makes you think
10 that they had already done this work?

11 What's the basis for your
12 assumption there?

13 A. When they disclose something they
14 cannot -- in the conference they cannot say
15 we hope to increase the ability. A company
16 when they present the technology, at least
17 they have data to show that has been reduced
18 to some practice.

19 Like, say, increase the stability.
20 They cannot say we think this will increase
21 the stability. They must have data to show
22 they have increased stabilities. That's the
23 common practice.

24 You don't go to a conference, talk
25 about your planned work. You talk about the

1 work you have done already.

2 Q. Okay. You would agree, however,
3 that this page is referring to what they
4 refer to as the second-generation AJICAP
5 technology, right?

6 A. Yes, they refer to as a second
7 generation, yeah.

8 Q. And it is relating to work that
9 was going to be conducted in the future,
10 right?

11 A. No.

12 MR. GIUNTA: Objection, form.
13 You can answer.

14 A. As I mentioned, when I go to a
15 conference, talk about the technology,
16 especially a company that want to license out
17 or work with other people on their
18 technology. They must have some data to have
19 in hand to, you know, entice collaboration or
20 licensing.

21 It's not a common practice for a
22 company just talk about what their future
23 work, especially in the context of IP. You
24 don't want disclose something that -- you
25 know, we talk about IP. You don't want to

1 disclose something that without you have
2 data. Then you don't have the priority date.

3 BY MS. PETERSON:

4 Q. I think you're mixing up -- mixing
5 up concepts here.

6 So let's just refocus.

7 A. Yeah.

8 Q. Okay. I think we can agree that
9 this work was ongoing at least, correct?

10 It was still in progress?

11 A. What I say is they have data ready
12 to support their points, shows here.

13 Q. Okay. But that data was not
14 provided in this presentation?

15 A. They have summary. They also have
16 some structure show on the left.

17 Q. Is there any other data provided
18 in this PepTalk presentation, Exhibit 5,
19 specifically relating to the
20 second-generation technology, other than
21 what's reported on page 34?

22 A. I can take a quick look.

23 Q. Go ahead.

24 A. I don't know whether this
25 disclosed anything or not.

1 Yeah, I don't see it here, as I go
2 through very quickly. So I'm just looking at
3 the Slide 34.

4 Q. Okay. So the presentation
5 primarily was directed to, I guess, what was
6 known as the first-generation AJICAP
7 technology.

8 Is that your understanding?

9 A. They talk about both generation,
10 first generation, second generation.

11 Q. Is there any reference to second
12 generation in the presentation, other than
13 here on page 34?

14 A. As I said, there's lots of pages.
15 I can't quickly find anything referred to a
16 second generation in this slide deck, but I
17 see here on this slide, yeah.

18 Q. Okay. So apart from Slide 34,
19 what Ajinomoto was presenting in this
20 Exhibit 5 related to its earlier work on the
21 first-generation product, correct?

22 MR. GIUNTA: Objection, form.
23 You can answer.

24 A. I wasn't there at the talk, so
25 there are more slides covers first-generation

1 technology, and there's one slide covers
2 second generation. I can see that, yeah.

3 BY MS. PETERSON:

4 Q. Okay. Now, looking specifically
5 at this slide for the second-generation
6 technology on page 34, you mentioned one of
7 the points that was being disclosed about the
8 second-generation technology was the ability
9 to conjugate two additional sites on the
10 antibody, correct?

11 A. That's what they say there,
12 conjugate two additional sites of mAbs,
13 M-a-b, and list two of lysine sites.

14 Q. And so they say, "For example, two
15 lysine sites that are not specifically
16 identified by number, just LYS XXX and LYS
17 YYY."

18 A. Right. They refer to more than
19 two, at least two lysine sites, but not
20 specific identify those numbers.

21 THE COURT REPORTER: But not
22 specific?

23 A. Identify the review numbers, yeah.

24 BY MS. PETERSON:

25 Q. And these are additional sites on

1 the antibody in addition to the lysine 248
2 residue that had already been identified
3 earlier in the presentation, correct?

4 A. I cannot tell whether include the
5 248 here or not. I wasn't at the talk.

6 It just say additional site. I
7 don't know whether they include the 248 or
8 not, but what I can read from this slide is
9 more than two sites, yeah.

10 Q. Doesn't "additional" suggest
11 something in addition to what had been
12 previously mentioned?

13 MR. GIUNTA: Objection, form.

14 A. This is a very generic format. As
15 you can see, it's LYS XX, LYS YYY. I'm not
16 interpret for other people. It could mean
17 that addition -- one site, addition to 248 --

18 THE COURT REPORTER: You said one
19 site?

20 A. One site, s-i-t-e. From more than
21 one -- I don't know. I'm not the presenter
22 here.

23 BY MS. PETERSON:

24 Q. I'm sorry.

25 Did you say it could mean that

1 there is one site in addition to lysine
2 248?

3 A. Yes, but I'm just reading the
4 sentence here. Let me read one more time.

5 "Conjugate two additional sites of
6 mAbs," and they list the two lysine residue
7 in the generic form, XX, YYY.

8 My interpretation, as a scientist,
9 XX and YYY means are two different lysine
10 residues.

11 Q. Okay. So XXX is different from
12 YYY?

13 A. That's my interpretation.

14 Q. Okay. Now, it doesn't state that
15 they are switching the second-generation
16 technology to different lysine sites other
17 than 248, right?

18 A. I don't know what they refer to.
19 If they refer to at least two sites, as
20 mentioned here, one must be different than
21 248.

22 Q. One must be different from 248,
23 but the other one might be the same; is that
24 what you're saying?

25 A. I don't know.

1 MR. GIUNTA: Objection, form.

2 You can answer.

3 A. I don't know. They just list LYS
4 XX, and the other one is LYS YYY, so I don't
5 want to overinterpret for their slide, right?

6 BY MS. PETERSON:

7 Q. I understand. But -- but to be
8 clear, nowhere on this page 34 does it say
9 that the second-generation technology would
10 no longer use conjugation to the lysine 248
11 residue, right?

12 A. I -- I -- I can't say either way,
13 yeah. They are try to conjugate to
14 additional sites. That's what they say,
15 yeah.

16 Q. They are trying to conjugate two
17 additional sites --

18 A. The second generation.

19 Q. Sorry.

20 A. Sorry.

21 Q. Can you let me finish the
22 question?

23 A. Yes, okay. Sorry. Yeah.

24 Q. I just want to make sure I
25 understand what your answer was.

1 So is your answer that they are
2 trying to conjugate two additional sites? Is
3 that what you said?

4 MR. GIUNTA: Objection, form.

5 A. Let me step back, and let me just
6 read what is said on the slide.

7 On Slide 34, the last check mark
8 is "Conjugate two additional sites of mAb,"
9 M-a-b, "(LYS XX, LYS YY, et cetera)."

10 So, Ms. Peterson, can you ask the
11 question one more time? Sorry.

12 BY MS. PETERSON:

13 Q. So Ajinomoto is not reporting that
14 the second-generation technology would no
15 longer use conjugation to the lysine 248
16 residue, right?

17 They're just saying that they're
18 expanding to include additional sites of the
19 monoclonal antibody?

20 MR. GIUNTA: Objection, form.

21 You can answer.

22 A. My understanding is they are going
23 to do -- they have done a second generation,
24 have modified more than one sites.

25 BY MS. PETERSON:

1 Q. And it does not say that they are
2 no longer using lysine 248 residue, right?

3 A. Whether they continue to target
4 lysine 248 or not is not clear from their
5 statement here.

6 Q. Correct. Because it doesn't say
7 that they are no longer using lysine 248,
8 right?

9 MR. GIUNTA: Objection, form.
10 You can answer.

11 A. I don't know exactly what they
12 mean, additional sites. That's additional to
13 248 or, you know, if we put in the context of
14 the whole talk, is 248 are -- as example,
15 that may means -- additional size means
16 addition to 248 or not.

17 Anyway, I'm not sure exactly what
18 the point here is. When I reading this one,
19 it's more than one site, yeah.

20 BY MS. PETERSON:

21 Q. I think you're just making this a
22 little bit more complicated than it needs to
23 be.

24 I think we agree that -- that they
25 are referencing additional sites, correct?

1 A. Right. What I don't know is
2 whether addition site -- in addition on top
3 of 248 or not. I cannot read from this
4 sentence, yeah.

5 Q. Okay. But they do not include any
6 statement here on page 34 that says that they
7 are no longer using lysine 248?

8 A. I cannot say one way or the other,
9 because the word "additional" is vague to me
10 without a context, because they mention 248
11 in the previous slide.

12 So my interpretation is addition
13 to 248, or they say we have 248 and other
14 site, right.

15 Q. Okay. Put aside that bullet
16 point. I'm not asking you to interpret what
17 is meant by additional sites anymore.

18 We're moving on from that, okay?

19 A. Okay, yeah.

20 Q. Put that aside.

21 Nowhere on this page 34 does it
22 say that they are no longer using lysine 248.
23 Those words do not appear on this page,
24 correct?

25 MR. GIUNTA: Objection, form.

1 A. But -- but we have tried to
2 understand "additional" means in this slide,
3 and I think that's not clear to me, yeah.

4 BY MS. PETERSON:

5 Q. I'm not asking about additional.

6 A. Yeah.

7 Q. I'm asking just to see if you
8 agree that nowhere on page 34 does it say
9 that AJICAP is no longer targeting lysine 248
10 in the second-generation technology.

11 MR. GIUNTA: Objection, form.

12 A. It does not have the specific text
13 you mentioned on this slide.

14 BY MS. PETERSON:

15 Q. Okay.

16 MS. PETERSON: Let's go off the
17 record for a break.

18 THE VIDEOGRAPHER: The time is
19 12:05. We're going off the record.

20 (Recess taken at 12:05 p.m. to 12:44 p.m.)

21 THE VIDEOGRAPHER: We're back on
22 the record. The time is 12:44.

23 BY MS. PETERSON:

24 Q. Okay. Let's continue on with that
25 same exhibit that we were looking at,

1 Exhibit 5, the PepTalk presentation.

2 A. Sure, yeah.

3 Q. Can I ask you to turn to page 17,
4 please?

5 A. Yes, I'm on page 17.

6 Q. Okay. And the heading of this
7 slide is titled "Analysis of AJICAP ADC,"
8 correct?

9 A. That's right.

10 Q. And just below that heading it
11 says, "We began testing the AJICAP technology
12 by using commercially available trastuzumab
13 and a DM1 maleimide drug linker."

14 Do you see that?

15 A. Trastuzumab, t-r-a-s - -

16 THE COURT REPORTER: Okay.

17 A. Good, okay. DM1, one is a number.
18 Maleimide, m-a-l-e-i-m-i-d-e. Yeah,
19 maleimide, yeah.

20 Q. You don't have to spell
21 everything.

22 A. Okay.

23 Q. When it's written on the paper,
24 she can look over and see it.

25 A. Oh, she can see it. I see. Okay.

1 Q. But thank you.

2 A. Yeah.

3 Q. Okay. So just to confirm, on this
4 slide they're reporting the testing of the
5 AJICAP technology by using commercially
6 available trastuzumab along with a DM1
7 maleimide drug linker, correct?

8 A. That's right, yep.

9 Q. Okay. And then there's some
10 diagrams and pictures below, right?

11 A. That's right, yep.

12 Q. And DM1 here, that's what you
13 referred to earlier as the payload part of
14 the antibody-drug conjugate?

15 A. That's right. DM1 is one type of
16 payload.

17 Q. Do you know what drug that is?

18 A. Which drug? So this is using one
19 of the -- I think one of the commercially
20 approved drug from Amgen.

21 Q. Is it, like, mertansine maybe? Is
22 that what the DM1 drug is?

23 A. I need to look at a structure. I
24 cannot recall exactly whether they're the
25 same structure or not.

1 Anyway, so this is one of the --
2 if not in the commercial drug, is similar to
3 the payload in the commercial drug.

4 Q. Okay. But that DM1 is referring
5 to what you called the payload portion of the
6 ADC, right?

7 A. That's right, yeah.

8 Q. Okay. Can you move forward to
9 page 20 of Exhibit 5?

10 A. Yes, I'm on page 20.

11 Q. The heading here says
12 "Compatibility with Various Monoclonal
13 Antibodies, Payloads, and Linkers," correct?

14 A. That's right.

15 Q. And then there's a table below it
16 that indicates that the AJICAP technology can
17 be used with different types of antibodies,
18 including IgG1, IgG2 and IgG4, with several
19 examples listed?

20 A. That's right. They list several
21 type of -- subtype of antibodies.

22 Q. And then in the next column, where
23 it's in blue under "Attachments," they list
24 three different types of reactive functional
25 groups, thiol, azide and aldehyde, right?

1 A. That's right, yep.

2 Q. Then we have the linker in green
3 combined to the payload, which is listed in
4 orange, right?

5 A. That's right, yeah.

6 Q. And then there's -- it's indicated
7 as being compatible with -- with several
8 different types of payloads as well, right?

9 A. That's right, yep.

10 Q. Moving forward to page 28, please.

11 A. Page 28?

12 Q. Yes.

13 A. Yes.

14 Q. And the heading says "Gram Scale
15 Synthesis."

16 Do you see that?

17 A. That's right, yeah. I see that.

18 Q. So here on page 28 of the PepTalk
19 presentation, they're reporting on the gram
20 scale synthesis of this AJICAP-based
21 trastuzumab DM1 ADC, right?

22 A. That's right, yeah.

23 Q. And they provide some analytical
24 data as well as a result of that synthesis
25 process?

1 A. There is a summary of the
2 analytical data, yeah.

3 Q. So the yield was 1.67 grams, as
4 reported in this table?

5 A. Yeah, that's the outcome starting
6 from 2.64 grams of trastuzumab antibody, yep.

7 Q. So starting from 2.64 grams of the
8 trastuzumab antibody, they ended with up 1.67
9 grams of the trastuzumab DM1 ADC, right?

10 A. That's right, yeah.

11 MS. PETERSON: I'll mark another
12 exhibit, so bear with me.

13 Okay, I'm marking as Zhou
14 Exhibit 6 a copy of the PepTalk poster.
15 I don't have a paper copy of it because
16 it's really tiny, so you're not going to
17 be able to the read the paper copy
18 anyways.

19 (Exhibit 6, PepTalk: Development of a Novel
20 Chemical Site-Specific Conjugation Platform
21 for ADCs - AJICAP Technology, marked for
22 identification.)

23 BY MS. PETERSON:

24 Q. So why don't you see if you can
25 pull that up on your Exhibit Share?

1 A. Yeah, let me give it a try. It's
2 been loaded, uploaded.

3 Which one is the new exhibit?

4 Q. It should say Exhibit 6.

5 A. I see that now. How do I zoom in?

6 Q. So towards the top left there's a
7 plus button.

8 A. Okay. Yep, it's working for me
9 now. I can move the pen.

10 I cannot move the pen though yet.
11 Oops, sorry.

12 THE COURT REPORTER: Doctor, if
13 you speak I got to get it.

14 A. Oh, sorry.

15 THE COURT REPORTER: Because we're
16 on video.

17 A. I'm trying to figure out how to
18 move the window. I can zoom in now.

19 Maybe Ms. Peterson can go ahead
20 with the question. If I can see it on the
21 screen, I don't know how to manipulate the
22 view, yeah.

23 BY MS. PETERSON:

24 Q. Do you recognize Exhibit 6?

25 A. It is the PepTalk poster exhibit,

1 yes.

2 Q. Okay. And I'm going to ask you to
3 look at -- do you see on the left side it
4 says "Introduction," and then directly to the
5 right of that there's a section that says
6 "Methods"?

7 A. I see that part, Methods.

8 Q. We're going to be looking at the
9 Methods section.

10 A. Uh-huh.

11 Q. So it starts off with number one,
12 "Concept AJICAP," right?

13 A. Yes, I see that, yep.

14 Q. And then step 2, it says,
15 "Determine target lysine residue."

16 Do you see that?

17 A. I see that.

18 Q. And here you might need to zoom in
19 a little bit more, but it has that same
20 picture of the antibody showing the
21 modification of the lysine 248 residue,
22 correct?

23 A. That's correct.

24 Q. Okay. And then continuing on, in
25 Section 3 it says, "Synthesis of

1 Site-Specific ADC by AJICAP"; right?

2 A. That's right.

3 Q. And here we've got the synthesis
4 scheme showing how they used AJICAP to make
5 the ADC in this case, completing with the
6 final product, which is that same trastuzumab
7 DM1 ADC, right?

8 A. Yeah, the final conjugate is
9 trastuzumab DM1 conjugate.

10 Q. And if you go all the way to that
11 section, at the very bottom, do you see
12 there's a legend that says, "Peptide
13 Mapping"?

14 A. Yes, I see that, yeah.

15 Q. And here they --

16 THE COURT REPORTER: I'm sorry.
17 It says what?

18 BY MS. PETERSON:

19 Q. Peptide mapping.

20 And here they say that "site
21 specificity on lysine 248 was confirmed by
22 peptide mapping of 4."

23 Do you see that?

24 A. Yes, I see that, yep.

25 Q. So here they're confirming that it

1 was the lysine 248 residue of the trastuzumab
2 antibody that was modified, right?

3 A. Let me zoom in a little bit.

4 Just zoom in this part, this
5 sentence is a summary of peptide mapping
6 results. I do not see the raw data. I can
7 actually see in the -- talk, the
8 presentation, but that's what they said
9 there. Peptide mapping, site specificity of
10 lysine 248 was confirmed by peptide mapping
11 4, yeah.

12 Q. We're going to jump around a
13 little bit now. So I think we're done with
14 that exhibit.

15 A. Okay.

16 Q. But I'm going to ask you to go
17 back to your declaration now, which we marked
18 as Exhibit 3.

19 A. Yes, I have my declaration in
20 front of me.

21 Q. I'm going to ask you to turn to
22 paragraph 81.

23 Are you there?

24 A. Paragraph 81?

25 Q. Yes.

1 A. Finally the PepTalk presentation,
2 yes.

3 Q. Okay. So in the first sentence of
4 paragraph 81, you say, "The PepTalk
5 presentation concludes with a discussion of a
6 forthcoming improved second-generation AJICAP
7 technology that is different than disclosed
8 to have numerous advantages but is not
9 disclosed in detail."

10 Did I read that correctly?

11 A. That's right.

12 Q. And keep that open, if you need
13 to, but I want you to turn back to the
14 PepTalk presentation, Exhibit 5, and turn to
15 page 34.

16 So in your declaration, when you
17 say that "The presentation concludes with a
18 discussion of a forthcoming improved
19 second-generation AJICAP technology," you're
20 referring to page 34 of the PepTalk
21 presentation, right?

22 A. I refer to the second-generation
23 technology, AJICAP -- AJICAP as well. Yes,
24 they call it AJICAP second generation.

25 Q. Okay. And that's referring to

1 page -- so you refer to the PepTalk
2 presentation, and it concluding with the
3 discussion of a forthcoming improved
4 second-generation AJICAP technology.

5 And my question is, are you
6 referring to page 34 of the PepTalk
7 presentation in this sentence of your
8 declaration?

9 A. Page 34 of PepTalk presentation
10 certainly talk about, summarized the second
11 generation. I cannot recall here whether
12 other slides mention the second generation or
13 not.

14 Q. And you didn't cite a specific
15 page from their PepTalk presentation here in
16 your declaration?

17 A. As I'm reading here, I did not
18 cite a specific slide number.

19 Q. You say that the second-generation
20 technology is different than disclosed. When
21 you say "different than disclosed," what are
22 you referring to?

23 A. I was referring to the
24 first-generation technology, yeah.

25 Q. Okay. So the first-generation

1 technology that's described throughout
2 PepTalk presentation?

3 A. Yes.

4 Q. And then you say that the second
5 generation is not disclosed in detail,
6 correct?

7 A. Right. It's a summary of a second
8 generation, not as detailed as the first
9 generation.

10 THE COURT REPORTER: Not what?

11 A. Not as detailed as the
12 first-generation technology.

13 BY MS. PETERSON:

14 Q. So you don't have any information
15 about the specific changes that were being
16 implemented in the second-generation product,
17 right?

18 MR. GIUNTA: Objection, form.

19 A. No, they are, are some specific
20 technical aspect of second generation was --
21 were mentioned on the slide.

22 BY MS. PETERSON:

23 Q. You're talking about Slide 34?

24 A. Yes.

25 Q. Okay. So other than what's

1 mentioned on Slide 34, you don't have any
2 other information about specific changes that
3 were being implemented in the
4 second-generation AJICAP platform, right?

5 A. As I said, I didn't put down the
6 slide number, so I don't know whether other
7 part of a talk mentioned the second
8 generation. So I'm just focusing on page 34,
9 Slide 34 now, yeah.

10 Q. I'm just trying to understand the
11 basis for your statement in your declaration,
12 that it's not disclosed in detail.

13 So your understanding of the
14 second-generation AJICAP technology is based
15 solely on what's included in PepTalk
16 presentation Exhibit 5, right?

17 A. That's right. The second
18 generation -- in my -- I don't remember the
19 poster mentions second generation or not, but
20 the information of second generations all
21 came from either the PepTalk presentation
22 or -- and/or with the poster, yeah, okay.

23 Q. And thank you for that
24 clarification.

25 And just to make the record clear,

1 I'm sorry, I misspoke earlier. We're going
2 to go back and look at the PepTalk poster.

3 If you take a look at the
4 conclusion section all the way at the bottom
5 right, do you see under conclusion there's a
6 Section 2, "A glance at second-generation
7 AJICAP technology"?

8 A. Yes, I see that, yes. That's what
9 I referred to earlier. The poster also
10 mentioned second-generation technology.

11 Q. And the information contained in
12 PepTalk poster about second-generation AJICAP
13 technology, it's the same as what's contained
14 on page 34 of the PepTalk presentation,
15 right?

16 A. They have same information, but
17 there also additional information in the
18 poster. For example, mentioned shorter --
19 let me just do comparison.

20 There are some difference. I
21 think short direction process was mentioned
22 in the poster, not on the slide. One, two,
23 three, four, five. I see five bullet --
24 bullet points on the slide, and there's one,
25 two, three, four, five, six listed on the

1 posters. I think a short reaction process is
2 the one.

3 THE COURT REPORTER: Short?

4 A. Short reaction process was listed
5 on the poster, not on the slide.

6 BY MS. PETERSON:

7 Q. Okay. And the poster also refers
8 to the expansion of conjugation sites with
9 that same reference to the generic lysine
10 residues that are not identified by a
11 specific number, correct?

12 MR. GIUNTA: Objection, form.

13 A. Sorry. Could you please repeat --
14 repeat the question?

15 BY MS. PETERSON:

16 Q. PepTalk poster also refers to
17 expansion of conjugation sites, referring to
18 the lysine -- the two generic lysine residues
19 that are not identified by a specific number,
20 correct?

21 A. Yeah. So the wording here on the
22 poster was different than the wording on the
23 slide. So the poster said "expansion," and
24 the presentation said "additional." So when
25 I look at a poster, expansion --

1 THE COURT REPORTER: You're saying
2 expansion, right?

3 A. Expansion, yeah. I assume that
4 means additional residue than 248.

5 BY MS. PETERSON:

6 Q. And, again, it's referring to
7 lysine XXX and lysine YYY, right?

8 A. That's right, yeah.

9 Q. So it's not identifying a specific
10 residue number for either of those lysine
11 residues?

12 A. That's right. There's no specific
13 number was identified, yeah.

14 Q. So other than the information
15 contained in PepTalk poster and the
16 information contained in PepTalk
17 presentation, you don't have any other
18 information about any other specific changes
19 that were being implemented in the
20 second-generation AJICAP technology, right?

21 A. Sitting here I cannot recall any,
22 but as I just discussed a couple minutes ago
23 I remember both the poster and the talk, talk
24 about second generation, so there may be
25 other places mention it, but I cannot recall

1 whether there are any other places, either in
2 the poster or the slide, mentions second
3 generation, yeah.

4 Q. Putting aside whether other parts
5 of the presentation or poster might mention
6 it, you are not aware of any other
7 information beyond what is contained in the
8 poster and the presentation concerning
9 specific changes being implemented in the
10 second-generation AJICAP technology?

11 A. That's right. So all the
12 information I have for the second generation
13 was from either the talk or the poster or
14 both, yeah.

15 Q. And both the poster and the
16 presentation mentioned the continued use of
17 thiol and azide groups with the
18 second-generation technology, right?

19 MR. GIUNTA: Objection, form.

20 A. Could you please repeat the
21 question, Ms. Peterson?

22 BY MS. PETERSON:

23 Q. Both the poster and the
24 presentation disclosed the continued use of
25 thiol and azide groups with the

1 second-generation technology, right?

2 MR. GIUNTA: Objection, form.

3 A. I could not tell whether
4 second-generation technology used thiol or
5 not, because I cannot recall it mentioned
6 anywhere. They may use different chemistry.

7 BY MS. PETERSON:

8 Q. Well, I'm looking -- take a look
9 back at page 34 of the PepTalk presentation.
10 You have that open in front of
11 you?

12 A. Yeah, right now I see it, yeah.
13 So they said introduction of thiol, azide,
14 yes, so that implies they -- they can still
15 introduce thiol in the second generation,
16 yeah.

17 Q. Thiol groups and azide groups in
18 the second generation are still being used,
19 right?

20 A. In the second generation, yep.

21 Q. So just to confirm, both the
22 poster and the presentation disclosed the
23 continued use of thiol and azide groups with
24 the second-generation technology, right?

25 MR. GIUNTA: Objection, form.

1 A. This says "introduction of thiol
2 and azide in the summary," yeah.

3 My questions continue, because
4 continue means that first generation use
5 azide, but that's -- I did not see any data
6 for the first generation use azide.

7 BY MS. PETERSON:

8 Q. Let's go back to page 20.

9 A. Of?

10 Q. PepTalk presentation.

11 A. Yep.

12 Q. And this was the table that
13 indicated the various components for which
14 AJICAP was compatible with, and under
15 "Attachment" it references the thiol, azide,
16 and aldehyde groups, right?

17 A. Yes, it mentioned compatible
18 groups, yes.

19 Q. Okay. And so AJICAP
20 second-generation technology is still
21 compatible with thiol and azide groups,
22 right?

23 A. No. I have -- the question is
24 whether still, because it's clearly mentioned
25 on page 34, its introduction of thiol and

1 azide for the second generation.

2 For Slide 20, what is -- what was
3 mentioned is compatible with azide.
4 Compatible and the introduction are different
5 concepts.

6 Q. Okay. Well, they're not
7 referencing a whole different group of
8 compounds in second-generation technology.
9 They're still introducing the same thiol and
10 azide groups, right?

11 MR. GIUNTA: Objection, form.

12 A. No, the word "introduction" is
13 different than "compatible." Introduction
14 means we have conjugate azide to the
15 antibody. Compatible means there's chemistry
16 involved, can work with azide. So it doesn't
17 necessarily mean that compatible -- or when
18 they say something is compatible with azide,
19 doesn't mean the technology already
20 introduced azide.

21 BY MS. PETERSON:

22 Q. So that's the distinction you're
23 making. One says it's compatible and the
24 other says it's introduced?

25 A. Right.

1 Q. Okay.

2 A. There's a big, big difference
3 there.

4 Q. I understand.

5 A. Yeah.

6 Q. But I'm just referring -- they are
7 referring to the same groups here, thiol and
8 azide, right?

9 A. They're talking about the same
10 group azide, that's right, yeah.

11 Q. You can put away those PepTalk
12 papers.

13 A. Sure.

14 Q. I'm going to ask you to turn to
15 paragraph 40 of your declaration.

16 A. Paragraph 40?

17 Q. Uh-huh, yes.

18 A. Yes, I have paragraph 40.

19 Q. Starting at the second sentence,
20 you state, "Moreover, given the structural
21 diversity and highly variable chemo --
22 chemophysical properties of antibodies, a
23 POSA could not predict with confidence
24 whether a modification that succeeded for one
25 antibody would also succeed for another."

1 Do you see that?

2 A. Yes, I see that sentence.

3 Q. So is it your opinion that, as of
4 March 8, 2019, the field was so unpredictable
5 that a person of skill in the art could not
6 predict with confidence whether a
7 modification that succeeded for one antibody
8 would also succeed for another; is that
9 right?

10 MR. GIUNTA: Objection, form.

11 A. Sorry. Could you please repeat
12 the question?

13 BY MS. PETERSON:

14 Q. Okay. So it's your opinion that
15 as of March 8, 2019, the field was so
16 unpredictable that a POSA could not predict
17 with confidence whether a modification that
18 succeeded for one antibody would also succeed
19 for another, correct?

20 MR. GIUNTA: Objection, form.

21 A. Really it's boiled down to a case
22 by case. It depends on what type of
23 modification people have.

24 THE COURT REPORTER: What a?

25 A. What type of modification people

1 talk about, what kind of antibody in general
2 we talk about, yeah.

3 BY MS. PETERSON:

4 Q. Well, in paragraph 40 you do state
5 that "A POSA could not predict with
6 confidence whether a modification that
7 succeeded for one antibody would also succeed
8 for another," correct?

9 That's your statement in your
10 declaration at paragraph 40, right?

11 MR. GIUNTA: Objection, form.

12 A. Yeah, my statements is "could not
13 predict with confidence," yeah.

14 BY MS. PETERSON:

15 Q. So a person of skill in the art,
16 as of March 8th, 2019, could not predict with
17 confidence whether a modification that
18 succeeded for one. Antibody would also
19 succeed for another?

