UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE PATENT TRIAL AND APPEAL BOARD

SAMSUNG BIOEPIS CO LTD,	)	
	)	
Petitioner,	)	
	)	Case No.
vs.	)	IPR2023-00933
	)	Patent: 9,732,149
ALEXION PHARMACEUTICALS, INC.,	)	B2
	)	
	)	
Patent Owner.	)	
_____	)	

VIDEO-RECORDED DEPOSITION OF

JEFFREY V. RAVETCH, M.D., Ph.D.

New York, New York

Tuesday, July 16, 2024

Reported Stenographically By:
PATRICIA A. BIDONDE
Registered Professional Reporter
Realtime Certified Reporter
JOB NO.: 9373

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IPR2023-00999
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2
3 July 16, 2024
9:18 a.m.
4
5
6 Video-Recorded Deposition of
7 JEFFREY V. RAVETCH held at the offices
8 of Cooley LLP, 55 Hudson Yards, New
9 York, New York, before Patricia A.
10 Bidonde, Stenographer, Registered
11 Professional Reporter, Realtime
12 Certified Reporter, Certified eDepoze
13 Court Reporter, Notary Public of the
14 States of New York, New Jersey, and
15 Connecticut.
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4 Attorneys for Petitioner

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19 BY: CHRISTINE HLAVKA, ESQ.

20 (Via Videoconference)

21

22

23

24

25

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1 A P P E A R A N C E S (CONTINUED)
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12 ALSO PRESENT:
13 CHRISTIAN BIDONDE, Legal Video Specialist
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1 - - -

2 P R O C E E D I N G S

3 - - -

4 THE VIDEOGRAPHER: We are now on

5 the record. The time is 9:18 a.m. on

6 July 16, 2024. Audio and video

7 recording will continue to take place

8 until all parties agree to go off the

9 record. Please note that microphones

10 are sensitive and may pick up whispering

11 and conversations.

12 This is the video-recorded

13 deposition of Dr. Jeffrey Ravetch in the

14 matter of Samsung Bioepis Co., LTD.,

15 versus Alexion Pharmaceuticals, Inc.

16 This deposition is being held at Cooley

17 LLP, New York, New York.

18 My name is Christian Bidonde. I

19 am the legal video specialist. The

20 certified stenographer is Patricia

21 Bidonde on behalf of TransPerfect Legal

22 Solutions.

23 Counsel will state their

24 appearances for the record and all those

25 appearing remotely will be noted for the

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1 record. Then the certified stenographer
2 will swear in the witness.
3 MR. COCHRAN: Andrew Cochran of
4 Cahill Gordon for Alexion. I have with
5 me today my colleague, Andrew Solomon,
6 and I believe on the phone today is
7 Christine Hlavka from Alexion
8 Pharmaceuticals.
9 MS. RHYU: Michelle Rhyu from
10 Cooley LLP on behalf of Samsung Bioepis
11 and the witness.
12 J E F F R E Y V. R A V E T C H, called as a
13 witness, having been duly sworn by a
14 Notary Public, was examined and
15 testified as follows:
16 EXAMINATION BY
17 MR. COCHRAN: 08:56
18 Q. Good morning, Dr. Ravetch. 08:56
19 A. Good morning, Counselor. 09:20
20 Q. How are you? 09:20
21 A. Fine, thank you. 09:20
22 Q. Are you the same Dr. Jeffrey 09:20
23 Ravetch whose deposition I took in these same 09:21
24 cases on February 23, 2024? 09:21
25 A. Yes, I am. 09:21

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1 Q. Okay. So you have been deposed 09:21
2 before. Correct? 09:21
3 A. Yes, I have. 09:21
4 Q. In fact, you have been deposed 09:21
5 many times before. Correct? Not necessarily 09:21
6 in this -- these cases? 09:21
7 A. In other cases over the course of 09:21
8 the years I've been involved in these types of 09:21
9 matters. 09:21
10 Q. So it's fair for me to say that 09:21
11 you are very familiar with how these 09:21
12 depositions are conducted. Right? 09:21
13 A. I hope so. 09:21
14 Q. Do you have anything with you 09:21
15 today? 09:21
16 A. I do not. 09:21
17 MS. RHYU: Let the record reflect 09:21
18 that the witness just held up a 09:21
19 magnifying glass. 09:21
20 MR. COCHRAN: Excellent. 09:21
21 Mark as exhibit Ravetch-2 Exhibit 09:21
22 1 the reply declaration of Jeffrey V. 09:22
23 Ravetch, MD, Ph.D. in the case 09:22
24 IPR2023-00998 regarding US Patent 09:22
25 Number 9,718,880. 09:22

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1 (Ravetch-2 Exhibit 1, Reply 09:22
2 Declaration of Jeffrey V. Ravetch in 09:22
3 case IPR2023-00998, marked for 09:22
4 identification, as of this date.) 09:22
5 BY MR. COCHRAN: 09:22
6 Q. So Dr. Ravetch, you understand 09:22
7 that you are here today to discuss the five 09:22
8 inter partes review trials Samsung Bioepis 09:23
9 filed against five of Alexion's patents 09:23
10 covering the drug Soliris. Right? 09:23
11 A. That's correct. 09:23
12 Q. And you understand that you are 09:23
13 testifying here today because you submitted 09:23
14 five reply declarations to support Samsung 09:23
15 Bioepis' replies in those IPR proceedings. 09:23
16 Right? 09:23
17 A. That's correct. 09:23
18 Q. And is the Exhibit 1 placed in 09:23
19 front of you today one of those reply 09:23
20 declarations? 09:23
21 A. Yes, it is. 09:23
22 Q. And it's your signature on the 09:23
23 signature page. Correct, sir? 09:23
24 A. Yes, it is. 09:23
25 Q. Who drafted your declarations? 09:23

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1 A. I did. 09:23
2 Q. Is everything in your 09:23
3 declarations true and correct? 09:23
4 A. To the best of my knowledge 09:23
5 that's correct. 09:23
6 Q. So sitting here today, is there 09:23
7 anything you would like to change or correct 09:23
8 in your five reply declarations? 09:24
9 A. Nothing I'm aware of. 09:24
10 MR. COCHRAN: So that we can get 09:24
11 this out of the way, I will be marking 09:24
12 the other four of your reply 09:24
13 declarations in the other four IPR 09:24
14 proceedings as Exhibit 2. I will be 09:24
15 marking your reply declaration in the 09:24
16 IPR2023-00933 regarding US Patent Number 09:24
17 9,732,149. 09:24
18 (Ravetch-2 Exhibit 2, Reply 09:24
19 Declaration of Jeffrey V. Ravetch in 09:24
20 case IPR2023-00933, marked for 09:24
21 identification, as of this date.) 09:25
22 MR. COCHRAN: As Exhibit 3 I will 09:25
23 be marking your reply declaration in 09:25
24 IPR2023-01069 regarding US Patent Number 09:25
25 10,590,189. 09:25

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1 (Ravetch-2 Exhibit 3, Reply 09:25
2 Declaration of Jeffrey V. Ravetch in 09:25
3 case IPR2023-01069, marked for 09:25
4 identification, as of this date.) 09:25
5 MR. COCHRAN: As Exhibit 4 I'll 09:25
6 be marking your reply declaration in 09:26
7 IPR2023-00999 regarding US Patent Number 09:26
8 9,725,504. 09:26
9 (Ravetch-2 Exhibit 4, Reply 09:26
10 Declaration of Jeffrey V. Ravetch in 09:26
11 case IPR2023-00999, marked for 09:26
12 identification, as of this date.) 09:26
13 MR. COCHRAN: And as Exhibit 09:26
14 Number 5 I will be marking your reply 09:27
15 declaration in IPR2023-01070 regarding 09:27
16 US Patent Number 10,703,809. 09:27
17 (Ravetch-2 Exhibit 5, Reply 09:27
18 Declaration of Jeffrey V. Ravetch in 09:27
19 case IPR2023-01070, marked for 09:27
20 identification, as of this date.) 09:27
21 BY MR. COCHRAN: 09:27
22 Q. All right. Dr. Ravetch, you 09:27
23 should now have five reply declarations in 09:27
24 front of you, Exhibits 1 through 5. Is that 09:27
25 correct? 09:27

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1 A. That's correct. 09:27
2 Q. And can you please confirm for me 09:27
3 that these are all five of the reply 09:27
4 declarations that you submitted in each of the 09:27
5 five IPR Samsung filed against Alexion's 09:27
6 patents? 09:28
7 A. (Document review.) 09:28
8 They appear to be. 09:28
9 Q. And your signature appears on the 09:28
10 signature page of each of them? 09:28
11 A. It does. 09:28
12 Q. Thank you, sir. I will be 09:28
13 focusing today on the reply declaration for 09:28
14 the '880 patent, Exhibit 1. If there is 09:28
15 anything in any of your other reply 09:28
16 declarations that is pertinent to the 09:28
17 discussion that we are having today, would you 09:28
18 please point it out to me? 09:28
19 A. I will. 09:28
20 MR. COCHRAN: All right. One 09:29
21 more thing. So I will mark as Exhibit 6 09:29
22 the video recorded deposition transcript 09:29
23 of Jeffrey V. Ravetch, M.D., Ph.D. dated 09:29
24 February 23, 2024, in the matter of 09:29
25 Samsung Bioepis versus Alexion 09:29

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1 Pharmaceuticals Inc. 09:29
2 (Ravetch-2 Exhibit 6, deposition 09:29
3 transcript of Jeffrey V. Ravetch dated 09:29
4 February 23, 2024, marked for 09:29
5 identification, as of this date.) 09:29
6 BY MR. COCHRAN: 09:30
7 Q. Dr. Ravetch, have you seen this 09:30
8 deposition transcript before? 09:30
9 A. Yes, I have. 09:30
10 Q. And is this the transcript of 09:30
11 your deposition that took place on Friday, 09:30
12 February 23, 2024? 09:30
13 A. It appears to be. 09:30
14 Q. Have you read this transcript 09:30
15 before today? 09:30
16 A. Yes, I have. 09:30
17 Q. And other than minor 09:30
18 typographical errors or grammatical errors, 09:30
19 sitting here today, is there anything in your 09:30
20 testimony from February 23 that you would like 09:30
21 to change? 09:30
22 A. Not that I'm aware of. 09:30
23 Q. Generally speaking, sitting here 09:30
24 today, you stand by all of the testimony you 09:30
25 provided on February 23. Is that right? 09:31

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1 A. Yes. 09:31
2 MS. RHYU: Object as to form. 09:31
3 A. If there's a particular issue 09:31
4 that you'd like to draw to my attention, I'll 09:31
5 be happy to review it. But sitting here now, 09:31
6 I don't have any reason to doubt the 09:31
7 statements in this declaration. 09:31
8 Q. Thank you. 09:31
9 MR. COCHRAN: I'm marking as 09:32
10 Exhibit 7 a publication titled 09:32
11 "Eculizumab Alexion," author Mariana 09:32
12 Kaplan, marked as Samsung Bioepis 09:32
13 Exhibit Number 1023. 09:32
14 (Ravetch-2 Exhibit 7, Eculizumab 09:32
15 Alexion by Mariana Kaplan, Samsung 09:32
16 Bioepis Exhibit 1023, marked for 09:32
17 identification, as of this date.) 09:33
18 Q. Dr. Ravetch, have you seen this 09:33
19 document before? 09:33
20 A. Yes, I have. 09:33
21 Q. What is it? 09:33
22 A. It is a copy of a publication 09:33
23 from "Current Opinion in Investigational 09:33
24 Drugs" from 2002 by Mariana Kaplan discussing 09:33
25 Eculizumab. 09:33

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1 Q. So there's some highlighting on 09:34
2 Exhibit 7. Do you see that? 09:34
3 A. Yes, I do. 09:34
4 Q. The title is highlighted. Right? 09:34
5 A. Yes, it is. 09:34
6 Q. And it says "Eculizumab Alexion." 09:34
7 Right? 09:34
8 A. Correct. 09:34
9 Q. And then there's synonyms in the 09:34
10 squared off box on the left-hand side. Do you 09:34
11 see that? 09:34
12 A. Yes, I see the term "synonyms" in 09:34
13 these -- at the column, yes. 09:34
14 Q. What are the synonymous listed 09:34
15 there? 09:34
16 A. Dr. Kaplan lists "5G1.1, h5G1.1, 09:34
17 C5 complement inhibitor (Alexion), 09:35
18 h5G1.1-scFv." 09:35
19 Q. And in the first paragraph of 09:35
20 Dr. Kaplan's publication it states: 09:35
21 "Eculizumab (5G1.1), a humanized 09:35
22 monoclonal antibody that prevents 09:35
23 cleavage of human complement component 09:35
24 C5." 09:35
25 Correct? 09:35

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1 A. That's what's written. 09:35
2 Q. And it mentions that this 09:35
3 eculizumab (5G1.1) is under development by 09:35
4 Alexion. Is that correct? 09:35
5 A. That's correct. 09:35
6 Q. Can you go down to page 1018? 09:36
7 It's the second page of the publication. 09:36
8 A. Yes. 09:36
9 Q. Do you see the highlighting in 09:36
10 the right-hand column? 09:36
11 A. I do. 09:36
12 Q. This states: 09:36
13 "Humanized 5G1.1 Fab and scFv 09:36
14 molecules were produced by grafting the 09:36
15 complementary determining regions of 09:36
16 5G1.1 on to human framework regions." 09:36
17 And then it provides the Citation 09:36
18 258884. 09:36
19 Do you see that? 09:36
20 A. I do. 09:36
21 Q. What is the citation to 258884? 09:36
22 A. On page 0 -- 1022, Dr. Kaplan 09:36
23 lists: 09:37
24 "258884 inhibition of complement 09:37
25 activity by humanized anti-C5 antibody 09:37

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1 and single-chain Fv." 09:37
2 First author is Thomas. And that's in the 09:37
3 Molecular Immunology journal 1996. 09:37
4 Q. And do you recognize that 09:37
5 citation? 09:37
6 A. Yes, I do. 09:37
7 Q. And that's the Thomas article 09:37
8 that we've discussed before. Correct? 09:37
9 A. Yes, it is. 09:37
10 MR. COCHRAN: So I'm marking as 09:39
11 Exhibit 8 Petitioner's Reply in Support 09:39
12 of Petition in IPR2023-00998 regarding 09:39
13 US Patent Number 9,718,880. 09:39
14 (Ravetch-2 Exhibit 8, 09:39
15 Petitioner's Reply Brief in case 09:39
16 IPR2023-00998 regarding US Patent 09:39
17 Number 9,718,880, marked for 09:39
18 identification, as of this date.) 09:40
19 Q. Dr. Ravetch, do you recognize 09:40
20 Exhibit 8? 09:40
21 A. Yes, I do. 09:40
22 Q. What is it? 09:40
23 A. It is the reply brief submitted 09:40
24 by Samsung Bioepis in the matter of the IPR 09:40
25 regarding the '880 patent. 09:40

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1 Q. Did you review this reply before 09:40
2 signing your declaration in this case? 09:40
3 A. I reviewed -- yes, I believe I 09:40
4 did. 09:41
5 Q. So Dr. Ravetch, referring to your 09:41
6 reply declarations, can you tell me what is 09:42
7 different -- what is different in your reply 09:42
8 declarations that you did not say in your 09:42
9 original declarations submitted with Samsung's 09:42
10 petition? 09:42
11 MS. RHYU: Object as to form. 09:42
12 A. Yes, we would need to go through 09:42
13 specific points in the declaration. I have 09:42
14 not memorized both my initial declaration and 09:42
15 the reply declaration to answer your question 09:42
16 in the general sense that you're asking it. 09:42
17 Q. Do you recall anything that 09:42
18 you're opining on in your reply declarations 09:42
19 that is different than what you were opining 09:42
20 on in your original declarations? 09:42
21 A. Again, I would need to look at 09:42
22 specific issues that you're referring to. All 09:42
23 my opinions have been consistent throughout 09:42
24 this case. 09:42
25 Q. Is there something in your reply 09:43

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1 declarations that you could not have included 09:43
2 in your original declarations submitted with 09:43
3 Samsung's petition? 09:43
4 MS. RHYU: Object as to form. 09:43
5 A. Once again, I request that you 09:43
6 direct me to a specific citation in my 09:43
7 declarations that you feel we need to discuss. 09:43
8 But as a general statement, documents that 09:43
9 were not available prior to my reply 09:43
10 declaration could not be addressed. 09:43
11 So for example, Dr. Casadevall's 09:43
12 reply declaration was not available to me when 09:43
13 I submitted my initial declaration, as an 09:43
14 example. Therefore, I couldn't comment on it. 09:43
15 And I commented on it in my reply declaration. 09:43
16 There might be other such examples. 09:43
17 Q. Why was Dr. Casadevall's 09:43
18 declaration not available to you when you were 09:43
19 drafting your original declaration? 09:44
20 MS. RHYU: Object as to form. 09:44
21 A. It's my understanding that his 09:44
22 reply declaration was submitted in response to 09:44
23 my initial declaration. So of course, it 09:44
24 couldn't have been available to me when I 09:44
25 drafted my initial declaration. 09:44

