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Transcript of W. Christopher Bakewell

Date: October 3, 2024

Case: BioNTech SE and Pfizer, Inc. -v- Moderna TX, Inc. (PTAB)

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Moderna 2255
BioNTech-Pfizer v. Moderna
IPR2023-01358

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1 (1 to 4)

1 UNITED STATES PATENT AND TRADEMARK OFFICE 2 BEFORE THE PATENT TRIAL AND APPEAL BOARD 3 4 ----- 5 BIONTECH SE AND PFIZER INC., 6 Petitioners 7 8 vs 9 MODERNA TX, INC., 10 Patent Owner 11 ----- 12 Case IPR2023-01358 13 U.S. Patent No. 10,702,600 14 and 15 Case IPR2023-01359 16 U.S. Patent No. 10,933,127 17 18 Oral deposition of 19 W. CHRISTOPHER BAKEWELL 20 21 WASHINGTON, DC 22 THURSDAY, OCTOBER 3, 2024 23 24 9:05 a.m. EASTERN TIME 25 26 Job No.: 555072 27 Pages: 1 - 132 28 Reported by: Lisa V. Feissner, RDR, CRR, CLR	3 4 A P P E A R A N C E S: 5 ON BEHALF OF PETITIONER PFIZER: 6 7 MICHAEL J. MESTITZ, ESQUIRE 8 9 DAVID KRINSKY, ESQUIRE 10 11 WILLIAMS & CONNOLLY LLP 12 13 680 Maine Avenue, SW 14 15 Washington, DC 20024 16 17 202.434.5085 18 19 mmestitz@wc.com 20 21 dkrinsky@wc.com 22 23 24 ON BEHALF OF PETITIONER BIONTECH: 25 26 DOUGLAS L. SAWYER, ESQUIRE 27 28 PAUL HASTINGS LLP 29 30 71 South Wacker Drive 31 32 Forty-Fifth Floor 33 34 Chicago, IL 60606 35 36 312.499.6060 37 38 dougsawyer@paulhastings.com 39 40 41 42
2 3 4 Oral deposition of W. CHRISTOPHER BAKEWELL, 5 held at the offices of: 6 7 WILLIAMS & CONNOLLY LLP 8 9 680 MAINE AVENUE, SW 10 11 2ND FLOOR 12 13 WASHINGTON, DC 20024 14 15 202.434.5000 16 17 Pursuant to Notice, before Lisa V. Feissner, 18 RDR, CRR, CLR, Notary Public. 19 20 21 22	4 5 A P P E A R A N C E S (cont'd): 6 ON BEHALF OF PATENT OWNER: 7 8 ANNALEIGH E. CURTIS, ESQUIRE 9 10 WILMER CUTLER PICKERING HALE AND DORR LLP 11 12 60 State Street 13 14 Boston, MA 02109 15 16 617.526.6694 17 18 annaleigh.curtis@wilmerhale.com 19 20 21 A L S O P R E S E N T: 22 23 VINNY LEE, ESQ., BioNTech 24 25 JAKE MOORE, ESQ., Moderna (via Zoom) 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