20 That's your opinion?

21 MR. GIUNTA: Objection, form.

22 A. That's my -- my statement said
23 there "A POSA could not predict with
24 confidence whether a modification that
25 succeed for one antibody would also succeed

1 for another."

2 BY MS. PETERSON:

3 Q. You're not changing your opinions
4 at this point, right?

5 A. No, that's what my statement,
6 yeah.

7 Q. Now, you've reviewed the '503
8 application, which is one of the precursor
9 applications to the '675 AbTis patent, right?

10 A. If I remember correctly, '503 is
11 the parent patent application, or whatever
12 you call that, for the '675 patent.

13 Q. Yeah. And if you want to look to
14 paragraph 47.

15 So it states in the first sentence
16 that you were asked to analyze the disclosure
17 of the '503 application, which qualifies as
18 the original disclosure at the '675 patent.

19 Do you see that?

20 A. That's right. The word I use is
21 original disclosure, yes.

22 Q. So you've reviewed the '503
23 application?

24 A. Yes, I did, yeah.

25 Q. The '503 application only

1 discloses the synthesis of a single antibody
2 trastuzumab with a modified lysine, right?

3 A. I don't recall how many antibody
4 disclosed. I cannot recall now.

5 Q. Okay. So let's take a look at
6 that.

7 And, I guess, even though you cite
8 Exhibit 2002, I think we're really looking at
9 Exhibit 2003, so I'm going to give you a copy
10 of that.

11 A. Thank you.

12 Q. And while I'm introducing it --
13 while I'm marking it, I think we're looking
14 around, like, paragraph 1272, if you want to
15 start looking.

16 A. 1272?

17 Q. Yes.

18 (Exhibit 7, U.S. Patent App. No. 16-980,503,
19 for identification.)

20 MS. PETERSON: Okay. So I just
21 marked as Zhou Exhibit 7 a copy of U.S.
22 Application Serial Number 16,980,503,
23 which has already been marked as
24 Exhibit 2003 in the IPR.

25 BY MS. PETERSON:

1 Q. Dr. Zhou, do you recognize this
2 exhibit?

3 A. Yes. This is -- I refer to as a
4 '503 patent or application, yep.

5 Q. Okay. And I think it's starting
6 around paragraph 1272 that discloses the
7 modification of trastuzumab, correct?

8 A. 17 -- 1275 are -- 72, right?
9 Yeah, are -- yes, the antibody is
10 trastuzumab.

11 Q. And then continuing on down to --
12 I'm going to say it's approximately paragraph
13 1329, that disclosure is all still related to
14 the modification of trastuzumab, correct?

15 A. Sorry, what paragraph? 1329?

16 Q. Continuing through, it's paragraph
17 1328.

18 A. 1328?

19 Q. Correct.

20 A. What page? 162?

21 Q. Yes, on page 162.

22 A. 1328 are -- on my document said
23 measure molecular weight with number.

24 Q. Let's go back -- okay, fine. Go
25 back to paragraph 12 -- go back to paragraph

1 1271 on page 157.

2 Are you there?

3 A. Sorry. Paragraph 1271?

4 Q. Yes. It says, "Number 3,
5 synthesis and confirmation of structure of
6 antibody containing first click chemistry
7 functional group and site-specific manner,"
8 right?

9 A. Yes, I see that paragraph.

10 Q. Followed by "3.1, synthesis of
11 antibody norbornene."

12 A. That's right.

13 Q. And then next it says, "Synthesis
14 method of trastuzumab norbornene," correct?

15 A. That's right, yeah.

16 Q. So this is referring to the
17 synthesis of trastuzumab, correct?

18 A. Conjugate of trastuzumab, that's
19 right, yeah.

20 Q. Yeah. Thank you for that. Okay.

21 And this Section 3 that starts
22 here at paragraph 1271, what I'm saying is
23 that continues on through page 158, page 159,
24 160, 161, and then it concludes at paragraph
25 1328 on page 162.

1 Do you see that?

2 A. Yeah, 1328 is a measure molecule
3 weight, and then next paragraph started
4 Section 4.

5 Q. Yeah. Okay.

6 So the Section 3 relates to the
7 conjugation of trastuzumab, right?

8 A. I -- I can't read very fast, but I
9 assume that's --

10 Q. If you need to look through it,
11 that's fine. You can take some time to do
12 that.

13 A. Yeah, I went through very quickly.
14 It looks like trastuzumab were mentioned
15 multiple times.

16 Q. And you're not aware of the '503
17 application disclosing the synthesis of any
18 other conjugated antibody other than
19 trastuzumab, right?

20 MR. GIUNTA: Objection, form.

21 A. I can't recall whether I came
22 across or not here, yeah.

23 BY MS. PETERSON:

24 Q. But right now -- I mean, you
25 reviewed the '503 application in preparing

1 your opinions?

2 A. Yeah.

3 Q. And sitting here today, you can't
4 recall whether -- or you're not aware of any
5 instance where the '503 application disclosed
6 the synthesis of any other conjugated
7 antibody other than trastuzumab, right?

8 MR. GIUNTA: Objection, form.

9 A. I wasn't tasked to look at how
10 many antibody was mentioned or not, so I
11 can't recall whether I searched for that or
12 what's the results, whether there are other
13 antibody mentioned or not.

14 BY MS. PETERSON:

15 Q. You can put exhibit -- that big
16 long exhibit away.

17 A. Thank you.

18 Q. I want to go back to something we
19 talked about earlier, DAR.

20 So that's the drug antibody ratio,
21 right?

22 A. Yes, DAR, yeah.

23 Q. I think you explained that that
24 DAR value represents the number of drug
25 molecules that are attached to each antibody?

1 A. Yes, that's right, yeah.

2 Q. So it's expressed -- never mind.

3 So the DAR, that's not always
4 going to be reported as a whole number,
5 right?

6 A. Right, right. Experimentally
7 not -- experimentally they may achieve what
8 is possible or may not achieve what is
9 possible, or if there is side reaction they
10 may exceed what people intend to be, so
11 experimentally it's not a whole number.

12 Q. And when you say "experimentally
13 it's not a whole number," what do you -- what
14 do you mean by qualifying it as
15 experimentally?

16 A. What I mean is, for example, let's
17 say we have 248 lysine antibody, and if a
18 method to target that site, if during the
19 reaction, before it's complete, right, we may
20 have an intermediate stage, and that stage
21 they're two lysine per antibody, maybe only
22 1.8 lysine were modified, that would give a
23 value of 1.8.

24 And if their side reaction occurs
25 and there may be other site in addition to

1 the 248, then that would give a DAR maybe
2 exceed 2.

3 THE COURT REPORTER: Maybe see?

4 A. Exceed, exceed 2.

5 THE COURT REPORTER: 2.

6 A. Yeah.

7 BY MS. PETERSON:

8 Q. Okay. Sorry. So when it exceeds
9 2, you said a side direction occurs?

10 A. Side reactions.

11 Q. Oh, side reactions.

12 A. Yeah.

13 Q. Okay.

14 THE COURT REPORTER: Side?

15 A. Side, yeah, side.

16 BY MS. PETERSON:

17 Q. Okay. So the DAR isn't always
18 going to be reported as a whole number, 1 or
19 2, right? It's often going to be some inter
20 -- some number a little bit below or above 2;
21 is that what you're saying?

22 A. Experimentally. Experimental
23 value may not be the -- the whole number,
24 yeah.

25 Q. And that's because when you

1 perform these reactions you may get a mixture
2 of products with different number of, like,
3 modified heavy chains in the antibody.

4 Is that one reason why?

5 A. Could you please repeat the
6 question?

7 Q. Is that because when you're
8 conducting these reactions, you might get a
9 mixture of products with a different number
10 of modified heavy chains in the antibody?

11 A. Let's aside -- let's leave aside
12 the site and just generally, this is a
13 reaction, so it depends on time.

14 So as the beginning the DAR is
15 zero by definition. There's no modification.
16 As the reaction, you know, progress --

17 THE COURT REPORTER: As the
18 direction?

19 A. Reaction progressing, the number
20 gets higher and higher.

21 BY MS. PETERSON:

22 Q. As the reaction progresses?

23 A. Yeah, during time, right, because
24 the reaction is time dependent.

25 Q. Oh, okay. So the reaction is time

1 dependent.

2 And at different points in time
3 you will have different DAR values?

4 A. Yes.

5 Q. And so I also assume that because
6 the reaction is time dependent, there's no
7 standard amounts of time that you would allow
8 these reactions to proceed before testing
9 them?

10 MR. GIUNTA: Objection, form.

11 A. Could you repeat the question,
12 repeat the question, please?

13 BY MS. PETERSON:

14 Q. Well, you said the reaction is
15 time dependent, right?

16 A. Yes.

17 Q. So there's no standard set of time
18 for -- for allowing a reaction when you want
19 to create a conjugated antibody?

20 A. Yes, one has -- a scientist has to
21 determine experimentally what are the time
22 under what condition to achieve a certain DAR
23 value, yeah.

24 Q. So going back to that DAR value
25 example, if the DAR value was reported as

1 1.5, that would represent a reaction that
2 resulted in a mixture of products, some with
3 two drugs attached, maybe some with one drug
4 attached, and maybe some with no drugs
5 attached?

6 A. DAR generally definition is
7 average of the mixture, but one can potential
8 isolate each species, and each one may have a
9 different DAR value.

10 Q. But for the mixture, if you have a
11 DAR value of something lower than 2.0, that
12 would suggest that there's a mixture of
13 products, some with two drugs attached, some
14 with maybe only one drug attached, and maybe
15 some with no drugs attached, right?

16 A. Yeah, all the possibility. Could
17 be some mixture of 2 and 1. Could be a
18 mixture of 2, 1 and zero, yeah.

19 Q. And there might also be some
20 antibodies with even more than two drugs
21 attached, like you said, if there was a side
22 reaction that had occurred?

23 A. If there's potentially a side
24 reaction occurred, yeah.

25 Q. I don't know if you need to go

1 back and look at the '503 application, but in
2 case you do, you have a copy of it.

3 A. Yes.

4 Q. But I do have a few other
5 questions about that. I'm sorry.

6 So based on -- on your review of
7 the '503 application, it doesn't describe how
8 to prepare an antibody with exactly one heavy
9 chain modified, right?

10 MR. GIUNTA: Objection, form.

11 A. I don't understand the question,
12 because antibodies -- a dimer? Each antibody
13 molecule has two heavy chain. So could you
14 please clarify the question?

15 BY MS. PETERSON:

16 Q. Yeah, sure. So the antibody has
17 two heavy chains, and my question is the '503
18 application does not describe how to prepare
19 an antibody where only one of the heavy
20 chains is modified, right?

21 MR. GIUNTA: Objection, form.

22 A. I wasn't asked to look into that
23 specific aspect of data, so I did not look
24 into that data, so I cannot tell you whether
25 that data were reported or not in '503

1 patent.

2 BY MS. PETERSON:

3 Q. Okay. But you did review the '503
4 application, and you don't -- at least
5 sitting here today, you don't recall that
6 type of disclosure, right?

7 MR. GIUNTA: Objection, form.

8 A. As I mentioned, I was not asked to
9 look into that specific aspect of
10 conjugation, whether there was only one out
11 two heavy chain was modified, so I didn't --
12 I wasn't asked to look into that.

13 BY MS. PETERSON:

14 Q. Okay. I understand you weren't
15 asked to do it, but you did review the
16 application, correct?

17 A. Yes, I did review the application.

18 Q. And you reviewed that application
19 in the course of preparing for the deposition
20 today, right?

21 A. Yeah, I did.

22 Q. And I think you spent like 20
23 hours reviewing all these materials, right?

24 A. Yeah.

25 MR. GIUNTA: Objection, form.

1 BY MS. PETERSON:

2 Q. So in the course of reviewing the
3 '503 application again, for purposes of your
4 deposition or for purposes of preparing your
5 declaration, I just want to confirm that you
6 don't recall any discussion or disclosure in
7 the '503 application about how to prepare an
8 antibody with exactly one heavy chain
9 modified?

10 MR. GIUNTA: Objection, form.

11 A. Could you clarify the question?

12 You mean that between the two
13 heavy chain of antibody only one being
14 modified?

15 BY MS. PETERSON:

16 Q. Correct, that's what I'm asking
17 about.

18 A. First, again, I wasn't asked to do
19 that. Also, if the -- if the modification
20 has a DAR beyond 1, that -- if it is now 2,
21 that implies some of the -- one chain may
22 be modified -- two chain only modified once.

23 But, again, I did not review,
24 looking for that particular data.

25 Q. Let me break that down.

1 So if the DAR is greater than 1
2 but less than 2, you said that would imply
3 that at least some of the antibodies have
4 both heavy chains that are modified?

5 A. No. What I said, if it's more
6 than 1, that means some of the -- both chains
7 should be modified.

8 Q. Okay. Okay. Thank you for that
9 clarification.

10 So -- so going back to my original
11 question of only one of the heavy chains
12 being modified, I understand you were not
13 asked to look at that specific issue.

14 A. Yeah.

15 Q. But you did review the
16 application, and so I'm just trying to make
17 sure I understand the extent of your
18 opinions.

19 So you don't have an opinion about
20 whether or not the '503 application discloses
21 how to prepare an antibody that has only one
22 heavy chain modified?

23 MR. GIUNTA: Objection, form.

24 A. I -- I'll just repeat my answer
25 before. I wasn't asked to look for that

1 information. I cannot recall whether I came
2 across that information or not.

3 BY MS. PETERSON:

4 Q. Okay. I have a similar question.
5 Does the '503 application describe
6 how to prepare an antibody or a recombinant
7 protein having a similar structure to an
8 immunoglobulin with three or more modified
9 heavy chains?

10 MR. GIUNTA: Objection, form.

11 A. What do you -- what did you mean
12 "three or more modified heavy chains"?

13 BY MS. PETERSON:

14 Q. So there could be some
15 immunoglobulins that have more than two heavy
16 chains, correct?

17 MR. GIUNTA: Objection, form.

18 A. Immunoglobulin has more than three
19 heavy chains?

20 BY MS. PETERSON:

21 Q. More than two. Like it could have
22 three heavy chains.

23 MR. GIUNTA: Same objection.

24 You can answer.

25 A. To separate from -- I don't know

1 the relevance to '503, and you asked very
2 broad term "immunoglobulin." You want to
3 define that for me or -- because there's many
4 types of immunoglobulins.

5 BY MS. PETERSON:

6 Q. Yeah. So immunoglobulin, that
7 would be a broad category with different
8 types of antibodies underneath it, right?

9 A. Yes, there are many types of
10 immunoglobulins, yeah.

11 Q. And I think, like, one of them,
12 IgM, that might have multiple chains, right?

13 A. Yes, IgM does have multiple
14 chains, yeah.

15 Q. Okay. So is there any disclosure
16 in the '503 application where it describes
17 how to prepare an antibody or an
18 immunoglobulin, like an IgM, having multiple
19 chains where you have exactly three modified
20 heavy chains?

21 MR. GIUNTA: Objection, form.

22 BY MS. PETERSON:

23 Q. Do you recall any discussion or
24 disclosure of that in the '503 application?

25 MR. GIUNTA: Same objection.

1 A. Your question was not clear to me.
2 What did it mean, three modified heavy
3 chains? Is that three heavy chains or heavy
4 chain modified three times?

5 BY MS. PETERSON:

6 Q. Yeah. So -- so more than two
7 heavy chains, and then you have exactly three
8 of those heavy chains are modified in the
9 conjugation reaction.

10 A. Sorry. I was confused about your
11 question.

12 You said if there are two heavy
13 chains and three being modified? That's not
14 clear to me. Sorry. I just said -- not sure
15 about the question.

16 Q. That's okay. We can move on from
17 this.

18 Can I have you turn to
19 paragraph 38 of your declaration?

20 Are you there?

21 A. Paragraph 38?

22 Q. Yep.

23 A. Yes.

24 Q. In the first sentence in the
25 background -- so paragraph 38 is talking

1 about the background of the technological
2 field at the time of the '675 patent, right?

3 A. Yes, that's at Section 4, talk
4 about background of technology.

5 Q. Okay. And in paragraph 38 you say
6 that "Scientists in this field routinely
7 experimented with different structural
8 formats and reaction schemes, each having
9 distinct advantages and limitations," right?

10 A. That's right.

11 Q. So I think you mentioned this
12 earlier too, that scientists are always going
13 to be experimentally changing and evaluating
14 different reaction schemes and reaction
15 conditions, right?

16 A. Sorry, could you please repeat
17 your question?

18 Q. Sure.

19 I think you also explained earlier
20 that scientists will be experimentally
21 changing and evaluating different reaction
22 schemes and reaction conditions, right?

23 A. The word we use is optimizing,
24 and, of course, if a reaction condition
25 achieve the desirable goal, there's probably

1 we keep it, so not always changing.

2 THE COURT REPORTER: We keep it?

3 A. We'll keep it, the condition.

4 BY MS. PETERSON:

5 Q. So as part of that process of
6 optimizing the reaction conditions, you would
7 typically evaluate different conditions,
8 right?

9 A. Yes. So the start -- so before
10 optimization one typically evaluate a
11 different chemistry, different -- start with
12 that, and then different conditions, yeah.

13 Q. And those conditions could include
14 things like the length of time that the
15 reaction is conducted under?

16 A. That's right.

17 Q. Temperature, is that another
18 reaction condition that would be modified?

19 A. Yes, temperature is another
20 condition.

21 Q. And what about pH?

22 A. Yes, pH is another condition.

23 Q. Okay. So each of those
24 conditions, length of time for the reaction,
25 temperature, and pH, each of those are

1 conditions that the scientists would be
2 adjusting as part of that process for
3 optimizing the reaction conditions, correct?

4 MR. GIUNTA: Objection, form.

5 A. As I mentioned, those conditions
6 can be adjusted, optimized. But, again, we
7 have a goal. If a certain goal we set for
8 ourself or by FDA or other agency achieve,
9 then we don't have to further change or
10 optimize the conditions.

11 BY MS. PETERSON:

12 Q. Okay. But in the process of
13 optimizing those conditions in the first
14 instance, even before you go to the FDA,
15 there's -- those types of reaction conditions
16 would be routinely adjusted during that
17 development process to determine what the
18 optimal conditions are, right?

19 A. I think we're saying the same
20 thing. Basically there's a goal, and the
21 goal may change during different stage of
22 development, so we want to see what the goal
23 we have. And if the first set of conditions
24 achieve that goal, maybe intermediate goal,
25 then there's no need for optimization.

1 However, if you do not achieve
2 that goal, whatever aspect, then we can do
3 optimization. But, again, the goal at
4 different stage are different.

5 Q. Okay.

6 THE COURT REPORTER: Are
7 different?

8 A. Different, yeah. Okay.

9 BY MS. PETERSON:

10 Q. You're right. We might be saying
11 the same thing in slightly different ways.

12 A. Yeah.

13 Q. So what you're -- what you're
14 saying is that sometimes even though you have
15 all these different reaction conditions, you
16 might just initially test the one that is the
17 best set of conditions right from the outset?

18 A. Before testing we don't know what
19 is best. We start. We have a starting
20 point.

21 Sometime maybe the starting point
22 just one try, that's good enough for that,
23 whatever goal. Then we don't need to
24 optimize.

25 But if you do not achieve the goal

1 or there's other reasons to change it, we
2 change it, yeah.

3 Q. So if that starting point wasn't
4 good enough to meet your goal, if you need to
5 continue optimizing, then you would continue
6 to change the various reaction conditions
7 until you're able to optimize the end result?

8 MR. GIUNTA: Objection, form.

9 A. So we don't have to change all the
10 conditions, parameters. We change some, and
11 then determine what's the outcome. So if
12 that's your question, we don't have to change
13 all the condition parameters.

14 BY MS. PETERSON:

15 Q. But you would change some of them
16 to see if you can change the -- the outcome?

17 A. That's a typical -- generally,
18 that's the scientific experimental approach,
19 yeah.

20 Q. So you wouldn't just test one set
21 of conditions and if it didn't achieve your
22 goal you would just stop? You wouldn't do
23 that, right?

24 MR. GIUNTA: Objection, form.

25 A. That depends.

1 BY MS. PETERSON:

2 Q. Okay.

3 A. It depends, means if the clear
4 evidence there's something wrong or something
5 prevent from further testing, people do
6 abandon the initial experiment, because you
7 get some results telling that problem that
8 is -- people did not foresee that problem,
9 and then --

10 THE COURT REPORTER: That is what?

11 A. Did not foresee that problem, but
12 now they see that problem, and they say this
13 problem is not something can be overcome by
14 optimization. That sometimes happens.

15 BY MS. PETERSON:

16 Q. But generally you would consider
17 further optimization by adjusting one or more
18 reaction conditions?

19 A. No. As I said, there's an
20 outcome. The outcome is, say, we did not
21 achieve the goal, but there are other
22 feedback from the reaction results that
23 suggests maybe their fundamental, something
24 not right, not compatible with the goal or
25 the conditions, and the people do abandon.

1 Not every failed experiment was
2 followed up, let's put the other way.

3 Q. I understand that you say
4 sometimes you would abandon it.

5 But you're saying that happened
6 sometimes, right, only sometimes?

7 A. I said it depends on the outcome,
8 because if we did not achieve -- if someone
9 experiment does not achieve the goal, there's
10 other results we can glean from the
11 experiments and that will suggest what may
12 went wrong or maybe fundamentally that
13 direction just not compatible with this
14 particular antibody or whatever goal we have.

15 Q. Okay. So when you say that --
16 that if the experiment did not achieve the
17 goal, there might be results that you can
18 glean from the experiments to suggest what
19 went wrong.

20 In that situation, you might make
21 further adjustments to try to optimize the
22 reaction; is that what you're saying?

23 A. Maybe and maybe not. Maybe we
24 realized that, you know, this particular
25 reagent is not stable in water, and then we

1 need to go back to change the reagent, not
2 the condition.

3 THE COURT REPORTER: Are you
4 saying the agent?

5 A. Reagent.

6 THE COURT REPORTER: Reagent?

7 A. Yeah.

8 BY MS. PETERSON:

9 Q. But there are times where you will
10 go back and modify the conditions certainly,
11 right?

12 A. As I said, it's case-by-case. It
13 depends on what our scientists thought about
14 why this particular experiment failed.

15 Q. Okay. Okay.

16 Looking at that same paragraph of
17 your declaration, paragraph 38, in addition
18 to experimenting with different structural
19 formats and reactions to --

20 A. Sorry. Can you -- sorry to
21 interrupt you. Which paragraph?

22 Q. Paragraph 38.

23 A. Uh-huh, yeah.

24 Q. So you had stated that "Scientists
25 in this field routinely experiment with

1 different structural formats and reaction
2 schemes."

3 Do you see that?

4 A. Yes, I see that, yep.

5 Q. And then going on, you say, "As
6 reflected in the art cited by petitioner,
7 approaches varied widely in terms of the
8 reactive handle used for step-wise
9 conjugation, the site and amino acid residue
10 of modification, and the linker chemistry,"
11 right?

12 A. That's right.

13 Q. If you flip to the next page.

14 A. Yes.

15 Q. Do you see the sentence that
16 starts "For example," still in paragraph 38?

17 MR. GIUNTA: Objection, form.

18 A. Paragraph 38 on page 16?

19 BY MS. PETERSON:

20 Q. Yes.

21 A. Yes, I see that sentence, "For
22 example."

23 Q. So it's also your opinion that
24 changes in the linker composition can also
25 affect reaction selectivity, yield

1 instability?

2 A. It could, yeah.

3 Q. I'm going to have you flip to
4 paragraph 107. It's on page 50, 5-0.

5 A. Paragraph 107?

6 Q. Yes.

7 A. Yes.

8 Q. Looking at the second sentence,
9 you see that "Matsuda discloses beta
10 heteroatom, e.g., ether-containing chain
11 substituents, e.g., compounds 26 and 60, and
12 reports that the antibody modification
13 reactions had not progressed despite extended
14 incubation."

15 What do you mean by "extended
16 incubation"?

17 A. I think maybe refer back to the
18 exhibit. I'm not sure that's my word or is
19 Matsuda's word.

20 Can I have the exhibit for Matsuda
21 then?

22 Q. Yeah, we can mark that.

23 But I just want to ask you -- I
24 mean, you don't have a quote there. You have
25 quotes around "had not progressed."

1 Do you see that?

2 A. Yes, I see that.

3 Q. And the quotation does not extend
4 to the "despite extended incubation,"
5 correct?

6 A. That's why I want to check the
7 original citation, whether I left out the
8 quotation of extended incubation or not.

9 Q. Is there a standard incubation
10 time for these types of reactions?

11 A. It's judged by -- the first
12 foremost is just judged by the scientist when
13 they do the experiment, whether they compare
14 to the other conditions, whether it's longer
15 or shorter, yes.

16 So extended is no predefinition,
17 but when people use this word, it's compared
18 to other similar reactions, similar
19 conditions, whether it's longer or not.

20 So I think -- I mean, we should
21 look at Matsuda to see how the time compared
22 to other conditions.

23 Q. Yeah. Yeah, I understand what
24 you're saying about the meaning of extended.
25 But my question was a little bit different.

1 There's no standard set of time
2 for incubation for these types of reaction
3 conditions, right?

4 MR. GIUNTA: Objection, form.

5 A. Extent -- extended by definition
6 is compared to some other conditions.

7 So Matsuda has multiple reactions,
8 and they have their -- what do you call
9 that -- typical or common conditions, time,
10 and this particular reaction compared to
11 their common, quotation mark, common, time,
12 and that would be extended through that
13 common one, yeah.

14 BY MS. PETERSON:

15 Q. I understand what you're saying
16 about extended, but that is not my question,
17 so please try to listen.

18 A. Yeah.

19 Q. Is there a standard length of time
20 for the incubation period?

21 MR. GIUNTA: Objection, form.

22 Asked and answered.

23 BY MS. PETERSON:

24 Q. Not in Matsuda, just generally?
25 There's no standard incubation period, right?

1 MR. GIUNTA: Objection, form.

2 A. There are some range of extension,
3 because --

4 THE COURT REPORTER: There are
5 some what?

6 A. Range of incubation time. A
7 protein won't be stable forever, so there's
8 some kind of parliament in practice how long
9 you can incubate a protein with reagents.
10 BY MS. PETERSON:

11 Q. Sure. But there's no standard set
12 of time, like it has to be exactly a certain
13 number of minutes, right?

14 MR. GIUNTA: Objection, form.

15 A. But extended time is -- the clear
16 reference was that the common, typical
17 conditions people do have -- it cannot say
18 it's one hour, two hour, but some reaction
19 were common reaction if it's the two-hour,
20 common, and then someone did four hours.
21 That's an extended time.

22 So based on the similar reaction
23 and conditions, for example, in this case,
24 Matsuda, look at all the time they did
25 experiments, the similar condition.

1 We can tell -- as a scientist, we
2 can tell which condition is extended
3 incubation. The other one is a shorter
4 incubation.

5 BY MS. PETERSON:

6 Q. And, again, I understand how
7 you're using extended here.

8 A. Yeah.

9 Q. You're using it to compare one
10 incubation time to another, correct?

11 A. Yeah. In some context in the
12 reaction comparing -- reaction is compared.
13 There's a reference point, okay, yeah.

14 Q. Right. So you're comparing one
15 amount of incubation time to another one?

16 MR. GIUNTA: Objection, form.

17 A. That's one way to look at it.

18 Also mentioned that protein
19 antibodies not stable forever, so there's
20 also -- in some way there's an upper limit
21 how long you can incubate a protein with a
22 reaction.

23 BY MS. PETERSON:

24 Q. What is that upper limit?

25 A. That really depends on the protein

1 antibody, and also depends on the conditions,
2 yeah. But it's not infinitive. You can't --
3 it's not infinitive. It depends on the
4 conditions.

5 Q. So there's no one upper limit of
6 incubation time for incubating for these
7 types of reactions?

8 A. Extended incubation --

9 Q. I'm not talking --

10 A. Yeah.

11 Q. I'm not talking about extended
12 incubation.

13 A. Okay.

14 Q. I'm just trying to understand, is
15 there an upper limit? You cannot go beyond a
16 certain number of hours?

17 A. It depends on the condition, yeah,
18 and the different sets condition. As a POSA,
19 they will understand that there's a range of
20 time where consider long incubation time.
21 Some consider short incubation time, yeah.

22 Q. Exactly. So there's no one
23 standard set of time? There's no one
24 standard time for incubation periods? It
25 depends on the conditions, the other

1 conditions of the reaction, right?

2 A. You can -- you can have an
3 extension, multiple conditions. We all
4 consider that extended incubation.

5 Q. Okay. I need to stop you right
6 there. I'm not talking about extended.
7 Pretend that that word is not here right now.

8 A. Oh, okay.

9 Q. I'm just asking more generally
10 about the reaction time.

11 A. Yeah. Sorry, let's start over.
12 Okay.

13 Q. So I think you explained that
14 there is no one standard set of time for a
15 reaction because it depends on the antibody,
16 it depends on the other reagents, it depends
17 on the other reaction conditions, correct?

18 A. So incubation time depends on many
19 conditions, that's correct, yeah.

20 Q. Okay. Thank you. Okay.

21 So let's take a look at --

22 MS. PETERSON: Actually, you know
23 what? We've been going a little over an
24 hour. How about we take a short break?

25 THE WITNESS: Sure.

1 THE VIDEOGRAPHER: The time is
2 2:02. We are going off the record.
3 (Recess taken at 2:02 p.m. to 2:14 p.m.)

4 THE VIDEOGRAPHER: We're back on
5 the record. The time is 2:14.
6 (Exhibit 8, Translator's Declaration, marked
7 for identification.)