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1 Q. All right. But you were aware of 09:44
2 the Amgen IPRs when you submitted your 09:44
3 original declaration. Correct? 09:44
4 A. Yes, and I reviewed 09:44
5 Dr. Casadevall's. It's my understanding that 09:44
6 he submitted an additional declaration 09:44
7 specifically in response to my declarations in 09:44
8 this case. 09:44
9 Q. So it's correct that you were 09:44
10 aware of the Amgen IPRs when you drafted your 09:44
11 original declaration for these IPRs. Correct? 09:44
12 A. That's correct. 09:44
13 Q. And it's correct that you were 09:44
14 aware of Dr. Casadevall's expert declarations 09:44
15 submitted in the Amgen IPRs when you were 09:44
16 drafting your original declaration in these 09:44
17 IPRs. Correct? 09:44
18 A. That is correct. 09:44
19 Q. But it's also your testimony that 09:44
20 Dr. Casadevall's declaration was not available 09:45
21 to you prior to you drafting your original 09:45
22 declaration. Is that right? 09:45
23 A. I didn't say that. I said that 09:45
24 Dr. -- the most recently submitted 09:45
25 supplemental declaration, or whatever you want 09:45

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1 to call it, was not available until after he 09:45
2 reviewed my declaration. So that declaration 09:45
3 was not part of my analysis until my reply 09:45
4 declaration. I believe I refer to that in my 09:45
5 declaration. 09:45
6 (Document review.) 09:45
7 So for example, in the Exhibit 2, 09:46
8 page 16, paragraph 7, I say: 09:47
9 "Alexion's expert, 09:47
10 Dr. Casadevall, submitted a short 09:47
11 declaration created for this matter, and 09:47
12 also submitted the declaration he 09:47
13 created for a prior Amgen IPR that 09:47
14 pertained to the '149 patent in this 09:47
15 case." 09:47
16 So I'm referring to the short 09:47
17 declaration created for this matter which was 09:47
18 not available when I drafted my initial 09:47
19 declaration. 09:47
20 Q. Understood. Referring to 09:47
21 Dr. Casadevall's declaration he submitted in 09:47
22 the Amgen IPRs, though, you were aware of that 09:47
23 when you were drafting your original 09:47
24 declaration. Correct? 09:47
25 A. Yes, I was. 09:47

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1 Q. And you could have chosen to 09:47
2 respond to Dr. Casadevall's arguments that he 09:47
3 submitted in that original declaration in your 09:47
4 original declaration. Right? 09:47
5 MS. RHYU: Object as to form. 09:47
6 A. Well, we'd have to review my 09:47
7 original declaration to see in which instances 09:47
8 I referred to Dr. Casadevall. But I had 09:48
9 reviewed his declaration. In many cases, he 09:48
10 was responding to issues that were raised by 09:48
11 another expert in another matter. There were 09:48
12 different patents that were being discussed in 09:48
13 the Amgen IPR. Some overlapping, some 09:48
14 different patents, for example. 09:48
15 There's one example, the '189 09:48
16 patent was not available until after the Amgen 09:48
17 IPR. So comments I make about the '189 patent 09:48
18 could not have been part of Dr Casadevall's 09:48
19 declarations in the Amgen IPR. 09:48
20 But I reviewed all of his 09:48
21 opinions, and I considered them in drafting my 09:48
22 initial declaration and, of course, in my 09:48
23 reply declaration, and emphasized the issues 09:48
24 that I thought were incorrect or not relevant 09:48
25 to my analysis. 09:48

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1 Q. So, Dr. Ravetch, is it your 09:49
2 testimony today that you did respond to 09:49
3 Dr. Casadevall's opinions he submitted in his 09:49
4 declaration in the Amgen IPRs in your initial 09:49
5 IPR -- declarations in these cases? 09:49
6 MS. RHYU: Object as to form. 09:49
7 A. Once again, I'd have to review my 09:49
8 initial declaration, and you would have to 09:49
9 point me to a specific issue that is relevant 09:50
10 to that. There's a lot of material that I 09:50
11 covered in that declaration. 09:50
12 So, you know, as I said, I have 09:50
13 considered his opinions, and I do not agree 09:50
14 with Dr. Casadevall as it relates to the 09:50
15 matters that I put forward in my declarations. 09:50
16 Q. Why did you consider 09:50
17 Dr. Casadevall's opinions he submitted in the 09:51
18 Amgen IPRs when drafting your initial 09:51
19 declarations in these cases? 09:51
20 A. Excuse me? 09:51
21 Q. Why did you consider 09:51
22 Dr. Casadevall's opinions that you -- that he 09:51
23 submitted in the Amgen IPRs when drafting your 09:51
24 initial declarations in these cases? 09:51
25 MS. RHYU: Object. 09:51

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1 A. Why did I consider them? 09:51
2 Q. Mm-hmm. 09:51
3 A. It was part of the materials that 09:51
4 I reviewed including the IPR proceedings from 09:51
5 the Amgen matter, the documents that were 09:51
6 relevant to the various patent applications, 09:51
7 and supporting documentation to understand the 09:51
8 landscape of the matters that I was asked to 09:51
9 offer opinions on. 09:51
10 Q. Why was Dr. Casadevall's opinions 09:51
11 relevant to these cases? 09:51
12 MS. RHYU: Objection, calls for a 09:51
13 legal conclusion. 09:51
14 A. I didn't say they were 09:51
15 necessarily relevant. I said they were part 09:52
16 of the background materials that I reviewed. 09:52
17 There were issues that were raised in the 09:52
18 Amgen IPR which on face might have been 09:52
19 pertinent, and I wanted to make sure I'd 09:52
20 covered all possible avenues to draw my own 09:52
21 conclusions. 09:52
22 Q. And you wanted to cover all 09:52
23 possible avenues in your initial declaration. 09:52
24 Right? 09:52
25 A. And in my reply declaration, yes. 09:52

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1 In the composite declarations that I 09:52
2 presented, I wanted cover all the issues that 09:52
3 I thought were pertinent. And the reply 09:52
4 declaration specifically addresses matters 09:52
5 that were brought up by the patent owner in 09:52
6 response to my declarations, for example, and 09:52
7 I wanted to respond to those. 09:52
8 Q. Let's go to Exhibit 1. This is 09:53
9 your reply declaration for the '880 patent. 09:53
10 Page 19, please. 09:53
11 In paragraph 9, the middle of the 09:54
12 paragraph, see the sentence starting with 09:54
13 "Each of these experts"? 09:54
14 A. I see that sentence. 09:54
15 Q. "Each of these experts" -- strike 09:54
16 that. 09:54
17 The sentence states: 09:54
18 "Each of these experts then 09:54
19 states that they disagree with the 09:54
20 opinions I expressed in my initial 09:54
21 declaration, although neither expert 09:54
22 says what the basis for this 09:54
23 disagreement is, or otherwise provides 09:54
24 any substantive response to the opinions 09:54
25 I expressed." 09:54

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1 Do you see that? 09:54
2 A. I do. 09:54
3 Q. But then you decide to respond to 09:54
4 their opinions. Right? 09:54
5 A. I do. 09:54
6 Q. Why do you decide to respond to 09:54
7 their opinions if they're not substantive? 09:54
8 A. For -- I don't want to appear to 09:54
9 be glib, and I wanted to offer yet another 09:54
10 opportunity to review the opinions and 09:54
11 demonstrate how the opinions are not correct. 09:54
12 Q. But you were aware of those 09:55
13 opinions before drafting your initial 09:55
14 declaration. Right? 09:55
15 A. Yes, I was. 09:55
16 Q. Dr. Ravetch, is Dr. Casadevall a 09:55
17 simpleton? 09:55
18 A. No, he is not. 09:55
19 Q. Is he a well-respected scientist? 09:55
20 A. Yes, he is. 09:55
21 Q. And it's correct that you know 09:55
22 him personally. Right? 09:55
23 A. I do. 09:55
24 Q. Do you know him as an intelligent 09:55
25 person? 09:55

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1 A. Yes, I do. 09:55
2 Q. Do you think his opinions that he 09:55
3 has expressed in his declarations are those of 09:55
4 a simpleton? 09:55
5 A. I believe they are incorrect. I 09:55
6 didn't -- would not call them that of a 09:55
7 simpleton. 09:55
8 Q. Do you believe that -- 09:55
9 A. Sorry, go on. 09:55
10 Q. Do you believe that the opinions 09:55
11 that Dr. Casadevall expressed in his 09:55
12 declaration characterized the POSA as less 09:55
13 intelligent? 09:55
14 MS. RHYU: Objection, form. 09:56
15 A. I believe that Dr. Casadevall 09:56
16 made assumptions as to what a POSA would or 09:56
17 would not understand, and I disagree with his 09:56
18 analysis of what a POSA would or would not 09:56
19 understand. 09:56
20 The POSA definition that I've 09:56
21 offered, and is consistent with what the 09:56
22 patent owner has offered, represents the POSA 09:56
23 as an individual or a collection of 09:56
24 individuals with particularly high level of 09:56
25 expertise in this matter, including from the 09:56

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1 patent owners perspective, individuals who are 09:56
2 skilled in antibody engineering for 09:56
3 therapeutic purposes. 09:56
4 That's a level of sophistication 09:56
5 that is quite high. I don't believe 09:56
6 Dr. Casadevall appreciated that level of 09:56
7 sophistication in his analysis. 09:56
8 Q. So is it your testimony that 09:57
9 Dr. Casadevall didn't pay close enough 09:57
10 attention to the definition of a POSA? 09:57
11 MS. RHYU: Objection. 09:57
12 A. I'm not offering an opinion as to 09:57
13 how he formed the basis of his opinions. He's 09:57
14 not offered -- as I say in this declaration, 09:57
15 he's not offering any substantive basis for 09:57
16 his disagreements with my opinions. 09:57
17 I'm simply stating that as I 09:57
18 analyzed the prior art from the point of view 09:57
19 of the POSA that's been defined by the 09:57
20 parties, it would appear to me that 09:57
21 Dr. Casadevall's approach is not correct. 09:57
22 Q. And according to you, 09:57
23 Dr. Casadevall's opinions don't rise to the 09:57
24 level of sophistication of a POSA. Is that 09:57
25 right? 09:58

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1 MS. RHYU: Objection to form. 09:58
2 MR. COCHRAN: Let me repeat that, 09:58
3 actually. 09:58
4 Q. And in your opinion, 09:58
5 Dr. Casadevall's opinions don't rise to the 09:58
6 level of sophistication of the POSA defined in 09:58
7 these cases. Is that right? 09:58
8 A. I don't believe Dr. Casadevall 09:58
9 had analyzed the prior art in light of the 09:58
10 definition of a POSA in this matter with the 09:58
11 high level of expertise that is required by a 09:58
12 POSA in this matter. 09:58
13 Q. Did Dr. Casadevall have that 09:58
14 level of high expertise around 2007? 09:58
15 A. I can't recall. I'm sorry. I 09:58
16 don't have a clear recollection of 09:58
17 Dr. Casadevall's activities in that area in 09:58
18 2007. 09:58
19 MR. COCHRAN: Marking as 10:00
20 Exhibit 9 a publication titled "The 10:00
21 Complement Inhibitor Eculizumab in 10:00
22 Paroxysmal Nocturnal Hemoglobinuria," 10:00
23 first author Peter Hillmen. And this is 10:00
24 also marked with Samsung Bioepis Exhibit 10:00
25 Number 1014. 10:00

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1 (Ravetch-2 Exhibit 9, The 10:00
2 Complement Inhibitor Eculizumab in 10:00
3 Paroxysmal Nocturnal Hemoglobinuria by 10:00
4 Peter Hillmen, marked for 10:00
5 identification, as of this date.) 10:01
6 MS. RHYU: Counsel, I just want 10:01
7 to note as you're introducing these 10:01
8 exhibits as being Samsung exhibits, have 10:01
9 you added the highlighting to the 10:01
10 exhibits, or are these the exhibits as 10:01
11 they were submitted to the -- 10:01
12 MR. COCHRAN: I've added the 10:01
13 highlighting. 10:01
14 MS. RHYU: Okay. And is the same 10:01
15 true of Exhibit 7, the highlights in 10:01
16 Exhibit 7 were not in the original 10:01
17 Samsung Exhibit 1023? 10:01
18 MR. COCHRAN: That's correct. 10:01
19 MS. RHYU: Okay. Thank you. 10:01
20 BY MR. COCHRAN: 10:01
21 Q. Dr. Ravetch, what's the title of 10:01
22 Exhibit 9? 10:01
23 A. The Complement Inhibitor 10:01
24 Eculizumab in Paroxysmal Nocturnal 10:01
25 Hemoglobinuria. 10:02

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1 Q. When was Exhibit 9 published? 10:02
2 A. September 21, 2006. 10:02
3 Q. You can go to page 2 of this 10:02
4 document. And do you see the highlighting in 10:02
5 the left-hand column? 10:02
6 A. I do. 10:02
7 Q. This says: 10:02
8 "Eculizumab (Soliris, Alexion 10:02
9 Pharmaceuticals) is a humanized 10:02
10 monoclonal antibody directed against the 10:02
11 terminal complement protein C5." 10:02
12 Do you see that? 10:02
13 A. I do. 10:02
14 Q. And do you see the cite says 10:02
15 Citation 13? 10:02
16 A. I do. 10:02
17 Q. Let's go down to the list of 10:02
18 citations. And Citation Number 13 is the 10:03
19 Thomas reference we've mentioned earlier. Is 10:03
20 that correct? 10:03
21 A. That's correct. 10:03
22 MR. COCHRAN: I'm marking as 10:04
23 Exhibit 10 a publication from the New 10:04
24 England Journal of Medicine titled 10:04
25 "Effect of Eculizumab on Hemolysis and 10:04

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1 Transfusion Requirements in Patients 10:04
2 with Paroxysmal Nocturnal 10:04
3 Hemoglobinuria," first author Peter 10:04
4 Hillmen. It's also marked with Samsung 10:04
5 Bioepis Exhibit Number 1011. 10:04
6 (Ravetch-2 Exhibit 10, Effect of 10:04
7 Eculizumab on Hemolysis and Transfusion 10:04
8 Requirements in Patients with Paroxysmal 10:04
9 Nocturnal Hemoglobinuria by Peter 10:04
10 Hillmen, marked for identification, as 10:04
11 of this date.) 10:05
12 MS. RHYU: And for the record, 10:05
13 the highlights in this document are 10:05
14 highlights that you've added and not in 10:05
15 the original Exhibit 1011? 10:05
16 MR. COCHRAN: Correct. 10:05
17 MS. RHYU: Thank you. 10:05
18 Q. Do you recognize this document, 10:05
19 Dr. Ravetch? 10:05
20 A. Yes, I do. 10:05
21 Q. When was this publication 10:05
22 published? 10:05
23 A. February 5, 2004. 10:05
24 Q. Let's go down to page 3 of 10:05
25 Exhibit 10. The title has the word 10:05

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1 "eculizumab" in it. Right? 10:05
2 A. Yes, it does. 10:05
3 Q. And on the left-hand side of page 10:05
4 3, Alexion Pharmaceuticals is mentioned about 10:05
5 halfway down in the acknowledgements. 10:05
6 Correct? 10:05
7 A. I'm sorry, what page are we on 10:05
8 now? 10:06
9 Q. We're still on page 3. 10:06
10 A. Oh, page 3. I'm sorry, yes. 10:06
11 Q. And there's a block quote, block 10:06
12 text on the left-hand side? 10:06
13 A. Yes. 10:06
14 Q. And then it's just a bunch of 10:06
15 companies and universities? 10:06
16 A. Right. We don't refer to that as 10:06
17 the acknowledgement section. That's the 10:06
18 author identification. 10:06
19 Q. Understood. Thanks for the 10:06
20 correction. 10:06
21 And is Alexion Pharmaceuticals 10:06
22 mentioned there? 10:06
23 A. Yes, it is. 10:06
24 Q. Let's go down to page 4 of this 10:06
25 document. 10:06

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1 A. Yes. 10:06
2 Q. Do you see the highlighting on 10:06
3 the left-hand column? 10:06
4 A. Yes. 10:06
5 Q. This highlighting states: 10:06
6 "Eculizumab is a recombinant 10:06
7 humanized monoclonal antibody that was 10:06
8 designed to block the activation of 10:06
9 terminal complement components." 10:06
10 Do you see that? 10:07
11 A. I do. 10:07
12 Q. And then two cites, numbers 14 10:07
13 and 15. Correct? 10:07
14 A. Correct. 10:07
15 Q. Let's go down to the citations. 10:07
16 Number 14 is a publication to Riechmann in 10:07
17 1988. Correct? 10:07
18 A. That's correct. 10:07
19 Q. And Number 15 is the Thomas we've 10:07
20 discussed before. Correct? 10:07
21 A. That's correct. 10:07
22 Q. Can you go back to Exhibit 7, 10:07
23 sir? This is the Kaplan reference. 10:07
24 A. Yes. 10:07
25 Q. When was this publication 10:07

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1 published? 10:07
2 A. 2002. I'm looking for the actual 10:07
3 date. 10:08
4 (Document review.) 10:08
5 All I can find is the year, not 10:08
6 the date, 2002. 10:08
7 Q. That's fine. 10:09
8 MR. COCHRAN: We might have been 10:09
9 going for just under an hour. You guys 10:09
10 want to take a ten-minute break? 10:09
11 THE WITNESS: Sure. 10:09
12 THE VIDEOGRAPHER: The time now 10:09
13 is 10:08 a.m. This concludes Media 1. 10:09
14 Off the record. 10:09
15 (Recess taken from 10:08 a.m. to 10:25
16 10:24 a.m.) 10:25
17 THE VIDEOGRAPHER: The time is 10:25
18 10:24 a.m. This begins Media 2. On the 10:25
19 record. 10:25
20 BY MR. COCHRAN: 10:25
21 Q. Dr. Ravetch, when drafting your 10:25
22 declarations in this case, you were looking 10:25
23 for obvious paths to the sequences claimed in 10:25
24 the patents. Right? 10:25
25 MS. RHYU: Objection. 10:25

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1 A. In my declarations, I have both 10:25
2 analyses for anticipation of claims as well as 10:25
3 obviousness arguments for claim elements. 10:25
4 Q. And in looking through the prior 10:26
5 art, you were looking for obvious paths 10:26
6 towards the sequences claimed in the patents. 10:26
7 Right? 10:26
8 MS. RHYU: Objection, form. 10:26
9 A. No, I wouldn't characterize it 10:26
10 that way. I started from the perspective of a 10:26
11 POSA with knowledge of the prior art and 10:26
12 looked for documents in the public domain that 10:26
13 would inform a POSA to address the particular 10:26
14 question related to a patent claim. 10:26
15 Q. Well, you called it an obvious 10:26
16 path in your declaration. Right? 10:26
17 A. Well, after completing the 10:26
18 analysis, it was -- there are several paths a 10:26
19 POSA can take. Right? And -- to arrive at 10:26
20 the elements of the claim, in particular, 10:26
21 let's say claim -- Patent '149, Claim 1, for 10:27
22 example, there is a variety of paths one could 10:27
23 take, and I lay out some of them. And I 10:27
24 believe to a POSA, those paths would be very 10:27
25 straightforward. 10:27

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1 Q. In analyzing the prior art in 10:27
2 this case, what time frame did you use? 10:27
3 A. So it depends upon the particular 10:27
4 patent, but in general, it was the filing date 10:27
5 of the particular priority date for a 10:27
6 particular patent. So for, I believe, the 10:27
7 '149 patent, it would be March of 2007. I'd 10:27
8 need to see the patent itself to confirm the 10:27
9 actual filing date, but that's about my 10:27
10 recollection. So in that time frame. 10:27
11 So it was always the 10:27
12 documentation in the public domain prior to 10:27
13 the filing of the patent. 10:27
14 Q. Okay. So your analysis was 10:27
15 conducted as a POSA sitting in March of 2007 10:28
16 looking at the prior art that was available? 10:28
17 A. Prior to the -- prior to the 10:28
18 filing of the patent in 2007, yes. So, yes, 10:28
19 so it's from that perspective. 10:28
20 Q. And from that perspective of a 10:28
21 POSA in 2007, looking at the prior art that 10:28
22 was available, you were able to find obvious 10:28
23 paths to the claim to sequences? 10:28
24 A. I was able to identify the 10:28
25 elements after the fact. So I follow the 10:28

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1 prior art. And from the prior art, if the 10:28
2 question was what is the sequence of the 10:28
3 eculizumab antibody, heavy chain and light 10:28
4 chain, I analyzed the prior art, came up with 10:28
5 a sequence, and then as part of my analysis in 10:28
6 the obviousness consideration, I then compared 10:28
7 the sequence that I had derived to the claim 10:28
8 sequence and determined if there were any 10:29
9 differences between what I had derived from my 10:29
10 obviousness analysis and the claim sequence 10:29
11 and I present that. Right? 10:29
12 So the analysis is done in the 10:29
13 absence of any knowledge of what's in the 10:29
14 claim material. 10:29
15 Q. So as you were going through the 10:29
16 prior art, you developed what you thought 10:29
17 would be the sequence of eculizumab, and then 10:29
18 you checked that against the patent to see if 10:29
19 you were correct? 10:29
20 A. Not to see if I was correct. 10:29
21 That's part of the -- I was given the legal 10:29
22 standards for obviousness analysis, and that 10:29
23 was one of the legal standards that I was told 10:29
24 to apply that -- were there any differences 10:29
25 between the sequence that I had derived based 10:29

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1 on the prior art, and the sequence elements 10:30
2 that are presented in the patent. And that's 10:30
3 why I performed that comparison. 10:30
4 MR. COCHRAN: So I will mark as 10:31
5 Exhibit 11 a publication titled 10:31
6 "Sustained Response and Long-Term Safety 10:31
7 of Eculizumab and Paroxysmal Nocturnal 10:31
8 Hemoglobinuria," first author Anita 10:31
9 Hill. And this is marked with Samsung 10:31
10 Bioepis Exhibit Number 1013. 10:31
11 (Ravetch-2 Exhibit 11, Sustained 10:31
12 Response and Long-Term Safety of
13 Eculizumab and Paroxysmal Nocturnal
14 Hemoglobinuria by Anita Hill, Samsung
15 Bioepis Exhibit 1013, marked for
16 identification, as of this date.)
17 BY MR. COCHRAN: 10:32
18 Q. Dr. Ravetch, do you recognize 10:32
19 this publication? 10:32
20 A. Yes, I do. 10:32
21 Q. When was it published? 10:32
22 A. October 1, 2005. And the 10:32
23 title -- 10:32
24 MS. RHYU: Sorry. Let me again 10:32
25 note for the record that the highlights 10:32

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1 are highlights that you've added and 10:32
2 were not in the original Exhibit Number 10:32
3 1013? 10:32
4 MR. COCHRAN: Correct. 10:32
5 MS. RHYU: Thank you. 10:32
6 Q. The title of this document has 10:32
7 the word "eculizumab" in it. Right? 10:32
8 A. Yes, it does. 10:32
9 Q. And in that -- this is page 9 of 10:32
10 the document, publication page 2559. Are you 10:32
11 there? 10:33
12 A. Yes, I am. 10:33
13 Q. And do you see the highlighting 10:33
14 in the right-hand column? 10:33
15 A. I do. 10:33
16 Q. This highlighting says: 10:33
17 "Eculizumab is a humanized 10:33
18 monoclonal antibody that specifically 10:33
19 targets the complement protein C5 and 10:33
20 prevents its cleavage." 10:33
21 Right? 10:33
22 A. That's correct. 10:33
23 Q. And it cites to Citation 10:33
24 Number 9. Right? 10:33
25 A. That's what it says. 10:33

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1 Q. Citation Number 9 is Thomas. 10:33
2 Right? 10:33
3 A. That's correct. 10:33
4 MR. COCHRAN: I'll mark as 10:35
5 Exhibit 12 patent publication Number US 10:36
6 2005/0191298, first inventor Leonard 10:36
7 Bell. 10:36
8 (Ravetch-2 Exhibit 12, Patent 10:36
9 publication Number US 2005/0191298, 10:36
10 first inventor Leonard Bell, marked for 10:36
11 identification, as of this date.) 10:36
12 Q. Dr. Ravetch, do you recognize 10:36
13 this patent publication? 10:36
14 So I also mentioned that this 10:36
15 Exhibit Number 12 is marked with Samsung 10:37
16 Bioepis Exhibit Number 1007. The highlighting 10:37
17 in this document has been added by us. And so 10:37
18 for the record I'll repeat my question: 10:37
19 Dr. Ravetch, do you recognize 10:37
20 this patent publication? 10:37
21 A. Yes, I believe this is the same 10:37
22 as the issued Patent '245 by Doctors Bell and 10:37
23 Rother. 10:37
24 Q. Okay. When was this patent 10:37
25 publication published? 10:37

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1 A. It was filed February 3, 2005. 10:37
2 Publication date is September 1, 2005. 10:37
3 Q. Can you please go down to 10:37
4 paragraph 52? Do you see the highlighting at 10:38
5 the bottom of the left-hand column? 10:38
6 A. Yes, I do. 10:38
7 Q. So that sentence reads: 10:38
8 "Methods for the preparation of 10:38
9 h5G1.1-mAb, h5G1.1-scFv and other 10:38
10 functional fragments of h5G1.1 are 10:38
11 described in US Patent Number 6,355,245 10:38
12 and 'Inhibition of Complement Activity 10:38
13 By Humanized Anti-C5 Antibody and Single 10:38
14 Chain Fv,' (Thomas et al.), Molecular 10:39
15 Immunology, Volume 33, Number 17-18, 10:39
16 pages 1389-1401, 1996." 10:39
17 Do you see that? 10:39
18 A. Yes, I do. 10:39
19 Q. And the '245 patent is the Evans 10:39
20 patent. Correct? 10:39
21 A. Yes it is. 10:39
22 Q. And the Thomas reference is the 10:39
23 reference we've been discussing today. Right? 10:39
24 A. Yes, it is. 10:39
25 Q. And then the last sentence of 10:39

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1 paragraph 52 reads: 10:39
2 "The antibody h5G1.1-mAb is 10:39
3 currently undergoing clinical trials 10:39
4 under the trade-name eculizumab." 10:39
5 Right? 10:39
6 A. That's correct. That's what is 10:39
7 written. 10:39
8 May I make one correction? I 10:40
9 think I misspoke earlier in referring to the 10:40
10 issued patent of the '298 of Bell as the '245. 10:40
11 The '245 is the Evans patent as you pointed 10:40
12 out. The issued patent is a different patent 10:40
13 number. I'm sorry. 10:40
14 Q. Thank you for that. 10:40
15 MR. COCHRAN: So I'm marking as 10:41
16 Exhibit 13 a publication titled 10:41
17 "Effective Induction of Naive and Recall 10:42
18 T-Cell Responses By Targeting Antigen to 10:42
19 Human Dendritic Cells Via a Humanized 10:42
20 Anti-DC-SIGN Antibody," first author 10:42
21 Paul J. Tacken. 10:42
22 Exhibit 13 is also marked with 10:42
23 Samsung Bioepis Exhibit Number 1008. 10:42
24 The highlighting in this document has 10:42
25 been added by us. 10:42

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1 (Ravetch-2 Exhibit 13, Effective 10:42
2 Induction of Naive and Recall T-Cell
3 Responses By Targeting Antigen to Human
4 Dendritic Cells Via a Humanized
5 Anti-DC-SIGN Antibody, first author Paul
6 J. Tacken, Samsung Bioepis Exhibit 1008,
7 marked for identification, as of this
8 date.) 10:43
9 Q. Dr. Ravetch, do you recognize 10:43
10 this publication? 10:43
11 A. Yes, I do. 10:43
12 Q. When was it published? 10:43
13 A. August 15, 2005. 10:43
14 Q. Can you please go down to page 10:43
15 11? It's the publication page 1279. 10:43
16 A. Yes. 10:43
17 Q. Do you see the highlighting on 10:43
18 the bottom of the left-hand column? 10:43
19 A. I do. 10:43
20 Q. That sentence says: 10:43
21 "An isotype control antibody 10:43
22 h5G1.1-mAb (5G1.1 eculizumab: Alexion 10:43
23 Pharmaceuticals) containing the same 10:44
24 IgG2/IgG4 constant region is specific 10:44
25 for the human terminal compliment 10:44

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1 protein C-5." 10:44
2 Right? 10:44
3 A. Correct. 10:44
4 Q. And there's a citation to 19. 10:44
5 Correct? 10:44
6 A. That's correct. 10:44
7 Q. And Citation 19 is to Thomas. 10:44
8 Correct? 10:44
9 A. That's -- that's what written, 10:44
10 yes. 10:44
11 Q. If we go back to Exhibit 12, the 10:44
12 Bell publication? 10:44
13 A. Yes. 10:44
14 Q. Where does Bell cite to Tacken, 10:44
15 Exhibit 13? 10:44
16 A. (Document review.) 10:45
17 I don't believe there's a 10:45
18 reference in Bell to Tacken. 10:45
19 Q. Okay. And according to your 10:45
20 opinion, Tacken discloses the IgG2/G4 sequence 10:45
21 of eculizumab. Right? 10:45
22 A. Tacken doesn't disclose the 10:45
23 sequence. What Tacken discloses is the 10:45
24 constant region is a G2/G4 hybrid similar 10:45
25 to -- or identical to the constant region 10:45

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1 being used in the constructs that he's 10:45
2 describing for the humanized DC-SIGN molecule, 10:46
3 and I believe refers to Mueller for that 10:46
4 structure. 10:46
5 (Document review.) 10:46
6 Yes, he does refer to Mueller. 10:46
7 Q. Correct. Mueller uses an IgG2/G4 10:46
8 constant region as an isotype control 10:46
9 antibody. Right? 10:46
10 A. Well, we can look at Mueller 10:46
11 together, but Mueller is developing a heavy 10:46
12 chain constant region that will neither 10:46
13 activate complement, nor bind to Fc receptors, 10:46
14 which he then describes as being generally 10:46
15 useful for antibody therapeutics where you 10:46
16 want to minimize or eliminate any possible 10:46
17 activation of effector function, like 10:46
18 complement or Fc receptor engagement. 10:46
19 And he applies it to an antibody 10:46
20 again, so to a particular protein, VCAM. And 10:46
21 in the course of those studies, he uses 10:46
22 isotype control antibody which has the G2/G4. 10:47
23 He also discloses the sequence of the hybrid 10:47
24 G2/G4 initially in the publication, and then 10:47
25 the full sequence in the PCT. 10:47

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1 Q. Correct. And that's the same 10:47
2 isotype control antibody that's then mentioned 10:47
3 in Tacken. Right? 10:47
4 A. So Tacken specifically identifies 10:47
5 eculizumab as having a G2/G4. Mueller does 10:47
6 not use the phrase "eculizumab." Instead, he 10:47
7 uses a different nomenclature which refers 10:47
8 back to the Evans nomenclature and the Mueller 10:47
9 nomenclature. 10:47
10 Q. So in your interpretation of 10:47
11 Tacken, you just skip over the first part of 10:47
12 that sentence "an isotype control antibody"? 10:47
13 A. I don't skip over anything, 10:48
14 Counselor. It's exactly what it says here. 10:48
15 It's an isotype control antibody. My analysis 10:48
16 was -- my mission in my analysis was to 10:48
17 identify if the prior art disclosed the 10:48
18 sequence of eculizumab, and whether a POSA 10:48
19 with knowledge of the prior art could derive a 10:48
20 sequence that would be identical to 10:48
21 eculizumab. And that's what I analyze in my 10:48
22 reports. 10:48
23 How the antibody is being used in 10:48
24 various publications was not necessarily 10:48
25 relevant to my analysis. 10:48

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1 Q. Are you aware of any publications 10:48
2 published after the Tacken publication that 10:48
3 refers to eculizumab as having an IgG2/G4 10:48
4 constant region? 10:48
5 A. I'm aware of statements made by 10:48
6 the patent owner in prosecuting various 10:49
7 patents identifying eculizumab as having an 10:49
8 IgG2/G4 constant region. Right? As well as 10:49
9 statements that I refer to in my declarations 10:49
10 stating that it was known in the art by 2002 10:49
11 that eculizumab had G2/G4 constant region. So 10:49
12 in that sense, yes, there are statements in 10:49
13 the literature after 2007. 10:49
14 Q. And the statements in the patent 10:49
15 prosecution you just referred to, what year 10:49
16 were those statements made? 10:49
17 A. They were made later, I think in 10:49
18 2011 is my recollection. But they 10:49
19 specifically are admissions that the sequences 10:49
20 were known in 2002. 10:49
21 Q. So you're using a 2011 reference 10:49
22 to tie Tacken to the G2/G4 reference of 10:49
23 eculizumab? 10:49
24 A. No, that's not correct. You 10:50
25 asked me if I was aware of any references 10:50

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1 after 2007. And I gave you that example. I'm 10:50
2 not relying on the 2011 statement at all. I'm 10:50
3 simply pointing out that that admission was 10:50
4 made, that it was known by 2002 according to 10:50
5 the patent owner. 10:50
6 My analysis was done only using 10:50
7 literature publicly available before 2007. 10:50
8 Q. And you mentioned the other -- 10:50
9 the other -- the other mention you mentioned 10:50
10 was in 2002. Correct? 10:50
11 A. 2002 was the statement that was 10:50
12 made by the patent owner during the 10:50
13 prosecution. That's the patent owner 10:50
14 statement. Not my statement. 10:50
15 Q. Okay. Other than those two, what 10:50
16 else in the literature cites to Tacken as 10:50
17 saying that eculizumab has an IgG2/G4 constant 10:50
18 region? 10:51
19 A. Well, as I said, if you look 10:51
20 at -- I went through my analysis. If you look 10:51
21 at Mueller and look at the Mueller reliance on 10:51
22 the Evans variable domains, Mueller 10:51
23 demonstrates a variable domain that comes from 10:51
24 the 5G1.1 humanization family with the G2/G4 10:51
25 constant region. And that, when analyzed, 10:51

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1 demonstrates that it is a sequence that is 10:51
2 identical to eculizumab. 10:51
3 Q. Sure. Understood, but that 10:51
4 wasn't my question. Because Mueller was 10:51
5 published in 1997. Correct? 10:51
6 A. The PCT was published later. I'm 10:51
7 talking about the PCT. 10:51
8 Q. Was the PCT published after 10:51
9 Tacken? 10:51
10 A. No, it was not. 10:51
11 Q. Both the Mueller Scientific 10:51
12 publication and the Mueller PCT reference were 10:51
13 published before Tacken. Right? 10:51
14 A. That's correct. 10:51
15 Q. My question is what, after 10:51
16 Tacken, other than the two mentions that you 10:51
17 said, refers to eculizumab as having a IgG2/G4 10:51
18 constant region? 10:52
19 A. So I haven't carried out that 10:52
20 analysis that I can recall, because that was 10:52
21 not what my assignment was. I was asked to 10:52
22 review the prior art, and publications after 10:52
23 2007 would not be prior art. 10:52
24 I mention the prosecution history 10:52
25 only because they refer back to 2002 which 10:52

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1 would be in the prior to the 2007 publication. 10:52
2 But I did not search the 10:52
3 literature for references to eculizumab after 10:52
4 2007 for its structure. That wasn't relevant 10:52
5 to my analysis. 10:52
6 Q. Tacken was published in 2005. 10:52
7 Correct? 10:52
8 A. Tacken was published in August 10:52
9 of 2005. 10:52
10 Q. And the priority date of the 10:52
11 patents is in March of 2007. Correct? 10:52
12 A. That's correct. 10:52
13 Q. And did you do any searching 10:52
14 between 2005 and 2007 for references after 10:52
15 Tacken got referred to eculizumab as having a 10:52
16 IgG2/G4 constant region? 10:52
17 A. I didn't feel it was necessary. 10:52
18 I had the Tacken reference. One of the 10:53
19 authors of Tacken is an inventor on the 10:53
20 patents that we're discussing, an employee of 10:53
21 Alexion. 10:53
22 I consider that to be a 10:53
23 definitive description of eculizumab and 10:53
24 consistent with everything that I saw in the 10:53
25 prior art identifying the G2/G4 Fc, or 10:53