8 BY MS. PETERSON:

9 Q. Okay. I just marked as Zhou
10 Exhibit 8 a copy of the Matsuda reference. I
11 believe I have a paper copy as well.

12 Here you go.

13 A. Thank you, Ms. Peterson.

14 Q. So do you recognize Exhibit 8?

15 A. Yes, that's what I refer to as
16 Matsuda exhibit.

17 Q. Okay. And I believe the
18 paragraphs that you've cited in your
19 declaration for the reaction for compounds 26
20 and 60, those are in paragraphs 1150 and 1151
21 of the Matsuda reference, if you want to turn
22 to those.

23 A. Can you refer back to my
24 declaration? I mention Matsuda multiple
25 places, so it would be helpful for me to see

1 where I mention that in my declaration.

2 Q. Yeah, I think we were looking at
3 paragraph 107.

4 A. Matsuda teaches away the beta
5 heteroatom ether linkage, yes.

6 THE COURT REPORTER: The beta?

7 A. Heteroatom, h-e-t-e-r-o-a-t-o-m,
8 heteroatom.

9 BY MS. PETERSON:

10 Q. Okay. And we were talking
11 specifically about the sentence in this
12 paragraph about compounds 26 and 60 and the
13 report that the antibody modification
14 reactions had not progressed despite extended
15 incubation.

16 So that's the point of paragraph
17 107 that we were looking at.

18 Do you recall?

19 A. Yes, I do.

20 Q. And so I'm going to ask you to
21 turn in Matsuda to paragraphs 1150 and 1151.

22 A. 1150.

23 Q. Are you there?

24 A. Yes.

25 Q. Okay. So we'll start with

1 paragraph 1150 of Matsuda. This is
2 describing the modification reaction with
3 Compound 26, correct?

4 A. Yes. So the title is "Comparative
5 Example 1," right, that section?

6 Q. That's the title above the
7 paragraph, correct.

8 A. Yes. So, yes, this is a
9 comparative study, yes.

10 Q. So looking at paragraph 1150, this
11 is using Compound 26, correct?

12 A. Yes, that's what it stated there,
13 yep.

14 Q. And what's the length of the
15 reaction time?

16 It's 16 hours, right?

17 A. Let me quickly read and refresh
18 myself.

19 Yes, I see it says here 16 hours.

20 Q. Okay. And then if you look at the
21 very end of paragraph 1150, so the top of the
22 next -- top of the second column, I believe
23 that's where you got the language in
24 quotations "had not progressed"; right?

25 A. I'm just trying to read the whole

1 sentence. "Similarly," at the bottom of page
2 147, that's the beginning of the sentence.

3 No. It was "Determined." That's
4 beginning of sentence.

5 Yeah, I finish reading the
6 sentence, yeah.

7 Q. Okay. So that has the language
8 that the antibody modification reaction with
9 Compound 26 had not progressed, right?

10 A. That's correct.

11 Q. It doesn't say had not progressed
12 despite extended incubation, correct?

13 A. Not the specific words, "extended
14 incubation," no, not in this paragraph,
15 sentence.

16 Q. Okay. So looking back at
17 paragraph 107 of -- actually, let's just
18 continue on. Let me start over again.

19 Go to the next paragraph, 1151.
20 This is describing the antibody modification
21 reaction for Compound 60, right?

22 A. 1151. Paragraph 1151 begin with,
23 "Similarly, antibody modification reaction
24 was performed using a peptide reagent
25 Compound 60 having a hydrobase paper."

1 What does that mean? Do you say
2 paper?

3 Q. That's what it says.

4 A. "At a beta position." It said
5 paper, p-a-p-e-r. I don't understand what
6 paper means. Okay.

7 Q. Okay. But paragraph 1151 is
8 describing the antibody modification reaction
9 performed using Compound 60, right?

10 A. Compound 60, that's right. That
11 said, yeah.

12 Q. And in paragraph 151 -- or, sorry,
13 paragraph 1151, it doesn't exactly describe
14 the exact reaction conditions for the
15 antibody modification reaction with Compound
16 60, right?

17 A. It's -- the conditions are not
18 mentioned here. I don't know whether they're
19 mentioned other places.

20 Q. And the final sentence of
21 paragraph 1151 has that similar language
22 saying that "The antibody modification
23 reaction with Compound 60 had not
24 progressed," right?

25 A. Yeah, Compound 60 having a

1 heteroatom at beta position --

2 THE COURT REPORTER: Had what?

3 A. A heteroatom, h-e-t-e-r-o,
4 heteroatom at a beta position had not
5 progressed, that's right.

6 BY MS. PETERSON:

7 Q. And, again, it doesn't say had not
8 progressed despite extended incubation,
9 right?

10 A. The conditions were not listed in
11 this paragraph. I don't know whether it
12 lists other places.

13 Q. So what's the basis for your
14 conclusion in paragraph 107 that it was an
15 extended incubation period for the
16 reaction -- for the reactions described in
17 paragraphs 1150 and 1151?

18 A. So, again, our extend incubation,
19 there's -- generally there are generally two
20 way to evaluate whether the extend incubation
21 or not. It's absolute time. We measure
22 that. We don't want to incubate a protein
23 antibody for a very long time, and depends on
24 the conditions.

25 In this case the condition is 37

1 degrees, so it melt 4 degrees. General
2 speaking, 4 degrees probably more stable. 37
3 degrees, the -- I'm referring to paragraph
4 1150. 37 degrees is pretty high temperature.

5 So there's an evaluation whether
6 those conditions, 37 degrees, protein tend to
7 aggregate, degrade more, so you can look at
8 the hours, and scientists will have a general
9 idea whether extend of the incubation or not.

10 So it's just one criteria here, 37
11 degrees. I haven't looked -- I can look at
12 it more. I evaluated the patent. There's
13 other conditions such as pH and buffers.

14 Q. So I'm sorry. You're saying that
15 37 degrees is a pretty high temperature, and
16 40 degrees it would be more stable?

17 A. Generally speaking, at 37 degrees,
18 antibodies less stable than at 4 degrees.

19 THE COURT REPORTER: 40 degrees?

20 A. 4.

21 THE COURT REPORTER: 4?

22 A. 4, yeah, 4.

23 BY MS. PETERSON:

24 Q. Okay. So -- so while the reaction
25 time might be one factor, you would also need

1 to look at the temperature at which the
2 reaction is conducted?

3 MR. GIUNTA: Objection, form.

4 A. There are multiple factors. As
5 you mentioned, temperature is one. Another
6 one is a pH. So this case the pH was 7.2.
7 Sometimes people carry out reaction at the
8 lower pH.

9 Yeah, so there's multiple factors.
10 Generally 37 degrees is considered on the
11 high end of temperature for antibody and
12 proteins.

13 BY MS. PETERSON:

14 Q. Okay. So, again, I want to turn
15 back to paragraph 107 of your declaration.

16 Where -- on what basis are you
17 concluding that these were extended
18 incubation periods?

19 A. As I mentioned, that there's
20 generally two criteria I use to see whether
21 extend -- extended time period, whether the
22 condition itself. For example, 37 degrees is
23 relatively a harsh condition for proteins, so
24 our 16 hours is relatively long incubation at
25 this particular temperature and pH.

1 Also, I look at other conditions,
2 one, the reaction, other reaction proceed,
3 whether those -- how that this condition
4 compare to other conditions.

5 And certainly this is not a short
6 incubation, so yes.

7 I just read one more thing. The
8 relevance of extended incubation, we were
9 talking about a chemical reaction, and we all
10 know that for most -- almost all reactions or
11 the reaction proceed faster at a higher
12 temperature. So 37 degrees is a high
13 temperature typically people for
14 bioconjugation.

15 Q. Okay. And when Matsuda reports
16 that the reactions with Compounds 26 and 60
17 had not progressed, Matsuda isn't necessarily
18 saying that they failed, right?

19 A. Failure is defined by the
20 scientist. So this is a reaction. Not
21 preceded means they did not have the product.

22 Q. Under those specific conditions,
23 correct?

24 A. Under these conditions. Maybe
25 other conditions I cited, others are section

1 of the Matsuda patents, so, yeah.

2 Q. So by modifying and using other
3 conditions, there might have been a different
4 result?

5 A. May not be. As I mentioned
6 before, that when a reaction failed our
7 scientists will evaluate why it failed. For
8 example, if the failure is due to a --

9 Q. Let me just stop you right there.

10 MR. GIUNTA: You got to let him
11 answer the question.

12 Answer the question.

13 MS. PETERSON: He's not
14 answering --

15 MR. GIUNTA: He is answering the
16 question.

17 MS. PETERSON: He's not answering
18 the question.

19 MR. GIUNTA: Then we can stop
20 right now. If you don't think he's
21 answering your question, we can stop
22 right now, because your question was
23 very open-ended, and he's answering it.

24 MS. PETERSON: Okay. I'll repeat
25 my question, and then he can answer it.

1 I won't interrupt.

2 BY MS. PETERSON:

3 Q. But I would ask you to listen to
4 my question and actually try to answer my
5 question going forward, okay?

6 A. Sure.

7 Q. Okay. So there is a specific set
8 of reaction conditions listed in paragraph
9 1150, right?

10 MR. GIUNTA: This isn't the same
11 question.

12 MS. PETERSON: I'm going to lead
13 up to that.

14 MR. GIUNTA: Let's have him answer
15 the question. You cut him off in the
16 middle of it because you didn't want the
17 answer. Now let him answer it.

18 BY MS. PETERSON:

19 Q. When modifying: --

20 MR. GIUNTA: When Matsuda reports
21 that the reaction with Compounds 26 and
22 60 had not progressed, Matsuda isn't
23 necessarily saying that they failed,
24 right?

25 MS. PETERSON: Actually, that's

1 not even my question.

2 MR. GIUNTA: Well, you kept
3 interrupting, right?

4 MS. PETERSON: No. The
5 question --

6 MR. GIUNTA: The question is, so
7 by modifying -- okay. Go ahead.

8 BY MS. PETERSON:

9 Q. So by modifying and using other
10 conditions, there might have been a different
11 result, right?

12 A. When an experiment fails and the
13 mindset, the process of a scientist determine
14 whether to try it again or optimize depends on
15 multiple factors.

16 One of the factors for people to
17 consider, why this particular reaction or set
18 of reactions failed. So if the scientist
19 figure out there's a fundamental underlying
20 mechanism why a reaction failed, for example,
21 if a reaction involves a redox, r-e-d-o-x,
22 reaction, then that is something you cannot
23 overcome by optimization. People would
24 decide not to try again, because those kind
25 of results, sometimes you only get it when

1 you carry out the experiment.

2 THE COURT REPORTER: When you
3 what?

4 A. When you carry out experiments.

5 MS. PETERSON: I'm going to object
6 to that answer and ask that it be stricken as
7 nonresponsive.

8 A. Yeah.

9 BY MS. PETERSON:

10 Q. So let me ask another question.

11 I am not asking you to speculate
12 as to what Matsuda would have done next or
13 whether it would have determined that this
14 was a failure.

15 I'm only asking, if the reaction
16 had been carried out under different
17 conditions, there is a possibility that it
18 may have progressed, correct?

19 MR. GIUNTA: Objection, form.

20 A. Not necessarily. As I mentioned,
21 we were talking about chemical reaction,
22 right, so there's underlying chemical
23 principles.

24 For example, heteroatom next to
25 the cover new group being transferred, they

1 are chemical principle concept guide of those
2 type of reaction. If a heteroatom is next to
3 that position, it may not ever work.

4 BY MS. PETERSON:

5 Q. Let me break that down.

6 So when I asked if the reaction
7 had been carried out under different
8 conditions if there was a possibility that it
9 may have progressed, you said not
10 necessarily.

11 So it may not have worked, but it
12 may have worked, right? We can't tell for
13 sure based on the information provided in
14 this document, right?

15 MR. GIUNTA: Objection, form.

16 A. It's case-by-case. In this case,
17 there's clear or chemical principle concept
18 emerged because they try the two different
19 molecules. Both have heteroatom on the beta
20 position. Both failed, so that, to me, and
21 to Matsuda, I think that's -- I cannot
22 interpret from Matsuda, but Matsuda made a
23 conclusion that specifically say that
24 heteroatom at the beta position, and that is
25 a very chemical science, is a beta position

1 with a heteroatom, there are certain chemical
2 principles involved in that.

3 So in this case, maybe there
4 was -- not going to work at all for this
5 reagent.

6 BY MS. PETERSON:

7 Q. How many compounds did Matsuda
8 make in tests in antibody modification
9 reaction?

10 A. I did not count. They made
11 multiple compound, and some compound work, so
12 they also have comparative data, yeah.

13 Q. So you didn't count up the number
14 of compounds that Matsuda disclosed and made
15 and reacted in an antibody modification
16 reaction, correct?

17 A. I did not count the number of
18 reactions, but at the same time, number of
19 success is not the determining factor to
20 judge a reaction success or not.

21 MS. PETERSON: I'm going to have
22 to strike that again as nonresponsive.

23 BY MS. PETERSON:

24 Q. I'm not asking about any type of
25 correlation to success. I'm just asking a

1 simple question.

2 How many compounds did Matsuda
3 make? Do you know?

4 A. I did not count. If you look at
5 here, the list in the figure, this shows how
6 many compounds listed, more than 80, right?

7 They -- on page 161 of Matsuda
8 they list a Compound 96. I assume they --

9 THE COURT REPORTER: Compound?

10 A. 96, 9-6. I assume they made close
11 to 100 molecules, if not more.

12 BY MS. PETERSON:

13 Q. Okay. And more specifically, I
14 think you said now there were two compounds
15 made, 26 and 60, that had the beta
16 heteroatoms, right?

17 A. That at least the two compounds,
18 26 and 60.

19 Q. Now, Matsuda does not conclude
20 anywhere in the specification that all beta
21 heteroatoms are going to perform the same way
22 in all structure, right?

23 MR. GIUNTA: Objection, form.

24 A. No. I think Matsuda present, as a
25 conclusion, they did not just mention

1 Compound 26 and 20 -- 60 did not work.

2 They put out a conclusion, clearly
3 say that having a heteroatom at beta position
4 had not progressed, and they say the same
5 thing in the two paragraphs next to each
6 other on Compound 6, using the same language.

7 Compound 60, that's a specific,
8 Compound 60, and then have this clause having
9 a heteroatom at beta position had not
10 progressed. So to me there -- there --
11 Matsuda linked these two compounds together,
12 and with underlying chemical principle the
13 common feature are that both compound at a
14 beta position is heteroatom.

15 THE COURT REPORTER: Is what?

16 A. Beta position.

17 THE COURT REPORTER: Hydro?

18 A. Heteroatom, heteroatom.

19 So Matsuda had a conclusion for
20 these two compounds.

21 BY MS. PETERSON:

22 Q. Okay. Exactly. They had a
23 conclusion for those two compounds, correct?

24 A. But they also recognize the common
25 feature. That's what I'm trying to say.

1 They didn't just say Compound 26, Compound 26
2 and 60 did not work.

3 He draw a chemical conclusion,
4 said these compounds had a shared feature of
5 heteroatom at beta position, and they all
6 failed, all had not progressed.

7 Q. And you're looking at paragraphs
8 1150 and 1151; is that right?

9 A. Yes, these are the two paragraph
10 that mention this. They may mention this
11 same conclusion other places as well.

12 Q. Okay. And those conclusions that
13 you're referencing in both paragraph 1150 and
14 1151 are with reference to specifically
15 Compounds 26 and Compound 60, right?

16 A. These two paragraph, yes,
17 mentioned 26 and 60.

18 Q. These two paragraphs do not
19 contain a broader conclusion that all
20 compounds having a heteroatom at the beta
21 position would also not progress in the same
22 manner?

23 A. I need to read more, because a
24 subsequently compared to another molecule --

25 Q. I'm asking -- you can read more,

1 but I want you to look at 1150 and 1151,
2 because that's what you just testified you
3 were looking at.

4 So 1150 and 1151 do not make a
5 general conclusion that all compounds having
6 a heteroatom at the beta position would not
7 progress?

8 A. I look at the patent. I did not
9 find any case that has a heteroatom mentioned
10 at beta position progress. So all the data,
11 I reviewed the patent, I review all the
12 heteroatom containing molecule at the beta
13 position had not progressed.

14 Q. And that's Compounds 26 and 60,
15 right?

16 A. Yes. Your question is whether
17 Matsuda made the conclusion. See, if I
18 finish that question, is they also mentioned
19 these two compound compared to other
20 compound, which progressed.

21 So they not only mention these two
22 molecule here, they did compare these two
23 compounds with another compound which
24 progressed.

25 I can't recall which paragraph it

1 is, but I think I opine in my declaration.

2 Q. Okay. Going back, though, to
3 these two paragraphs, and focusing
4 specifically on the compounds that have the
5 heteroatom at the beta position.

6 You say that Matsuda drew a
7 conclusion about the use of a heteroatom at
8 the beta position, right?

9 A. That's what he characterize, a
10 compound of having a heteroatom at beta
11 position, yeah.

12 Q. Okay. And specifically that was
13 with respect to the specific structure, the
14 specific compounds of 26 and 60, right?

15 A. In these two paragraph, but as I
16 recall, Matsuda also compared this compound
17 with another compound other places in the
18 patent.

19 Q. Okay. But those compounds did not
20 have a heteroatom at the beta position,
21 right?

22 A. Well, that's exactly the point.
23 Matsuda compare -- other compound does not
24 have heteroatom, compare this one with the
25 other one.

1 Q. You're mixing up things here now.
2 So I'm focusing only on compounds
3 that have a heteroatom at the beta position.
4 Do you understand?

5 A. Yes.

6 Q. Okay. And Matsuda only tested two
7 such compounds, correct?

8 MR. GIUNTA: Objection, form.

9 A. I don't recall whether there's
10 other molecule or not. I know these two were
11 mentioned, yeah.

12 BY MS. PETERSON:

13 Q. Okay. And Matsuda's conclusion
14 that those -- that the compounds having a
15 heteroatom at the beta position had not
16 progressed, that was based on the specific
17 results with Compounds 26 and 60, right?

18 A. As I said, I don't remember
19 whether they are other compound was mentioned
20 with the same structure, namely, as a
21 heteroatom at beta position.

22 Q. Okay. And then sticking with
23 these same paragraphs, 1150 and 1151, Matsuda
24 does not explicitly state that all compounds
25 with a heteroatom at the beta position would

1 perform the same way in all structures?

2 Matsuda does not say that,
3 right?

4 MR. GIUNTA: Objection, form.

5 A. Matsuda has -- the way I see it,
6 Matsuda made a -- an observation, these two
7 compounds did not work, and the phrase he
8 said having a heteroatom at the beta position
9 had not progressed, that's -- to me he has a
10 scientific interpretation of his results.

11 So his conclusion, my deduction
12 here was the wording is he conclude that
13 molecule with heteroatom at beta position
14 won't work.

15 BY MS. PETERSON:

16 Q. Okay. And let's look at that
17 specific language actually that you just
18 recited.

19 You said having a heteroatom at a
20 beta position had not progressed. That was
21 the language you used.

22 If you look right before that, it
23 says Compound 60 having a heteroatom at a
24 beta position had not progressed, right?

25 A. That's right.

1 Q. Okay. And then the paragraph
2 preceding, paragraph 1150, it also says
3 Compound 26 having a heteroatom at a beta
4 position had not progressed, right?

5 A. Right.

6 Q. Okay. So he is not just saying
7 any compound having a heteroatom at a beta
8 position, he's referring to Compounds 26 and
9 Compound 60, which have a heteroatom at the
10 beta position.

11 That's what Matsuda is describing
12 in 1150 and 1151, right?

13 MR. GIUNTA: Objection, form.

14 A. Again, he characterize this
15 molecules -- these two compounds, by the way,
16 they have different heteroatoms.

17 I think one has oxygen. The other
18 one has nitrogen. So my rating of this one,
19 he did two different -- two compounds as a
20 different heteroatoms. One is oxygen, and
21 the other one is a nitrogen. And the way he
22 described that way to me, put the two
23 paragraph together, to me are his conclusion,
24 heteroatom at beta position won't work.

25 Q. Okay. You can put that aside for

1 now.

2 MS. PETERSON: Actually, let's go
3 off the record real quick.

4 THE VIDEOGRAPHER: The time is
5 2:45. We're going off the record.

6 (Recess taken at 2:45 p.m. to 2:54 p.m.)

7 THE VIDEOGRAPHER: We are back on
8 the record. The time is 2:54.

9 (Exhibit 9, Translator's Declaration, marked
10 for identification.)

11 BY MS. PETERSON:

12 Q. I just marked as Exhibit 9 a copy
13 of the Yamada reference. Here's a paper copy
14 for you, Doctor.

15 A. Thank you, Ms. Peterson.

16 Q. Do you recognize Exhibit 9 as a
17 copy of the Yamada reference?

18 A. Yes, I do.

19 Q. I'm going to ask you -- you can
20 put that to the side for right now, but real
21 quick, can you go back to your declaration,
22 paragraph 98, please?

23 Are you at paragraph 98?

24 A. Yes.

25 Q. Okay. And you state, "I disagree

1 with Dr. Tumey's analysis and conclusions
2 regarding Yamada's Formula IV."

3 Do you see that?

4 A. I see that.

5 Q. And that would be the portion of
6 Dr. Tumey's opinions where he looked at
7 Formula IV in connection with original Claim
8 11 of the AbTis patent; is that right?

9 A. Can you refer to either his
10 declaration or my declaration?

11 Q. Well, so in your declaration, if
12 you look at paragraph 14.

13 A. My declaration, paragraph 14?

14 Q. Yeah.

15 A. Sorry. 40 or 14?

16 Q. 1-4, 14.

17 A. My declaration?

18 Q. Yes.

19 Oh, sorry, sorry. 44.

20 A. Yes, I see 44.

21 Q. Okay. So paragraph 44, you are
22 setting out proposed substitute independent
23 Claims 14, 15, and 16, right?

24 A. That's right, yeah.

25 Q. And they separate the three

1 compounds previously recited in the single
2 Markush group from original Claim 11, right?

3 A. Right. My understanding is a
4 mandate the claim separate is three
5 compounds, into separate claims.

6 Q. Okay. And I'll just explain to
7 you in case you don't remember this, but the
8 proposal to add the substitute Claims 14, 15,
9 and 16, that occurred after the point in time
10 when Dr. Tumey prepared his declaration,
11 okay?

12 So Dr. Tumey's opinions related to
13 the original Claim 11, okay?

14 A. Counsel sort that out, okay, yeah.

15 Q. So going back now to paragraph 98
16 of your declaration, when you say, "I
17 disagree with Dr. Tumey's analysis and
18 conclusions regarding Yamada's Formula IV,"
19 that was in reference to original Claim 11,
20 okay?

21 A. Okay. That's a legal timeline,
22 whatever, yes.

23 Q. Let me just ask you then.

24 So you say you disagree with
25 Dr. Tumey's analysis and conclusions

1 regarding Yamada's Formula IV.

2 You understand that that was in
3 connection with the only claim that was at
4 issue in the case at the time, which is Claim
5 11, right?

6 A. My analysis went to each
7 compound -- there are three different
8 structures are in original Claim 11, and
9 Dr. Tumey analyzed two of them, so I --

10 THE COURT REPORTER: Two?

11 A. Two. And I -- my opinions was --
12 my response is to both of those structures.
13 BY MS. PETERSON:

14 Q. Okay. Thank you. That was a
15 helpful clarification. Thank you.

16 A. Yeah.

17 Q. Okay. So you go on to say that
18 his analysis involves a scientifically
19 infeasible reconstruction, right?

20 A. Yes, I said that.

21 Q. Now, you formed that opinion that
22 it would be a scientifically infeasible
23 reconstruction based on, I think, Figure 2 of
24 Yamada; is that correct?

25 A. Let me see. Yamada is Figure 2 or

1 Table 2 or --

2 Q. Figure 2.

3 A. There's many places. Figure 2 is
4 one highlight.

5 I think there's Table 3 that shows
6 more example how Figure 2 was carried out, so
7 there's multiple place about how Yamada
8 defined L1 and L Formula 2 and 4.

9 Q. Okay. Well, let me -- okay. Flip
10 ahead in your declaration to paragraph 102.

11 A. 102?

12 Q. Yeah. So, for example, here
13 you're explaining in more detail about
14 Yamada's Figure 2, right?

15 A. Yes, I explain that L1 came from
16 L. --

17 THE COURT REPORTER: Are you
18 saying IL1?

19 A. The letter L, then number 1. That
20 came from cleavage of L, the letter L.

21 BY MS. PETERSON:

22 Q. And that's in reference to Yamada
23 Figure 2?

24 A. Yes. So Yamada is compound,
25 Formula II and Formula IV.

1 Q. Okay. And so in other words it's
2 your opinion that it's scientifically
3 infeasible to prepare the compounds of
4 Claim 11 according to the specific synthesis
5 scheme described in Yamada Figure 2?

6 A. Yes.

7 MR. GIUNTA: Objection, form.

8 A. Sorry. Could you repeat the
9 question?

10 BY MS. PETERSON:

11 Q. It's your opinion that it's
12 scientifically infeasible to prepare the
13 compounds of Claim 11 according to the
14 specific synthesis scheme described in Yamada
15 Figure 2?

16 MR. GIUNTA: Same objection.

17 A. Yes, that's my overall conclusion,
18 that Yamada did not teach that, and Dr. Tumey
19 did not provide a feasible way to generate L1
20 from L.

21 BY MS. PETERSON:

22 Q. Okay. And that conclusion would
23 carry over to proposed substitute Claims 14,
24 15, and 16 as well, that it's scientifically
25 infeasible to prepare the compounds described

1 in Claims 14 through 16 according to the
2 synthesis scheme of Yamada Figure 2, right?

3 A. Yeah. My conclusion is scientific
4 infeasible according to the Yamada's Formula
5 II to Formula IV conversion.

6 Q. Figure 2 to Formula IV conversion?

7 A. Formula II -- Formula II to
8 Formula IV conversion, that's as described in
9 Yamada, that's I think feasible, yeah.

10 Q. Okay. So you're not offering the
11 opinion that it would be scientifically
12 infeasible to prepare a modified antibody
13 with the structures shown in substitute
14 Claims 14, 15, and 16, right?

15 MR. GIUNTA: Objection, form.

16 A. Can you repeat the question?

17 BY MS. PETERSON:

18 Q. You're not offering the opinion
19 that it would be scientifically infeasible to
20 prepare a modified antibody with the
21 structures shown in substitute Claims 14, 15,
22 and 16, right?

23 A. AbTis was able to make those
24 molecules, so it is scientific feasible
25 through AbTis technology.

1 Q. Did you say "I was able to make
2 those molecules"?

3 A. AbTis, AbTis, Ab-T-is.

4 Q. So other synthesis schemes could
5 be used to prepare the structures claimed in
6 substitute Claims 14, 15, and 16?

7 MR. GIUNTA: Objection, form.

8 A. I wasn't asked to all the
9 possibilities. I was asked whether AbTis
10 disclosed enough technical detail to make
11 those molecule, opine that and made the
12 molecule, have enough detail, and also I was
13 asked to opine whether it's feasible for
14 Yamada's method to make those molecule. My
15 conclusion, it was not feasible.

16 BY MS. PETERSON:

17 Q. Okay. Not feasible according to
18 Yamada, but it is your opinion that there are
19 other synthesis schemes that could be used to
20 prepare the structures in Claims 14, 15, and
21 16, right?

22 MR. GIUNTA: Same objection.

23 A. It's not my opinion. Because
24 AbTis have successfully made the three
25 compound a moiety in Claim 11, and now they

1 want to convert into three different claims.

2 BY MS. PETERSON:

3 Q. Okay. Maybe that's a better way
4 of saying it.

5 So you agree that it is possible
6 to use other synthesis schemes to make the
7 compounds described in Claims 14, 15, and 16,
8 right?

9 MR. GIUNTA: Objection, form.

10 A. I can only opine that AbTis made
11 those molecule.

12 BY MS. PETERSON:

13 Q. So is that a yes, you agree that
14 it's possible to use other synthesis schemes
15 to make the compounds described in Claims 14,
16 15, and 16?

17 MR. GIUNTA: Objection, asked and
18 answered.

19 A. I think I need clarification on
20 what do you mean "other." Other than Yamada?

21 BY MS. PETERSON:

22 Q. Yes.

23 MR. GIUNTA: Objection, form.

24 A. Yamada method could not make those
25 claims, and other than Yamada's method AbTis

1 was able to make those molecules.

2 BY MS. PETERSON:

3 Q. Okay. So it's your opinion that
4 AbTis was able to make the molecules
5 described in Claims 14, 15, and 16, right?

6 A. Yes, they disclose enough
7 technical detail for me to have opinion they
8 indeed was successful making all three
9 molecules.

10 Q. So you agree that there are other
11 ways to make the compounds described in
12 Claims 14, 15, and 16, other than through the
13 process described in Yamada?

14 MR. GIUNTA: Objection, form.

15 A. As I mentioned, Yamada could not,
16 it wouldn't be feasible to make these
17 molecules.

18 BY MS. PETERSON:

19 Q. That's not the question I asked.
20 Please listen.

21 A. Yeah.

22 Q. You agree that there are other
23 ways to make the compounds described in
24 Claims 14, 15, and 16, other than through the
25 process described in Yamada?

1 MR. GIUNTA: Objection, form.

2 A. I know one way to do that that was
3 described in AbTis patent.

4 BY MS. PETERSON:

5 Q. Okay. And in the course of
6 forming your opinions, you didn't consider
7 any other synthesis methods that might be
8 used to make the compounds of 14, 15, and 16,
9 other than what was described in the AbTis
10 and what was described in Yamada, right?

11 A. I wasn't asked to do that, yeah.

12 MS. PETERSON: Okay. I think I'm
13 done. Pass the witness.

14 MR. GIUNTA: I just have a few
15 quick questions.

16 Do I have the ability to load this
17 thing? Let me see.

18 I'll give you a copy of what it
19 is. It's the motion to amend.

20 I'd like to mark as Exhibit 10,
21 and I've loaded that into the marked
22 exhibits folder.

23 (Exhibit 10, Patent Owner's Con-Contingent
24 Motion to Amend Under 37, C.F.R., Section
25 42.121, marked for identification.)

EXAMINATION

BY MR. GIUNTA:

Q. I'm showing is a document that's been marked Zhou Exhibit 10. If you turn to page 10 in this document, you mentioned having worked with counsel on a chart showing the correlation of support between the '503 application, the '998 application, and the amend -- proposed amended claims.

Do you remember that?

A. Yes, I do remember.

Q. Is this the chart that you were referring to?

It goes from pages 10 to pages 11.

A. Yes, this is a chart I prepared and sent to the counsel's -- this is some of the paragraph described, the technical details for making the claimed compound.

Q. And if you look in your declaration, which is Zhou Exhibit 3.

A. Yes.

Q. In paragraph 44.

A. Yes, I have paragraph 44 in front of me.

Q. Okay. So you've replicated the

1 proposed amended claims in paragraph 44,
2 correct?

3 That's Claim 14, Claim 15, and
4 Claim 16, right?

5 A. That's right.

6 Q. And if you look at proposed Claim
7 14, it says, "The modified antibody" -- it
8 says, "A modified antibody comprising a
9 bioorthogonal click chemistry functional
10 group."

11 Do you see that?

12 A. Yes, yep.

13 Q. And do you believe that the
14 portions that you've cited in the table
15 there, the portions that you put into that
16 table, that chart in Zhou Exhibit 10, support
17 that portion of the claim?

18 A. Yes. As I mentioned, these are
19 only some of the sections that support Claim
20 14, 15, and 16. There are probably more
21 sections to support that. I only cite some
22 of those sections, yep.

23 Q. It says -- the next portion says,
24 "Wherein the modified antibody comprises one
25 or more modified heavy chain."

1 Do you see that?

2 A. Yes.

3 Q. Is it your opinion that the
4 portions of the chart on page 10 of
5 Exhibit 10 that you've referred to there
6 support -- show written descriptions support
7 in the early applications for that portion of
8 Claim 14?

9 A. Yes.

10 MS. PETERSON: I'm going to object
11 to this line of questions. I think it
12 goes beyond the scope of what I asked at
13 the deposition, and it looks like you're
14 trying to supplement his declaration
15 with additional opinions that were not
16 contained therein.

17 But go ahead.

18 BY MR. GIUNTA:

19 Q. And if you look at the next
20 portion of the claim, it says, "Wherein each
21 of the modified heavy chains comprises a
22 modified lysine residue at 248 position heavy
23 chain amino sequence."

24 Do you see that?

25 A. Yes, I see that.

1 Q. It says, "Wherein, the 248
2 position is determined by an EU numbering
3 system."

4 Do you see that?

5 A. That's right.

6 Q. And is that portion of the claim
7 -- is the support for that portion of the
8 claim shown in that chart on Exhibit 10, page
9 10?

10 MS. PETERSON: Same objection.

11 A. Yes, a chart I provided support,
12 Claim 14, this part of Claim 14.

13 BY MR. GIUNTA:

14 Q. And in Claim 14, the beginning of
15 Claim 14, where it says "a modified
16 antibody," is it your understanding that a
17 modified antibody pertains to both antibodies
18 and fragments?

19 MS. PETERSON: Objection. Again,
20 this goes -- this is well beyond the
21 scope of the deposition.

22 Go ahead.

23 BY MR. GIUNTA:

24 Q. You can answer.

25 A. My understanding of a patent is I

1 need to look at the patent specification to
2 see the definition of what is antibody or is
3 defined in the patent.

4 Without looking at the patent
5 itself, I can tell you in general, in our
6 field, when we mention an antibody, that can
7 also mean antibody fragments or a protein
8 contents antibody fragments, such as Fc
9 region.

10 If you want, I can read the
11 patent, but I think the definition of
12 antibody should go back to the patent
13 application.

14 Q. And so is it your opinion then --
15 let me take you down.

16 So paragraph -- the next claim is
17 Claim 15, same paragraph, paragraph 44 of
18 your declaration.

19 Do you see that Claim 15 has the
20 same language and then a different -- a
21 different structure?

22 Do you see that?

23 A. That's right. Claim 15 as a
24 norbornene group without spacer.

25 Q. And is it your opinion that each

1 of those portions supported as indicated in
2 that chart on pages 10 to 11 of Exhibit 10 by
3 those earlier applications?

4 MS. PETERSON: Objection to scope.
5 Objection, leading.

6 A. Yes. As I mentioned before, I
7 have a specific -- a separate Claim 14, 15,
8 and 16, so I cite sections in both '503 and
9 '998 to support a claim of 15 as well.
10 BY MR. GIUNTA:

11 Q. And then how about Claim 16? Is
12 that language also supported by Claim 16
13 according to that chart in Exhibit 10?

14 MS. PETERSON: Same objections.

15 A. Again, I have a separate -- a
16 section in the chart, specific sections in
17 both '503 and in '998 application that
18 support Claim 16.

19 BY MR. GIUNTA:

20 Q. Now, in the language itself for
21 Claims 14, 15, and 16, and then also in the
22 structures depicted -- well, let me strike
23 that.

24 If you go to paragraph 47 of your
25 declaration.

1 A. Yes, I am reading paragraph 47.

2 Q. Right. In the last sentence there
3 it starts towards the bottom of page 23. It
4 says, "It is my opinion that proposed
5 substitute independent Claims 14, 15, and 16
6 each derive from original Claim 11, and are
7 supported by the same written description in
8 the specification, including at least the
9 embodiments in Formulas 52, 62, and 82, and
10 Figures 15, 19, 21 to 22 and 42 to 43."

11 Do you see that?

12 A. Yes, I see that.

13 Q. And then you go in paragraphs 49
14 and 50, and in 50 in particular you say, "In
15 my opinion, these disclosures demonstrated
16 that the inventors possessed and enabled a
17 person of ordinary skill in the art to make
18 and use the antibodies modified at lysine 248
19 by the three claims substituents recited in
20 substitute Claims 14, 15, and 16."

21 Do you see that?

22 A. I see that.

23 Q. Does that remain your opinion?

24 A. Yes.

25 MR. GIUNTA: I have no further

1 questions.

2 MS. PETERSON: Okay. We can
3 conclude. Off the record.

4 THE VIDEOGRAPHER: The time is
5 3:18. We are going off the record.
6 This is the end of today's deposition of
7 Zhaohui Sunny Zhou, Ph.D.

8 THE COURT REPORTER: Mr. Giunta,
9 you're getting a copy?

10 MR. GIUNTA: Yes. We should have
11 Raquel Backus, who -- do you want me to
12 shoot you an email?

13 THE COURT REPORTER: Do you know
14 if you want a rough, though?

15 MR. GIUNTA: Let's go ahead and
16 get the rough, that's fine.

17 THE COURT REPORTER: I have a
18 five-day delivery for Ms. Peterson.
19 Do you want that regular delivery?

20 MR. GIUNTA: Yep.

21 (Deposition concluded at 3:20 p.m.)
22
23
24
25

1 COMMONWEALTH OF MASSACHUSETTS
2 SUFFOLK, SS.
3

4 I, Sandra A. Deschaine, Registered
5 Professional Reporter and Notary Public
6 within and for the Commonwealth of
7 Massachusetts at large, do hereby certify
8 that the videotaped deposition of Zhaohui
9 Sunny Zhou, in the matter of AJINOMOTO CO.,
10 INC., vs. ABTIS CO., LTD., at the offices of
11 K&L GATES, 1 Congress Street, Boston,
12 Massachusetts, on January 13, 2026, taken and
13 transcribed by me; that the witness provided
14 satisfactory evidence of identification as
15 prescribed by Executive Order 455 (03-13)
16 issued by the Governor of the Commonwealth of
17 Massachusetts; that the transcript produced
18 by me is a true record of the proceedings to
19 the best of my ability; that I am neither
20 counsel for, related to, nor employed by any
21 of the parties to the action in which this
22 deposition was taken, and further that I am
23 not a relative or employee of any attorney or
24 counsel employed by the parties thereto, nor
25 financially or otherwise interested in the
outcome of the action, on this 22nd of
January 2026.



Sandra A. Deschaine
Registered Professional Reporter

My Commission Expires:
July 3, 2031

Veritext Legal Solutions
1100 Superior Ave
Suite 1820
Cleveland, Ohio 44114
Phone: 216-523-1313

January 22, 2026

To: Peter Giuta, Esq.

Case Name: Ajinomoto Co., Inc. v. Abtis Co., Ltd.

Veritext Reference Number: 7824620

Witness: Zhaohui Sunny Zhou, Ph.D.

Deposition Date: 1/13/2026

Dear Sir/Madam:

Enclosed please find a deposition transcript. Please have the witness review the transcript and note any changes or corrections on the included errata sheet, indicating the page, line number, change, and the reason for the change. Have the witness' signature notarized and forward the completed page(s) back to us at the Production address shown

above, or email to production-midwest@veritext.com.

If the errata is not returned within thirty days of your receipt of this letter, the reading and signing will be deemed waived.

Sincerely,

Production Department

NO NOTARY REQUIRED IN CA

DEPOSITION REVIEW
CERTIFICATION OF WITNESS

ASSIGNMENT REFERENCE NO: 7824620

CASE NAME: Ajinomoto Co., Inc. v. Abtis Co., Ltd.

DATE OF DEPOSITION: 1/13/2026

WITNESS' NAME: Zhaohui Sunny Zhou, Ph.D.

In accordance with the Rules of Civil Procedure, I have read the entire transcript of my testimony or it has been read to me.

I have made no changes to the testimony as transcribed by the court reporter.

Date Zhaohui Sunny Zhou, Ph.D.

Sworn to and subscribed before me, a Notary Public in and for the State and County, the referenced witness did personally appear and acknowledge that:

They have read the transcript;

They signed the foregoing Sworn Statement; and

Their execution of this Statement is of their free act and deed.

I have affixed my name and official seal

this _____ day of _____, 20____.

Notary Public

Commission Expiration Date

DEPOSITION REVIEW
CERTIFICATION OF WITNESS

ASSIGNMENT REFERENCE NO: 7824620

CASE NAME: Ajinomoto Co., Inc. v. Abtis Co., Ltd.

DATE OF DEPOSITION: 1/13/2026

WITNESS' NAME: Zhaohui Sunny Zhou, Ph.D.

In accordance with the Rules of Civil Procedure, I have read the entire transcript of my testimony or it has been read to me.

I have listed my changes on the attached Errata Sheet, listing page and line numbers as well as the reason(s) for the change(s).

I request that these changes be entered as part of the record of my testimony.

I have executed the Errata Sheet, as well as this Certificate, and request and authorize that both be appended to the transcript of my testimony and be incorporated therein.

Date Zhaohui Sunny Zhou, Ph.D.

Sworn to and subscribed before me, a Notary Public in and for the State and County, the referenced witness did personally appear and acknowledge that:

They have read the transcript;
They have listed all of their corrections in the appended Errata Sheet;
They signed the foregoing Sworn Statement; and
Their execution of this Statement is of their free act and deed.

I have affixed my name and official seal
this _____ day of _____, 20____.

Notary Public

Commission Expiration Date

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6
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8
9
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15
16
17
18
19
20
21
22
23
24
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ERRATA SHEET
VERITEXT LEGAL SOLUTIONS MIDWEST
ASSIGNMENT NO: 7824620

PAGE/LINE(S) / CHANGE /REASON

Date Zhaohui Sunny Zhou, Ph.D.

SUBSCRIBED AND SWORN TO BEFORE ME THIS _____

DAY OF _____, 20_____ .

Notary Public

Commission Expiration Date

&	107 168:4,5	1275 143:8	204:14,21
& 2:4 6:16	176:3,17	12:05 117:19	205:6,20 206:7
0	178:17 180:14	117:20	206:16 207:5
02481 7:23	182:15	12:44 117:20	207:12,24
03-13 217:9	10:31 58:8,9	117:22	208:8 210:3,20
1	10:45 58:9,11	13 1:17 3:9 5:1	213:17,19,23
1 3:9 5:6 6:8	11 199:8 200:2	63:4 65:16	214:7,9,21
13:12,13 40:18	200:13,19	99:24 100:1,2	215:5,10,20
148:18 151:17	201:5,8 203:4	100:3,8 217:8	151 179:12
151:18 154:20	203:13 205:25	1328 143:17,18	157 144:1
155:1,6 177:5	209:14 214:2	143:22 144:25	158 144:23
202:19 217:7	215:6	145:2	159 144:23
1-4 199:16	11,896,675 1:11	1329 143:13,15	16 74:18,19,22
1.5 151:1	1100 218:1	13th 6:6	167:18 177:16
1.67 122:3,8	1150 175:20	14 3:11 63:12	177:19 182:24
1.8 147:22	176:21,22	63:25 64:13	199:23 200:9
1.8. 147:23	177:1,10,21	103:7,8,10	203:24 204:1
1/13/2026	180:17 181:4	199:12,13,15	204:14,22
218:9 219:3	185:9 192:8,13	199:16,23	205:6,21 206:7
220:3	193:1,4 195:23	200:8 203:23	206:16 207:5
10 4:4 73:21,23	197:2,12	204:1,14,21	207:12,24
208:20,23	1151 175:20	205:6,20 206:7	208:8 210:4,20
209:4,5,14	176:21 178:19	206:15 207:5	214:8,11,12,18
210:16 211:4,5	178:22,22	207:12,24	214:21 215:5
212:8,9 214:2	179:7,13,21	208:8 210:3,7	215:20
214:2,13	180:17 192:8	210:20 211:8	16,980,503
10/31/25 27:2	192:14 193:1,4	212:12,12,14	142:22
100 76:13	195:23 197:12	212:15 214:7	16-980,503
190:11	12 74:1,2,3	214:21 215:5	3:22 142:18
1007 97:9	143:25	215:20	160 144:24
102 202:10,11	122 3:19	142 3:22	161 144:24
	1271 144:1,3,22	147 178:2	190:7
	1272 142:14,16	15 199:23	162 143:20,21
	143:6	200:8 203:24	144:25

17 62:6 68:25 118:3,5 143:8 175 3:23 18 78:9,11,12 1820 218:2 18755 217:18 19 93:25 94:5,8 94:8,16,20 215:10 198 4:3 1980s 43:24 1990 41:3,5,23 46:24 1990s 43:24 1997 41:7,18 53:17	2.64 122:6,7 20 35:19 94:9 94:17,20 120:9 120:10 136:8 137:2 153:22 191:1 219:16 220:22 221:22 2000 53:20 91:3 2001 94:23 2002 39:4 40:4 142:8 2003 16:14 40:4 142:9,24 2004 94:24 2007 2:8 2009 52:4,7 59:5 61:20 62:6 68:21,24 2011 86:11 2013 64:7 2014 63:21 2015 63:14 2016 60:3 87:5 87:19 2017 59:5 61:20 67:11 68:22 72:20 2018 95:16,18 95:22 96:2 2019 24:8,19,19 24:25 25:5 75:14,16 76:6 76:12,15,24	79:9 95:19 96:6,13,16 97:25 98:14 99:2 139:4,15 140:16 202 38:1 202.672.5300 2:9 2020 55:17,22 56:6,13,16 80:8 86:11 2021 57:15 2023 55:8 57:15 2024 56:6,9,13 56:19 2025 3:14 14:23 25:25 26:25 27:11 28:1,2 52:24 53:6 2026 1:17 5:1 6:7 217:8,15 218:4 2031 217:24 208 4:4 209 3:5 21 93:25 94:5,8 94:10,20 215:10 216-523-1313 218:3 22 95:7,10,13 95:15,18,21,24	215:10 218:4 22nd 14:24 52:24 217:15 23 38:1,16 95:13,19 215:3 24 38:16 95:7 95:13,15,21,22 95:22,24 248 103:11 104:10,16,20 104:22,24 111:1,5,7,17 112:2,17,21,22 113:10 114:15 115:2,4,7,13,14 115:16 116:3,7 116:10,13,13 116:22 117:9 124:21 125:21 126:1,10 133:4 147:17 148:1 211:22 212:1 215:18 25 38:17 96:14 96:15 26 168:11 175:19 176:12 177:3,11 178:9 183:16 185:21 190:15,18 191:1 192:1,1 192:15,17 193:14 194:14 195:17 197:3,8
2			
2 3:11 14:12,13 14:16,21 52:19 54:23 58:15 100:10 101:23 102:4 124:14 131:6 148:2,4 148:5,9,19,20 151:17,18 154:20 155:2 201:23,25 202:1,2,3,6,8 202:14,23 203:5,15 204:2 204:6 2.0 151:11			

27 3:13 272 91:7,9 28 121:10,11,18 280 86:7 2:02 175:2,3 2:14 175:3,5 2:45 198:5,6 2:54 198:6,8	117:8 127:15 127:20 128:6,9 129:23 130:1,8 130:9 131:14 135:9 136:25 35 40:20 41:1,9 41:15,25 46:10 46:21 47:5 49:22 51:19 37 4:5 180:25 181:2,4,6,10,15 181:17 182:10 182:22 183:12 208:24 38 158:19,21,25 159:5 166:17 166:22 167:16 167:18 3:18 216:5 3:20 1:18 216:21	40 138:15,16,18 140:4,10 181:16,19 199:15 42 215:10 42.121 4:5 208:25 43 215:10 44 199:19,20,21 209:22,23 210:1 213:17 44114 218:2 455 217:9 47 39:2 141:14 214:24 215:1 49 215:13	145:16,25 146:5 152:1,7 152:17,25 153:3 154:3,7 155:20 156:5 157:1,16,24 209:7 214:8,17 52 39:3 215:9 550 35:22 36:7 555 26:22 36:10
3			6
3 3:13 14:25 15:2 26:24 27:1,7,19 37:11 42:20 58:16,17 59:24 102:6 124:25 126:18 144:4 144:21 145:6 202:5 209:20 217:24 3.1 144:10 30 7:22 47:5 3000 2:7 31 3:14 312.807.4293 2:17 31st 26:25 27:11 3300 2:15 34 105:20,21 108:21 109:3 109:13,18 110:6 113:8 114:7 116:6,21	4 3:15 40:13,15 41:10,16 44:15 79:20,23 80:5 80:22 81:17 91:8 125:22 126:11 145:4 159:3 181:1,2 181:18,20,21 181:22,22 202:8	5 5 3:17 97:7,11 97:19 99:20 108:18 109:20 118:1 120:9 127:14 130:16 5-0 27:21,22 168:4 50 27:20,21,22 27:22,24 87:5 87:19 168:4 215:14,14 503 31:17 32:7 33:11 37:25 38:7,18 141:7 141:10,17,22 141:25 143:4	6 3:19 74:19 122:14,19 123:4,24 191:6 60 168:11 175:20 176:12 178:21,25 179:9,10,16,23 179:25 183:16 185:22 190:15 190:18 191:1,7 191:8 192:2,15 192:17 193:14 194:14 195:17 196:23 197:9 60602 2:16 62 215:9 675 30:8 37:8 141:9,12,18 159:2

7	998 38:7 209:8 214:9,17 9:17 1:18 5:3 6:7	above 148:20 177:6 218:17 absolute 180:21 abstract 80:21 81:16 84:15 88:7 abtis 1:9 6:12 6:23 7:1 22:7 22:10,12,16,18 22:22 25:12,15 25:22 26:11,13 34:5 35:24 36:2,6,14,21,25 37:2,4,8 75:18 141:9 199:8 204:23,25 205:3,3,9,24 206:10,25 207:4 208:3,9 217:7 218:6 219:3 220:3 academia 53:18,20 academy 51:3,6 access 9:10 86:25 accommodate 10:1 accordance 219:5 220:5 accurate 37:15 40:9 89:2	achieve 83:7 102:3 147:7,8 150:22 159:25 161:8,24 162:1 162:25 163:21 164:21 165:8,9 165:16 acid 50:8 63:19 167:9 acknowledge 80:23 219:11 220:16 acknowledged 85:11 acknowledging 81:17 86:8 acquired 56:7 56:20 act 219:14 220:20 acted 16:14 action 10:20,22 11:4,12,17,23 12:3,4 217:12 217:15 active 59:6 activities 51:16 58:20 92:2 93:8,11 activity 90:25 91:21 92:3,19 93:3 actual 54:15
7 3:4,22 86:6,7 86:12 87:24 142:18,21 7.2. 182:6 70 2:15 72 143:8 7824620 218:7 219:2 220:2 221:2 79 3:15	a a.m. 1:18 5:3 6:7 58:9,9 ab 205:3 abandon 164:6 164:25 165:4 abbott 59:4 abbvie 59:3,6 61:12,19,21,25 62:5,16 63:24 64:19,23 65:4 65:10,14,20 66:4,9 67:3,9 67:13,21,23 68:9,12,21 69:2,6,10,25 70:12,16,23 71:7,18,23 72:1,8,13,18 73:2 ability 92:14 106:15 110:8 208:16 217:11 able 13:24 101:12 102:3 122:17 163:7 204:23 205:1 207:1,4		
8	8 3:23 76:6 139:4,15 175:6 175:10,14 80 190:6 80s 44:12 81 126:22,24 127:4 82 215:9 8th 75:14,16 76:12,15,24 79:9 140:16		
9	9 4:3 75:14 198:9,12,16 9-6 190:10 90s 44:12 96 190:8,10 97 3:17 98 198:22,23 200:15		

actually 18:3 23:12 33:5 37:18 43:25 44:2 45:19 51:10 67:18 126:7 174:22 178:17 185:4 185:25 196:17 198:2 adc 42:16,18,20 42:22 43:11,17 60:22 61:8,13 64:15 118:7 120:6 121:21 122:9 125:1,5 125:7 adcs 3:18,21 42:19 61:2 84:21 86:8 87:5,19 97:13 100:12,19 122:21 add 200:8 addition 111:1 111:11,17,17 112:1 115:16 116:2,2,12 147:25 166:17 additional 68:25 105:22 110:9,12,25 111:6,10 112:5 113:14,17 114:2,8,18	115:12,12,15 115:25 116:9 116:17 117:2,5 131:17 132:24 133:4 211:15 address 7:16,22 218:16 adjusted 161:6 161:16 adjusting 161:2 164:17 adjustments 165:21 adopt 79:4 advantage 90:15,17,22 100:4 advantages 90:8,18 92:12 100:9,23 127:8 159:9 advents 93:14 advisor 51:1 54:7 advisory 50:22 affect 93:7 167:25 affected 93:7,9 93:10 affinity 96:7 affixed 219:15 220:21 agency 161:8	agent 166:4 aggregate 181:7 ago 19:1 20:10 20:12 133:22 agree 90:6 107:2 108:8 115:24 117:8 206:5,13 207:10,22 ahead 11:5 13:9 21:16 43:20 71:10 108:23 123:19 186:7 202:10 211:17 212:22 216:15 ajicap 3:18,21 23:24 24:4,6 24:15 25:3,7 96:8,11,17 97:12 98:20 100:5,9 102:2 106:1 107:4 109:6 117:9 118:7,11 119:5 120:16 121:20 122:21 124:12 125:1,4 127:6 127:19,23,23 127:24 128:4 130:4,14 131:7 131:12 133:20 134:10 136:14	136:19 ajinomoto 1:6 6:11,17 23:8 23:11,12,25 24:5,6,14 25:12 34:6 96:12,20 102:1 109:19 114:13 217:6 218:6 219:3 220:3 ajinomoto's 24:4 25:2 aldehyde 120:25 136:16 alkyne 102:9 102:17 alkynes 63:6 72:21 allow 150:7 allowed 57:10 93:17 allowing 150:18 alternate 77:25 altogether 45:20 alycorn 55:5,6 alys 56:7,8,15 56:20 amend 4:5 25:16,17,20 39:16,16,17 208:19,24 209:9
--	---	---	--

amended 209:9 210:1 amendment 38:10,12 amethyst 57:19 57:21 amgen 68:9 119:20 amino 167:9 211:23 amissi 74:6,8 amount 49:11 101:20,20 172:15 amounts 150:7 analysis 42:7 58:2 60:12,16 61:1 79:5 118:7 199:1 200:17,25 201:6,18 analytical 60:14 63:15,21 63:23 64:6 121:23 122:2 analyze 31:13 32:9 141:16 analyzed 32:13 201:9 animal 84:24 91:4 answer 8:14 10:25 21:16 24:18 25:14	28:22 29:10 31:6 32:19 33:9 36:9 41:25 43:20 45:8 54:18 67:16,25 69:23 71:1,21 75:20 81:3 87:12 107:13 109:23 113:2,25 114:1 114:21 115:10 155:24 156:24 184:11,12,25 185:4,14,17,17 187:6 212:24 answered 33:8 170:22 206:18 answering 184:14,15,17 184:21,23 antibodies 17:9 21:13 22:1 44:16,22 48:10 49:1 51:17,24 52:4,8,9,9,15 52:17 64:17 68:7,16 69:25 88:13 91:19 120:13,17,21 138:22 151:20 152:12 155:3 157:8 172:19 181:18 212:17 215:18	antibody 3:16 16:25 20:14,15 20:17,18,19,21 20:23,24 23:4 23:21 42:21,23 42:25 43:2,6,8 43:23 44:3,18 44:20,24,24 45:3,4,9,13,18 45:24,25 46:4 46:6,25 47:1 48:18 49:13,25 51:21,24 55:19 55:23,25 56:2 56:11 59:1,7,9 59:13,18 60:1 60:4,7,9,12,15 60:25 61:7 62:12,17,18 63:9 64:14,21 65:2,5,8,12 66:2,3,9,14,16 66:21 67:3 68:9,12 69:19 69:24 70:1,2,2 70:4,9,11,16,24 71:8,19,25 72:8,14 73:3 79:21,25 80:9 80:25 81:9,19 85:13 93:18 101:16,19,21 101:24 103:11 103:22,25	104:1,10,16 105:1,4 110:10 111:1 114:19 119:14 122:6,8 124:20 126:2 137:15 138:25 139:7,18 140:1 140:7,18,25 142:1,3 143:9 144:6,11 145:18 146:7 146:10,13,20 146:25 147:17 147:21 149:3 149:10 150:19 152:8,12,16,19 154:8,13 155:21 156:6 157:17 165:14 168:12 173:1 174:15 176:13 178:8,20,23 179:8,15,22 180:23 182:11 189:8,15 204:12,20 210:7,8,24 212:16,17 213:2,6,7,8,12 antibody's 48:13 anybody 22:19 anymore 116:17
---	--	--	---

anyway 94:20 115:17 120:1 anyways 122:18 apart 109:18 app 3:22 142:18 appeal 1:3 appear 116:23 219:11 220:15 appearances 2:1 appears 87:4 93:24 appended 220:11,18 application 31:14 32:7,23 33:12,12 34:5 38:8,18 141:8 141:11,17,23 141:25 142:22 143:4 145:17 145:25 146:5 152:1,7,18 153:4,16,17,18 154:3,7 155:16 155:20 156:5 157:16,24 209:8,8 213:13 214:17 applications 37:25 81:1,10 81:21 141:9	211:7 214:3 applied 78:25 79:1 apply 52:17,17 appointment 53:19 appreciate 85:7 approach 81:23 84:6,19 163:18 approaches 83:6 167:7 approved 119:20 approximately 12:10 20:9 22:21 27:17 35:4,18 46:20 47:14 48:8 143:12 area 46:10 47:16 49:3 82:3 areas 40:21 arginine 64:2 argued 19:2 arrangements 58:25 59:24 arrow 103:18 art 75:1,10 139:5 140:15 167:6 215:17 article 79:23 80:7 81:25	82:1,7,15 85:3 86:23 88:19 89:22 90:2,7 articles 64:12 74:5 94:22 96:2 ashton 2:22 6:4 aside 49:19 116:15,20 134:4 149:11 149:11 197:25 asked 11:11 15:22 18:9,18 18:20 21:2 22:16 31:13 33:8 57:12 78:3,6 141:16 152:22 153:8 153:12,15 154:18 155:13 155:25 157:1 170:22 188:6 205:8,9,13 206:17 207:19 208:11 211:12 asking 8:7 68:18,19 70:8 116:16 117:5,7 154:16 174:9 187:11,15 189:24,25 192:25 aspect 11:9,13 31:16 32:6	33:15 52:9 60:15 66:16,21 70:3 90:16 129:20 152:23 153:9 162:2 aspects 48:25 assignment 219:2 220:2 221:2 assume 8:24 30:6 64:21 104:12 106:6 133:3 145:9 150:5 190:8,10 assumed 75:13 assumption 106:12 assure 85:18 attached 146:25 151:3,4 151:5,13,14,15 151:21 220:7 attachment 136:15 attachments 120:23 attend 22:25 23:3 24:20 99:4,6 attended 24:13 attorney 11:8 217:13 august 26:2 28:1
--	---	--	--