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1 constant region, combined with the humanized 10:53
2 5G1.1 sequences for eculizumab. 10:53
3 Q. So once you found what you were 10:53
4 looking for, you didn't see the need to go any 10:53
5 further? 10:53
6 A. I didn't say that. I said I 10:53
7 found that -- the Tacken reference, and it was 10:53
8 an explicit and clear statement that a POSA 10:53
9 would read and understand. And then using the 10:53
10 Tacken reference, looking at the other 10:53
11 references, the Evans, the Mueller, for 10:53
12 example, references, the statements by Bell 10:53
13 and Hill and Hillmen, all confirmed that the 10:53
14 eculizumab molecule that was being studied in 10:54
15 all those clinical studies was based on a 10:54
16 G2/G4 as Mueller had recommended, if you want 10:54
17 to eliminate any possible effector activation 10:54
18 for an antibody designed to inhibit the 10:54
19 complement activation pathway. 10:54
20 Q. And this analysis that you 10:54
21 conducted was all from the perspective of a 10:54
22 POSA in 2007 looking back at the prior art and 10:54
23 finding paths to the sequence claimed in the 10:54
24 patents. Right? 10:54
25 A. Analysis for the POSA with the 10:54

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1 question who was motivated to define 10:54
2 eculizumab based on the clinical results that 10:54
3 were described by Hill, Hillmen, and Bell, for 10:54
4 example, to identify the eculizumab sequence. 10:54
5 And once obtaining that sequence, I then 10:54
6 compared it to the elements of the claim 10:55
7 sequence and found that they were identical. 10:55
8 Q. The Bell publication, Exhibit 12, 10:55
9 that was published after Tacken. Right? 10:55
10 A. A month after Tacken is my 10:55
11 recollection, September of 2005. So 10:55
12 essentially, the same time as Tacken with 10:55
13 similar authors. 10:55
14 Q. Let's go to Exhibit 1, your reply 10:56
15 declaration. We'll go to page 22. 10:56
16 You provided a chart on page 22 10:56
17 of your reply declaration. Right? 10:56
18 A. That's correct. 10:56
19 Q. And it's the same chart that you 10:56
20 supplied in your initial declarations in these 10:57
21 cases. Right? 10:57
22 A. That's correct. 10:57
23 Q. And this is a -- going up to page 10:57
24 21, you explained this chart as being: 10:57
25 "A chart of the various

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1 disclosures describing the development
2 of the antibody originally called 5G1.1
3 into eculizumab from 1996 through the
4 March 2007 priority date of the patent."
5 Correct? 10:57
6 A. Correct. That's what I wrote. 10:57
7 Q. Okay. And the last reference 10:57
8 that you list prior to the March 2007 priority 10:57
9 date of the patent is the Bell publication, 10:57
10 Exhibit 12. Right? 10:57
11 A. Yes. 10:57
12 Q. Why didn't you cite Hill 10:57
13 Exhibit 11 and Hillmen Exhibit 9 in this 10:57
14 chart? 10:57
15 A. I believe in my opening 10:57
16 declaration I do describe -- I do cite to Hill 10:57
17 and Hillmen. This is a reply. And I'm 10:58
18 summarizing some of the material from my prior 10:58
19 declaration in order to have a complete 10:58
20 statement. 10:58
21 I didn't feel it was necessary. 10:58
22 It's redundant in terms of the motivation. 10:58
23 Hill, Hillmen, and Bell all provide motivation 10:58
24 for why a POSA would be interested in 10:58
25 determining the sequence of eculizumab. 10:58

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1 Q. So you didn't cite the Hillmen 10:58
2 2006 and Hill 2005 in this chart because it 10:58
3 was redundant? 10:58
4 A. Well, for the motivation to 10:58
5 derive a sequence for eculizumab. It's more 10:58
6 evidence that a POSA would be motivated to 10:58
7 want to obtain the sequence of eculizumab 10:58
8 because of its activity in the treatment of 10:58
9 PNH, and the activity that was described in 10:58
10 Bell, and, of course, in Hill and Hillmen as 10:58
11 well; and that Bell showed explicitly that the 10:58
12 5G1.1 is eculizumab. And as we read earlier, 10:58
13 it's become -- he states it's currently under 10:59
14 development by Alexion. 10:59
15 So it was a more complete 10:59
16 citation. 10:59
17 Q. I'm sorry, what was a more 10:59
18 complete citation? 10:59
19 A. Bell is a more complete citation. 10:59
20 Q. Let's go to Exhibit 11, Hill 10:59
21 2005. Does Hill 2005 cite to Tacken anywhere? 11:00
22 A. She does not. 11:01
23 Q. Let's go to Exhibit 9, Hillmen 11:01
24 2006. 11:01
25 A. I seem to have misplaced 2006. 11:02

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1 Oh, I'm sorry. Here it is. Yes, I have it 11:02
2 now, sorry. 11:02
3 Q. Does Hillmen 2006 cite to Tacken 11:02
4 anywhere? 11:02
5 A. He does not. 11:02
6 Q. If we could go to your reply 11:02
7 declaration, Exhibit 1, paragraph 12, which 11:04
8 expands the pages 20 and 21. I'm looking on 11:04
9 the page 20. Are you there? 11:04
10 A. Yes, I am. 11:04
11 Q. Paragraph 12 of your reply 11:04
12 declaration states: 11:04
13 "I disagree with any suggestion
14 that the clear disclosure of the Tacken
15 reference would have been ignored by a
16 POSA, or that a POSA would have
17 somehow downplayed that disclosure in
18 favor of other, older references." 11:05
19 Do you see that? 11:05
20 A. I do. 11:05
21 Q. What do you mean by "older 11:05
22 references"? 11:05
23 A. The Thomas reference in 11:05
24 particular. 11:05
25 Q. What about any newer references 11:05

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1 referring to Thomas? 11:05
2 A. No, Thomas is an older reference 11:05
3 than Tacken. You're asking for references 11:05
4 since Tacken? I don't understand the -- 11:05
5 Q. Right. It seems that this 11:05
6 sentence here is saying that it's your opinion 11:05
7 that the clear disclosure of Tacken reference 11:05
8 would not have been ignored by a POSA or that 11:05
9 a POSA would have somehow downplayed that 11:05
10 disclosure in favor of other older references. 11:05
11 You were saying that Tacken takes 11:05
12 precedent over older references. Right? 11:05
13 A. What I'm saying is that Tacken 11:05
14 would not have been ignored, because Tacken 11:05
15 explicitly defines eculizumab as having 11:06
16 IgG2/G4 constant region. References that 11:06
17 refer back to Thomas for eculizumab, as you 11:06
18 pointed out in several of these publications, 11:06
19 is using Thomas for the purpose of the 11:06
20 variable domain sequences. 11:06
21 It's not talking about eculizumab 11:06
22 and its constant domain. So it's my opinion 11:06
23 that a POSA would be very clear in being able 11:06
24 to distinguish between references that talk 11:06
25 about the specificity of the eculizumab 11:06

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1 antibody, and a reference that tells you that 11:06
2 the constant domain has been specifically 11:06
3 modified to eliminate effector activity. 11:06
4 Those are different domains of 11:06
5 the antibody molecule. A POSA, quite 11:06
6 sophisticated based on the definition of a 11:06
7 POSA, an antibody engineering for therapeutic 11:06
8 applications -- so we're talking about a level 11:06
9 of skill that's quite high -- understands how 11:06
10 these references are discussing various 11:07
11 citations. 11:07
12 And what I'm saying is that 11:07
13 Tacken would not be ignored, and that a 11:07
14 reference back to Thomas would be understood 11:07
15 clearly by a POSA as referring to the 11:07
16 specificity of the 5G1.1, and not the constant 11:07
17 domain of 5G1.1. That is provided by Tacken. 11:07
18 Q. Other than Tacken itself, is 11:07
19 there any other reference that you're aware of 11:07
20 that says eculizumab is an IgG2/G4 constant 11:07
21 region antibody? 11:07
22 A. I mean, Tacken says that. And 11:07
23 the patent owners later on admitted or 11:07
24 provided a clear admission that that was, in 11:07
25 fact, known about eculizumab back in 2002. 11:07

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1 So from the patent owners point 11:07
2 of view, that was common knowledge. And 11:07
3 Tacken reflects that common knowledge by 11:07
4 making the explicit statement. 11:08
5 Once again, as a POSA looking at 11:08
6 the literature prior to 2007, Tacken is 11:08
7 unambiguous and definitive, in my mind, and it 11:08
8 led me to a series of references that can 11:08
9 construct the sequence for eculizumab. 11:08
10 Q. And in your opinion, nothing 11:08
11 published after Tacken was relevant after you 11:08
12 found Tacken. Right? 11:08
13 A. I -- after Tacken, before the 11:08
14 publication date? 11:08
15 Q. Yes. 11:08
16 A. Between 2005 and 2007? 11:08
17 Q. Correct. 11:08
18 A. Hill and Hillmen are published 11:08
19 after that point. I think they're relevant 11:08
20 for motivation and I cite them for motivation. 11:08
21 Their references to eculizumab and citation to 11:08
22 Thomas is consistent with their citing to the 11:08
23 specificity of the antibody, because they're 11:08
24 talking about clinical trials, and they're 11:08
25 talking about how a clinical trial is 11:08

bc75d11c-b9bb-42ff-8e8f-f71ba0f9c588

1 providing evidence for the specificity of the 11:09
2 antibody in blocking the complement activity. 11:09
3 Specificity is a property of the 11:09
4 variable domain, not of the constant domain. 11:09
5 So they would have no reason to mention the 11:09
6 constant domain in their references. That's 11:09
7 not the purpose of their article. 11:09
8 Tacken, however, the purpose of 11:09
9 the Tacken article is specifically to talk 11:09
10 about developing reagents antibodies for 11:09
11 potential therapeutic use that block a 11:09
12 particular adhesion molecule. And the 11:09
13 constant domain has been modified according to 11:09
14 the teachings of Alexion going back to Mueller 11:09
15 1997. 11:09
16 MR. COCHRAN: I'm marking as 11:11
17 Exhibit 14 publication titled 11:11
18 "Inhibition of Complement Activity By 11:11
19 Humanized Anti-C5 Antibody and 11:11
20 Single-Chain Fv," first author, Thomas 11:11
21 C. Thomas. This is marked with Samsung 11:11
22 Bioepis Exhibit Number 1010, and for the 11:11
23 record the highlighting in this document 11:11
24 was added by us. 11:11
25 (Ravetch-2 Exhibit 14, Inhibition 11:11

bc75d11c-b9bb-42ff-8e8f-f71ba0f9c588

1 of Complement Activity By Humanized
2 Anti-C5 Antibody and Single-Chain Fv,
3 first author Thomas C. Thomas, Samsung
4 Bioepis Exhibit Number 1010, marked for
5 identification, as of this date.)
6 BY MR. COCHRAN: 11:12
7 Q. Dr. Ravetch, do you recognize 11:12
8 Exhibit 14? 11:12
9 A. Yes, I do. 11:12
10 Q. And is Exhibit 14 the Thomas 11:12
11 reference that we have been talking about 11:12
12 today? 11:12
13 A. Yes, it is. 11:12
14 Q. And the title of this document 11:12
15 references "a humanized anti-C5 antibody." 11:12
16 Right? 11:12
17 A. That's correct. 11:12
18 Q. And Alexion Pharmaceuticals is 11:12
19 listed under the authors? 11:12
20 A. That's correct. 11:12
21 Q. And in the abstract, do you see 11:12
22 the highlighting? 11:12
23 A. Yes, I do. 11:12
24 Q. And the first highlighted portion 11:12
25 of the abstract says "humanized 5G1.1 11:12

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1 antibody." 11:13
2 Correct? 11:13
3 A. Correct. 11:13
4 Q. And later in the abstract it 11:13
5 refers to "an intact humanized h5G1.1 11:13
6 antibody." Right? 11:13
7 A. I see those words, yes. 11:13
8 Q. In your reply declarations, you 11:13
9 mention that Thomas never says that the h5G1.1 11:13
10 antibody is eculizumab. Correct? 11:13
11 A. Thomas does not use the term 11:13
12 "eculizumab" in this publication. 11:13
13 Q. Right. Does Thomas ever say that 11:13
14 any of the sequences or -- strike that. 11:13
15 Does Thomas ever say that any of 11:13
16 the antibodies that Thomas discusses is not 11:13
17 eculizumab? 11:13
18 A. The word "eculizumab" is not 11:13
19 mentioned. 11:13
20 Q. So it's correct that Thomas never 11:13
21 strictly says that an antibody he discusses is 11:14
22 not eculizumab? 11:14
23 A. I mean, if the word is not there, 11:14
24 the word is not there, Counselor. You know, 11:14
25 you can take it for what it means, but it 11:14

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1 doesn't say it is or is not. It says it's 11:14
2 not. The term is not used. A POSA reading 11:14
3 this would not understand one way or the other 11:14
4 whether any of these sequences relate to 11:14
5 eculizumab without additional information. 11:14
6 Q. Dr. Ravetch, was the full 11:15
7 sequence of a naturally occurring IgG4 11:15
8 constant region known as of March of 2007? 11:16
9 A. A human IgG4 constant region, was 11:16
10 that sequence known by March of 2007? 11:16
11 Q. Correct. 11:16
12 A. I believe it was in the database 11:16
13 well before that time. 11:16
14 Q. If we can go to paragraph 16 of 11:16
15 your reply declaration, Exhibit 1. Down 11:16
16 towards the bottom of paragraph 16, do you see 11:17
17 the sentence that starts "There is not one 11:17
18 single location"? 11:17
19 A. Yes. 11:17
20 Q. That full sentence reads: 11:17
21 "There is not one single location
22 in the literature that states that
23 eculizumab is the IgG4 antibody
24 disclosed in Thomas, while there is a
25 clear statement in the literature that

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1 eculizumab is an IgG2/G4 antibody." 11:17
2 Right? 11:17
3 A. That's correct. 11:17
4 Q. And for support, you cite Tacken. 11:17
5 Right? 11:17
6 A. Correct. 11:17
7 Q. So it's your opinion that there 11:17
8 is nowhere in the literature that says that 11:17
9 eculizumab is the antibody disclosed in 11:17
10 Thomas? 11:17
11 A. No, that's not what I say. I say 11:17
12 there's nowhere in the literature a direct 11:17
13 association between eculizumab and a G4 11:17
14 antibody constant domain. That's what the 11:18
15 statement says, while there is a very clear 11:18
16 statement in the literature saying eculizumab 11:18
17 has a hybrid G2/G4 sequence. 11:18
18 Q. But we're not disputing that 11:18
19 Thomas discloses an intact IgG4 version of 11:18
20 h5G1.1. Right? 11:18
21 A. Thomas discloses a IgG4 version 11:18
22 of 5G1.1. That's correct. 11:18
23 Q. Okay. 11:18
24 A. Thomas does not refer to that as 11:18
25 eculizumab is what I'm saying in this 11:18

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1 statement. 11:18
2 Q. Okay. But according -- is there 11:18
3 any other place in the literature that says 11:18
4 eculizumab is an antibody that is disclosed in 11:18
5 Thomas? 11:18
6 A. Can you repeat the question? I 11:18
7 didn't catch it. 11:18
8 Q. Are you aware of any other place 11:18
9 in the literature that says that eculizumab is 11:19
10 an antibody disclosed in Thomas? 11:19
11 A. Well, as I said, Thomas discloses 11:19
12 the specificity of eculizumab, the variable 11:19
13 domains. So of course, if you're discussing 11:19
14 eculizumab as Hill and Hillmen, for example, 11:19
15 are, and others are discussing Bell, for 11:19
16 example, you would refer to the specificity of 11:19
17 your reagent, of your therapeutic antibody, as 11:19
18 having the ability to bind and prevent 11:19
19 cleavage of C5. 11:19
20 I'm addressing a different issue 11:19
21 which is not whether Thomas is relevant, but 11:19
22 whether Thomas G4 antibody is eculizumab. And 11:19
23 it is not. 11:19
24 Q. And your basis for that statement 11:19
25 is Tacken? 11:19