author 74:6 90:3 94:16 author's 63:8 63:13,19 64:4 80:10 authorize 220:11 authors 64:10 94:14 available 9:12 73:18 93:17 118:12 119:6 ave 218:1 average 151:7 aware 22:22 23:7,9,10,24 24:8 96:20 134:6 145:16 146:4 awry 63:13 azide 63:7 72:23 102:9,17 120:25 134:17 134:25 135:13 135:17,23 136:2,5,6,15,21 137:1,3,10,14 137:16,18,20 138:8,10	back 24:7 41:3 43:22 44:2 47:6 52:19 58:10,13 74:17 88:7,22 94:7,7 114:5 117:21 126:17 127:13 131:2 135:9 136:8 143:24 143:25,25 146:18 150:24 152:1 155:10 166:1,10 168:17 175:4 175:23 178:16 182:15 194:2 198:7,21 200:15 213:12 218:16 background 30:7,13 158:25 159:1,4 backup 14:6 backus 216:11 barry 94:16 based 40:11 45:15 76:14 77:25 88:17 121:20 130:14 152:6 171:22 188:13 195:16 201:23 basic 48:12 50:10,11,17	basically 57:6 83:10 161:20 basis 84:1 106:11 130:11 180:13 182:16 beacon 86:13 86:21 87:9,13 87:14,18 88:3 beacon's 87:24 bear 97:2 122:12 began 118:11 beginning 43:21 57:13 96:19 149:14 178:2,4 212:14 behalf 2:3,12 6:16 26:11 36:6 believe 54:24 175:11,17 177:22 210:13 bertozzi's 94:10 best 162:17,19 217:11 beta 168:9 176:4,6 179:4 180:1,4 188:19 188:24,25 190:15,20 191:3,9,14,16 192:5,20 193:6 193:10,12	194:5,8,10,20 195:3,15,21,25 196:8,13,20,24 197:3,7,10,24 better 14:3 84:13 85:17,18 90:19 206:3 beyond 69:1 79:18 134:7 154:20 173:15 211:12 212:20 big 138:2,2 146:15 billing 26:16 binding 92:5,6 92:7 bioconjugation 17:1 88:12,20 183:14 biological 90:24 91:21 92:19 93:3 bioorganic 46:15 47:10 bioorthogonal 72:15 73:4 93:15 210:9 biosciences 55:5,7,13,16,21 56:11 74:15,16 biosimilar 17:19 19:15,19 20:11 21:10
b			
b 59:3,3 110:13 114:9			

biotech 54:4,14 bit 9:17 18:6 45:11 83:19 86:15 115:22 124:19 126:3 126:13 148:20 169:25 black 92:25 blue 120:23 board 1:3 boiled 139:21 boston 1:21 5:7 6:9 217:7 bottom 40:18 54:24 64:1 74:4 97:24 103:17 104:2 125:11 131:4 178:1 215:3 break 58:6 117:17 154:25 174:24 188:5 broad 18:20 157:2,7 broader 45:5 52:14 192:19 broadly 43:1 brominate 63:7 brominated 72:22 brought 60:13 buffers 181:13 bullet 102:6 116:15 131:23	131:24 business 55:4 55:13 57:20 button 123:7 c c 6:1 19:12 24:7 55:7 57:5 63:14,20 64:5 72:22 83:10,10 c.f.r. 4:5 208:24 ca 218:25 call 48:22 88:22 101:15 127:24 141:12 170:8 called 18:10 23:14 43:23 44:5 49:24 50:3 88:23 120:5 capacity 10:8 capital 55:18 career 47:4 carolyn 94:10 carried 187:16 188:7 202:6 carry 182:7 187:1,4 203:23 case 11:7 12:13 13:3 16:24,25 17:16,17,21 18:3,5,8,10,11 19:3,14,22,24	20:5,13 21:12 21:25 23:7,23 26:9 75:12 125:5 139:21 139:22 152:2 166:12,12 171:23 180:25 182:6 188:16 188:16,16 189:3 193:9 200:7 201:4 218:6 219:3 220:3 cases 10:10,17 10:18,19 11:21 11:22,23 12:10 13:6 15:7,10 15:12 16:5,15 16:20 17:2,5,8 17:12,15,19 21:7,11 48:3 catalytic 51:23 catch 71:3 category 44:21 45:14,20 52:14 157:7 certain 11:9 22:20 33:10 92:8 150:22 161:7 171:12 173:16 189:1 certainly 46:12 79:10 85:22 128:10 166:10	183:5 certificate 220:11 certification 219:1 220:1 certified 5:10 certify 217:5 cetera 114:9 chain 152:9,13 153:11 154:8 154:13,21,22 155:22 158:4 168:10 210:25 211:23 chains 149:3,10 152:17,20 155:4,6,11 156:9,12,16,19 156:22 157:12 157:14,19,20 158:3,3,7,8,13 211:21 change 78:22 78:23 161:9,21 163:1,2,6,9,10 163:12,15,16 166:1 218:14 218:15 220:8 221:3 changed 38:5 38:19 40:6 59:3 changes 129:15 130:2 133:18
--	--	--	--

134:9 167:24 218:13 219:7 220:7,9 changing 141:3 159:13,21 160:1 characterize 66:18 194:9 197:14 characterized 106:9 charge 36:13 chart 38:5,13 39:7,9,17 209:6,12,15 210:16 211:4 212:8,11 214:2 214:13,16 charts 38:8 check 13:18 71:22 114:7 169:6 checking 94:6 chemical 3:20 49:9 63:18 122:20 183:9 187:21,22 188:1,17,25 189:1 191:12 192:3 chemist 46:15 chemistries 93:15	chemistry 42:7 46:15 47:10 49:9,14,15 52:2,13,16 57:13 59:9,12 59:18 60:11,14 60:16 61:1 63:6,15,21,23 64:6,20 72:15 72:21,24 135:6 137:15 144:6 160:11 167:10 210:9 chemo 138:21 chemophysical 138:22 chicago 2:16 chumsae 63:13 63:20 64:5 circle 7:22 citation 94:2,4 94:20,21 95:18 95:19 96:14,15 169:7 citations 40:2,3 94:12 cite 128:14,18 142:7 210:21 214:8 cited 167:6 175:18 183:25 210:14 citing 93:24 95:6,25	citric 63:19 civil 219:5 220:5 claim 199:7 200:2,4,13,19 201:3,4,8 203:4,13 205:25 210:3,3 210:4,6,17,19 211:8,20 212:6 212:8,12,12,14 212:15 213:16 213:17,19,23 214:7,9,11,12 214:18 215:6 claimed 75:1 75:10,18 205:5 209:18 claims 18:13 25:16,17,20 31:10 33:2,18 37:22 74:23 75:8 199:23 200:5,8 203:23 204:1,14,21 205:6,20 206:1 206:7,15,25 207:5,12,24 209:9 210:1 214:21 215:5 215:19,20 clarification 29:3 130:24 155:9 201:15	206:19 clarify 11:15 77:23 152:14 154:11 clarifying 54:10 class 10:20,22 11:4,12,17,23 12:3,4 45:5 classic 43:1,5 43:10 clause 191:8 clear 8:6,10,12 45:21 73:8 77:2 85:10 113:8 115:4 117:3 130:25 158:1,14 164:3 171:15 188:17 clearly 66:14 136:24 191:2 cleavage 202:20 cleveland 218:2 click 63:6 72:14 72:21,23 93:14 144:6 210:9 client 11:8 19:18 clinic 87:6,20 clinical 56:24 81:1,10,20 82:11 86:9 87:16
---	---	---	---

close 99:1 190:10 closely 9:17 closure 37:24 clr 1:24 coauthor 62:13 94:19 coauthors 89:5 89:8 cofounded 54:6 55:17 74:13 cofounder 54:7 colaunch 60:18 60:19 collaborated 54:12 collaborating 67:21 collaboration 32:4 37:4 54:2 59:6 62:8 65:11,13,17 66:10,13 67:9 71:12,13,24 107:19 collaborative 61:15 65:20 colleague 25:10 98:21,22,23,24 99:3,4,8,12,13 colleagues 6:19 24:11,21 25:1 25:3,6 98:18	college 41:4 columbia 2:8 column 91:10 120:22 177:22 combine 30:22 31:19 combined 30:20 32:20,23 121:3 commercial 60:21 61:4,8 61:13 62:12 86:24 120:2,3 commercializ... 19:9 61:18 commercially 93:17 118:12 119:5,19 commission 217:23 219:19 220:25 221:25 common 106:23 107:21 170:9,11,11,13 171:16,19,20 191:13,24 commonly 89:11 commonwealth 5:12 217:1,5 217:10 communicate 26:15	companies 54:5 54:22 55:3,11 58:21 68:13 company 6:11 6:17,23 17:13 17:18,20 19:18 21:10 22:7 26:8,15 36:24 37:1,3,6,10 48:16 49:12 54:7,8 55:7,9 55:16 56:7,20 57:1,6,8,11,18 57:23 59:5 60:10,23 65:23 66:1 68:16 74:13,14 106:15 107:16 107:22 comparative 177:4,9 189:12 compare 169:13 172:9 183:4 193:22 194:23,24 compared 84:24 90:11,13 100:11 101:1 101:20 169:17 169:21 170:6 170:10 172:12 192:24 193:19 194:16	comparing 172:12,14 comparison 84:11 100:16 131:19 comparisons 83:4 84:2,17 85:12,23 86:2 compatibility 102:7,8 120:12 compatible 102:13,16 121:7 136:14 136:17,21 137:3,4,13,15 137:17,18,23 164:24 165:13 compensation 35:21,23 36:2 36:14,18,21 37:6,10 compensations 36:23 complete 9:3 15:13,14 37:14 40:9 52:22 147:19 completed 218:16 completely 77:3 completing 125:5
--	---	--	---

complicated 115:22	195:24 196:7 197:8,15,19	conclusion 131:4,5 180:14	173:1,4,25
component 44:7,9 46:3,5	200:1,5 203:3 203:13,25	188:23 190:25 191:2,19,23	174:1,3,17,19 179:14,17
components 46:3 136:13	206:7,15 207:11,23	192:3,11,19 193:5,17 194:7	180:10,24 181:6,13 183:1
composition 167:24	208:8	195:13 196:11 197:23 203:17	183:4,22,24,25 184:3 185:8
compound 177:3,11 178:9	comprises 210:24 211:21	203:22 204:3 205:15	186:10 187:17 188:8
178:21,25	comprising 210:8	conclusions 192:12 199:1	conducted 36:6 56:10 72:8
179:9,10,15,23	compromise 90:24 91:20	200:18,25	82:3 107:9 160:15 182:2
179:25 189:11	92:21 93:5	condition 150:22 159:24	conducting 149:8
189:11 190:8,9	compromised 93:6	160:3,18,20,22	conference 22:25 23:3
191:1,6,7,8,13	con 4:4 208:23	163:13 166:2	53:13 98:4,11
192:1,1,15	concept 124:12	171:25 172:2	98:12,17,19,25
193:19,20,23	188:1,17	173:17,18	99:5,6,10,15,16
194:10,16,17	concepts 108:5	180:25 182:22	106:14,24
194:23 195:19	137:5	182:23 183:3	107:15
196:23 197:3,7	concerning 59:1 134:8	conditions 101:5,8 159:15	conferences 24:10,13
197:9 201:7	conclude 190:19 196:12	159:22 160:6,7	confidence 138:23 139:6
202:24 205:25	216:3	160:12,13,24	139:17 140:6
209:18	concluded 216:21	161:1,3,5,10,13	140:13,17,24
compounds 137:8 168:11	concludes 127:5,17	161:15,18,23	confidentiality 73:12
175:19 176:12	144:24	162:15,17	confirm 54:11
183:16 185:21	concluding 128:2 182:17	163:6,10,21	75:24 119:3
189:7,14 190:2		164:18,25	135:21 154:5
190:6,14,17		166:10 169:14	
191:11,20,23		169:19,22	
192:4,15,20		170:3,6,9	
193:5,14,23		171:17,23	
194:4,14,19			
195:2,7,14,17			

confirmation 144:5	conjugated 43:9 90:9	153:10 158:9 167:9	72:7,18
confirmed 125:21 126:10	145:18 146:6 150:19	connection 12:25 26:5 27:14 36:15 37:7 71:18 199:7 201:3	contain 32:10 32:14 45:12 192:19
confirming 125:25	conjugates 42:23 43:2 44:20,24 45:18 45:24 59:1,13 59:18 60:1,4,7 64:21 65:5 66:17 67:4 70:9,11 72:9 72:14 80:25 81:9,19 85:14 90:20 92:15 93:19	consider 30:15 75:24 76:5,12 77:7 78:4 79:7 88:4 164:16 173:20,21 174:4 186:17 208:6	contained 76:20 131:11 131:13 133:15 133:16 134:7 211:16
confused 158:10			containing 144:6 168:10 193:12
congress 1:20 5:7 6:8 217:7			contains 42:25
conjugate 20:19,24 23:4 42:21 43:6,23 44:3 45:4,10 45:10 46:4 48:18,19 55:19 55:23,25 56:2 56:12 59:8,9 60:10,12,15,25 61:7 65:2,8,12 66:2,3,9,15,18 66:21 68:12 69:19,24 70:3 70:16,24 71:8 71:19,25 91:20 92:20 110:9,12 112:5 113:13 113:16 114:2,8 119:14 125:8,9 137:14 144:18	conjugation 3:15,18,20 22:19 23:21 46:24 57:14 58:2 63:9 72:10 73:3 79:20,24 83:18 86:9 87:7,21 87:25 90:14,16 90:23 91:15,18 92:13 93:19 95:3 96:1 97:12 100:17 100:22 101:2 101:11 102:20 113:10 114:15 122:20 132:8 132:17 145:7	considered 88:19 182:10	content 84:21 contents 29:22 29:24 213:8
conjugate's 90:24 91:21 93:3		considering 76:14	context 18:24 83:14 100:22 107:23 115:13 116:10 172:11
		construction 93:18	contingent 4:4 208:23
		consultant 58:20 59:4 60:3,13 68:1 69:9 70:19,23 71:7 73:5,16	continue 56:14 115:3 117:24 136:3,4 163:5 163:5 178:18
		consultations 53:25	continued 3:25 56:19 134:16 134:24 135:23
		consulted 22:9 54:12	continues 144:23
		consulting 54:1 55:9 58:24 59:23 68:11,13 68:21 69:1 70:12,15 71:18	continuing 40:19 42:5 124:24 143:11

143:16 continuously 61:22,24 continuum 48:11 contract 55:10 control 101:15 controlled 101:12 102:3 conversations 26:12 conversely 81:5 conversion 204:5,6,8 convert 206:1 copied 78:15 copies 9:12 10:1 39:21 copy 9:21,24,24 14:2,16,19 26:24 27:5 39:11 79:23 80:2 97:7,15 122:14,15,17 142:9,21 152:2 175:10,11 198:12,13,17 208:18 216:9 correct 19:16 21:13 22:7,8 28:3 34:15 36:16 38:13 39:6 40:4 41:1 41:7,12 42:9	42:14,17 45:6 52:16 53:6 54:5 55:1,24 67:14 68:22 69:8,21 70:13 70:18,24 76:2 76:15 79:2 81:1,21 84:3 84:17 85:14,25 86:23 87:8,21 87:25 88:21 90:3,9 92:15 92:17 93:20 94:1,5,11,21,24 95:7 96:3,4,13 96:21 98:15 99:10 101:2 102:21,24 103:11 104:10 104:17 108:9 109:21 110:10 111:3 115:6,25 116:24 118:8 119:7 120:13 124:22,23 129:6 132:11 132:20 139:19 140:8 143:7,14 143:19 144:14 144:17 153:16 154:16 156:16 161:3 169:5 172:10 174:17 174:19 177:3,7	177:11 178:10 178:12 183:23 187:18 189:16 191:23 195:7 201:24 210:2 correction 37:16 38:15,22 39:25 40:7 corrections 40:8 218:13 220:17 correctly 25:24 26:7 81:15 127:10 141:10 correlation 189:25 209:7 corresponding 94:16 cost 82:20,23 coumarin 63:7 72:22 counsel 6:13 15:19 16:2 28:13,15 31:4 32:4,17,21 34:14,23 35:12 35:15 38:6,9 39:8 75:15,21 200:14 209:6 217:12,14 counsel's 209:16 counsels 31:25 32:9 33:14,24	count 189:10 189:13,17 190:4 counted 77:17 county 219:10 220:15 couple 35:2 74:5 133:22 course 23:18 26:10 28:7 35:8 69:3 99:20,22 153:19 154:2 159:24 208:5 court 7:4 12:21 13:3,6 17:3 18:2,4,10,13,19 19:3,8,25 20:3 20:5,22 21:17 23:1 25:18 29:13,16,18 31:22 38:11 41:22 47:22 50:24 52:6 56:1 59:20 63:22 65:24 69:11 77:12 80:17 83:12 87:11,14 89:7 89:15 92:6 93:9 95:11 101:6 110:21 111:18 118:16 123:12,15
--	--	--	--

125:16 129:10 132:3 133:1 139:24 148:3,5 148:14 149:17 160:2 162:6 164:10 166:3,6 171:4 176:6 180:2 181:19 181:21 187:2 190:9 191:15 191:17 201:10 202:17 216:8 216:13,17 219:7 cover 8:6 187:25 covers 109:25 110:1 create 150:19 criteria 79:13 181:10 182:20 csr 1:23 curriculum 3:11 14:13 cut 185:15 cv 14:17,23 15:1,2,8,15,17 15:22 16:3,13 52:20,21,22,23 53:4,5,8 54:10 54:23 58:16,17 59:24 62:22 63:4 64:23 65:16 73:22,23	d d 6:1 80:11 118:18 186:21 dar 101:12,15 101:16,17,23 102:3 146:19 146:22,24 147:3 148:1,17 149:14 150:3 150:22,24,25 151:6,9,11 154:20 155:1 data 83:17 84:5 84:11,25 85:5 85:5,6,18,20 91:4,5 103:2,3 106:17,21 107:18 108:2 108:11,13,17 121:24 122:2 126:6 136:5 152:23,24,25 154:24 189:12 193:10 database 86:12 86:13,19,21,25 87:1,9,13 88:4 date 6:6 53:9 72:6 75:13,16 75:18,22,25,25 76:3,5,8,9,10 76:12,14,24 77:3,6,10,25	78:4 108:2 218:9 219:3,9 219:19 220:3 220:13,25 221:20,25 dated 3:13 14:23 26:25 27:2,10 dates 77:8 day 18:10 77:11,13,14,16 77:17,19 216:18 219:16 220:22 221:22 days 44:3 218:19 dealing 83:20 dear 218:10 decide 186:24 deck 99:23 109:16 declaration 3:13,23 4:3 16:4 26:25 27:1,9,13,18 28:2,10,12,16 28:18 29:6 31:2 32:4 33:6 33:23 34:6,7 37:12,14 38:1 38:3,16,20 39:1 40:1,9,14 40:15 41:17 74:18 76:21	78:9,14 79:15 79:16 126:17 126:19 127:16 128:8,16 130:11 138:15 140:10 154:5 158:19 166:17 175:6,19,24 176:1 182:15 194:1 198:9,21 199:10,10,11 199:13,17 200:10,16 202:10 209:20 211:14 213:18 214:25 deduction 196:11 deed 219:14 220:20 deemed 218:20 define 82:23 86:17 157:3 defined 43:1 80:24 81:8,18 90:19 91:20 92:15,16 183:19 202:8 213:3 definition 12:5 43:4,6,10,13,16 43:17 45:21 78:13,16,18,20 78:24,25 79:1
--	--	---	--

79:5,8,11 82:18 86:16 87:10,15,22,24 149:15 151:6 170:5 213:2,11 degradation 18:23 19:4 degrade 181:7 degree 92:24 93:2 degrees 92:2,9 181:1,1,2,3,4,6 181:11,15,16 181:17,18,19 182:10,22 183:12 deliver 53:14 delivery 216:18 216:19 demonstrated 83:6 215:15 department 218:22 dependent 76:23 149:24 150:1,6,15 depends 11:6 139:22 149:13 163:25 164:3 165:7 166:13 172:25 173:1,3 173:17,25 174:15,16,16 174:18 180:23	186:14 depicted 214:22 deponent 7:8 deposed 10:4 12:19 15:13 deposition 1:15 3:10 5:5 6:10 7:25 9:7 12:2,3 12:25 13:10,14 15:9,16 20:6 20:10 21:11,25 33:21 34:11,15 34:23 35:16 38:4,21 96:19 98:5 153:19 154:4 211:13 212:21 216:6 216:21 217:6 217:13 218:9 218:12 219:1,3 220:1,3 depositions 10:7,12,16 12:9 15:18 derive 215:6 deschaine 1:23 5:9 7:5 217:4 217:19 describe 15:8 95:2 152:7,18 156:5 179:13 described 49:21 103:9	129:1 180:16 197:22 203:5 203:14,25 204:8 206:7,15 207:5,11,13,23 207:25 208:3,9 208:10 209:17 describes 157:16 describing 177:2 178:20 179:8 197:11 description 3:8 4:2 33:1 89:2 215:7 descriptions 211:6 desirable 159:25 desired 83:7 despite 168:13 169:4 176:14 178:12 180:8 detail 32:11,15 33:2 57:9 88:2 103:20 127:9 129:5 130:12 202:13 205:10 205:12 207:7 detailed 129:8 129:11 details 59:16 209:18	detection 63:6 72:21 determine 32:14 124:15 150:21 161:17 163:11 186:13 determined 178:3 187:13 212:2 determining 189:19 develop 19:18 22:18 55:18,22 55:25 56:2,11 57:24 60:24 61:6 66:14 developabilit... 82:23 developability 80:25 81:10,20 82:10,14,17,18 developed 23:25 60:22 96:12 developing 60:21 84:21 development 3:19 11:9,14 11:16,18 42:8 48:15 49:7,18 49:25 51:15,15 51:21 56:10 60:4,7 83:19 89:14,16,17
---	---	---	---

105:12 106:5 122:19 161:17 161:22 developments 50:18,19 diagrams 119:10 difference 92:9 131:20 138:2 different 18:6 23:13 44:25 45:14,19,20,22 46:1,14,18 62:2 66:16 77:25 78:4,5 78:21 84:9 86:15 93:10 112:9,11,16,20 112:22 120:17 120:24 121:8 127:7 128:20 128:21 132:22 135:6 137:4,7 137:13 149:2,9 150:2,3 151:9 157:7 159:7,14 159:21 160:7 160:11,11,12 161:21 162:4,4 162:7,8,11,15 166:18 167:1 169:25 173:18 184:3 186:10 187:16 188:7	188:18 197:16 197:19,20 201:7 206:1 213:20,21 differently 45:11 difficult 50:2 dimer 152:12 direct 48:14 49:17 51:9 86:25 directed 48:9 51:16 109:5 direction 82:5 131:21 148:9 149:18 165:13 directly 49:23 50:7 51:4 52:4 52:6,7,7 54:3 54:13 124:4 disagree 198:25 200:17 200:24 disagreement 78:18 disclose 57:9 59:16 62:8,19 65:6 72:11,17 73:6,17 106:13 107:24 108:1 207:6 disclosed 31:16 72:24,25 73:11 102:23 108:25	110:7 127:7,9 128:20,21 129:5 130:12 134:24 135:22 142:4 146:5 189:14 205:10 discloses 142:1 143:6 155:20 168:9 disclosing 145:17 disclosure 31:11 141:16 141:18,21 143:13 153:6 154:6 157:15 157:24 disclosures 215:15 disconnected 47:18 discover 49:8 discovery 63:18 discussed 22:24 23:2 133:22 discussion 127:5,18 128:3 154:6 157:23 distinct 159:9 distinction 137:22 distinguish 44:23	district 2:8 12:21 18:2 19:25 diversity 138:21 divide 46:23 101:21 dm1 118:13,17 119:6,12,15,22 120:4 121:21 122:9 125:7,9 doctor 80:3 123:12 198:14 doctoral 51:23 document 29:22 38:14 39:11 143:22 188:14 209:3,5 document's 39:7 documents 9:10 31:15 32:10,10,14,22 34:9,13 38:10 38:12,17 97:5 doing 57:10 59:12 60:6 68:4,14,25 69:1 70:22 71:6 double 13:18 dozen 16:15 dr 13:17 14:17 26:24 34:6
--	---	--	---

78:13,16,18,20 79:1 97:16 143:1 199:1,6 200:10,12,17 200:25 201:9 203:18 draft 28:10,14 32:16 drafted 28:19 29:7,11 31:3,4 32:3,17,20 dramatically 43:5,14 draw 192:3 drew 194:6 driver's 7:10 drug 11:9,13 11:16,18 19:20 19:22 20:19 23:4 42:16,21 42:23,25,25 43:2,2,4,7,9,13 43:16,23,25 44:3,5,6,9,17 44:20,24 45:4 45:9,10,15,18 45:20,24,25 46:2,4,6,6,6 48:18 49:6 55:19,19,23,23 55:25 56:2,11 59:1,7,9,13,18 60:1,4,7,9,12 60:15,25 61:7	62:12 64:21 65:2,5,8,12 66:2,3,9,14,16 66:21 67:3 68:12 69:19,24 70:2,9,11,16,24 71:8,19,25 72:8,14 82:19 101:16,19,20 101:23 102:7 118:13 119:7 119:14,17,18 119:20,22 120:2,3 146:20 146:24 151:3 151:14 drugs 42:12 44:15,19 45:6 47:17 48:7 57:25 58:1 151:3,4,13,15 151:20 due 184:8 duly 7:10	179:5 180:3,3 186:21 e.g. 168:10,11 earlier 96:18 98:4,8 99:7 100:16 109:20 111:3 119:13 131:1,9 146:19 159:12,19 214:3 earliest 75:17 early 43:24 44:3,12 52:3 59:2 84:22 211:7 easier 9:15 83:20 easy 102:21 efficiency 92:5 92:7 either 11:19 37:10 113:12 130:21 133:10 134:1,13 199:9 elect 51:3,5 electronic 9:16 9:24 electronically 9:9 email 216:12 218:17 embodiments 215:9	emerged 188:18 emerging 84:25 employed 54:4 54:6,14 217:12 217:14 employee 26:15 54:19 68:2 69:10,13 217:13 employees 26:13 employment 54:15 70:20 enable 82:19 enabled 215:16 enclosed 218:12 ended 122:8 184:23 engaged 17:14 17:22 22:13 55:5,14 57:20 engagements 26:10 engineering 42:8 enhancement 100:10,25 ensure 82:13 ensuring 80:25 81:9,20 82:10 entered 56:23 220:9
	e		
	e 6:1,1 7:21 17:4 19:12,12 23:15 57:5,22 57:23 59:3 63:14,20 64:2 64:3,5 83:13 111:20 118:18 118:18 176:7,7		

entering 86:9 87:6,19	180:20 184:7	150:25 167:16	123:3,4,24,25
entice 107:19	evaluated 181:12	167:22 171:23	126:14,18
entire 64:22 219:5 220:5	evaluating 159:13,21	177:5 182:22	127:14 130:16
entirely 45:19 45:22 46:9 76:23	evaluation 181:5	184:8 186:20	142:8,9,18,21
entity 55:14 57:4,20	evidence 164:4 217:9	187:24 202:6 202:12	142:24 143:2
entrepreneurs... 54:25	exact 16:23 19:2 22:23	examples 47:11 120:19	146:15,16
enzyme 23:13 23:17,20,22 47:23	exactly 28:4 34:17 64:24	exceed 147:10 148:2,4,4	168:18,20
enzymes 46:17 47:2,3	67:7 72:17 115:11,17	exceeds 148:8	175:6,10,14,16
enzymologist 46:17	119:24 152:8 154:8 157:19	executed 27:10 28:2 220:10	198:9,12,16
errata 218:14 218:19 220:7 220:10,18 221:1	158:7 171:12 173:22 179:13 191:22 194:22	execution 219:14 220:19	208:20,23
especially 91:4 107:16,23	examination 3:2 7:13 209:1	executive 217:9	209:4,20
esq 218:5	examined 7:11	exhibit 3:8,9,11 3:13,15,17,19	210:16 211:5
esquire 2:5,13 2:14,23,24	example 11:10 30:7 31:8,12	3:22,23 4:2,3,4 13:13,20 14:12	212:8 214:2,13
et 114:9	32:6,21,25 33:11,15 38:17	14:13,16,21	exhibits 3:7,25 9:8,14 33:22
ether 168:10 176:5	42:15 44:10 48:16 49:8	26:24 27:1,7 27:19 37:11	34:2,2,4,10,13
eu 212:2	50:5 77:18	38:1,4,16,18	35:20 208:22
evaluate 32:24 160:7,10	110:14 115:14 131:18 147:16	39:4,4 40:2,3,4 40:6 52:19	expand 43:16 43:18
		58:15 79:20,23 80:5,22 81:17	expanded 43:5 43:13
		91:8 97:3,7,9 97:11,19 99:20	expanding 114:18
		108:18 109:20	expansion 132:8,17,23,25 133:2,3
		117:25 118:1	experience 78:22
		120:9 122:12	experiences 53:16
		122:14,19,25	experiment 164:6 165:1,9 165:16 166:14 166:25 169:13

186:12 187:1 experimental 148:22 163:18 experimentally 147:6,7,11,12 147:15 148:22 150:21 159:13 159:20 experimented 159:7 experimenting 166:18 experiments 165:11,18 171:25 187:4 expert 10:9,11 10:13,22 15:5 16:14 21:12,24 30:18 36:3,3,4 79:11,12,17,17 expertise 30:23 31:19 32:24 60:11 79:18 expiration 219:19 220:25 221:25 expires 217:23 explain 73:11 89:24 200:6 202:15 explained 47:7 100:16 146:23 159:19 174:13	explaining 202:13 explanation 85:8 explicitly 62:17 195:24 expressed 147:2 extend 169:3 180:18,20 181:9 182:21 extended 168:13,15 169:4,8,16,24 170:5,12,16 171:15,21 172:2,7 173:8 173:11 174:4,6 176:14 178:12 178:13 180:8 180:15 182:17 182:21 183:8 extension 171:2 174:3 extensively 53:22,24 extent 155:17 170:5 extra 9:11	factor 181:25 186:15 189:19 factors 182:4,9 186:16 faculty 52:2 fail 186:12 failed 165:1 166:14 183:18 184:6,7 185:23 186:18,20 188:20 192:6 failure 183:19 184:8 187:14 fair 32:2 53:16 73:20 familiar 24:1,3 99:20 far 27:16 40:12 103:22 fast 82:22 93:16 145:8 faster 183:11 fc 213:8 fda 89:14,18 161:8,14 feasible 203:19 204:9,24 205:13,15,17 207:16 feature 191:13 191:25 192:4 feedback 164:22	field 24:22 25:4 30:8 79:18 84:8 86:17 139:4,15 159:2 159:6 166:25 213:6 figure 86:6,7 86:12,14,18,20 87:1,3,4,24 123:17 186:19 190:5 201:23 201:25 202:2,3 202:6,14,23 203:5,15 204:2 204:6 figures 104:2 215:10 file 13:22 final 125:6,8 179:20 finalized 28:16 finally 127:1 financially 217:14 find 8:21 109:15 193:9 218:12 fine 39:22,23 143:24 145:11 216:16 finish 8:9 113:21 178:5 193:18
	f		
	fact 10:8,11 48:18		

first 7:8,18 17:21 26:4,9 63:8,10,13,19 64:4,25 65:9 74:6 80:10 91:10 97:22 109:6,10,21,25 127:3 128:24 128:25 129:8 129:12 136:4,6 141:15 144:6 154:18 158:24 161:13,23 169:11 five 12:10,19 35:6 131:23,23 131:25 216:18 fix 40:1 flip 167:13 168:3 202:9 flour 50:8 focus 48:17 focusing 130:8 194:3 195:2 folder 13:19 208:22 foley 2:4 6:16 6:18 foley.com 2:10 folic 50:8 follow 61:15 followed 61:9 144:10 165:2	follows 7:12 foregoing 219:13 220:18 foremost 169:12 foresee 164:8 164:11 forever 171:7 172:19 forgot 60:18,20 form 10:24 21:15 24:17 25:13 28:21 29:9 31:5,18 32:6,18 33:7 34:16 36:21 43:19 45:7 50:21 54:17 67:15,24 69:4 69:22 70:25 71:20 73:15 75:19 76:16 77:1,4,6 78:2 79:3 81:2 90:10 95:17 98:6 101:3 102:25 104:4 104:11 107:12 109:22 111:13 112:7 113:1 114:4,20 115:9 116:25 117:11 129:18 132:12 134:19 135:2	135:25 137:11 139:10,20 140:11,21 145:20 146:8 150:10 152:10 152:21 153:7 153:25 154:10 155:23 156:10 156:17 157:21 161:4 163:8,24 167:17 170:4 170:21 171:1 171:14 172:16 182:3 187:19 188:15 190:23 195:8 196:4 197:13 203:7 204:15 205:7 206:9,23 207:14 208:1 format 111:14 formats 159:8 166:19 167:1 formed 55:21 201:21 forming 76:1,7 79:2 208:6 formula 199:2 199:7 200:18 201:1 202:8,25 202:25 204:4,5 204:6,7,7,8 formulas 215:9	forthcoming 127:6,18 128:3 fortification 50:7 forward 120:8 121:10 185:5 218:16 found 49:12,17 foundation 50:11,17 founded 57:12 57:24 four 15:18 16:5 35:6 62:15 64:9 131:23,25 171:20 fragments 212:18 213:7,8 frame 22:21 27:25 28:5 56:5 57:16 59:14 60:8 61:20 64:19,22 67:6,20,23 68:11,20,24 69:16 70:22 71:6 72:5 94:23 framework 30:24 free 219:14 220:20 friend 57:11
--	--	--	---

front 9:10 19:3 126:20 135:10 209:23 full 7:16,18 67:12,22 68:2 69:7,8,10,12,13 69:20 70:17,20 fully 62:8 function 48:13 functional 72:16 73:4 120:24 144:7 210:9 functionaliza... 96:8 functions 83:8 fundamental 48:21,24 49:16 49:20 50:3 51:2,9 164:23 186:19 fundamentally 165:12 funding 55:22 further 161:9 164:5,17 165:21 215:25 217:13 future 82:5,6 105:12,14 107:9,22	g g 6:1 17:4 23:15 63:8 64:2,3 gates 1:19 5:6 6:8,22,25 217:7 gayle 2:22 6:4 genentech 17:17,22,24 18:12,19 19:7 21:8 general 82:16 82:18 88:3,6 140:1 181:1,8 193:5 213:5 generally 149:12 151:6 163:17 164:16 170:24 174:9 180:19,19 181:17 182:10 182:20 generate 203:19 generation 3:18 97:13 106:1 107:4,7 108:20 109:6,9 109:10,10,12 109:16,21,25 110:2,5,8 112:15 113:9	113:18 114:14 114:23 117:10 127:6,19,22,24 128:4,11,12,19 128:24,25 129:5,8,9,12,16 129:20 130:4,8 130:14,18,19 131:6,10,12 133:20,24 134:3,10,12,18 135:1,4,15,18 135:20,24 136:4,6,20 137:1,8 generations 130:20 generic 111:14 112:7 132:9,18 genetics 59:7 65:11,14,18,21 65:22,25 66:11 66:14 67:8 71:14,23 getting 51:13 71:25 216:9 giunta 2:13 3:5 6:21,21 7:2 10:24 16:8 21:15 24:17 25:13 28:21 29:9 31:5 32:18 33:7 34:16 36:8	39:10,15,20 43:19 45:7 50:21 54:17 67:15,24 69:4 69:22 70:25 71:9,20 73:15 75:19 76:16 77:1 78:2 79:3 81:2 90:10 95:17 98:6 101:3 102:25 104:4,11 107:12 109:22 111:13 113:1 114:4,20 115:9 116:25 117:11 129:18 132:12 134:19 135:2 135:25 137:11 139:10,20 140:11,21 145:20 146:8 150:10 152:10 152:21 153:7 153:25 154:10 155:23 156:10 156:17,23 157:21,25 161:4 163:8,24 167:17 170:4 170:21 171:1 171:14 172:16 182:3 184:10 184:15,19

185:10,14,20 186:2,6 187:19 188:15 190:23 195:8 196:4 197:13 203:7 203:16 204:15 205:7,22 206:9 206:17,23 207:14 208:1 208:14 209:2 211:18 212:13 212:23 214:10 214:19 215:25 216:8,10,15,20 giuta 218:5 give 37:20 39:11,20 123:1 142:9 147:22 148:1 208:18 given 48:1 138:20 glance 131:6 glean 165:10 165:18 go 11:5 13:9 20:3 21:16 35:19 42:11 43:20 44:2 58:5 63:12 71:10 74:17 95:2 103:3,6 103:20 106:24 107:14 108:23 109:1 117:16	123:19 125:10 126:16 131:2 136:8 143:24 143:24,25 146:18 151:25 161:14 166:1 166:10 173:15 175:12 178:19 186:7 198:2,21 201:17 211:17 212:22 213:12 214:24 215:13 216:15 goal 159:25 161:7,7,20,21 161:22,24,24 162:2,3,23,25 163:4,22 164:21,24 165:9,14,17 goes 41:3 209:14 211:12 212:20 going 13:9 14:10 26:23 58:8 88:7 96:5 97:7 107:9 114:22 117:19 122:16 124:2,8 126:12,16,21 131:1 138:14 142:9 143:12 147:4 148:18 148:19 150:24	155:10 159:12 167:5 168:3 174:23 175:2 176:20 185:5 185:12 187:5 189:4,21 190:21 194:2 198:5,19 200:15 211:10 216:5 good 6:2 7:15 16:7 63:12 118:17 162:22 163:4 governor 217:10 grad 80:12 graduate 74:9 74:10,12 80:16 80:19 graduated 41:4 gram 121:14,19 grams 122:3,6 122:7,9 greater 155:1 green 121:2 group 102:8,15 102:16 137:7 138:10 144:7 187:25 200:2 210:10 213:24 groups 72:16 73:4 102:12 120:25 134:17	134:25 135:17 135:17,23 136:16,18,21 137:10 138:7 guess 12:9 39:2 49:20 66:6 101:11 109:5 142:7 guidance 32:21 guide 188:1 guideline 31:24 guidelines 31:14,20 h h 7:19,19,21 19:12 57:22 62:11 63:14,20 64:3,5 83:10 176:7 180:3 halfway 88:9 hand 107:19 handle 167:8 handled 65:4 happened 165:5 happens 164:14 happy 103:3 harbour 2:6 hard 46:23 48:20 49:4,6 50:14 97:5
--	---	---	--

harder 14:4 harsh 182:23 head 8:15 heading 118:6 118:10 120:11 121:14 health 50:9,12 51:4,10,10 hear 98:24 heard 22:12 23:24 24:20,24 25:2 99:5,11 99:14 hearing 99:9 heavy 149:3,10 152:8,13,17,19 153:11 154:8 154:13 155:4 155:11,22 156:9,12,15,19 156:22 157:20 158:2,3,3,7,8 158:12 210:25 211:21,22 held 5:6 53:18 hello 58:14 helpful 9:24 175:25 201:15 herceptin 19:12,13 heteroatom 168:10 176:5,7 176:8 180:1,3 180:4 187:24	188:2,19,24 189:1 191:3,9 191:14,18,18 192:5,20 193:6 193:9,12 194:5 194:7,10,20,24 195:3,15,21,25 196:8,13,19,23 197:3,7,9,24 heteroatoms 190:16,21 197:16,20 high 18:4,12,19 19:7 81:22 82:17 93:16 102:19 181:4 181:15 182:11 183:12 higher 149:20 149:20 183:11 highlight 202:4 highly 138:21 hill 2:14 6:24 6:24 history 43:22 homogeneous 80:24 81:9,19 83:19,21 90:19 91:19 92:14,16 hope 106:15 hour 26:22 35:22 36:7,10 171:18,18,19 174:24	hourly 26:17 26:20 36:12,19 hours 27:20,22 27:23,24 35:1 35:2,6,19 153:23 171:20 173:16 177:16 177:19 181:8 182:24 house 60:11 huh 124:10 138:17 166:23 human 91:5 humira 62:11 62:14,17,19 hunting 7:22 hurdles 91:15 91:18 hydro 191:17 hydrobase 178:25 i idea 181:9 identification 13:15 14:14 27:3 79:21 97:13 122:22 142:19 175:7 198:10 208:25 217:9 identified 7:9 39:7 64:13 65:15 68:20	93:25 110:16 111:2 132:10 132:19 133:13 identify 66:17 73:1 110:20,23 identifying 133:9 igg1 120:18 igg2 120:18 igg4 120:18 igm 157:12,13 157:18 ii 202:25 204:5 204:7,7 il1 202:18 illinois 2:16 illustration 104:19,23 image 103:21 immunoglob... 156:8,18 157:2 157:6,18 immunoglob... 156:15 157:4 157:10 impact 48:14 49:6,17 50:9 51:5,8,9 92:19 92:24 93:1,2 implemented 129:16 130:3 133:19 134:9 implies 93:7 135:14 154:21
---	---	---	---

imply 155:2 improved 127:6,18 128:3 include 30:6 42:1 46:5,12 46:13 72:9,14 86:22 90:18 111:4,7 114:18 116:5 160:13 included 16:3 34:4 42:12 47:8 130:15 218:14 includes 46:2 102:8 including 54:1 120:18 215:8 incorporated 220:12 increase 106:15 106:19,20 increased 92:5 106:22 increasing 86:10 incubate 171:9 172:21 180:22 incubating 173:6 incubation 168:14,16 169:4,8,9 170:2,20,25 171:6 172:3,4	172:10,15 173:6,8,12,20 173:21,24 174:4,18 176:15 178:12 178:14 180:8 180:15,18,20 181:9 182:18 182:24 183:6,8 independent 53:21 199:22 215:5 index 3:1 4:1 indicate 16:13 40:25 42:24 indicated 43:12 121:6 136:13 214:1 indicates 120:16 indicating 218:14 industry 52:3 53:22,24,25 54:5,13,15 62:7 82:19 84:7 88:4 infeasible 201:19,22 203:3,12,25 204:4,12,19 infinitive 173:2 173:3	information 15:23,25 24:10 24:14 32:8 33:13,14,17 40:11 53:1 65:10 103:13 129:14 130:2 130:20 131:11 131:16,17 133:14,16,18 134:7,12 156:1 156:2 188:13 informed 28:13 infringement 18:14,16 21:3 inhibitor 47:21 inhibitors 47:23 initial 164:6 initially 162:16 innovator 19:19,21 instability 168:1 instance 146:5 161:14 instances 12:19 intellectual 57:7 intend 147:10 intentions 63:12 inter 148:19	interact 48:3 interaction 47:24 interactions 49:13 interested 217:14 intermediate 147:20 161:24 interpret 111:16 116:16 188:22 interpretation 112:8,13 116:12 196:10 interrupt 166:21 185:1 interrupting 186:3 intervention 50:12 51:11 introduce 6:13 9:8 13:9 135:15 introduced 96:13 137:20 137:24 introducing 137:9 142:12 introduction 124:4 135:13 136:1,25 137:4 137:12,13
---	---	---	---

invalidity 21:3 invention 75:2 75:10,13 76:1 76:14,24 78:1 inventors 215:16 investment 55:18 invited 53:13 involve 12:11 16:20,24,25 17:5 18:13 19:8 49:13 59:25 64:20 186:21 involved 11:21 12:4,5 15:13 17:8 19:4,15 20:14 40:20 42:6 46:22 58:25 59:8,17 60:20 61:1,3 65:12 66:16 67:1,10 70:1,3 71:12,25 72:23 73:2 137:16 189:2 involvement 67:2 involves 201:18 involving 10:17 12:20 18:12,16 21:12,25 37:8 48:7 65:17	68:16 72:8 ip 11:17,18,24 12:11,14,16 107:23,25 ipr 12:21 13:1 13:2,5 18:2 19:25 20:4 34:10 97:8 99:21 142:24 isolate 151:8 isotopes 57:19 57:22 isotopically 57:25 issue 12:16 18:25 19:2,22 155:13 201:4 issued 217:10 issues 9:20 11:17,18,20,24 11:24 12:12 16:21 18:17 21:2 28:13,14 28:18,24,25 29:1,6 30:16 57:8 iv 30:7,10 37:19 199:2,7 200:18 201:1 202:25 204:5,6 204:8	j j 7:21 24:5,7 january 1:17 5:1 6:6 217:8 217:15 218:4 jason 2:23 6:19 job 1:25 70:17 joined 6:18 journal 80:9 judge 189:20 judged 169:11 169:12 july 217:24 jump 126:12 k k 2:7 80:11 94:16 k&l 1:19 5:6 6:8,22,25 217:7 k.b. 94:17 keep 95:12 127:12 160:1,2 160:3 kept 186:2 kind 33:17 82:24 84:12 103:16 104:2 140:1 171:8 186:24 klgates.com 2:18,19	know 8:23 9:22 15:21,24 19:6 23:12 30:20 37:1 43:21 45:24 50:9 60:15 61:16 62:25 65:22 67:7 84:4,7 91:1 92:22 93:6,7 103:2 107:19,25 108:24 111:7 111:21 112:18 112:25 113:3 115:11,13 116:1 119:17 123:21 130:6 149:16 151:25 156:25 162:18 165:24 174:22 179:18 180:11 183:10 190:3 195:10 208:2 216:13 known 109:6 l l 17:4 23:15 55:7 56:8 64:3 64:3 118:18 202:8,16,19,20 202:20 203:20 l1 202:8,15 203:19
--	---	---	--

lab 74:11 80:14	left 103:22	limited 6:12,23	132:4 180:10
label 50:10	108:16 123:6	7:1 22:7 84:5	185:8 190:6
57:25 58:3	124:3 169:7	84:19 85:6,20	220:7,17
labeled 104:23	legal 6:5 7:19	line 211:11	listen 170:17
105:22	19:2 28:12,25	218:14 220:7	185:3 207:20
laboratory	30:16,18,20,21	221:3	listing 95:10
23:21 50:6	30:23,25 31:14	link 43:6	220:7
51:8 68:17	31:20 32:5,21	linkage 176:5	lists 62:17
lack 92:19 93:1	77:10,15,19	linked 43:8	180:12
language	200:21 218:1	191:11	litigation 10:19
177:23 178:7	221:1	linker 102:7	12:22 18:2
179:21 191:6	legend 86:7	118:13 119:7	19:7 20:1
196:17,21	97:24 125:12	121:2 167:10	little 9:17 18:6
213:20 214:12	length 160:14	167:24	45:11 51:13
214:20	160:24 170:19	linkers 59:19	83:19 86:15
laptop 9:9	177:14	59:21 102:13	115:22 124:19
lardner 2:4	lesser 93:2	120:13	126:3,13
6:16	letter 29:25	list 15:12,13,14	148:20 169:25
large 217:5	202:19,20	15:18 16:4	174:23
late 44:12	218:20	55:2 57:2,19	livenote 5:10
launch 60:9	level 81:22	58:19 61:19	llp 1:19 2:4 5:6
launching 61:3	82:17	62:18,25 74:5	6:22
lawsuit 10:20	liane 2:5 6:15	94:2 102:11	load 208:16
12:3,4	license 7:10	110:13 112:6	loaded 14:12
lawsuits 10:23	107:16	113:3 120:20	123:2 208:21
11:4,13	licensing	120:23 190:5,8	loading 13:21
lawyers 36:15	107:20	listed 15:7,20	13:22
lead 57:13	likely 83:7,16	15:21 34:13	long 20:10 35:4
185:12	83:23 85:4,16	54:9,24 59:24	66:22 67:1
leading 88:3	90:23	62:21 63:4,11	68:20 146:16
214:5	limit 172:20,24	63:25 64:23	171:8 172:21
learned 25:7	173:5,15	74:6 94:18	173:20 180:23
leave 149:11	limitations	102:6 120:19	182:24
	159:9	121:3 131:25	

longer 113:10 114:15 115:2,7 116:7,22 117:9 169:14,19 look 9:17 14:22 15:11 16:8 27:8 29:21 31:7 43:22 54:21 62:24 63:2 72:20 80:6 86:6 91:7 105:16,20 108:22 118:24 119:23 124:3 131:2,3 132:25 135:8 141:13 142:5 145:10 146:9 152:1,22 152:23 153:9 153:12 155:13 155:25 169:21 171:24 172:17 174:21 177:20 181:7,11 182:1 183:1 190:4 193:1,8 196:16 196:22 199:12 209:19 210:6 211:19 213:1 looked 82:13 181:11 199:6 looking 33:4 37:11 39:1 44:14 47:6	48:24 53:15 57:18 61:6 69:15 80:21 86:7 87:4 93:23 97:22 103:21 109:2 110:4 117:25 124:8 135:8 142:8,13,15 154:24 166:16 168:8 176:2,17 177:10 178:16 192:7 193:3 213:4 looks 145:14 211:13 lot 62:7 84:10 lots 109:14 low 82:20 lower 82:23 151:11 182:8 lpeterson 2:10 lys 105:22,23 110:16,16 111:15,15 113:3,4 114:9 114:9 lys248 104:5 lysine 103:11 104:9,16,19,22 105:1,4,6,10,24 110:13,15,19 111:1 112:1,6 112:9,16	113:10 114:15 115:2,4,7 116:7,22 117:9 124:15,21 125:21 126:1 126:10 132:9 132:18,18 133:7,7,10 142:2 147:17 147:21,22 211:22 215:18 m m 23:15 24:5 57:22 62:11 63:14,20 64:3 64:5 72:22 110:13 114:9 118:18,18 176:7 mab 114:8 mabs 110:12 112:6 madam 218:10 made 188:22 189:10,14 190:10,15 193:17 196:6 205:11,24 206:10 219:7 madison 2:15 maebius 2:24 6:19	main 53:19 majority 82:7 make 14:8 30:21,22 37:16 38:22,24 40:1 40:7 48:17 55:20 66:17 73:8 81:14 82:19,21,21 83:19 85:10 95:9 113:24 125:4 130:25 155:16 165:20 189:8 190:3 193:4 204:23 205:1,10,14 206:6,15,24 207:1,4,11,16 207:23 208:8 215:17 makes 106:9 making 115:21 137:23 207:8 209:18 maleimide 118:13,18,19 119:7 mandate 200:4 manipulate 123:21 manner 144:7 192:22 manufacture 102:21
--	--	--	--

mapping 125:13,19,22 126:5,9,10 march 75:13,14 75:16 76:6,12 76:15,24 79:9 139:4,15 140:16 mark 13:12 14:11 26:23 97:3,7 114:7 122:11 168:22 170:11 208:20 marked 13:14 14:14,16 27:2 27:18 34:9 37:25 38:19 79:21,22 97:8 97:13,18 122:21 126:17 142:21,23 175:6,9 198:9 198:12 208:21 208:25 209:4 marking 122:13 142:13 markush 200:2 massachusetts 1:21 5:7,12 6:9 7:10,23 217:1 217:5,8,10 materials 153:23	matsuda 168:9 168:20 169:21 170:7,24 171:24 175:10 175:16,21,24 176:4,21 177:1 183:15,17 184:1 185:20 185:22 187:12 188:21,22,22 189:7,14 190:2 190:7,19,24 191:11,19 193:17 194:6 194:16,23 195:6,23 196:2 196:5,6 197:11 matsuda's 168:19 195:13 matter 6:11 12:20 18:2,19 20:11 21:8,9 22:6,13,17 25:23 26:6,11 26:17,21 35:22 36:13,20 37:7 217:6 matters 21:23 22:1 matthews 51:2 mean 11:1,22 28:23 49:1,4 76:8 81:4 82:10,13 89:23	93:4 104:5 111:16,25 115:12 137:17 137:19 145:24 147:14,16 154:12 156:11 158:2 168:15 168:24 169:20 179:1 206:20 213:7 meaning 85:16 169:24 means 57:6 77:3 83:10,15 88:25 92:23 100:21 101:22 101:23 105:23 112:9 115:15 115:15 117:2 133:4 136:4 137:14,15 155:6 164:3 179:6 183:21 meant 82:24 89:10,24 116:17 measure 143:23 145:2 180:21 mechanism 186:20 mediated 96:7 medicine 51:6	meet 34:19 163:4 meetings 34:22 34:25 35:3,12 35:14 melt 181:1 member 51:5 52:2 memory 17:11 mention 42:6 57:10 105:6,9 105:13,21 106:6 116:10 128:12 133:25 134:5 175:24 176:1 190:25 192:10,10 193:21 213:6 mentioned 9:6 10:3 19:15 25:10 32:5 41:19 42:20 44:11 45:23 50:1 54:22 64:18 65:1,9 65:20 68:6 69:16 86:4 96:18 98:4,8 99:3,13,14 107:14 110:6 111:12 112:20 117:13 129:21 130:1,7 131:10 131:18,21
--	--	---	---

134:16 135:5 136:17,24 137:3 145:14 146:10,13 153:8 159:11 161:5 172:18 179:18,19 182:5,19 184:5 187:20 192:17 193:9,18 195:11,19 207:15 209:5 210:18 214:6 mentioning 67:1 mentions 104:21 130:19 134:2 mertansine 119:21 met 33:23,24 34:14,18 metabolic 50:6 metabolite 16:16 method 22:19 57:24 58:3 83:11,13 84:14 84:18,23,24 88:5 89:18 90:11 91:6 92:8 98:24 99:3,5,15 101:11 144:14	147:18 205:14 206:24,25 methodologies 84:23 methods 80:23 81:5,18 83:5 84:3,17 86:2 88:13,21 90:9 90:14 91:18 100:17 101:2 124:6,7,9 208:7 methylglyoxal 64:3 middle 7:19 63:4 103:16 185:16 midwest 218:17 221:1 mind 147:2 mindset 186:13 mine 57:12 minutes 133:22 171:13 misspoke 131:1 mixing 108:4,4 195:1 mixture 149:1 149:9 151:2,7 151:10,12,17 151:18 mock 2:23 6:20 modalities 44:6 44:8 45:1	mode 57:2,7 modification 17:6 58:2 63:18 103:10 104:15 124:21 138:24 139:7 139:17,23,25 140:6,17,24 143:7,14 149:15 154:19 167:10 168:12 176:13 177:2 178:8,20,23 179:8,15,22 189:8,15 modifications 64:2 modified 114:24 126:2 142:2 147:22 149:3,10 152:9 152:20 153:11 154:9,14,22,22 155:4,7,12,22 156:8,12 157:19 158:2,4 158:8,13 160:18 204:12 204:20 210:7,8 210:24,25 211:21,22 212:15,17 215:18	modify 22:19 47:20 91:19 166:10 modifying 184:2 185:19 186:7,9 moiety 205:25 molecular 143:23 molecule 43:3,3 43:7,9 44:1,5 46:15 48:2 57:25 145:2 152:13 192:24 193:12,22 195:10 196:13 205:11,12,14 206:11 molecules 46:14 47:9,10 47:19,25 58:3 146:25 188:19 190:11 197:15 204:24 205:2 207:1,4,9,17 monoclonal 64:14 114:19 120:12 month 26:1 77:11,14 months 28:8 morning 6:2 7:15
--	--	---	--

motion 4:4 39:15,16,17 208:19,24 move 83:24 120:8 123:9,10 123:18 158:16 moving 95:1 116:18 121:10 multiple 99:23 103:12 105:23 145:15 157:12 157:13,18 170:7 174:3 175:24 182:4,9 186:15 189:11 202:7 mw7824620 1:25	named 74:5 90:3 narrowly 44:4 national 51:3,5 native 3:15 79:21,25 88:13 natural 12:6,6 12:7 nature 10:21 11:1,6 73:13 necessarily 84:20 137:17 183:17 185:23 187:20 188:10 need 8:14 9:21 30:19,24 31:15 37:16 39:25 85:5 103:19 119:23 124:18 127:12 145:10 151:25 161:25 162:23 163:4 166:1 174:5 181:25 192:23 206:19 213:1 needed 9:13 needs 115:22 neither 217:11 never 92:24 147:2 new 57:6 84:8 86:5 123:3 187:25	newco 57:2,5 nira 55:12,15 55:15,21 56:11 74:15 nitrogen 197:18,21 nodding 8:15 non 83:12 nonresponsive 187:7 189:22 nonsite 83:11 83:13 84:3,14 85:13 100:17 100:20 101:1 nonspecific 84:6 90:13 91:14,17 100:22 norbornene 144:11,14 213:24 notarized 218:15 notary 5:11 7:11 217:4 218:25 219:10 219:18 220:15 220:23 221:23 note 37:23 218:13 notice 3:9 5:8 13:10,13 novel 3:19 96:6 122:19	nowadays 56:14 number 16:23 30:3 38:4,18 39:5 40:6 62:1 94:8,10 105:8 105:9 110:16 118:17 124:11 128:18 130:6 132:11,19 133:10,13 142:22 143:23 144:4 146:24 147:4,11,13 148:18,20,23 149:2,9,19 171:13 173:16 189:13,17,18 202:19 218:7 218:14 numbering 212:2 numbers 35:7 94:5 95:7 110:20,23 220:7 numerous 127:8 nutraceuticals 16:17 nw 2:7
n			
n 6:1 7:20,20 17:4 19:12 23:15,15 24:5 55:7,15 57:5 63:8 64:2,2 72:22 74:15 name 7:16,18 7:19,20 17:20 19:23 42:24 59:3 63:8,20 64:4 80:10 94:18 218:6 219:3,4,15 220:3,4,21			

o	134:19 135:2	obtaining	69:15 75:5
o 6:1 7:19,21	135:25 137:11	41:11 53:17	78:8 83:1 85:9
7:21 17:4 24:5	139:10,20	occurred 27:25	88:16 90:1
24:5,5 55:7	140:11,21	41:11,17 85:24	94:22 95:12
57:5,23,23	145:20 146:8	151:22,24	99:17,24
64:3 72:22	150:10 152:10	200:9	100:23 103:6
83:10 176:7,7	152:21 153:7	occurs 147:24	103:19 104:8
180:3 186:21	153:25 154:10	148:9	105:3,15,25
oath 8:19	155:23 156:10	october 3:14	107:2 108:8,13
object 187:5	156:17,23	26:25 27:11	109:4,18 110:4
211:10	157:21,25	28:2,6	112:11,14
objection 10:24	161:4 163:8,24	offering 204:10	113:23 116:5
21:15 24:17	167:17 170:4	204:18	116:15,18,19
25:13 28:21	170:21 171:1	office 1:1 34:20	117:15,24
29:9 31:5	171:14 172:16	offices 217:7	118:6,16,17,22
32:18 33:7	182:3 187:19	official 219:15	118:25 119:3,9
34:16 36:8	188:15 190:23	220:21	120:4,8 122:13
43:19 45:7	195:8 196:4	oh 30:4 39:19	123:8 124:2,24
50:21 54:17	197:13 203:7	75:14 95:22	126:15 127:3
67:15,24 69:4	203:16 204:15	97:4 118:25	127:25 128:25
69:22 70:25	205:7,22 206:9	123:14 148:11	129:25 130:22
71:9,20 73:15	206:17,23	149:25 174:8	132:7 136:19
75:19 76:16	207:14 208:1	199:19	137:6 138:1
77:1 78:2 79:3	212:10,19	ohio 218:2	139:14 142:5
81:2 90:10	214:4,5	okay 8:4,11,16	142:20 143:5
95:17 98:6	objections	8:25 9:18,25	143:24 144:20
101:3 102:25	214:14	10:12 11:12,20	145:5 148:8,13
104:4,11	obligations	12:24 13:7	148:17 149:25
107:12 109:22	73:12	14:1,10,15	153:3,14 155:8
111:13 113:1	observation	16:12 19:14	155:8 156:4
114:4,20 115:9	196:6	22:5 24:13	157:15 158:16
116:25 117:11	obtained 41:6	29:19 30:4	159:5 160:23
129:18 132:12	41:17	38:19 39:19,25	161:12 162:5,8
		53:3 56:16	164:2 165:15