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1 A. Tacken is a clear statement. And 11:19
2 as I said, the patent owner has admitted that 11:19
3 as well and made it clear that that was the 11:19
4 common understanding by 2002. 11:20
5 Q. And are you relying on anything 11:20
6 else for that statement? 11:20
7 A. Identify eculizumab as a G2/G4 11:20
8 hybrid. I describe in my declarations the 11:20
9 obviousness route and the anticipatory route 11:20
10 that I've taken to derive the sequence of a 11:20
11 G2/G4 hybrid, but Tacken is the source of that 11:20
12 clear admission by Alexion and 11:20
13 authors/inventors on these patents. 11:20
14 MR. COCHRAN: How about another 11:21
15 break. 11:21
16 THE VIDEOGRAPHER: The time now 11:21
17 is 11:21 a.m. This concludes Media 2. 11:21
18 Off the record. 11:21
19 (Recess taken from 11:21 a.m. to 11:42
20 11:42 a.m.) 11:42
21 THE VIDEOGRAPHER: The time now 11:42
22 is 11:42 a.m. This begins Media 3. On 11:42
23 the record. 11:42
24 BY MR. COCHRAN: 11:42
25 Q. Dr. Ravetch, generally speaking, 11:42

bc75d11c-b9bb-42ff-8e8f-f71ba0f9c588

1 do you consider yourself an antibody 11:42
2 scientist? 11:43
3 A. I'm a molecular immunologist and 11:43
4 antibodies have been my area of interest for 11:43
5 the last 45 years. 11:43
6 Q. And in those 45 years, have you 11:43
7 ever sought out the sequence of an antibody 11:43
8 that you found in the literature? 11:43
9 A. Yes. 11:43
10 Q. And would your first step in that 11:43
11 endeavor be to look at a publication of a 11:43
12 different antibody? 11:43
13 A. If the -- if I'm seeking a 11:43
14 particular antibody by name, I search for that 11:43
15 antibody by name. And in my laboratory, we 11:43
16 use the patent literature extensively for 11:43
17 antibody sequences that we then generate in 11:43
18 the laboratory and modify and use in our 11:43
19 various studies including in clinical trials 11:44
20 at the present time. 11:44
21 So it's a common route that we 11:44
22 take if you have a antibody that's been named 11:44
23 through the naming convention or has a 11:44
24 particular idiosyncratic name, that's one of 11:44
25 the ways that we identify the antibody in 11:44

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1 order to study it. 11:44
2 Q. All right. So you would be 11:44
3 guided by the name and look for references 11:44
4 with the name in it? 11:44
5 A. It's one of the ways we do it. 11:44
6 You know, by the name, by the specificity. 11:44
7 Often we like to have multiple antibodies that 11:44
8 have overlapping specificities for a 11:44
9 particular target. 11:44
10 So we might, for example, look 11:44
11 for, you know, antibodies that bind to CD40, 11:44
12 which is one of our topics of interest in the 11:44
13 laboratory, we'd search for anti-CD40 11:44
14 antibodies. 11:44
15 We have specific antibodies in 11:44
16 mind, we'd search for those as well. We 11:44
17 assemble a collection of sequences, and then 11:44
18 proceed from there in our analysis. 11:45
19 Q. What do you mean by "assemble a 11:45
20 collection of sequences"? 11:45
21 A. Well, so for -- if you have -- if 11:45
22 the term is an anti-CD40 antibody, it doesn't 11:45
23 define what the epitope is on the antigen, 11:45
24 where the antibody is binding. So you have 11:45
25 different classes of antibodies that bind 11:45

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1 different regions with the CD40 molecule. 11:45
2 Some will activate the molecule, some will 11:45
3 inhibit the molecule. 11:45
4 So in a comprehensive analysis of 11:45
5 that particular target, CD40, which is what 11:45
6 we're interested in, we assemble different 11:45
7 antibodies from the literature. Sometimes we 11:45
8 generate our own, but often from the 11:45
9 literature, and then using those particular 11:45
10 sequences, deriving those sequences from the 11:45
11 literature, we then study the biological 11:45
12 properties in the laboratory. 11:45
13 Q. So these different antibodies 11:46
14 would have different CDRs, for example. 11:46
15 Right? 11:46
16 A. In most cases yes. If they have 11:46
17 different specificities, they would have 11:46
18 different CDRs. In some cases they have the 11:46
19 same specificity but different affinities, the 11:46
20 CDRs have been affinity matured. So you 11:46
21 change the CDRs to get a higher affinity. It 11:46
22 depends on the particular application that 11:46
23 you're looking for. 11:46
24 Sometimes you have overlapping 11:46
25 specificities, so they bind to similar areas 11:46

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1 on the antigen but not the same. There might 11:46
2 be a common core epitope and then additional 11:46
3 flanking sequences. And all of those are 11:46
4 useful in the overall analysis that we try to 11:46
5 carry out. 11:46
6 Q. Would all these antibodies have 11:46
7 the same constant region? 11:46
8 A. It depends. We often, I mean, my 11:46
9 laboratory is known for its study of constant 11:46
10 regions. And we often manipulate the constant 11:46
11 regions of antibodies to optimize or reduce 11:46
12 certain activities. So selective modification 11:47
13 of an Fc is, I would say, a large part of the 11:47
14 literature that we've generated in my 11:47
15 laboratory. 11:47
16 MR. COCHRAN: I have no further 11:47
17 questions. 11:47
18 MS. RHYU: No further questions. 11:47
19 THE WITNESS: Thank you. 11:47
20 THE VIDEOGRAPHER: The time now 11:47
21 is 11:47 a.m. This concludes Media 3 of 11:47
22 today's deposition. Off the record. 11:47
23 (Time noted: 11:47 a.m.) 11:47
24 - - -
25

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1

2 A C K N O W L E D G M E N T

3

4 STATE OF)

5 : ss

6 COUNTY OF)

7

8 I, JEFFREY V. RAVETCH, hereby

9 certify that I have read the transcript

10 of my testimony taken under oath in my

11 deposition of July 16, 2024; that the

12 transcript is a true, complete, and

13 correct record of my testimony, and that

14 the answers on the record as given by me

15 are true and correct.

16

17 _____

18 Jeffrey V. Ravetch

19

20 Signed and subscribed to

21 before me this _____

22 day of _____, 2024.

23 _____

24 Notary Public

25

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1

2 C E R T I F I C A T E

3 STATE OF NEW YORK)

4 : ss.

5 COUNTY OF NASSAU)

6

7 I, PATRICIA A. BIDONDE, a Notary

8 Public within and for the State of New

9 York, do hereby certify:

10 That JEFFREY V. RAVETCH, the

11 witness whose deposition is hereinbefore

12 set forth, was duly sworn by me, and

13 that such deposition is a true record of

14 the testimony given by the witness.

15 I further certify that I am not

16 related to any of the parties to this

17 action by blood or marriage, and that I

18 am in no way interested in the outcome

19 of this matter.

20 IN WITNESS WHEREOF, I have

21 hereunto set my hand this day,

22 July 17, 2024.

23 _____

PATRICIA A. BIDONDE

24 Stenographer

Registered Professional Reporter

25 Realtime Certified Reporter

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1 I N D E X

		Page	Line
2	Examinations		
	MR. COCHRAN	6	17
3			

E X H I B I T S

			Page	Line
4	Ravetch-2			
5	Exhibit 1	Reply Declaration of		
6		Jeffrey V. Ravetch in		
7		case IPR2023-00998,.....	8	1
8	Exhibit 2	Reply Declaration of		
9		Jeffrey V. Ravetch in		
10		case IPR2023-00933,.....	9	18
11	Exhibit 3	Reply Declaration of		
12		Jeffrey V. Ravetch in		
13		case IPR2023-01069,.....	10	1
14	Exhibit 4	Reply Declaration of		
15		Jeffrey V. Ravetch in		
16		case IPR2023-00999,.....	10	9
17	Exhibit 5	Reply Declaration of		
18		Jeffrey V. Ravetch in		
19		case IPR2023-01070,.....	10	17
20	Exhibit 6	deposition transcript of		
21		Jeffrey V. Ravetch dated		
22		February 23, 2024.....	12	2
23	Exhibit 7	Eculizumab Alexion by		
24		Mariana Kaplan, Samsung		
25		Bioepis Exhibit 1023.....	13	14

bc75d11c-b9bb-42ff-8e8f-f71ba0f9c588

1 I N D E X

2 Page Line

3 Exhibit 8 Petitioner's Reply Brief
4 in case IPR2023-00998
5 regarding US Patent
6 Number 9,718,880.....16 15
7 Exhibit 9 The Complement Inhibitor
8 Eculizumab in Paroxysmal
9 Nocturnal Hemoglobinuria
10 by Peter Hillmen.....29 1
11 Exhibit 10 Effect of Eculizumab on
12 Hemolysis and
13 Transfusion Requirements
14 in Patients with
15 Paroxysmal Nocturnal
16 Hemoglobinuria by Peter
17 Hillmen.....31 6
18 Exhibit 11 Sustained Response and
19 Long-Term Safety of
20 Eculizumab and
21 Paroxysmal Nocturnal
22 Hemoglobinuria by Anita
23 Hill, Samsung Bioepis
24 Exhibit 1013.....38 11

25

bc75d11c-b9bb-42ff-8e8f-f71ba0f9c588

1 I N D E X

2 Page Line

3 Exhibit 12 Patent publication
4 Number US 2005/0191298,
5 first inventor Leonard
6 Bell.....40 8
7 Exhibit 13 Effective Induction of
8 Naive and Recall T-Cell
9 Responses By Targeting
10 Antigen to Human
11 Dendritic Cells Via a
12 Humanized Anti-DC-SIGN
13 Antibody, first author
14 Paul J. Tacken, Samsung
15 Bioepis Exhibit 1008.....43 1
16 Exhibit 14 Inhibition of Complement
17 Activity By Humanized
18 Anti-C5 Antibody and
19 Single-Chain Fv, first
20 author Thomas C. Thomas,
21 Samsung Bioepis Exhibit
22 Number 1010.....59 25

23 - - -

24

25

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1 E R R A T A

2 INSTRUCTIONS TO WITNESS

3

4 Please read your deposition over

5 carefully and make any necessary corrections. You

6 should state the reason in the appropriate space

7 on the errata sheet for any corrections that are

8 made.

9 After doing so, please sign the errata

10 sheet and date it.

11 You are signing same subject to the

12 changes you have noted on the errata sheet, which

13 will be attached to your deposition.

14 It is imperative that you return the

15 original errata sheet to the deposing attorney

16 within thirty (30) days of receipt of the

17 deposition transcript by you. If you fail to do

18 so, the deposition transcript may be deemed to be

19 accurate and may be used in court.

20

21

22

23

24

25

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1 E R R A T A

2 ERRATA SHEET FOR THE TRANSCRIPT OF:

3 Case Name: Samsung Bioepis v Alexion

4 Dep Date: July 16, 2024

5 Deponent: Jeffrey V. Ravetch

	Pg.	Ln.	Now Reads	Should Read	Reason
7	___	____	_____	_____	_____
8	___	____	_____	_____	_____
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23	___	____	_____	_____	_____
24	___	____	_____	_____	_____
25	___	____	_____	_____	_____

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1 E R R A T A (Continued)

Pg.	Ln.	Now Reads	Should Read	Reason
___	____	_____	_____	_____
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___	____	_____	_____	_____
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_____

Jeffrey V. Ravetch

Signed and subscribed to before me

this ____ day of _____, 2024

_____

Notary Public

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A

a.m 2:3 5:5 34:13 34:15,16,18 65:17 65:19,20,22 69:21 69:23
ability 64:18
able 36:22,24 56:23
absence 37:13
abstract 60:21,25 61:4
accurate 75:19
acknowledgement 32:17
acknowledgements 32:5
acochran@cahill... 3:9
action 71:17
activate 45:13 68:2
activation 33:8 45:17 51:17,19
activities 28:17 69:12
activity 15:25 41:12 54:8,9 57:3 59:2,18 60:1 74:17
actual 34:2 36:9
added 29:9,12 31:14 39:1 40:17 42:25 59:24
additional 19:6 62:5 69:2
address 35:13
addressed 18:10
addresses 24:4
addressing 64:20
adhesion 59:12
admission 48:3 57:24 65:12
admissions 47:19
admitted 57:23 65:2
affinities 68:19
affinity 68:20,21
agree 5:8 22:13
al 41:14
Alexion 1:5 3:15 5:15 6:4,7 11:25 13:11,15 14:6,17 15:4 30:8 32:4,21 43:22 50:21 54:14 59:14 60:18 65:12 72:23 76:3
Alexion's 8:9 11:5 20:9
Alto 4:6
Amgen 19:2,10,15 20:13,22 21:13,16 21:19 22:4,18,23 23:5,18
analyses 35:2
analysis 20:3 21:25 26:18 27:7 35:18 36:14 37:5,10,12 37:22 46:15,16,25 48:6,20 49:20 50:5 51:20,25 67:18 68:4 69:4
analyze 46:21
analyzed 27:18 28:9 37:4 48:25
analyzing 36:1
Andrew 3:7,10 6:3 6:5
Anita 38:8,14 73:22
answer 17:15
answers 70:14
anti-C5 15:25 41:13 59:19 60:2 60:15 74:18
anti-CD40 67:13 67:22
Anti-DC-SIGN 42:20 43:5 74:12
antibodies 59:10 61:16 66:4 67:7 67:11,14,15,25 68:7,13 69:6,11
antibody 14:22 15:25 27:2 30:10 33:7 37:3 39:18 41:13 42:2,20 43:5,21 45:9,15 45:19,22 46:2,12 46:15,23 51:18 53:2 57:1,5,7,21 58:23 59:2,19 60:2,15 61:1,6,10 61:21 62:23 63:1 63:9,14 64:4,10 64:17,22 66:1,7 66:12,14,15,17,22 66:25 67:22,24 74:13,18
anticipation 35:2
anticipatory 65:9
antigen 42:18 43:3 67:23 69:1 74:10
APPEAL 1:1
appear 11:8 25:8 27:20
appearances 5:24
appearing 5:25
appears 11:9 12:13
application 68:22
applications 23:6 57:8
applies 45:19
apply 37:24
appreciated 27:6
approach 27:21
appropriate 75:6
area 28:17 66:4
areas 68:25
arguments 21:2 35:3
arrive 35:19
art 27:18 28:9 35:5 35:11 36:1,16,21 37:1,1,4,16 38:1 46:17,19 47:10 49:22,23 50:25 51:22
article 16:7 59:7,9
asked 23:8 47:25 49:21
asking 17:16 56:3
asolomon@cahill... 3:12
assemble 67:17,19 68:6
assignment 49:21
association 63:13
assumptions 26:16
attached 75:13
attention 13:4 27:10
attorney 75:15
Attorneys 3:4 4:4
Audio 5:6
August 43:13 50:8
author 13:11 16:2 28:23 31:3 32:18 38:8 42:20 43:5 59:20 60:3 74:13 74:20
authors 50:19 52:13 60:19
authors/inventors 65:13
available 18:9,12 18:18,24 19:20 20:1,18 21:16 36:16,22 48:7
avenues 23:20,23
aware 9:9 12:22 19:1,10,14 20:22 25:12 47:1,5,25 57:19 64:8

B

B 72:3
B2 1:5
back 33:22 44:11 46:8 49:25 51:22 56:17 57:14,25 59:14
background 23:16
based 37:25 51:15 52:2 57:6
basis 24:22 27:13 27:15 64:24
begins 34:18 65:22
behalf 5:21 6:10
believe 6:6 17:3 20:4 26:5,8,10,15 27:5 28:8 35:24 36:6 40:21 44:17 45:3 53:15 62:12
Bell 40:7,10,22 42:10 44:12,14,18 51:12 52:3,8 53:9 53:23 54:10,11,19 64:15 74:6
best 9:4
Bidonde 1:23 2:10 4:13 5:18,21 71:7 71:23
bind 45:13 64:18 67:11,25 68:25
binding 67:24
Bioepis 1:2 5:14 6:10 8:8 11:25 13:12,16 16:24 28:24 31:5 38:10 38:15 40:16 42:23 43:6 59:22 60:4 72:25 73:23 74:15 74:21 76:3
Bioepis' 8:15
biological 68:11
block 32:11,11 33:8 59:11
blocking 59:2
blood 71:17
BOARD 1:1
Boston 3:18
bottom 41:5 43:18 62:16
Boulevard 3:17
box 14:10
break 34:10 65:15
brief 16:15,23 73:3
brought 24:5
bunch 32:14

C

C 3:1 4:1 5:2 6:12 59:21 60:3 70:2 71:2,2 74:20
C-5 44:1
C5 14:17,24 30:11

39:19 64:19
Cahill 3:3 6:4
California 4:6
call 20:1 26:6
called 6:12 35:15 53:2
calls 23:12
carefully 75:5
carried 49:19
carry 69:5
Casadevall 20:10 21:8 22:14 25:16 26:11,15 27:6,9 28:8,13
Casadevall's 18:11 18:17 19:5,14,20 20:21 21:2,18 22:3,17,22 23:10 27:21,23 28:5,17
case 1:4 7:23 8:3 9:20 10:3,11,19 16:15 17:2,24 19:8 20:15 34:22 36:2 72:7,10,13 72:16,19 73:4 76:3
cases 6:24 7:6,7 21:9 22:5,19,24 23:11 28:7 52:21 68:16,18
catch 64:7
CD40 67:11 68:1,5
CDRs 68:14,18,20 68:21
Cells 42:19 43:4 74:11
certain 69:12
certified 1:24 2:12 2:12 5:20 6:1 71:25
certify 70:9 71:9,15
chain 37:3,4 41:14 45:12
change 9:7 12:21 68:21
changes 75:12
characterize 35:9
characterized 26:12
chart 52:16,19,24 52:25 53:14 54:2
checked 37:18
chosen 21:1
Christian 4:13 5:18
Christine 3:19 6:7
citation 15:17,21 16:5 18:6 30:15 30:18 39:23 40:1 44:4,7 54:16,18 54:19 58:21
citations 30:18 33:15 57:11
cite 30:14 44:14 53:12,16 54:1,21 55:3 58:20 63:4
cites 33:12 39:23 48:16
citing 58:22
claim 35:3,14,20,21 35:21 36:23 37:7 37:10,14 52:6
claimed 34:23 35:6 51:23
claims 35:2
classes 67:25
clear 28:16 51:8 55:14 56:7,23 57:24 62:25 63:15 65:1,3,12
clearly 57:15
cleavage 14:23 39:20 64:19
clinical 42:3 51:15 52:2 58:24,25 66:19
close 27:9
Cochran 3:7 6:3,3 6:17 7:20 8:5 9:10,22 10:5,13 10:21 11:20 12:6 13:9 16:10 28:2 28:19 29:12,18,20 30:22 31:16 34:8 34:20 38:4,17 39:4 40:4 42:15 59:16 60:6 65:14 65:24 69:16 72:2
colleague 6:5
collection 26:23 67:17,20
column 14:13 15:10 30:5 33:3 39:14 41:5 43:18
combined 51:1
comes 48:23
comment 18:14
commented 18:15
comments 21:17
common 58:2,3 65:4 66:21 69:2
companies 32:15
compared 37:6 52:6
comparison 38:3
complement 14:17 14:23 15:24 28:21 29:2,23 30:11 33:9 39:19 41:12 45:13,18 51:19 59:2,18 60:1 73:7 74:16
complementary 15:15
complete 53:19 54:15,18,19 70:12
completing 35:17
compliment 43:25
component 14:23
components 33:9
composite 24:1
comprehensive 68:4
concludes 34:13 65:17 69:21
conclusion 23:13
conclusions 23:21
conducted 7:12 36:15 51:21
confirm 11:2 36:8
confirmed 51:13
Connecticut 2:15
consider 22:16,21 23:1 50:22 66:1
consideration 37:6
considered 21:21 22:13
consistent 17:23 26:21 50:24 58:22
constant 43:24 44:24,25 45:8,12 47:4,8,11 48:17 48:25 49:18 50:16 51:1 56:16,22 57:2,16,20 59:4,6 59:13 62:8,9 63:14 69:7,9,10
construct 58:9
constructs 45:1
containing 43:23
continue 5:7
Continued 4:1 77:1
control 43:21 45:8 45:22 46:2,12,15
convention 66:23
conversations 5:11
Cooley 2:8 4:3 5:16 6:10
copy 13:22
core 69:2
correct 7:2,5 8:11 8:17,23 9:3,5,7 10:25 11:1 14:8 14:25 15:4,5 16:8 19:3,9,11,12,13 19:17,18 20:24 25:11,21 27:21 29:18 30:20,21 31:16 32:6 33:13 33:14,17,18,20,21 37:19,20 39:4,22 40:3 41:20 42:6 44:3,5,6,8 45:7 46:1 47:24 48:10 49:5,14 50:7,11 50:12 52:18,22 53:5,6 58:17 60:17,20 61:2,3 61:10,20 62:11 63:3,6,22 70:13 70:15
correction 32:20 42:8
corrections 75:5,7
Counsel 3:16 5:23 29:6
Counselor 6:19 46:14 61:24
COUNTY 70:6 71:5
course 7:7 18:23 21:22 45:21 54:10 64:13
court 2:13 75:19
cover 23:22 24:2
covered 22:11 23:20
covering 8:10
created 20:11,13,17
Current 13:23
currently 42:3 54:13

D

D 5:2 70:2 72:1 73:1 74:1
database 62:12
date 8:4 9:21 10:4 10:12,20 12:5 13:17 16:18 29:5 31:11 34:3,6 36:4 36:5,9 38:16 40:11 41:2 43:8 50:10 53:4,9 58:14 60:5 75:10 76:4
dated 11:23 12:3 72:21
day 70:22 71:21 77:22
days 75:16
DC-SIGN 45:2
decide 25:3,6
declaration 7:22 8:2 9:15,19,23 10:2,6,10,15,18

11:13 13:7 17:2 17:13,14,15 18:10 18:12,13,15,18,19 18:22,23,25 19:3 19:6,11,16,20,22 19:25 20:2,2,4,5 20:11,12,17,19,21 20:24 21:3,4,7,9 21:22,23 22:4,8 22:11 23:23,25 24:4,9,21 25:14 26:12 27:14 35:16 52:15,17 53:16,19 55:7,12 62:15 72:5,8,11,14,17
declarations 8:14 8:20,25 9:3,8,13 10:23 11:4,16 17:6,8,9,18,20 18:1,2,7 19:7,14 21:19 22:5,15,19 22:24 24:1,6 26:3 34:22 35:1 47:9 52:20 61:8 65:8
deemed 75:18
define 52:1 67:23
defined 27:19 28:6
defines 56:15
definition 26:20 27:10 28:10 57:6
definitive 50:23 58:7
demonstrate 25:11
demonstrates 48:23 49:1
Dendritic 42:19 43:4 74:11
Dep 76:4
depends 36:3 68:22 69:8
Deponent 76:5
deposed 7:1,4
deposing 75:15
deposition 1:13 2:6 5:13,16 6:23 11:22 12:2,8,11 69:22 70:11 71:11 71:13 72:20 75:4 75:13,17,18
depositions 7:12
derive 46:19 54:5 65:10
derived 37:7,9,25
deriving 68:10
describe 53:16 65:8
described 41:11 52:3 54:9
describes 45:14
describing 45:2 53:1
description 50:23
designed 33:8 51:18
determined 37:8
determining 15:15 53:25
developed 37:16
developing 45:11 59:10
development 15:3 53:1 54:14
differences 37:9,24
different 17:7,7,19 21:12,14 42:12 46:7 57:4 64:20 66:12 67:25 68:1 68:6,13,14,17,18 68:19
direct 18:6 63:12
directed 30:10
disagree 24:19 26:17 55:13
disagreement 24:23
disagreements 27:16
disclose 44:22
disclosed 46:17 62:24 63:9 64:4 64:10
discloses 44:20,23 45:23 63:19,21 64:11
disclosure 55:14,17 56:7,10
disclosures 53:1
discuss 8:7 18:7
discussed 16:8 21:12 33:20
discusses 61:16,21
discussing 13:24 41:23 50:20 57:10 64:13,15
discussion 11:17
disputing 63:18
distinguish 56:24
Doctors 40:22
document 11:7 13:19 20:6 30:4 31:13,18 32:25 34:4 39:6,10 40:17 42:24 44:16 45:5 59:23 60:14
documentation 23:7 36:12
documents 18:8 23:5 35:12
doing 75:9
domain 35:12 36:12 48:23 56:20 56:22 57:2,17 59:4,4,6,13 63:14
domains 48:22 57:4 64:13
doubt 13:6
downplayed 55:17 56:9
Dr 5:13 6:18,22 8:6 10:22 12:7 13:18 14:16,20 15:22 16:19 17:5 18:11 18:17 19:5,14,20 19:24 20:10,21 21:2,8,18 22:1,3 22:14,17,22 23:10 25:16,16 26:11,15 27:6,9,21,23 28:5 28:8,13,17 29:21 31:19 34:21 38:18 40:12,19 43:9 60:7 62:6 65:25
drafted 8:25 18:25 19:10 20:18
drafting 18:19 19:16,21 20:23 21:21 22:18,23 25:13 34:21
draw 13:4 23:20
drug 8:10
Drugs 13:24
duly 6:13 71:12

E

E 3:1,1 4:1,1 5:2,2 6:12,12,12 70:2,2 71:2,2 72:1,3 73:1 74:1 75:1 76:1 77:1
earlier 30:19 42:9 54:12
eculizumab 13:11 13:14,25 14:6,21 15:3 28:21 29:2 29:24 30:8,25 31:7 32:1 33:6 37:3,17 38:7,13 39:7,17 42:4 43:22 44:21 46:5 46:6,18,21 47:3,7 47:11,23 48:17 49:2,17 50:3,15 50:23 51:2,14 52:2,4 53:3,25 54:5,7,12 56:15 56:17,21,25 57:20 57:25 58:9,21 61:10,12,17,18,22 62:5,23 63:1,9,13 63:16,25 64:4,9 64:12,14,22 65:7 72:23 73:8,11,20
eDepoze 2:12
Effect 30:25 31:6 73:11
Effective 42:17 43:1 74:7
effector 45:17 51:17 57:3
elements 35:3,20 36:25 38:1 52:6
eliminate 45:16 51:17 57:3
emphasized 21:23
employee 50:20
endeavor 66:11
engagement 45:18
engineering 27:2 57:7
England 30:24
epitope 67:23 69:2
errata 75:7,9,12,15 76:2
errors 12:18,18
ESQ 3:7,10,19 4:7
essentially 52:12
et 41:14
Evans 41:19 42:11 46:8 48:22 51:11
evidence 54:6 59:1
exactly 46:14
EXAMINATION 6:16
Examinations 72:2
examined 6:14
example 18:11,14 20:7 21:14,15 24:6 35:22 48:1 51:12 52:4 64:14 64:16 67:10 68:14
examples 18:16
Excellent 7:20
Excuse 22:20
exhibit 7:21,21 8:1 8:18 9:14,18,22 10:1,5,9,13,17 11:14,21 12:2 13:10,13,14,16 14:2 16:11,14,20 20:7 24:8 28:20 28:24 29:1,15,16 29:17,22 30:1,23 31:5,6,15,25 33:22 38:5,10,11 38:15 39:2 40:5,8 40:15,16 42:16,22

42:23 43:1,6 44:11,15 52:8,14 53:10,13,13 54:20 54:23 55:7 59:17 59:22,25 60:4,8 60:10 62:15 72:5 72:8,11,14,17,20 72:23,25 73:3,7 73:11,18,24 74:3 74:7,15,16,21
exhibits 10:24 29:8 29:8,10,10
expands 55:8
expert 19:14 20:9 21:11 24:21
expertise 26:25 28:11,14
experts 24:13,15,18
explained 52:24
explicit 51:8 58:4
explicitly 54:11 56:15
expressed 24:20,25 26:3,11
extensively 66:16

F

F 6:12,12 71:2
Fab 15:13
face 23:18
fact 7:4 36:25 57:25
fail 75:17
fair 7:10
familiar 7:11
family 48:24
favor 55:18 56:10
Fc 45:13,18 50:25 69:13
February 6:24 11:24 12:4,12,20 12:25 31:23 41:1 72:22
feel 18:7 50:17 53:21
filed 8:9 11:5 41:1
filing 36:4,9,13,18
find 34:5 36:22
finding 51:23
fine 6:21 34:7
first 14:19 16:2 28:23 31:3 38:8 40:6,10 42:20 43:5 46:11 59:20 60:3,24 66:10 74:5,13,19
five 8:7,9,14 9:8 10:23 11:3,5
flanking 69:3
focusing 11:13
follow 36:25
follows 6:15
form 13:2 17:11 18:4,20 21:5 22:6 26:14 28:1 35:8
formed 27:13
forth 71:12
forward 22:15
found 51:3,7 52:7 58:12 66:8
four 9:12,13
fragments 41:10
frame 36:2,10
framework 15:16
Friday 12:11
front 8:19 10:24
full 45:25 62:6,20
function 45:17
functional 41:10
further 51:5 69:16 69:18 71:15
Fv 16:1 59:20 60:2 74:19
Fv,' 41:14

G

G 5:2 70:2
G2/G4 44:24 45:22 45:24 46:5 47:11 47:22 48:24 50:25 51:16 63:17 65:7 65:11
G4 63:13 64:22
general 17:16 18:8 36:4
generally 12:23 45:14 65:25
generate 66:17 68:8
generated 69:14
given 37:21 70:14 71:14
glass 7:19
glib 25:9
go 5:8 15:6 17:12 24:8 26:9 30:3,17 31:24 32:24 33:15 33:22 41:3 43:14 44:11 51:4 52:14 52:15 54:20,23 55:6 62:14
going 34:9 37:15 52:23 59:14
Good 6:18,19
Gordon 3:3 6:4
grafting 15:14
grammatical 12:18
guided 67:3
guys 34:9

H

H 6:12 72:3
h5G1.1 14:16 41:10 61:5,9 63:20
h5G1.1-mAb 41:9 42:2 43:22
h5G1.1-scFv 14:18 41:9
halfway 32:5
hand 71:21
Hanover 4:5
happy 13:5
heavy 37:3 45:11
held 2:7 5:16 7:18
Hemoglobinuria 28:22 29:3,25 31:3,9 38:8,14 73:9,16,22
Hemolysis 30:25 31:7 73:12
hereinbefore 71:11
hereunto 71:21
high 26:24 27:5 28:11,14 57:9
higher 68:21
highlighted 14:4 60:24
highlighting 14:1 15:9 29:9,13 30:4 33:2,5 39:13,16 40:16 41:4 42:24 43:17 59:23 60:22
highlights 29:15 31:13,14 38:25 39:1
Hill 38:9,14 51:13 52:3 53:12,16,23 54:2,10,20,21 58:18 64:14 73:23
Hillmen 28:23 29:4 31:4,10 51:13 52:3 53:13,17,23 54:1,10,23 55:3 58:18 64:14 73:10 73:17
history 49:24
Hlavka 3:19 6:7
hope 7:13
hour 34:9
Hudson 2:8
human 14:23 15:16 42:19 43:3,25 62:9 74:10
humanization 48:24
humanized 14:21 15:13,25 30:9 33:7 39:17 41:13 42:19 43:4 45:2 51:1 59:19 60:1 60:15,25 61:5 74:12,17
hybrid 44:24 45:23 63:17 65:8,11

I

identical 44:25 46:20 49:2 52:7
identification 8:4 9:21 10:4,12,20 12:5 13:17 16:18 29:5 31:10 32:18 38:16 40:11 43:7 60:5
identifies 46:4
identify 36:24 46:17 52:4 65:7 66:25
identifying 47:7 50:25
idiosyncratic 66:24
IgG2/G4 44:20 45:7 47:3,8 48:17 49:17 50:16 56:16 57:20 63:1
IgG2/IgG4 43:24
IgG4 62:7,9,23 63:19,21
ignored 55:15 56:8 56:14 57:13
immunologist 66:3
Immunology 16:3 41:15
imperative 75:14
In-house 3:16
included 18:1
including 23:4 26:25 66:19
incorrect 21:24 26:5
individual 26:23
individuals 26:24 27:1
Induction 42:17 43:2 74:7
inform 35:13
information 62:5
inhibit 51:18 68:3
inhibition 15:24 41:12 59:18,25 74:16
inhibitor 14:17 28:21 29:2,23 73:7
initial 17:14 18:13

18:23,25 20:18 21:22 22:4,8,18 22:24 23:23 24:20 25:13 52:20
initially 45:24
instances 21:7
INSTRUCTIONS 75:2
intact 61:5 63:19
intelligent 25:24 26:13
inter 8:8
interest 66:4 67:12
interested 53:24 68:6 71:18
interpretation 46:10
introducing 29:7
inventor 40:6,10 50:19 74:5
Investigational 13:23
involved 7:8
IPR 8:15 9:13 11:5 16:24 20:13 21:13 21:17,19 22:5 23:4,18
IPR2023-00933 1:4 9:16,20 72:10
IPR2023-00998 7:24 8:3 16:12,16 72:7 73:4
IPR2023-00999 10:7,11 72:16
IPR2023-01069 9:24 10:3 72:13
IPR2023-01070 10:15,19 72:19
IPRs 19:2,10,11,15 19:17 20:22 22:4 22:18,23
isotype 43:21 45:8 45:22 46:2,12,15
issue 13:3 22:9 64:20
issued 40:22 42:10 42:12
issues 17:22 21:10 21:23 23:17 24:2

J

J 3:7 6:12 42:21 43:6 74:14
Jeffrey 1:14 2:7 5:13 6:22 7:22 8:2 9:19 10:2,10 10:18 11:23 12:3 70:8,18 71:10 72:6,9,12,15,18 72:21 76:5 77:20
Jersey 2:14
JOB 1:25
journal 16:3 30:24
July 1:16 2:3 5:6 70:11 71:22 76:4

K

K 70:2
Kaplan 13:12,15 13:24 14:16 15:22 33:23 72:24
Kaplan's 14:20
know 22:12 25:21 25:24 61:24 67:6 67:11
knowledge 9:4 35:11 37:13 46:19 58:2,3
known 47:10,20 48:4 57:25 62:8 62:10 69:9

L

L 70:2
laboratory 66:15 66:18 67:13 68:12 69:9,15
landscape 23:8
large 69:13
lay 35:23
led 58:8
left-hand 14:10 30:5 32:3,12 33:3 41:5 43:18
legal 4:13 5:19,21 23:13 37:21,23
Leonard 40:6,10 74:5
let's 24:8 30:17 31:24 32:24 33:15 35:21 52:14 54:20 54:23
level 26:24 27:4,6 27:24 28:6,11,14 57:8
light 28:9 37:3
Line 72:1,4 73:1 74:1
list 30:17 53:8
listed 14:14 60:19
lists 14:16 15:23
literature 47:13 48:7,16 50:3 58:6 62:22,25 63:8,12 63:16 64:3,9 66:8 66:16 68:7,9,11 69:14
LLP 2:8 3:3 4:3 5:17 6:10
Ln 76:6 77:2
location 62:18,21
Long-Term 38:6 38:12 73:19
look 17:21 45:10 48:19,20,21 66:11 67:3,10
looked 35:12
looking 34:2,22 35:4,5 36:16,21 51:4,10,22 55:8 58:5 68:23
lot 22:10