166:15,15 172:13 173:13 174:5,8,12,20 174:20 175:9 175:17 176:10 176:25 177:20 178:7,16 179:6 179:7 181:24 182:14 183:15 184:24 185:5,7 186:7 190:13 191:22 192:12 194:2,12,19 195:6,13,22 196:16 197:1,6 197:25 198:25 199:21 200:6 200:11,13,14 200:20,21 201:14,17 202:9,9 203:1 203:22 204:10 205:17 206:3 207:3 208:5,12 209:25 216:2 once 154:22 ones 59:2 ongoing 105:13 105:14 106:4 108:9 online 33:24 34:18,19 35:3 oops 123:11	open 13:19,24 127:12 135:10 184:23 opine 194:1 205:11,13 206:10 opinion 28:15 30:19,21,25 31:18 32:6 77:4 78:5,23 139:3,14 140:20 155:19 167:23 201:21 203:2,11 204:11,18 205:18,23 207:3,7 211:3 213:14,25 215:4,15,23 opinions 11:4 18:18 21:2 30:15,24 31:1 31:9 32:3,16 37:21 76:1,7 76:13,20 77:7 77:25 79:2 141:3 146:1 155:18 199:6 200:12 201:11 208:6 211:15 optimal 161:18 optimization 160:10 161:25 162:3 164:14	164:17 186:23 optimize 161:10 162:24 163:7 165:21 186:14 optimized 161:6 optimizing 159:23 160:6 161:3,13 163:5 orange 121:4 order 217:9 ordinary 215:17 original 31:11 31:13 32:7,22 33:12 37:23 141:18,21 155:10 169:7 199:7 200:2,13 200:19 201:8 215:6 ourself 161:8 outcome 61:16 122:5 163:11 163:16 164:20 164:20 165:7 217:15 outset 162:17 overall 49:3 203:17 overcome 91:12,14,17 164:13 186:23	overinterpret 113:5 own 35:15 60:24 61:6 68:14,17 owner 1:10 2:12 6:23,25 17:23,25 22:7 owner's 4:4 208:23 oxygen 197:17 197:20
p			
p 6:1 17:4 19:12 24:7 57:23 179:5,5 p.giunta 2:18 p.m. 1:18 117:20,20 175:3,3 198:6 198:6 216:21 page 3:2,8 4:2 13:23 14:25 15:2 29:21,23 38:1,16 40:18 40:19 53:8 54:23 58:16,17 59:24 63:4,5 63:11,25 64:13 65:16 73:21,23 74:1,2,3,4,19 78:8 86:6 91:7 97:22 99:24			

100:1,8 103:6 103:7,8,10 104:2 105:20 105:21 107:3 108:21 109:13 110:6 113:8 116:6,21,23 117:8 118:3,5 120:9,10 121:10,11,18 127:15,20 128:1,6,9,15 130:8 131:14 135:9 136:8,25 143:20,21 144:1,23,23,25 167:13,18 168:4 178:1 190:7 209:5 211:4 212:8 215:3 218:14 218:16 220:7 221:3 pages 109:14 209:14,14 214:2 paper 9:11,21 9:23,25 14:2 24:6,8 25:4 62:10,16,16 63:3,5,11,16,17 63:24 64:1,9 65:1,8,9,15 66:2,8,20	67:10 72:24 73:1,11 81:16 86:6 94:7,8,10 94:11 96:22 118:23 122:15 122:17 175:11 178:25 179:2,5 179:6 198:13 papers 52:25 53:10 62:9,14 62:21,25 94:14 138:12 paragraph 15:4,6,8 16:13 33:16 38:7,13 39:2,3 40:13 40:15 41:10,16 42:5,20 44:15 58:23 74:18,19 74:22 78:11,12 82:6 91:11,13 91:16 93:14 94:3 95:1 126:22,24 127:4 138:15 138:16,18 140:4,10 141:14 142:14 143:6,12,15,16 143:25,25 144:3,9,22,24 145:3 158:19 158:21,25 159:5 166:16	166:17,21,22 167:16,18 168:4,5 176:3 176:12,16 177:1,7,10,21 178:14,17,19 178:22 179:7 179:12,13,21 180:11,14 181:3 182:15 185:8 192:9,13 192:16 193:25 194:15 197:1,2 197:23 198:22 198:23 199:12 199:13,21 200:15 202:10 209:17,22,23 210:1 213:16 213:17,17 214:24 215:1 paragraphs 33:5 175:18,20 176:21 180:17 191:5 192:7,18 194:3 195:23 215:13 parameters 163:10,13 parent 141:11 parliament 171:8 part 31:12 33:10 37:18	48:21 55:9,10 63:5 66:3 69:24 70:12 75:4 84:6 88:18 103:12 103:14 119:13 124:7 126:4 130:7 160:5 161:2 212:12 220:9 particular 18:22 22:5 26:17 32:25 33:16 53:5 77:11,14,19 98:14,16 154:24 165:14 165:24 166:14 170:10 182:25 186:17 215:14 particularly 57:14 parties 217:12 217:14 parts 134:4 pass 208:13 past 15:18 82:8 patent 1:1,3,10 1:11 2:12 3:22 4:4 6:22,25 10:16,18 12:11 12:14,15,20 15:10 16:21 17:23,24 18:13
--	--	---	---

22:6 30:9	89:11 98:25	percent 76:13	pertains 212:17
31:17 32:23	107:17 111:16	87:5,19	peter 2:13 6:21
33:16 34:5	139:23,25	percentage	218:5
37:8 74:23	147:10 164:5,8	46:20 47:15	peterson 2:5
75:8 141:9,11	164:25 169:17	49:2,5,21	3:4 6:15,15
141:12,18	171:17 182:7	51:18	7:14 11:2 13:8
142:18 143:4	183:13 186:16	perform 149:1	13:16 14:11,15
153:1 159:2	186:23	190:21 196:1	14:18 16:2,10
181:12 193:8	peptalk 3:17	performed	16:11 17:7
193:11 194:18	24:20,25 97:10	178:24 179:9	20:25 21:21
199:8 208:3,23	97:11,21,24	period 41:1,9	23:5 24:23
212:25 213:1,3	98:3,8,10,14,17	41:15 46:10	25:21 26:23
213:4,11,12	100:24 102:24	49:22 51:19	27:4 29:2,20
patents 10:17	108:18 118:1	61:22,24 62:1	32:1 33:3,19
12:17 18:25	121:18 122:14	62:6 67:13	34:21 36:11
184:1	122:19 123:25	68:7 69:18	38:23 39:8,13
pathway 18:23	127:1,4,14,20	70:10 71:17	39:19,22,24
50:6	128:1,6,9,15	170:20,25	42:3 45:16
payload 44:5	129:2 130:15	180:15 182:21	48:5 51:12
101:23 119:13	130:21 131:2	periods 173:24	52:11 54:20
119:16 120:3,5	131:12,14	182:18	56:4 58:5,12
121:3	132:16 133:15	permission	59:22 64:11
payloads	133:16 135:9	87:2	66:5 67:17
120:13 121:8	136:10 138:11	person 33:25	68:3 69:5,14
pegylation 17:1	peptide 16:15	34:19 74:25	70:5 71:4,15
17:4,5	16:21 42:7,12	75:9 139:5	72:2 73:19
pen 123:9,10	42:16 44:10,15	140:15 215:17	75:6,23 76:18
people 43:23,24	46:12 47:16	personally	76:19 77:5,21
44:6,23 45:1	48:7 96:7	71:17 219:11	78:7 79:6,22
45:10 48:22	125:12,19,22	220:15	80:1,4,20 81:6
49:10,16 50:2	126:5,9,10	perspective	81:13 83:25
83:17,22 84:8	178:24	82:4	87:17 89:20
84:10 85:1,3	peptides 17:6	perspectives	90:12 92:10
85:16 86:17	47:8,20 49:11	82:6	93:12 95:14,20

97:6,14,17	180:6 181:23	220:4,13	139:11 149:5
98:9 101:9	182:13 184:13	221:20	150:12 152:14
103:5 104:6,13	184:17,24	pharmaceutical	159:16 170:17
108:3 110:3,24	185:2,12,18,25	49:12,18 54:4	198:22 207:20
111:23 113:6	186:4,8 187:5	54:14 55:11	218:12,12
114:10,12,25	187:9 188:4	82:19 89:14,17	plus 123:7
115:20 117:4	189:6,21,23	pharmaceutic...	point 8:21
117:14,16,23	190:12 191:21	16:16,22 56:8	43:15,17
122:11,23	195:12 196:15	56:9,15,21	100:10 102:6
123:19,23	198:2,11,15	phone 218:3	115:18 116:16
125:18 129:13	201:13 202:21	phrase 196:7	141:4 162:20
129:22 132:6	203:10,21	picture 124:20	162:21 163:3
132:15 133:5	204:17 205:16	pictures 119:10	172:13 176:16
134:21,22	206:2,12,21	pioneered 66:1	194:22 200:9
135:7 136:7	207:2,18 208:4	pioneering	points 108:12
137:21 139:13	208:12 211:10	40:21	110:7 131:24
140:3,14 141:2	212:10,19	pipeline 83:24	150:2
142:20,25	214:4,14 216:2	place 56:13	polypeptides
145:23 146:14	216:18	66:23 202:7	40:21 46:11,22
148:7,16	petitioner 1:7	placed 13:20	popular 65:10
149:21 150:13	2:3 6:17 23:7	places 133:25	portion 41:9,15
152:15 153:2	167:6	134:1 175:25	120:5 199:5
153:13 154:1	petitioner's 3:9	179:19 180:12	210:17,23
154:15 156:3	13:13	192:11 194:17	211:7,20 212:6
156:13,20	ph 160:21,22	202:3	212:7
157:5,22 158:5	160:25 181:13	planned 106:25	portions 28:17
160:4 161:11	182:6,6,8,25	platform 3:20	28:20 29:5,8
162:9 163:14	ph.d. 1:16 3:3	122:20 130:4	210:14,15
164:1,15 166:8	3:13 5:6 6:10	please 6:13 7:5	211:4 214:1
167:19 170:14	7:7 27:2 41:6	7:15 8:23 15:1	posa 78:13,16
170:23 171:10	41:11,18 42:2	40:13 41:14	78:19,24 79:1
172:5,23	46:25 51:22	75:6 99:25	79:5,8,11,19
174:22 175:8	53:17 216:7	118:4 121:10	138:23 139:16
175:13 176:9	218:8 219:4,9	132:13 134:20	140:5,23

173:18 position 103:11 179:4 180:1,4 188:3,20,24,25 191:3,9,14,16 192:5,21 193:6 193:10,13 194:5,8,11,20 195:3,15,21,25 196:8,13,20,24 197:4,8,10,24 211:22 212:2 positions 53:15 53:18 possessed 215:16 possibilities 205:9 possibility 151:16 187:17 188:8 possible 147:8 147:9 206:5,14 possibly 85:17 post 51:22 postdoc 47:1 50:5,22,24 poster 122:14 123:25 130:19 130:22 131:2,9 131:12,18,22 132:5,7,16,22 132:23,25 133:15,23	134:2,5,8,13,15 134:23 135:22 posters 132:1 potential 92:12 151:7 potentially 92:18 151:23 practical 82:20 88:12 89:1,10 89:11,25 practice 106:18 106:23 107:21 171:8 preceded 183:21 preceding 197:2 precursor 141:8 predefinition 169:16 predict 77:12 138:23 139:6 139:16 140:5 140:13,16,23 preparation 34:11 prepare 33:20 34:15,23 38:2 38:5,20 152:8 152:18 154:7 155:21 156:6 157:17 203:3 203:12,25	204:12,20 205:5,20 prepared 27:14 87:6,20 90:7 200:10 209:15 preparing 27:18 35:16 145:25 153:19 154:4 prescribed 217:9 present 2:22 106:16 190:24 presentation 24:25 97:10,21 97:23 98:20 99:23 100:24 102:24 105:5,7 108:14,18 109:4,12 111:3 118:1 121:19 126:8 127:1,5 127:14,17,21 128:2,7,9,15 129:2 130:16 130:21 131:14 132:24 133:17 134:5,8,16,24 135:9,22 136:10 presented 24:14 presenter 111:21	presenting 109:19 pretend 174:7 pretty 18:20 94:18 99:1 181:4,15 prevent 164:5 previous 116:11 previously 22:10 82:3 95:2,25 111:12 200:1 primarily 109:5 principle 188:1 188:17 191:12 principles 187:23 189:2 prior 23:6,23 41:11 priority 75:16 75:17 76:10 77:18 78:4 108:2 probably 28:5 79:12 88:22 89:1 159:25 181:2 210:20 problem 164:7 164:8,11,12,13 procedure 18:6 219:5 220:5
---	---	--	--

proceed 150:8 183:2,11 proceeding 12:21 13:1 15:25 19:24,25 23:6 25:12,16 27:15 30:18 34:10 35:25 36:15 97:9 99:21 proceedings 10:15 217:11 process 11:14 103:9 121:25 131:21 132:1,4 160:5 161:2,12 161:17 186:13 207:13,25 produce 23:13 80:24 81:8,18 92:14 produced 91:19 217:10 producing 90:19 product 12:6 19:9,11,16 20:14,19 23:13 56:23 60:17,20 60:21,23 61:4 61:14 109:21 125:6 129:16 183:21	production 7:9 218:16,17,22 products 19:5 61:17 149:2,9 151:2,13 professional 5:10 217:4,20 professor 50:23 51:1 program 57:14 59:8 61:16 65:2,21 66:3,9 69:19 70:17,24 71:8,19 progress 108:10 149:16 192:21 193:7 193:10 progressed 168:13,25 176:14 177:24 178:9,11 179:24 180:5,8 183:17 185:22 187:18 188:9 191:4,10 192:6 193:13,20,24 195:16 196:9 196:20,24 197:4 progresses 149:22 progressing 149:19	project 64:25 65:3,7 66:22 66:24,25 67:2 67:13 69:21 projects 62:2,4 pronounced 7:21 proper 95:10 properties 83:8 138:22 property 57:7 proposal 200:8 proposed 31:9 37:22 199:22 203:23 209:9 210:1,6 215:4 proprietary 96:6 protein 16:15 16:21 18:22 42:7,12,16 43:25 44:11,13 44:15,17,19 45:6,12,13,15 45:20,25 46:2 46:5 47:1,17 47:20 48:7,13 49:8,11 52:1 52:13,16 156:7 171:7,9 172:18 172:21,25 180:22 181:6 213:7	proteins 40:22 46:11,13,22 47:2,8,25 48:4 52:18 58:1 182:12,23 provide 9:3 15:23 18:18 21:2 30:19,22 30:24 33:17 42:15 77:24 121:23 203:19 provided 15:17 15:25 21:24 31:20,25 33:2 33:13 78:13 86:14 108:14 108:17 188:13 212:11 217:8 providing 11:3 ptab 12:21 public 5:11 7:11 217:4 219:10,18 220:15,23 221:23 publication 62:10,25 68:8 72:19,20 96:15 96:20 99:1 publicly 73:17 publish 24:6 62:9 63:3 64:10 84:7
---	--	---	---

published 25:5 52:24 53:11 59:15 62:15 63:14,20 64:6 64:9 65:7 67:10 72:12 77:16 80:8 87:2 94:23 95:16,18,19 96:2 pull 122:25 pure 45:15 83:20 purification 19:4 purify 66:19 purposes 75:12 154:3,4 pursuant 5:8 put 39:18 45:1 49:2,4 96:24 115:13 116:15 116:20 130:5 138:11 146:15 165:2 191:2 197:22,25 198:20 210:15 putting 49:19 134:4	qualifying 147:14 question 8:9,24 29:4 36:17 41:13,25 67:19 71:2 75:5 76:4 76:18 77:2 81:12 100:18 113:22 114:11 123:20 128:5 132:14 134:21 136:23 139:12 149:6 150:11 150:12 152:11 152:14,17 154:11 155:11 156:4 158:1,11 158:15 159:17 163:12 169:25 170:16 184:11 184:12,16,18 184:21,22,25 185:4,5,11,15 186:1,5,6 187:10 190:1 193:16,18 203:9 204:16 207:19 questions 8:7 8:14,22 11:11 77:23 136:3 152:5 208:15 211:11 216:1	quick 14:22 15:11 27:8 80:6 108:22 198:3,21 208:15 quickly 49:16 75:3 91:24 109:2,15 145:13 177:17 quite 66:6 quotation 169:3,8 170:11 quotations 177:24 quote 168:24 quotes 168:25	rather 8:15 rating 197:18 ratio 101:16,19 101:22 146:20 raw 126:6 reacted 189:15 reaction 49:9 102:20 103:15 132:1,4 147:9 147:19,24 149:13,16,19 149:22,24,25 150:6,14,18 151:1,22,24 158:9 159:8,14 159:14,21,22 159:24 160:6 160:15,18,24 161:3,15 162:15 163:6 164:18,22 165:22 167:1 167:25 170:2 170:10 171:18 171:19,22 172:12,12,22 174:1,10,15,17 175:19 177:2 177:15 178:8 178:21,23 179:8,14,15,23 180:16 181:24 182:2,7 183:2 183:2,9,11,20
q		r	
qualifies 141:17		r 6:1 19:12 23:15 55:7,15 62:11 64:2 72:22 74:15 118:15 176:7 179:5 180:3 186:21 ramification 77:19 range 18:21 171:2,6 173:19 raquel 216:11 rate 26:18,20 35:22 36:6,10 36:12,19	

184:6 185:8,21 186:17,20,21 186:22 187:15 187:21 188:2,6 189:9,16,20 reactions 104:14 148:10 148:11 149:1,8 150:8 166:19 168:13 169:10 169:18 170:7 173:7 176:14 180:16 183:10 183:16 186:18 189:18 reactive 102:8 102:12,15,16 120:24 167:8 read 14:4 25:4 31:15 74:24 75:8 111:8 112:4 114:6 116:3 122:17 127:10 145:8 177:17,25 183:7 192:23 192:25 213:10 219:5,6,12 220:5,6,17 reading 88:22 112:3 115:18 128:17 178:5 215:1 218:20	ready 57:8 108:11 reagent 47:20 165:25 166:1,5 166:6 178:24 189:5 reagents 93:17 171:9 174:16 real 91:24 198:3,20 realized 165:24 really 13:21 47:24 49:5 50:14 84:10 88:25 89:10 92:22 103:19 122:16 139:21 142:8 172:25 reason 9:2,5 149:4 218:15 220:8 221:3 reasons 163:1 rebekah 2:14 6:24 rebekah.hill 2:19 recall 10:14 12:18 16:1 17:10,12,13,19 17:23 18:1,11 18:15 19:21 20:9,13,16,20 21:1,5,14,18,19 21:23 22:23	25:6,24 26:1,7 26:14 34:8,12 35:1,7 47:12 69:17 70:21 71:5,16 72:6 78:3 88:1 98:7 98:21 99:2 119:24 128:11 133:21,25 135:5 142:3,4 145:21 146:4 146:11 153:5 154:6 156:1 157:23 176:18 193:25 194:16 195:9 recalled 78:15 receipt 218:19 receive 55:17 received 35:23 36:1,13,20,22 37:5,9 40:12 55:22 receiving 36:19 recent 83:4 recess 58:9 117:20 175:3 198:6 recited 196:18 200:1 215:19 recognize 14:21 27:7 80:5 97:18 123:24 143:1	175:14 191:24 198:16 recognized 90:8 recollection 22:3 72:4 recombinant 156:6 reconstruction 201:19,23 record 6:3,14 7:17 8:10 13:8 13:11 58:6,8 58:11 85:11 117:17,19,22 130:25 175:2,5 198:3,5,8 216:3,5 217:11 220:9 record's 73:8 redox 186:21 reduced 106:17 refer 30:5 39:3 89:3 93:14 96:22 97:20 98:10 103:14 107:4,6 110:18 112:18,19 127:22 128:1 143:3 168:17 175:15,23 199:9 reference 41:10 41:16 44:14
--	--	--	---

94:7 95:6 100:19 109:11 132:9 171:16 172:13 175:10 175:21 192:14 198:13,17 200:19 202:22 218:7 219:2 220:2 referenced 219:11 220:15 references 93:24 95:15,24 136:15 referencing 80:13 115:25 137:7 192:13 referral 26:7 referred 52:12 106:5 109:15 119:13 131:9 211:5 referring 36:5 63:1 94:14,15 98:3 104:9,25 105:3,19 106:1 107:3 120:4 127:20,25 128:6,22,23 132:17 133:6 138:6,7 144:16 181:3 197:8 209:13	refers 94:4 132:7,16 reflected 167:6 refocus 108:6 refresh 177:17 regarding 24:15 199:2 200:18 201:1 regardless 99:19 regiodivergent 96:7 region 213:9 registered 5:9 217:4,20 regular 216:19 relate 10:18 12:13,14 13:3 13:5,6 18:22 28:18 29:6 33:15 37:17 48:3 50:7 61:12 related 10:20 11:13,16,18 17:19 23:4 29:12,14 36:24 37:1 49:23 51:20,24 63:9 64:14,14,16 65:4,8,16 66:20 67:3 73:14 109:20 143:13 200:12	217:12 relates 66:8 145:6 relating 16:21 21:2 35:24 49:1 59:25 62:14 96:21 107:8 108:19 relationship 37:3 relative 217:13 relatively 82:21 82:22,22 86:5 182:23,24 relevance 157:1 183:8 relevant 38:6 remain 215:23 remember 12:1 13:2,4,5 16:1 16:23 18:22 19:1,23 20:2,4 25:9 28:4 34:17 40:5 64:24 67:7 71:11 98:23 99:8,13 130:18 133:23 141:10 195:18 200:7 209:10,11 remotely 6:18 repeat 36:17 41:13 71:2 75:5 76:4,17	78:12 81:12 87:12 132:13 132:14 134:20 139:11 149:5 150:11,12 155:24 159:16 184:24 203:8 204:16 rephrase 8:23 replicated 209:25 report 32:20 83:3 84:15 87:23 101:10 176:13 reported 1:23 49:10 91:22 95:3,25 96:8 100:9,24 101:4 101:6,7 108:21 122:4 147:4 148:18 150:25 152:25 reporter 5:9,10 5:11 7:5 17:3 20:22 21:17 23:1 25:18 29:13,16,18 31:22 38:11 41:22 47:22 50:24 52:6 56:1 59:20 63:22 65:24 69:11 77:12
--	--	--	--

80:17 83:12 87:11,14 89:7 89:15 92:6 93:9 95:11 101:6 110:21 111:18 118:16 123:12,15 125:16 129:10 132:3 133:1 139:24 148:3,5 148:14 149:17 160:2 162:6 164:10 166:3,6 171:4 176:6 180:2 181:19 181:21 187:2 190:9 191:15 191:17 201:10 202:17 216:8 216:13,17 217:4,20 219:7	reproducibly 82:22 request 11:7 220:9,11 required 218:25 research 23:18 40:20 41:5,20 42:1,1,6 46:9 46:21 47:7,15 48:6,8,12,21,22 48:25 49:16,20 49:22,24 50:3 50:4,10,11,17 50:19,22,25 51:9,15,19,23 53:16 64:9 66:15 68:4,14 68:25 70:22 71:6 researcher 53:21 researchers 50:20 residue 104:10 104:16,20,22 105:1,4 111:2 112:6 113:11 114:16 115:2 124:15,21 126:1 133:4,10 167:9 211:22 residues 105:7 105:10 112:10	132:10,18 133:11 respect 59:12 60:6 75:25 194:13 respond 8:9 11:7,10 response 201:12 responses 8:13 rest 12:8 result 61:7,13 121:24 163:7 184:4 186:11 resulted 151:2 results 59:15 126:6 146:12 164:7,22 165:10,17 186:25 195:17 196:10 retained 17:16 17:18 19:18 21:9,24 22:6 25:22 retention 26:5 returned 218:19 review 33:22 33:22 64:10 75:3 80:7 81:25 82:1,15 85:3 86:22 88:11,19 90:7	91:3,24 110:23 152:6 153:3,15 153:17 154:23 155:15 193:11 218:13 219:1 220:1 reviewed 34:1 34:8,12 99:22 141:7,22 145:25 153:18 193:11 reviewing 82:2 153:23 154:2 right 10:5,6 17:20 20:15 22:2 24:16 25:1 27:11,12 28:5,9 30:9 36:25 38:24 41:18 42:13 43:12 44:17,22 50:20 52:15 54:16 55:20 56:13,17,18,22 57:17 64:15,16 67:23 68:14,15 68:23 69:2,9 70:14 71:19 72:4 75:2,11 75:11,18 76:7 76:11,25 77:8 78:1,10,14,19 79:15 84:18 86:1,11,24
---	---	--	---

87:22 89:4,22	140:10 141:4,9	195:17 196:3	s
89:23 90:21	141:20 142:2	196:22,24,25	s 6:1 7:20 23:15
91:23 92:20,25	143:8 144:8,12	197:4,5,12	23:15 56:8
93:5,21,21,22	144:15,19	198:20 199:8	57:22,23,23
94:25 95:4,8	145:7,19,24	199:23,24	63:14,20 64:5
95:16 97:6	146:7,21 147:1	200:2,3 201:5	80:11 83:10,10
98:11,20 99:21	147:5,6,6,19	201:19 202:14	83:13 111:20
100:17 102:4,5	148:19 149:23	204:2,14,22	118:15 218:16
102:9,10,14	150:15 151:15	205:21 206:8	220:8,8 221:3
104:3,22 105:1	152:9,20 153:6	207:5 208:10	sadiki 74:6,8
105:5 106:2	153:20,23	210:4,5 212:5	80:11
107:5,10	157:8,12 159:2	213:23 215:2	sandra 1:23 5:8
110:18 112:17	159:9,10,15,22	roche 17:17,22	7:5 217:4,19
113:5,11	160:8,16	18:12,19 19:7	satisfactorily
114:16 115:2,8	161:18 162:10	21:8	7:8
116:1,14 118:9	162:17 163:23	role 60:25	satisfactory
119:8,10,11,15	164:24 165:6	roles 55:2	217:9
120:6,7,14,20	166:11 167:11	roman 29:25	satisfied 79:8
120:25 121:1,4	167:12 170:3	30:3,3	saw 54:9
121:5,8,9,17,21	170:25 171:13	rough 216:14	saying 31:23
121:22 122:9	172:14 174:1,5	216:16	45:18 53:3
122:10 124:5	174:7 177:5,16	routinely 159:6	66:12 85:19
124:12 125:1,2	177:24 178:9	161:16 166:25	112:24 114:17
125:7 126:2	178:21 179:9	rowena 50:23	133:1 144:22
127:11,21	179:10,16,24	51:1	148:21 161:19
129:7,17 130:4	180:5,9 183:18	rpr 1:23	162:10,14
130:16,17	184:9,20,22	rsa 1:24	165:5,22 166:4
131:5,15 133:2	185:9,24 186:3	rule 30:20	169:24 170:15
133:7,8,12,20	186:11 187:22	31:20,23,24	179:22 181:14
134:11,18	188:12,14	77:15	183:18 185:23
135:1,12,19,24	190:6,16,22	rules 8:6 219:5	197:6 202:18
136:16,22	192:8,15	220:5	206:4
137:10,25	193:15 194:8		
138:8,10 139:9	194:14,21		

says 57:2 97:24 116:6 118:11 120:11 121:14 124:4,5,14,25 125:12,17 136:1 137:23 137:24 144:4 144:13 177:19 179:3 196:23 197:2 210:7,8 210:23,23 211:20 212:1 212:15 215:4	204:3,24 scientifically 201:18,22 203:2,12,24 204:11,19 scientist 112:8 150:20 169:12 172:1 183:20 186:13,18 scientists 159:6 159:12,20 161:1 166:13 166:24 181:8 184:7	110:2,5,8 112:15 113:9 113:18 114:14 114:23 117:10 127:6,19,22,24 128:4,10,12,19 129:4,7,16,20 130:4,7,14,17 130:19,20 131:6,10,12 133:20,24 134:2,10,12,18 135:1,4,15,18 135:20,24 136:20 137:1,8 138:19 168:8 177:22	see 13:18,20 15:3,6 16:18 16:19 40:23,24 44:4 49:6 58:19,22,23 74:4,7 88:9 91:13 92:3 96:9,10 98:1,2 100:6,7,13,14 101:14 103:15 104:1,8 109:1 109:17 110:2 111:15 117:7 118:14,24,25 118:25 121:16 121:17 122:24 123:5,20 124:3 124:7,13,16,17 125:11,14,23 125:24 126:6,7 131:5,8,23 135:12 136:5 139:1,2 141:19 144:9 145:1 148:3 161:22 163:16 164:12 167:3,4,15,21 168:9 169:1,2 169:21 175:25 177:19 182:20 193:17 196:5 199:3,4,20 201:25 208:17 210:11 211:1
scale 121:14,20 schematic 103:24 104:18 scheme 103:16 125:4 203:5,14 204:2 schemes 159:8 159:14,22 167:2 205:4,19 206:6,14 science 29:12 29:15,16,17 30:12 51:3 188:25 sciences 92:23 scientific 28:14 28:24,25 29:6 30:5,16,19,23 31:16,19 32:11 32:15,24 33:15 163:18 196:10	scope 211:12 212:21 214:4 screen 14:3 123:21 seal 219:15 220:21 searched 146:11 seattle 59:7 65:11,14,17,21 65:21,24 66:11 66:13 67:8 71:13,23 second 19:14 29:21,23 30:2 37:20 63:15,25 91:11 97:2 106:1 107:4,6 108:20 109:10 109:11,16	section 4:5 30:7 30:10,14 31:1 31:2,9,13 32:3 32:12,12,15,25 33:4 37:19,21 37:22,24 54:25 124:5,9,25 125:11 131:4,6 144:21 145:4,6 159:3 177:5 183:25 208:24 214:16 sections 29:11 30:6 210:19,21 210:22 214:8 214:16	