M

M 70:2
M.D 1:14 11:23
magnifying 7:19
making 58:4
manipulate 69:10
March 36:7,15 50:11 53:4,8 62:8 62:10
Mariana 13:11,15 13:24 72:24
mark 7:21 11:21 38:4 40:4
marked 8:3 9:20 10:3,11,19 12:4 13:12,16 16:17 28:24 29:4 31:4 31:10 38:9,15 40:10,15 42:22 43:7 59:21 60:4
marking 9:11,15 9:23 10:6,14 13:9 16:10 28:19 30:22 42:15 59:16
marriage 71:17
Massachusetts 3:18
material 22:10 37:14 53:18
materials 23:3,16
matter 5:14 11:24 16:24 20:11,17 21:11 23:5 26:25 28:10,12 71:19
matters 7:9 22:15 23:8 24:4
matured 68:20
MD 7:23
mean 55:21 57:22 61:23 67:19 69:8
means 61:25
Media 34:13,18 65:17,22 69:21
Medicine 30:24
memorized 17:14
mention 48:9 49:24 59:5 61:9
mentioned 30:19 32:4,22 40:14 46:2 48:8,9 61:19
mentions 15:2 49:16
Methods 41:8
Michelle 4:7 6:9
microphones 5:9
middle 24:11
mind 58:7 67:16
minimize 45:16
minor 12:17
misplaced 54:25
mission 46:16
misspoke 42:9
Mm-hmm 23:2
modification 69:12
modified 57:3 59:13
modify 66:18
molecular 16:3 41:14 66:3
molecule 45:2 51:14 57:5 59:12 68:1,2,3
molecules 15:14
monoclonal 14:22 30:10 33:7 39:18
month 52:10
morning 6:18,19
motivated 52:1 54:6
motivation 53:22 53:23 54:4 58:20 58:20
mrhyu@cooley.c... 4:9
Mueller 45:3,6,7,10 45:11 46:5,8 48:21,21,22 49:4 49:11,12 51:11,16 59:14
multiple 67:7

N

N 3:1 4:1 5:2 70:2,2 72:1 73:1 74:1
Naive 42:17 43:2 74:8
name 5:18 66:14,15 66:24 67:3,4,6 76:3
named 66:22
naming 66:23
NASSAU 71:5

naturally 62:7
necessarily 7:5 23:15 46:24
necessary 50:17 53:21 75:5
need 17:12,21 18:7 36:8 51:4
neither 24:21 45:12
never 61:9,20
New 1:15,15 2:8,9 2:14,14 3:6,6 5:17 5:17 30:23 71:3,8
newer 55:25
Nocturnal 28:22 29:3,24 31:2,9 38:7,13 73:9,15 73:21
nomenclature 46:7 46:8,9
Notary 2:13 6:14 70:24 71:7 77:24
note 5:9 29:7 38:25
noted 5:25 69:23 75:12
number 7:25 9:16 9:24 10:7,14,16 13:13 16:13,17 28:25 30:18 31:5 33:16,19 38:10 39:2,24 40:1,5,9 40:15,16 41:11,15 42:13,23 59:22 60:4 73:6 74:4,22
numbers 33:12

O

O 5:2 70:2
oath 70:10
Object 13:2 17:11 18:4,20 21:5 22:6 22:25
Objection 23:12 26:14 27:11 28:1 34:25 35:8
obtain 54:7
obtaining 52:5
obvious 34:23 35:5 35:15 36:22
obviousness 35:3 37:6,10,22 65:9
occurring 62:7
October 38:22
offer 23:9 25:9
offered 26:21,22 27:14
offering 27:12,15
OFFICE 1:1
offices 2:7
Oh 32:10 55:1
Okay 7:1 29:14,19 36:14 40:24 44:19 48:15 53:7 63:23 64:2
Old 3:5
older 55:18,21 56:2 56:10,12
once 18:5 22:7 51:3 52:5 58:5
opening 53:15
opining 17:18,19
opinion 13:23 27:12 28:4 44:20 56:6,22 58:10 63:7
opinions 17:23 21:21 22:3,13,17 22:22 23:9,10 24:20,24 25:4,7 25:10,11,13 26:2 26:10 27:13,16,23 28:5
opportunity 25:10
optimize 69:11
order 53:19 67:1
original 17:9,20 18:2,19 19:3,11 19:16,21 20:23 21:3,4,7 29:16 31:15 39:2 75:15
originally 53:2
outcome 71:18
overall 69:4
overlapping 21:13 67:8 68:24
owner 1:7 4:4 24:5 26:22 47:6 48:5 48:12,13 65:2
owners 27:1 57:23 58:1

P

P 3:1,1 4:1,1 5:2
page 8:23 11:10 15:6,7,22 20:8 24:10 30:3 31:24 32:3,7,9,10,24 39:9,10 43:14,15 52:15,16,23 55:9 72:1,4 73:1 74:1
pages 41:16 55:8
Palo 4:6
paragraph 14:19 20:8 24:11,12 41:4 42:1 55:7,11 62:14,16
Paroxysmal 28:22 29:3,24 31:2,8 38:7,13 73:8,15 73:21
part 20:3 21:18 23:3,15 37:5,21 46:11 69:13
partes 8:8
particular 13:3 35:13,20 36:3,5,6 45:20 55:24 59:12 66:14,24 67:9 68:5,9,22
particularly 26:24
parties 5:8 27:20 71:16
patent 1:1,1,5,7 4:4 7:24 9:16,24 10:7 10:16 11:14 16:13 16:16,25 20:14 21:16,17 23:6 24:5,9 26:22 27:1 35:14,21 36:4,6,7 36:8,13,18 37:18 38:2 40:5,8,13,20 40:22,24 41:11,19 41:20 42:10,11,12 42:12 47:6,14 48:5,12,13 53:4,9 57:23 58:1 65:2 66:16 73:5 74:3
patents 8:9 11:6 21:12,14 34:24 35:6 47:7 50:11 50:20 51:24 65:13
path 35:16
paths 34:23 35:5,18 35:22,24 36:23 51:23
pathway 51:19
Patients 31:1,8 73:14
Patricia 1:23 2:9 5:20 71:7,23
Paul 42:21 43:5 74:14
pay 27:9
PCT 45:25 49:6,7,8 49:12
performed 38:3
person 25:25
personally 25:22
perspective 27:1 35:10 36:19,20 51:21
pertained 20:14
pertinent 11:16 23:19 24:3
Peter 28:23 29:4 31:3,9 73:10,16
petition 16:12 17:10 18:3
Petitioner 1:3 3:4
Petitioner's 16:11 16:15 73:3
Pg 76:6 77:2
Ph.D 1:14 7:23 11:23
Pharmaceuticals 1:5 3:15 5:15 6:8 12:1 30:9 32:4,21 43:23 60:18
phone 6:6
phrase 46:6
pick 5:10
place 5:7 12:11 64:3,8
placed 8:18
please 5:9 11:2,18 24:10 41:3 43:14 75:4,9
PNH 54:9
point 11:18 22:9 27:18 58:1,19
pointed 42:11 56:18
pointing 48:3
points 17:13
portion 60:24
POSA 26:12,16,18 26:20,22 27:10,19 27:24 28:6,10,12 35:11,13,19,24 36:15,21 46:18 51:8,22,25 53:24 54:6 55:16,16 56:8,9,23 57:5,7 57:15 58:5 62:2
possible 23:20,23 45:16 51:17
potential 59:11
precedent 56:12
preparation 41:8
present 4:12 37:11 66:20
presented 24:2 38:2
prevent 64:18
prevents 14:22 39:20
prior 18:9 19:21 20:13 27:18 28:9 35:4,11 36:1,12 36:16,17,17,21 37:1,1,4,16 38:1 46:17,19 49:22,23 50:1,25 51:22 53:8,18 58:6
priority 36:5 50:10 53:4,8

proceed 67:18
proceedings 8:15 9:14 23:4
produced 15:14
Professional 1:24 2:11 71:24
properties 68:12
property 59:3
prosecuting 47:6
prosecution 47:15 48:13 49:24
protein 30:11 39:19 44:1 45:20
provide 53:23
provided 12:25 52:16 57:17,24
provides 15:17 24:23
providing 59:1
public 2:13 6:14 35:12 36:12 70:24 71:8 77:24
publication 13:10 13:22 14:20 15:7 28:20 30:23 31:21 33:16,25 38:5,19 39:10 40:5,9,13 40:20,25 41:2 42:16 43:10,15 44:12 45:24 47:2 49:12 50:1 52:8 53:9 58:14 59:17 61:12 66:11 74:3
publications 46:24 47:1 49:22 56:18
publicly 48:7
published 30:1 31:22 34:1 38:21 40:25 43:12 47:2 49:5,6,8,13 50:6,8 52:9 58:11,18
purpose 56:19 59:7 59:8
purposes 27:3
put 22:15

Q

question 17:15 35:14 37:2 40:18 49:4,15 52:1 64:6
questions 69:17,18
quite 27:5 57:5,9
quote 32:11

R

R 3:1 4:1 5:2 6:12 6:12 71:2 75:1,1 76:1,1 77:1,1
raised 21:10 23:17
Ravetch 1:14 2:7 5:13 6:18,23 7:23 8:2,6 9:19 10:2,10 10:18,22 11:23 12:3,7 13:18 16:19 17:5 22:1 25:16 29:21 31:19 34:21 38:18 40:12 40:19 43:9 60:7 62:6 65:25 70:8 70:18 71:10 72:6 72:9,12,15,18,21 76:5 77:20
Ravetch-2 7:21 8:1 9:18 10:1,9,17 12:2 13:14 16:14 29:1 31:6 38:11 40:8 43:1 59:25 72:4
read 12:14 51:9 54:12 70:9 75:4 76:6 77:2
reading 62:2
reads 41:7 42:1 62:20 76:6 77:2
reagent 64:17
reagents 59:10
Realtime 1:24 2:11 71:25
reason 13:6 59:5 75:6 76:6 77:2
recall 17:17 28:15 42:17 43:2 49:20 74:8
receipt 75:16
receptor 45:18
receptors 45:13
Recess 34:15 65:19
recognize 16:4,19 31:18 38:18 40:12 40:19 43:9 60:7
recollection 28:16 36:10 47:18 52:11
recombinant 33:6
recommended 51:16
record 5:5,9,24 6:1 7:17 31:12 34:14 34:19 38:25 40:18 59:23 65:18,23 69:22 70:13,14 71:13
recorded 11:22
recording 5:7
reduce 69:11
redundant 53:22 54:3
refer 20:4 32:16 45:6 47:9 49:25 56:17 63:24 64:16
reference 30:19 33:23 41:22,23 44:18 47:21,22 49:12 50:18 51:7 51:10 53:7 55:15 55:23 56:2,7 57:1 57:14,19 60:11
references 47:25 50:3,14 51:11,12 55:18,22,25 56:3 56:10,12,16,24 57:10 58:8,21 59:6 60:15 67:3
referred 21:8 47:15 50:15
referring 17:5,22 20:16,20 42:9 56:1 57:15
refers 45:3 46:7 47:3 49:17 61:5
reflect 7:17
reflects 58:3
regarding 7:24 9:16,24 10:7,15 16:12,16,25 73:5
region 43:24 44:24 44:25 45:8,12 47:4,8,11 48:18 48:25 49:18 50:16 51:1 56:16 57:21 62:8,9 69:7
regions 15:15,16 68:1 69:10,11
Registered 1:24 2:10 71:24
REINDEL 3:3
relate 62:4
related 35:14 71:16
relates 22:14
relevant 21:24 22:9 23:6,11,15 46:25 50:4 58:11,19 64:21
reliance 48:21
relying 48:2 65:5
remotely 5:25
repeat 28:2 40:18 64:6
replies 8:15
reply 7:22 8:1,14 8:19 9:8,12,15,18 9:23 10:1,6,9,14 10:17,23 11:3,13 11:15 16:11,15,23 17:1,6,7,15,18,25 18:9,12,15,22 20:3 21:23 23:25 24:3,9 52:14,17 53:17 55:6,11 61:8 62:15 72:5,8 72:11,14,17 73:3
Reported 1:23
Reporter 1:24,24 2:11,12,13 71:24 71:25
reports 46:22
represents 26:22
request 18:5
required 28:11
Requirements 31:1 31:8 73:13
respond 21:2 22:2 24:7 25:3,6
responding 21:10
response 18:22 19:7 24:6,24 38:6 38:12 73:18
Responses 42:18 43:3 74:9
results 52:2
return 75:14
review 8:8 11:7 13:5 17:1 20:6 21:6 22:7 25:10 34:4 44:16 45:5 49:22
reviewed 17:3 19:4 20:2 21:9,20 23:4 23:16
Rhyu 4:7 6:9,9 7:17 13:2 17:11 18:4 18:20 21:5 22:6 22:25 23:12 26:14 27:11 28:1 29:6 29:14,19 31:12,17 34:25 35:8 38:24 39:5 69:18
Riechmann 33:16
right 7:12 8:10,16 10:22 11:20 12:25 14:4,7 19:1,22 21:4 23:24 25:4 25:14,22 27:25 28:7 32:1,16 34:24 35:7,16,19 37:11 39:7,21,24 40:2 41:23 42:5 44:2,21 45:9 46:3 47:8 49:13 51:24 52:9,17,21 53:10 56:5,12 58:12 60:16 61:6,13 63:2,5,20 67:2 68:15
right-hand 15:10 39:14

rise 27:23 28:5
Rother 40:23
route 65:9,9 66:21

S

S 3:1 4:1 5:2 72:3
Safety 38:6,12 73:19
Samsung 1:2 5:14 6:10 8:8,14 11:5 11:25 13:12,15 16:24 28:24 29:8 29:17 31:4 38:9 38:14 40:15 42:23 43:6 59:21 60:3 72:24 73:23 74:14 74:21 76:3
Samsung's 17:9 18:3
saw 50:24
saying 48:17 56:6 56:11,13 57:12 63:16,25
says 14:6 24:22 30:7,14 39:16,25 43:20 46:14 57:20 57:22 60:25 61:9 61:21 62:1 63:8 63:15 64:3,9
scFv 15:13
Scientific 49:11
scientist 25:19 66:2
Seaport 3:17
search 50:2 66:14 67:13,16
searching 50:13
second 15:7
section 32:17
see 14:2,11,12 15:9 15:19 21:7 24:12 24:14 25:1 30:4 30:12,14 33:2,10 36:8 37:18,20 39:13 41:4,17 43:17 51:4 55:19 60:21 61:7 62:16
seeking 66:13
seen 12:7 13:18
selective 69:12
sense 17:16 47:12
sensitive 5:10
sentence 24:12,14 24:17 41:7,25 43:20 46:12 56:6 62:17,20
September 30:2 41:2 52:11
sequence 37:2,5,7,8 37:10,17,25 38:1 44:20,23 45:23,25 46:18,20 49:1 51:23 52:4,5,7 53:25 54:5,7 58:9 62:7,10 63:17 65:10 66:7
sequences 34:23 35:6 36:23 47:19 51:2 56:20 61:14 62:4 66:17 67:17 67:20 68:10,10 69:3
series 58:8
set 71:12,21
sheet 75:7,10,12,15 76:2
short 20:10,16
showed 54:11
side 14:10 32:3,12
sign 75:9
signature 8:22,23 11:9,10
Signed 70:20 77:21
signing 17:2 75:11
similar 44:24 52:13 68:25
simpleton 25:17 26:4,7
simply 27:17 48:3
single 41:13 62:18 62:21
single-chain 16:1 59:20 60:2 74:19
sir 8:23 11:12 33:23
sitting 9:6 12:19,23 13:5 36:15
skill 57:9
skilled 27:2
skip 46:11,13
Slip 3:5
Soliris 8:10 30:8
Solomon 3:10 6:5
Solutions 5:22
sophisticated 57:6
sophistication 27:4 27:7,24 28:6
sorry 26:9 28:15 32:7,10 38:24 42:13 54:17 55:1 55:2
sought 66:7
source 65:11
space 75:6
speaking 12:23 65:25
specialist 4:13 5:19
specific 17:13,22 18:6 22:9 43:24 67:15
specifically 19:7 24:4 39:18 46:4 47:19 57:2 59:9
specificities 67:8 68:17,25
specificity 56:25 57:16 58:23 59:1 59:3 64:12,16 67:6 68:19
squared 14:10
ss 70:5 71:4
stand 12:24
standards 37:22,23
started 35:10
starting 24:12
starts 62:17
state 5:23 70:4 71:3 71:8 75:6
statement 18:8 48:2,11,14,14 51:8 53:20 58:4 62:25 63:15,16 64:1,24 65:1,6
statements 13:7 47:5,9,12,14,16 51:12
states 1:1 2:14 14:20 15:12 24:17 24:19 33:5 54:13 55:12 62:22
stating 27:17 47:10
stenographer 2:10 5:20 6:1 71:24
Stenographically 1:23
step 66:10
straightforward 35:25
Street 4:5
strictly 61:21
strike 24:15 61:14
structure 45:4 50:4
studied 51:14
studies 45:21 51:15 66:19
study 67:1 68:11 69:9
subject 75:11
submitted 8:13 11:4 16:23 17:9 18:2,13,22 19:2,6 19:15,24 20:10,12 20:21 21:3 22:3 22:17,23 29:11
subscribed 70:20 77:21
substantive 24:24 25:7 27:15
suggestion 55:13
summarizing 53:18
supplemental 19:25
supplied 52:20
support 8:14 16:11 63:4
supporting 23:7
sure 23:19 34:11 49:3
Sustained 38:6,11 73:18
swear 6:2
sworn 6:13 71:12
synonymous 14:14
synonyms 14:9,12

T

T 6:12 70:2 71:2,2 72:3 75:1 76:1 77:1
T-Cell 42:18 43:2 74:8
Tacken 42:21 43:6 44:14,18,20,22,23 46:3,4,11 47:2,22 48:16 49:9,13,16 50:6,8,15,18,19 51:7,10 52:9,10 52:12 54:21 55:3 55:14 56:3,4,7,11 56:13,14 57:13,17 57:18,22 58:3,6 58:11,12,13 59:8 59:9 63:4 64:25 65:1,11 74:14
take 5:7 34:10 35:19,23 61:25 66:22
taken 34:15 65:10 65:19 70:10
takes 56:11
talk 56:24 59:9
talking 49:7 56:21 57:8 58:24,25 60:11
target 67:9 68:5
Targeting 42:18 43:3 74:9
targets 39:19
teachings 59:14
tell 17:6
tells 57:1
ten-minute 34:10
term 14:12 61:11 62:2 67:22
terminal 30:11 33:9 43:25

terms 53:22
testified 6:15
testifying 8:13
testimony 12:20,24 19:19 22:2 27:8 70:10,13 71:14
text 32:12
thank 6:21 11:12 13:8 29:19 31:17 39:5 42:14 69:19
Thanks 32:19
therapeutic 27:3 57:7 59:11 64:17
therapeutics 45:15
thing 11:21
think 26:2 42:9 47:17 58:19
thirty 75:16
Thomas 16:2,7 30:19 33:19 40:1 41:14,22 44:7 55:23 56:1,2,17 56:19 57:14 58:22 59:20,21 60:3,3 60:10 61:9,11,13 61:15,16,20 62:24 63:10,19,21,24 64:5,10,11,21,22 74:20,20
thought 21:24 24:3 37:16
tie 47:22
time 5:5 34:12,17 36:2,10 52:12 62:13 65:16,21 66:20 69:20,23
times 7:5
title 14:4 29:21 31:25 38:23 39:6 60:14
titled 13:10 28:20 30:24 38:5 42:16 59:17
today 6:5,6 7:15 8:7,13,19 9:6 11:13,17 12:15,19 12:24 22:2 41:23 60:12
today's 69:22
told 37:23
topics 67:12
trade-name 42:4
TRADEMARK 1:1
transcript 11:22 12:3,8,10,14 70:9 70:12 72:20 75:17 75:18 76:2
Transfusion 31:1,7 73:13
TransPerfect 5:21
treatment 54:8
trial 1:1 58:25
trials 8:8 42:3 58:24 66:19
true 9:3 29:15 70:12,15 71:13
try 69:4
Tuesday 1:16
two 33:12 48:15 49:16
types 7:8
typographical 12:18

U

unambiguous 58:7
undergoing 42:3
understand 8:6,12 23:7 26:17,19 51:9 56:4 62:3
understanding 18:21 19:5 65:4
understands 57:9
understood 20:20 32:19 49:3 57:14
UNITED 1:1
universities 32:15
use 36:2 46:6 59:11 61:11 66:16,18
useful 45:15 69:4
uses 45:7,21 46:7

V

v 1:14 2:7 6:12,12 7:22 8:2 9:19 10:2,10,18 11:23 12:3 70:8,18 71:10 72:6,9,12 72:15,18,21 76:3 76:5 77:20
variable 48:22,23 56:20 59:4 64:12
variety 35:22
various 23:6 46:24 47:6 52:25 57:10 66:19
VCAM 45:20
version 63:19,21
versus 5:15 11:25
video 4:13 5:6,19 11:22
video-recorded 1:13 2:6 5:12
Videoconference 3:20
VIDEOGRAPH... 5:4 34:12,17 65:16,21 69:20
view 27:18 58:2
Volume 41:15
vs 1:4

W

W 70:2
want 19:25 25:8 29:6 34:10 45:16 51:16 54:7
wanted 23:19,22 24:2,7 25:9
wasn't 49:4 50:4
way 9:11 35:10 62:3 71:18
ways 66:25 67:5
We'll 52:15
we're 32:9 50:20 57:8 63:18 68:6
we've 16:8 30:19 33:19 41:23 69:14
well-respected 25:19
went 48:20
WHEREOF 71:20
whispering 5:10
witness 6:2,11,13 7:18 34:11 69:19 71:11,14,20 75:2
word 31:25 39:7 61:18,23,24
words 61:7
wouldn't 35:9
written 15:1 42:7 44:9
wrote 53:6

X

X 72:1,3 73:1 74:1

Y

Y 6:12
Yards 2:8
year 34:5 47:15
years 7:8 66:5,6
York 1:15,15 2:9,9 2:14 3:6,6 5:17,17 71:3,9

Z

0

0 15:22
02210 3:18
08:56 6:17,18
09:20 6:19,20,21,22
09:21 6:23,24,25 7:1,2,3,4,5,6,7,8,9 7:10,11,12,13,14 7:15,16,17,18,19 7:20,21
09:22 7:22,23,24,25 8:1,2,3,4,5,6,7
09:23 8:8,9,10,11 8:12,13,14,15,16 8:17,18,19,20,21 8:22,23,24,25 9:1 9:2,3,4,5,6,7
09:24 9:8,9,10,11 9:12,13,14,15,16 9:17,18,19,20
09:25 9:21,22,23,24 9:25 10:1,2,3,4,5
09:26 10:6,7,8,9,10 10:11,12,13
09:27 10:14,15,16 10:17,18,19,20,21 10:22,23,24,25 11:1,2,3,4,5
09:28 11:6,7,8,9,10 11:11,12,13,14,15 11:16,17,18,19
09:29 11:20,21,22 11:23,24,25 12:1 12:2,3,4,5
09:30 12:6,7,8,9,10 12:11,12,13,14,15 12:16,17,18,19,20 12:21,22,23,24
09:31 12:25 13:1,2 13:3,4,5,6,7,8
09:32 13:9,10,11,12 13:13,14,15,16
09:33 13:17,18,19 13:20,21,22,23,24 13:25
09:34 14:1,2,3,4,5,6 14:7,8,9,10,11,12 14:13,14,15,16
09:35 14:17,18,19 14:20,21,22,23,24 14:25 15:1,2,3,4,5
09:36 15:6,7,8,9,10 15:11,12,13,14,15 15:16,17,18,19,20 15:21,22
09:37 15:23,24,25 16:1,2,3,4,5,6,7,8 16:9
09:39 16:10,11,12 16:13,14,15,16,17
09:40 16:18,19,20 16:21,22,23,24,25 17:1,2,3
09:41 17:4,5
09:42 17:6,7,8,9,10 17:11,12,13,14,15 17:16,17,18,19,20

17:21,22,23,24
09:43 17:25 18:1,2 18:3,4,5,6,7,8,9 18:10,11,12,13,14 18:15,16,17,18
09:44 18:19,20,21 18:22,23,24,25 19:1,2,3,4,5,6,7,8 19:9,10,11,12,13 19:14,15,16,17,18 19:19
09:45 19:20,21,22 19:23,24,25 20:1 20:2,3,4,5,6
09:46 20:7
09:47 20:8,9,10,11 20:12,13,14,15,16 20:17,18,19,20,21 20:22,23,24,25 21:1,2,3,4,5,6,7
09:48 21:8,9,10,11 21:12,13,14,15,16 21:17,18,19,20,21 21:22,23,24,25
09:49 22:1,2,3,4,5,6 22:7,8
09:50 22:9,10,11,12 22:13,14,15,16
09:51 22:17,18,19 22:20,21,22,23,24 22:25 23:1,2,3,4,5 23:6,7,8,9,10,11 23:12,13,14
09:52 23:15,16,17 23:18,19,20,21,22 23:23,24,25 24:1 24:2,3,4,5,6,7
09:53 24:8,9,10
09:54 24:11,12,13 24:14,15,16,17,18 24:19,20,21,22,23 24:24,25 25:1,2,3 25:4,5,6,7,8,9,10 25:11
09:55 25:12,13,14 25:15,16,17,18,19 25:20,21,22,23,24 25:25 26:1,2,3,4,5 26:6,7,8,9,10,11 26:12,13
09:56 26:14,15,16 26:17,18,19,20,21 26:22,23,24,25 27:1,2,3,4,5,6,7
09:57 27:8,9,10,11 27:12,13,14,15,16 27:17,18,19,20,21 27:22,23,24
09:58 27:25 28:1,2 28:3,4,5,6,7,8,9 28:10,11,12,13,14 28:15,16,17,18

1

1 7:22 8:1,18 10:24 11:14 24:8 34:13 35:21 38:22 41:2 52:14 55:7 62:15 72:5,7,13 73:10 74:15
10 30:23 31:6,25 72:13,16,19 73:11
10,590,189 9:25
10,703,809 10:16
10:00 28:19,20,21 28:22,23,24,25 29:1,2,3,4
10:01 29:5,6,7,8,9 29:10,11,12,13,14 29:15,16,17,18,19 29:20,21,22,23,24
10:02 29:25 30:1,2 30:3,4,5,6,7,8,9 30:10,11,12,13,14 30:15,16,17
10:03 30:18,19,20 30:21
10:04 30:22,23,24 30:25 31:1,2,3,4,5 31:6,7,8,9,10
10:05 31:11,12,13 31:14,15,16,17,18 31:19,20,21,22,23 31:24,25 32:1,2,3 32:4,5,6,7
10:06 32:8,9,10,11 32:12,13,14,15,16 32:17,18,19,20,21 32:22,23,24,25 33:1,2,3,4,5,6,7,8 33:9
10:07 33:10,11,12 33:13,14,15,16,17 33:18,19,20,21,22 33:23,24,25 34:1 34:2
10:08 34:3,4,5,6,13 34:15
10:09 34:7,8,9,10 34:11,12,13,14
10:24 34:16,18
10:25 34:15,16,17 34:18,19,20,21,22 34:23,24,25 35:1 35:2,3
10:26 35:4,5,6,7,8,9 35:10,11,12,13,14 35:15,16,17,18,19 35:20
10:27 35:21,22,23 35:24,25 36:1,2,3 36:4,5,6,7,8,9,10 36:11,12,13,14
10:28 36:15,16,17 36:18,19,20,21,22 36:23,24,25 37:1 37:2,3,4,5,6,7
10:29 37:8,9,10,11 37:12,13,14,15,16 37:17,18,19,20,21 37:22,23,24,25
10:30 38:1,2,3
10:31 38:4,5,6,7,8,9 38:10,11
10:32 38:17,18,19 38:20,21,22,23,24 38:25 39:1,2,3,4,5 39:6,7,8,9,10
10:33 39:11,12,13 39:14,15,16,17,18 39:19,20,21,22,23 39:24,25 40:1,2,3
10:35 40:4
10:36 40:5,6,7,8,9 40:10,11,12,13,14
10:37 40:15,16,17 40:18,19,20,21,22 40:23,24,25 41:1 41:2,3
10:38 41:4,5,6,7,8,9 41:10,11,12,13
10:39 41:14,15,16 41:17,18,19,20,21 41:22,23,24,25 42:1,2,3,4,5,6,7
10:40 42:8,9,10,11 42:12,13,14
10:41 42:15,16
10:42 42:17,18,19 42:20,21,22,23,24 42:25 43:1
10:43 43:8,9,10,11 43:12,13,14,15,16 43:17,18,19,20,21 43:22
10:44 43:23,24,25 44:1,2,3,4,5,6,7,8 44:9,10,11,12,13 44:14,15
10:45 44:16,17,18 44:19,20,21,22,23 44:24,25 45:1
10:46 45:2,3,4,5,6,7 45:8,9,10,11,12 45:13,14,15,16,17 45:18,19,20,21
10:47 45:22,23,24 45:25 46:1,2,3,4,5 46:6,7,8,9,10,11 46:12
10:48 46:13,14,15 46:16,17,18,19,20 46:21,22,23,24,25 47:1,2,3,4,5
10:49 47:6,7,8,9,10 47:11,12,13,14,15 47:16,17,18,19,20 47:21,22,23
10:50 47:24,25 48:1 48:2,3,4,5,6,7,8,9 48:10,11,12,13,14 48:15,16,17
10:51 48:18,19,20 48:21,22,23,24,25 49:1,2,3,4,5,6,7,8 49:9,10,11,12,13 49:14,15,16,17
10:52 49:18,19,20 49:21,22,23,24,25 50:1,2,3,4,5,6,7,8 50:9,10,11,12,13 50:14,15,16,17
10:53 50:18,19,20 50:21,22,23,24,25 51:1,2,3,4,5,6,7,8 51:9,10,11,12,13
10:54 51:14,15,16 51:17,18,19,20,21 51:22,23,24,25 52:1,2,3,4,5
10:55 52:6,7,8,9,10 52:11,12,13
10:56 52:14,15,16 52:17,18,19
10:57 52:20,21,22 52:23,24 53:5,6,7 53:8,9,10,11,12 53:13,14,15,16
10:58 53:17,18,19 53:20,21,22,23,24 53:25 54:1,2,3,4,5 54:6,7,8,9,10,11 54:12
10:59 54:13,14,15 54:16,17,18,19,20
10005 3:6
1007 40:16
1008 42:23 43:6 74:15
1010 59:22 60:4 74:22
1011 31:5,15
1013 38:10,15 39:3 73:24
1014 28:25

1018 15:6
1022 15:22
1023 13:13,16 29:17 72:25
11 38:5,11 43:15 53:13 54:20 73:18 73:24
11:00 54:21
11:01 54:22,23,24
11:02 54:25 55:1,2 55:3,4,5,6
11:04 55:7,8,9,10 55:11,12
11:05 55:18,19,20 55:21,22,23,24,25 56:1,2,3,4,5,6,7,8 56:9,10,11,12,13 56:14
11:06 56:15,16,17 56:18,19,20,21,22 56:23,24,25 57:1 57:2,3,4,5,6,7,8,9
11:07 57:10,11,12 57:13,14,15,16,17 57:18,19,20,21,22 57:23,24,25 58:1 58:2,3
11:08 58:4,5,6,7,8,9 58:10,11,12,13,14 58:15,16,17,18,19 58:20,21,22,23,24 58:25
11:09 59:1,2,3,4,5,6 59:7,8,9,10,11,12 59:13,14,15
11:11 59:16,17,18 59:19,20,21,22,23 59:24,25
11:12 60:6,7,8,9,10 60:11,12,13,14,15 60:16,17,18,19,20 60:21,22,23,24,25
11:13 61:1,2,3,4,5,6 61:7,8,9,10,11,12 61:13,14,15,16,17 61:18,19,20
11:14 61:21,22,23 61:24,25 62:1,2,3 62:4,5
11:15 62:6,7
11:16 62:8,9,10,11 62:12,13,14,15
11:17 62:16,17,18 62:19,20 63:1,2,3 63:4,5,6,7,8,9,10 63:11,12,13
11:18 63:14,15,16 63:17,18,19,20,21 63:22,23,24,25 64:1,2,3,4,5,6,7,8
11:19 64:9,10,11,12 64:13,14,15,16,17 64:18,19,20,21,22 64:23,24,25 65:1 65:2,3
11:20 65:4,5,6,7,8,9 65:10,11,12,13
11:21 65:14,15,16 65:17,17,18,19
11:42 65:19,20,20 65:21,22,22,23,24 65:25 66:1
11:43 66:2,3,4,5,6,7 66:8,9,10,11,12 66:13,14,15,16,17 66:18
11:44 66:19,20,21 66:22,23,24,25 67:1,2,3,4,5,6,7,8 67:9,10,11,12,13 67:14,15,16,17
11:45 67:18,19,20 67:21,22,23,24,25 68:1,2,3,4,5,6,7,8 68:9,10,11,12
11:46 68:13,14,15 68:16,17,18,19,20 68:21,22,23,24,25 69:1,2,3,4,5,6,7,8 69:9,10,11
11:47 69:12,13,14 69:15,16,17,18,19 69:20,21,21,22,23 69:23
12 40:5,8,15 44:11 52:8 53:10 55:7 55:11 72:22 74:3
121 3:17
1279 43:15
13 30:15,18 42:16 42:22 43:1 44:15 72:25 74:7
1389-1401 41:16
14 33:12,16 59:17 59:25 60:8,10 72:25 74:16
149 20:14 35:21 36:7
15 33:13,19 43:13 73:6
16 1:16 2:3 5:6 20:8 62:14,16 70:11 73:6 76:4
17 71:22 72:2,19
17-18 41:15
18 72:10
189 21:15,17
19 24:10 44:4,7
1988 33:17
1996 16:3 41:16 53:3
1997 49:5 59:15

2

2 9:14,18 20:7 30:3 34:18 65:17 72:8 72:22
20 55:8,9
2002 13:24 34:2,6 47:10,20 48:4,10 48:11 49:25 57:25 65:4
2004 31:23
2005 38:22 41:1,2 43:13 50:6,9,14 52:11 54:2,21,21 58:16
2005/0191298 40:6 40:9 74:4
2006 30:2 54:2,24 54:25 55:3
2007 28:14,18 36:7 36:15,18,21 47:13 48:1,7 49:23 50:1 50:4,11,14 51:22 53:4,8 58:6,16 62:8,10
2011 47:18,21 48:2
2024 1:16 2:3 5:6 6:24 11:24 12:4 12:12 70:11,22 71:22 72:22 76:4 77:22
21 30:2 52:24 55:8
212-701-3320 3:8
212-701-3585 3:11
22 52:15,16
23 6:24 11:24 12:4 12:12,20,25 72:22
245 40:22 41:19 42:10,11
25 74:22
2559 39:10
258884 15:18,21,24
29 73:10
298 42:10

3

3 9:22 10:1 31:24 32:4,9,10 41:1 65:22 69:21 72:11
30 75:16
31 73:17
3175 4:5
32 3:5
33 41:15
38 73:24

4

4 10:5,9 32:24 72:14
40 74:6
43 74:15
45 66:5,6

5

5 10:14,17,24 31:23 72:17
52 41:4 42:1
55 2:8
59 74:22
5G1.1 14:16,21 15:3,13,16 43:22 48:24 51:2 53:2 54:12 57:16,17 60:25 63:22

6

6 11:21 12:2 72:2 72:20 73:17
6,355,245 41:11
650-843-5505 4:8

7

7 13:10,14 14:2 20:8 29:15,16 33:22 72:23

8

8 16:11,14,20 72:7 73:3 74:6
880 11:14 16:25 24:9

9

9 24:11 28:20 29:1 29:22 30:1 39:9 39:24 40:1 53:13 54:23 72:10,16 73:7
9,718,880 7:25 16:13,17 73:6
9,725,504 10:8
9,732,149 1:5 9:17
9:18 2:3 5:5
9373 1:25
94304-1130 4:6