211:24,25 212:4 213:2,19 213:22 215:11 215:12,21,22 selectivity 167:25 send 16:6 26:9 sent 209:16 sentence 33:11 40:24 42:10 80:22 81:4,11 81:15 82:9,12 83:3,15,22 88:10,14,17 92:1,4,4 93:13 93:22,23 100:14 112:4 116:4 126:5 127:3 128:7 138:19 139:2 141:15 158:24 167:15,21 168:8 176:11 178:1,2,4,6,15 179:20 215:2 separate 50:2 50:14 156:25 199:25 200:4,5 214:7,15 september 14:24 26:3 28:1,6 52:23 53:6	sequence 211:23 serial 142:22 service 36:3,4 set 9:7,11 50:11 88:24 150:17 161:7,23 162:17 163:20 170:1 171:11 173:23 174:14 185:7 186:17 sets 173:18 setting 50:17 199:22 seven 8:3 10:4 10:12 several 67:5 83:4 88:11,19 90:8 120:18,20 121:7 shaking 8:15 share 24:10 28:15 38:6 122:25 shared 192:4 sharpless 94:8 94:9,17,17,17 sheet 218:14 220:7,10,18 221:1 shoot 216:12 short 58:6 102:20 131:21 132:1,3,4	173:21 174:24 183:5 shorter 131:18 169:15 172:3 shorthand 5:9 42:21 show 68:8 88:5 92:4 106:17,21 108:16 211:6 showing 124:20 125:4 209:3,6 shown 104:15 204:13,21 212:8 218:16 shows 33:23 97:23 103:10 108:12 190:5 202:5 sic 23:15 63:14 64:4 72:23 side 48:2 83:4,4 84:2,2,16,16 85:12,12,23,23 86:2,2 124:3 147:9,24 148:10,11,14 148:15,15 151:21,23 198:20 signature 217:18 218:15 signed 219:13 220:18	signing 218:20 similar 120:2 156:4,7 169:18 169:18 171:22 171:25 179:21 similarly 178:1 178:23 simple 190:1 simply 68:19 sincerely 218:21 single 142:1 200:1 sir 218:10 site 3:15,17,20 22:18 72:9 73:2 79:20,24 80:23 81:5,18 81:23 83:5,6 83:18 84:2,5 84:13,18 85:4 85:13 86:8,16 86:18 87:7,15 87:20,25 88:5 88:12,20 90:9 90:16,22 91:18 92:13 93:19 95:3 96:1 97:12 101:11 105:22 111:6 111:17,19,20 112:1 115:19 116:2,14 122:20 125:1
--	---	--	---

125:20 126:9	130:1,6,9	166:20,20	95:3 96:1
144:7 147:18	131:22,24	174:11 179:12	97:12 100:17
147:25 148:9	132:5,23 134:2	181:14 199:15	100:20 101:1
149:12 167:9	137:2	199:19,19	101:11 102:11
sites 22:20	slides 109:25	203:8	110:20,22
105:24 110:9	128:12	sort 19:19	117:12 122:20
110:12,13,15	slightly 78:21	200:14	125:1 128:14
110:19,25	162:11	sounds 8:4	128:18 129:15
111:9 112:5,16	small 13:22	88:18	129:19 130:2
112:19 113:14	14:3 43:2,7,9	spacer 213:24	132:11,19
113:17 114:2,8	44:1,5 46:14	spans 41:1	133:9,12,18
114:18,24	47:9,19,25	speak 26:4	134:9 144:7
115:12,25	48:2 57:25	123:13	152:23 153:9
116:17 132:8	smaller 17:18	speaking 6:4	155:13 178:13
132:17	solely 130:15	181:2,17	183:22 185:7
sitting 20:16	solutions 6:5	species 83:21	191:7 194:13
21:22 133:21	218:1 221:1	151:8	194:14 195:16
146:3 153:5	somewhat 93:7	specific 3:15,17	196:17 203:4
situation	sorry 27:21	3:20 19:8	203:14 214:7
165:20	29:17 37:19	22:18 48:4	214:16
six 131:25	56:1 71:3 74:1	60:5 70:21	specifically
size 11:9 29:14	75:6,14 76:17	71:5,16 72:5,9	11:10 12:15
115:15	81:12 82:11	73:2 77:10	32:11 40:3
skill 75:1,9	87:11 94:13	79:20,24 80:23	47:16 48:9
139:5 140:15	95:22 97:2	81:5,18,23	51:20 58:25
215:17	111:24 113:19	83:5,6,11,13,18	59:11,25 65:19
slide 105:2	113:20,23	84:2,3,5,13,14	69:15 70:8
109:3,16,17,18	114:11 123:11	84:18 85:4,13	96:15 104:21
110:1,5 111:8	123:14 125:16	85:13 86:8,16	108:19 110:4
113:5 114:6,7	131:1 132:13	86:18 87:7,15	110:15 176:11
116:11 117:2	139:11 143:15	87:20,25 88:5	188:23 190:13
117:13 118:7	144:3 148:8	88:12,20 90:9	192:14 194:4
119:4 128:18	152:5 158:10	90:16,22 91:18	194:12
129:21,23	158:14 159:16	92:13 93:19	

specification 190:20 213:1 215:8	start 35:13 41:5 46:23 48:16 49:15 57:12 59:2 71:11,13,23,24 142:15 160:9 160:11 162:19 174:11 176:25 178:18	116:6 130:11 140:9,22 141:5 219:13,14 220:19,19	119:25 144:5 156:7 190:22 194:13 195:20 213:21
specificity 125:21 126:9		statements 140:12	structures 196:1 201:8,12 204:13,21 205:5,20 214:22
speculate 187:11		states 1:1 102:7 141:15	
spell 118:20		stealth 57:2,6	
spells 7:20 55:6		step 114:5 124:14 167:8	student 41:21 41:23 74:9,10 74:12 80:12,16 80:19
spend 27:18 34:24 35:11,15	started 9:6 41:19 52:1,3 55:8 56:16 64:25 67:8 145:3	stephen 6:19	
spent 26:17 49:3 88:2 153:22		steve 2:24	
ss 217:2	starting 39:2 52:12 122:5,7 138:19 143:5 162:19,21 163:3	stick 58:15	students 80:8 89:5,8
stabilities 106:22		sticking 16:12 195:22	studied 23:18
stability 48:14 59:19,21 106:19,21		stochastic 83:5 83:9 100:11,19 100:21	study 50:6 87:16 177:9
stable 165:25 171:7 172:19 181:2,16,18	starts 15:4 88:10 91:11 124:11 144:21 167:16 215:3	stone 57:22	studying 64:20
stage 147:20,20 161:21 162:4		stop 163:22 174:5 184:9,19 184:21	subcategory 45:5
standard 88:11 88:20,23,24 89:4,9,10,18,25 90:2,5 150:7 150:17 169:9 170:1,19,25 171:11 173:23 173:24 174:14	startup 55:16 state 7:16 40:19 74:22 96:5 112:14 138:20 140:4 195:24 198:25 219:10 220:15	street 1:20 2:7 2:15 5:7 6:8 217:7	subclass 44:16 44:18
	stated 81:15 166:24 177:12	stricken 187:6	submitted 38:9
	statement 102:22 115:5	strike 82:11 189:22 214:22	subscribed 219:10 220:14 221:21
		structural 138:20 159:7 166:18 167:1	subsequent 61:10
		structure 108:16 119:23	subsequently 192:24
			substituents 168:11 215:19

substitute 31:10 37:22 199:22 200:8 203:23 204:13 204:21 205:6 215:5,20 substrate 47:21 47:23 subtype 120:21 succeed 138:25 139:8,18 140:7 140:19,25,25 succeeded 138:24 139:7 139:18 140:7 140:18 success 189:19 189:20,25 successful 62:12 207:8 successfully 205:24 sufficient 32:11 32:15 33:1 suffolk 217:2 suggest 111:10 151:12 165:11 165:18 suggests 164:23 suite 2:15 218:2 summarized 128:10	summary 81:22 82:17 100:4 103:1,4 108:15 122:1 126:5 129:7 136:2 sunny 1:16 3:3 3:10,12,13 5:6 6:10 7:7,20 13:14 14:14 27:1 216:7 217:6 218:8 219:4,9 220:4 220:13 221:20 super 79:12 superior 218:1 supplement 211:14 support 33:18 108:12 209:7 210:16,19,21 211:6,6 212:7 212:11 214:9 214:18 supported 31:10 37:23 214:1,12 215:7 sure 9:1,19 14:7,8 16:3 28:23 38:24 55:20 73:8 81:14 94:9,18 95:9 113:24 115:17 118:2 138:13 152:16	155:17 158:14 159:18 168:18 171:11 174:25 185:6 188:13 swear 7:5 switching 112:15 sworn 7:10 219:10,13 220:14,18 221:21 synthesis 51:20 121:15,20,24 124:25 125:3 142:1 144:5,10 144:13,17 145:17 146:6 203:4,14 204:2 205:4,19 206:6 206:14 208:7 system 212:3 t t 17:4 19:12 23:15,15 24:5 57:22,22,23 64:3 83:10,10 83:13 111:20 118:15 176:7,7 180:3 205:3 table 29:22,24 38:5 120:15 122:4 136:12 202:1,5 210:14	210:16 take 6:9 14:22 15:11 27:8 31:7 54:21 58:6 62:24 63:2 66:22 80:6 91:7 105:16 108:22 131:3 135:8 142:5 145:11 174:21,24 213:15 takeda 60:2,8,9 60:23 61:5 taken 7:25 10:7 12:25 15:9,16 20:7,10 21:11 58:9 117:20 175:3 198:6 217:8,13 talk 24:9 26:14 37:18,24 53:13 53:13 105:10 106:24,25 107:15,22,25 109:9,24 111:5 115:14 126:7 128:10 130:7 133:23,23 134:13 140:1,2 159:3 talked 146:19 talking 34:2 50:16 51:14
---	--	---	--

53:24 105:11 129:23 138:9 158:25 173:9 173:11 174:6 176:10 183:9 187:21 target 66:18 86:14 115:3 124:15 147:18 targeted 86:21 targeting 117:9 tasked 146:9 teach 203:18 teaches 176:4 team 60:14 technical 28:18 28:24 33:1 129:20 205:10 207:7 209:17 technological 30:8 159:1 technologies 85:24 95:4 96:1 technology 3:17,21 22:24 23:25 24:2,4,7 24:12,15 25:7 30:13 86:5,10 87:7,21 96:6 96:12,18,21 97:11 99:9,12 100:10 102:2 102:12,19	103:4 106:2,16 107:5,15,18 108:20 109:7 110:1,6,8 112:16 113:9 114:14 117:10 118:11 119:5 120:16 122:21 127:7,19,23 128:4,20,24 129:1,12 130:14 131:7 131:10,13 133:20 134:10 134:18 135:1,4 135:24 136:20 137:8,19 159:4 204:25 tell 16:24 48:20 57:3 59:17 65:7,9 72:19 99:8 101:17 111:4 135:3 152:24 172:1,2 188:12 213:5 telling 164:7 temperature 160:17,19,25 181:4,15 182:1 182:5,11,25 183:12,13 ten 20:12 tend 181:6	term 76:11 157:2 terms 49:24 53:25 54:15 167:7 test 162:16 163:20 tested 195:6 testified 7:12 193:2 testify 18:7,9 testifying 8:19 testimony 9:4 10:22 21:24 28:19 29:7 219:6,7 220:6 220:9,12 testing 91:4 101:5,8 118:11 119:4 150:8 162:18 164:5 tests 189:8 text 117:12 thank 7:24 14:20 27:6 29:3 42:4 54:10 58:4 80:4 83:1 86:4 97:1,17 101:25 119:1 130:23 142:11 144:20 146:17 155:8 174:20 175:13 198:15 201:14	201:15 thanks 16:10 themselves 60:24 therapeutic 19:9 20:14,18 42:8 44:10,16 44:19,21 45:3 45:6 48:9,15 48:17 49:25 51:16,21 56:12 61:8,13 100:11 100:25 therapeutics 45:12 56:3 66:15 80:9 86:21 therapies 86:14 thereto 217:14 thing 161:20 162:11 183:7 191:5 208:17 things 9:17 82:24 84:9 160:14 195:1 think 9:15,23 10:10 12:17 14:2 15:19 20:12 22:24 24:7 26:22 36:10 37:19 38:2,7,19 43:24 44:23 45:1 49:23 51:13 52:24
--	---	---	--

54:22 60:19	third 63:17	67:13,20,22,23	216:4
62:15 64:8	80:22	68:2,5,7,11,20	timeline 200:21
67:11 78:21	thirds 15:3	68:24 69:7,7,8	times 8:2,3
81:24 83:17	thirty 218:19	69:10,12,13,16	10:4 12:24
86:13 88:25	thought 77:9	69:18,20 70:10	15:9,16 34:18
96:24 98:13	77:15 82:16	70:17,20,22	99:23 102:20
99:15 100:15	83:23 84:12	71:6,17,24	145:15 158:4
104:18 105:14	85:3,15,16	72:5 74:11	166:9
105:19 106:9	166:13	75:1,10 76:6	tiny 122:16
106:20 108:4,8	three 13:23	79:19 80:15,17	title 63:5,12,17
115:21,24	62:9 64:8,12	83:23 84:4,12	64:1 72:20
117:3 119:19	93:24 102:11	85:1,24 89:4	177:4,6
126:13 131:21	120:24 131:23	90:7 91:1,2	titled 54:25
132:1 142:8,13	131:25 156:8	94:23 112:4	79:24 100:4
143:5 146:23	156:12,18,22	114:11 117:18	118:7
153:22 157:11	157:19 158:2,3	117:22 145:11	today 8:8,19
159:11,19	158:4,7,13	149:13,23,24	9:2 13:10
161:19 168:17	199:25 200:4	149:25 150:2,6	21:22 33:21
169:20 174:13	201:7 205:24	150:7,15,17,21	37:15 38:4,21
176:2 184:20	206:1 207:8	159:2 160:14	40:10 52:22
188:21 190:14	215:19	160:24 169:10	99:7 146:3
190:24 194:1	time 6:7 22:21	169:21 170:1,9	153:5,20
197:17 201:23	22:23 26:16	170:11,19	today's 6:6
202:5 204:9	27:17,25 28:4	171:6,12,15,21	216:6
206:19 208:12	30:8 34:24	171:24 172:10	together 28:16
211:11 213:11	35:11,15,18	172:15 173:6	34:22 39:18
thinking 85:1	43:15,17 49:2	173:20,20,21	45:2 46:5,6
thiol 102:9,17	49:5 53:11,21	173:23,24	191:11 197:23
120:25 134:17	56:5 57:16	174:10,14,18	told 24:11
134:25 135:4	58:7,11 59:6	175:1,5 177:15	75:15,21 76:10
135:13,15,17	59:10,13 60:8	180:21,23	98:19,23
135:23 136:1	61:19,22 62:1	181:25 182:21	took 56:13
136:15,21,25	62:5 64:19,22	189:18 198:4,8	top 116:2 123:6
137:9 138:7	64:24 67:6,12	200:9 201:4	177:21,22

topic 51:14	trastuzumab	191:25 211:14	131:22,25
topics 18:21,21	118:12,15	tuesday 1:17	132:18 147:21
total 35:6 62:16	119:6 121:21	tumey 78:13	151:3,13,20
toward 65:1	122:6,8,9	200:10 201:9	152:13,17
towards 103:16	125:6,9 126:1	203:18	153:11 154:12
104:3 123:6	142:2 143:7,10	tumey's 34:6	154:22 156:15
215:3	143:14 144:14	78:16,18,20	156:21 158:6
toxic 43:3,7,9	144:17,18	79:1 199:1,6	158:12 171:18
toxin 43:25	145:7,14,19	200:12,17,25	171:19 180:19
44:11,13	146:7	turn 14:25	182:20 188:18
track 37:2 97:5	treat 45:10,14	40:13 52:19	190:14,17
trademark 1:1	trend 84:25	58:16 73:21	191:5,11,20,23
tradition 50:3	88:3,6	74:18 78:8	192:9,16,18
trained 46:16	trial 1:3 18:5,7	99:24 118:3	193:19,21,22
training 46:16	20:3 21:25	126:21 127:13	194:3,15 195:6
transcribed	trials 56:24	127:14 138:14	195:10 196:6
217:8 219:7	86:9	158:18 175:21	197:15,19,19
transcript	tried 57:24	176:21 182:14	197:22 201:9
217:10 218:12	117:1	209:4	201:10,11
218:13 219:5	true 217:11	twice 34:14	type 11:20,24
219:12 220:5	truthful 9:3	two 10:19	12:16 44:21,25
220:11,17	try 10:1 17:10	11:23 12:2	55:4,13 57:19
transferred	89:24 95:11	15:3 17:12,14	119:15 120:21
187:25	113:13 123:1	21:7,10 22:1	139:22,25
transglutami...	162:22 165:21	28:7 39:21	153:6 188:2
23:14,16	170:17 185:4	52:25 53:10	189:24
transitional	186:14,24	65:22 84:17	types 10:15
50:4	188:18	85:23 92:8	18:17 47:9
translated 51:4	trying 84:9	101:13,22,23	62:4 102:11
translational	85:2 89:13	110:9,12,13,14	120:17,24
48:22,25 49:24	97:3 113:16	110:19,19	121:8 157:4,8
translator's	114:2 123:17	111:9 112:5,6	157:9 161:15
3:23 4:3 175:6	130:10 155:16	112:9,19	169:10 170:2
198:9	173:14 177:25	113:16 114:2,8	173:7

typical 163:17 170:9 171:16 typically 45:2 45:14 160:7,10 183:13	underneath 157:8 understand 8:18,25 35:10 38:25 48:12 55:21 70:6 73:5,7 85:19 113:7,25 117:2 130:10 138:4 152:11 153:14 155:12,17 165:3 169:23 170:15 172:6 173:14,19 179:5 195:4 201:2 understanding 18:5 19:17 22:15 25:11,15 30:17 38:9 66:7 74:23 75:7 77:9,20 109:8 114:22 130:13 200:3 212:16,25 understood 74:25 75:9 unfortunately 72:12 united 1:1 unpredictable 139:4,16 unrelated 66:10	update 53:4 updated 52:23 53:5 uploaded 123:2 upper 172:20 172:24 173:5 173:15 use 9:15 14:5 23:22 31:20 32:22 44:4 72:15 73:3 75:22 77:3,16 78:20 86:17 87:2 89:9,19 90:1,4 102:13 113:10 114:15 134:16,24 135:6,23 136:4 136:6 141:20 159:23 169:17 182:20 194:7 206:6,14 215:18 used 23:21 43:25 44:6,9 76:11 77:6 89:11 120:17 125:4 135:4,18 167:8 196:21 205:5,19 208:8 using 115:2,7 116:7,22 118:12 119:5 119:18 172:7,9	177:11 178:24 179:9 184:2 186:9 191:6 v v 1:8 59:3 218:6 219:3 220:3 vague 116:9 validity 18:25 value 146:24 147:23 148:23 150:23,24,25 151:9,11 values 150:3 variable 138:21 varied 167:7 various 15:8 22:25 23:3 52:9 53:18 55:3 58:21 93:18 120:12 136:13 163:6 venture 55:18 verbal 8:14 veritext 6:5 218:1,7 221:1 veritext.com. 218:17 version 9:16 53:4,5 versus 6:12 vi 30:14 31:1,9 32:3,12,16
--	---	--	---

33:4 37:20,21 37:22 video 6:9 123:16 videographer 2:22 6:2,4 7:4 58:7,10 117:18 117:21 175:1,4 198:4,7 216:4 videotaped 1:15 5:5 217:6 view 103:24 123:22 vitae 3:11 14:13 voice 95:12 vs 217:7	168:23 169:6 175:21 180:22 182:14 185:16 193:1 206:1 213:10 216:11 216:14,19 wanted 14:8 54:11 81:14 washington 2:6 2:8 water 165:25 way 9:11 12:13 15:4 58:1 82:20 92:22 103:21 113:12 116:8 125:10 131:4 165:2 172:17,20 180:20 190:21 196:1,5 197:15 197:21,22 203:19 206:3 208:2 ways 93:6 162:11 207:11 207:23 we've 125:3 174:23 week 33:24 34:18,19 35:4 weight 143:23 145:3 welcome 58:13	wellesley 7:23 went 145:13 165:12,19 201:6 west 2:15 white 92:25 wide 102:7 widely 167:7 wife 55:8 window 100:11 100:25 123:18 wise 167:8 witness 7:3,6 10:8,9,11,11,13 15:5 16:14 21:12 30:18 79:17 174:25 208:13 217:8 218:8,12 219:1 219:4,11 220:1 220:4,15 witness' 218:15 wondering 47:14 word 82:24 89:9,9 90:1,4 100:21 116:9 137:12 141:20 159:23 168:18 168:19 169:17 174:7 wording 132:21,22 196:12	words 45:17 116:23 178:13 203:1 work 14:2 22:13,16 24:9 24:21,24 25:3 25:3 26:11 31:16 36:5 37:7 40:21,25 42:12 46:9,12 46:14,17,18,19 46:24,24,25 47:1,1,2,7,18 47:19 48:1,6 48:12 49:1,6 49:15 50:5,7,9 50:9 51:2,7,19 51:22,25 52:13 53:22,23 55:9 55:10 56:10,12 58:25 59:25 60:2,3,13 61:5 61:10,11 62:10 63:9 64:19,23 65:17 67:12 68:12,15,21 69:2,6,25 72:7 72:13 73:2,13 82:2,8 84:19 84:22 99:21 105:12,13,14 105:14 106:5,7 106:10,25 107:1,8,17,23
w			
w 57:5 wait 8:8 waived 218:20 walked 21:8 want 11:15 25:15 38:15,22 38:24 39:12,21 40:7 60:24 73:7 85:10 107:16,24,25 113:5,24 127:13 141:13 142:14 146:18 150:18 154:5 157:2 161:22			

108:9 109:20 137:16 188:3 189:4,11 191:1 192:2 196:7,14 197:24 worked 22:10 26:8 188:11,12 209:6 working 13:18 14:9 37:3 46:19 47:3 52:1,3,8 61:21 61:23,25 62:5 67:22 68:7 69:18,20 70:11 74:11 80:13 123:8 worldwide 50:13 worry 97:4 write 33:5,14 91:2 written 118:23 211:6 215:7 wrong 38:19 39:4 164:4 165:12,19 wrote 91:2 92:22	113:4 114:9 xxx 110:16 112:11 133:7 y y 7:20 17:4 55:7 56:8 57:22 63:8 64:3,3 yamada 198:13 198:17 201:24 201:25 202:7 202:22,24 203:5,14,18 204:2,9 205:18 206:20,24 207:13,15,25 208:10 yamada's 199:2 200:18 201:1 202:14 204:4 205:14 206:25 yang 63:8 yeah 9:19,24 10:2,6,14 12:14,17,23 13:22 14:7 19:13 21:6,20 22:3,4,8 23:20 23:22 25:9,10 26:9 27:9,22 28:6 29:1,17 29:17 30:11,12	31:24 35:9,20 39:10,20,22 41:4 46:7 47:5 48:1,20,23 52:10 53:2,19 53:22 54:8,9 54:19 55:6,15 56:3 57:5,21 61:2 64:17 68:10,23 70:7 73:9,16,18 75:16 76:22 77:4 78:10 79:4,13 80:7 80:15 81:24 82:25 83:2,9 85:1,9,15,21 86:3,19 89:9 89:12,23 90:21 92:7,9,17 93:5 93:10 94:4,6 95:13,22 97:20 98:22 99:16,18 100:21 101:5,8 102:17,22 104:8,12 105:15,18 107:7 108:7 109:1,17 110:2 110:23 111:9 113:13,15,23 115:19 116:4 116:19 117:3,6 118:2,18,19	119:2 120:7 121:5,17,22 122:2,5,10 123:1,22 125:8 125:14 126:11 128:24 130:9 130:22 132:21 133:3,8,13 134:3,14 135:12,12,16 136:2 138:5,10 140:2,12,13 141:6,13,24 143:9 144:15 144:19,20 145:2,5,13,22 146:2,22 147:1 148:6,12,15,24 149:23 150:23 151:16,18,24 152:16 153:21 153:24 155:14 157:6,10,14 158:6 160:12 162:8,12 163:2 163:19 166:7 166:23 168:2 168:22 169:23 169:23 170:13 170:18 172:8 172:11,13 173:2,10,17,21 174:11,19 176:2 178:5,6
x			
x 64:3 186:21 xx 105:22 111:15 112:7,9			

179:11,25 181:22 182:9 184:1 187:8 189:12 194:11 195:11 199:14 199:24 200:14 201:16 202:12 204:3,9 207:21 208:11 year 15:19 25:25,25 41:5 41:9,15 46:10 49:22 years 16:5 20:12 23:19 40:20 41:1 42:1 46:21 47:5,5,5 67:5 86:10 yep 27:12 56:22 91:10,16 96:23 119:8,11 121:1,9 122:6 123:8 124:13 125:24 135:20 136:11 143:4 158:22 167:4 177:13 210:12 210:22 216:20 yesterday 33:25 34:19 35:2 yield 122:3 167:25	yielding 93:16 yields 102:20 yy 114:9 yyy 105:23 110:17 111:15 112:7,9,12 113:4 133:7 z z 7:19,21 zero 149:15 151:18 zhaohui 1:16 3:3,10,12,13 5:5 6:10 7:7,19 13:14 14:13 27:1 216:7 217:6 218:8 219:4,9 220:4 220:13 221:20 zhou 1:16 3:3 3:10,12,13 5:6 6:10 7:7,21 13:12,14,17 14:12,14,16 26:24 27:2 79:23 97:7,16 122:13 142:21 143:1 175:9 209:4,20 210:16 216:7 217:6 218:8 219:4,9 220:4 220:13 221:20	zhou's 14:17 26:24 zoom 9:16 123:5,18 124:18 126:3,4
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Federal Rules of Civil Procedure

Rule 30

(e) Review By the Witness; Changes.

(1) Review; Statement of Changes. On request by the deponent or a party before the deposition is completed, the deponent must be allowed 30 days after being notified by the officer that the transcript or recording is available in which:

(A) to review the transcript or recording; and

(B) if there are changes in form or substance, to sign a statement listing the changes and the reasons for making them.

(2) Changes Indicated in the Officer's Certificate. The officer must note in the certificate prescribed by Rule 30(f)(1) whether a review was requested and, if so, must attach any changes the deponent makes during the 30-day period.

DISCLAIMER: THE FOREGOING FEDERAL PROCEDURE RULES ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

THE ABOVE RULES ARE CURRENT AS OF APRIL 1, 2019. PLEASE REFER TO THE APPLICABLE FEDERAL RULES OF CIVIL PROCEDURE FOR UP-TO-DATE INFORMATION.

VERITEXT LEGAL SOLUTIONS

COMPANY CERTIFICATE AND DISCLOSURE STATEMENT

Veritext Legal Solutions represents that the foregoing transcript is a true, correct and complete transcript of the colloquies, questions and answers as submitted by the court reporter. Veritext Legal Solutions further represents that the attached exhibits, if any, are true, correct and complete documents as submitted by the court reporter and/or attorneys in relation to this deposition and that the documents were processed in accordance with our litigation support and production standards.

Veritext Legal Solutions is committed to maintaining the confidentiality of client and witness information, in accordance with the regulations promulgated under the Health Insurance Portability and Accountability Act (HIPAA), as amended with respect to protected health information and the Gramm-Leach-Bliley Act, as amended, with respect to Personally Identifiable Information (PII). Physical transcripts and exhibits are managed under strict facility and personnel access controls. Electronic files of documents are stored in encrypted form and are transmitted in an encrypted

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