5	7
1 C O N T E N T S	1 A Agreed.
2 EXAMINATION OF W. CHRISTOPHER BAKEWELL PAGE	2 Q And you will tell the truth today?
3 By Ms. Curtis 6	3 A Yes.
4	4 Q Is there any reason why your ability to
5	5 testify today is not as good as it normally is?
6 E X H I B I T S	6 A No.
7 (Attached to transcript)	7 Q Okay. What did you do to prepare for
8 DEPOSITION EXHIBIT PAGE	8 your deposition?
9 (None marked.)	9 A So I get asked that question a lot. I
10	10 mean, I wrote a report. I reviewed
11	11 Mr. Malackowski's report. I reviewed his
12 P R E V I O U S L Y	12 deposition. And there's a process leading up to
13 M A R K E D E X H I B I T S	13 this. That's kind of how I view it.
14 (Referenced)	14 Q Did you meet with anyone to prepare?
15 EXHIBITS PAGE	15 A Sure.
16 BioNTech-Pfizer Exhibit 1163 21	16 Q Did you meet with your counsel?
17 BioNTech-Pfizer Exhibit 1190 73	17 A My counsel?
18 BioNTech-Pfizer Exhibit 1191 74	18 Q Did you meet with counsel for Pfizer and
19	19 BioNTech?
20	20 A I did.
21	21 Q Did you meet with anyone other than
22	22 counsel?
6	8
1 P R O C E E D I N G S	1 A One of my colleagues who I've worked
2 W. CHRISTOPHER BAKEWELL,	2 with, I met with her throughout the project.
3 having been first duly sworn, was examined and	3 Q What's her name?
4 testified as follows:	4 A Julia Rowe.
5 EXAMINATION	5 Q And what's Julie's role in this project?
6 BY MS. CURTIS:	6 A She's a colleague.
7 Q Sir, why don't you go ahead and introduce	7 Q And did she help you do research? Did
8 yourself for the record.	8 she do drafting?
9 A Sure. My name is Chris Bakewell.	9 A Well, she helped me with the report in
10 Q And where do you live?	10 general. I've worked with her for a long time, and
11 A I live in Texas.	11 we work together. And she helped me with some tasks
12 Q You've been deposed before?	12 that relate to preparing this report.
13 A I have.	13 Q What tasks did she do versus what you
14 Q About how many times?	14 did?
15 A I haven't counted. I don't know. It's a	15 A Well, to be clear, I think as I wrote in
16 lot.	16 my report, she worked under my direction and
17 Q Hundreds?	17 supervision. So she helped me do the work that was
18 A Probably.	18 required to get this report done as somebody who --
19 Q Yeah. When was your last deposition?	19 like a professional person who I've worked with for
20 A Maybe a few weeks ago.	20 a long time, as I'd expect them to.
21 Q And you understand that you have to tell	21 Q Aside from Ms. Rowe or Dr. Rowe, I don't
22 the truth today?	22 know which, is there anyone else at CRA that has

9 1 worked with you on this? 2 A Yes. 3 Q Who else has worked with you? 4 A A person named Laura Campbell. 5 Q What was Laura Campbell's role in this 6 project? 7 A She's another professional person. I 8 think that her title is associate principal. And 9 she worked with me to do some tasks that I asked her 10 to do, some research and things like that. 11 Q Anybody aside from Julia and Laura work 12 with you on this? 13 A There were probably a couple others here 14 and there, but that's kind of the main group of 15 people. 16 Q And did you -- how many times did you 17 meet with counsel in preparation for your 18 deposition? 19 A I mean, there's a process that occurs 20 over a long period of time. I don't know that I can 21 count, like, to answer the question the way I did 22 earlier. I don't really view it that way.	11 1 A Can you re-ask the question? I must have 2 missed a word. 3 Q Between the time when you submitted your 4 report, declaration, and the deposition today, how 5 many times did you meet with counsel to prepare for 6 the deposition? 7 A Really, the meetings that happened, if 8 we're going to talk about those, happened over the 9 last couple days. 10 Q Okay. So you had two meetings between 11 the submission of your report and the deposition 12 today. 13 Is that fair? 14 A Yeah, in the way we've sort of framed it, 15 yes. 16 Q Okay. Is there some other type of 17 meeting you're thinking of that is preventing you 18 from just answering the question? 19 A Well, I am answering your question. I 20 don't mean to fuss with you going back and forth. I 21 just want to be clear about it. 22 Like -- and I'll give you something that
10 1 But over the last -- I'd say I got here 2 to D.C. a couple days ago and spent a couple hours 3 each day. 4 Q Did you meet here in the Williams & 5 Connolly offices? 6 A Yes. 7 Q Aside from counsel, did anyone attend 8 those meetings? 9 A Ms. Rowe was here. 10 Q Apart from your meetings with counsel, 11 did you meet with anyone other -- did you meet with 12 anyone other than counsel to prepare for your 13 deposition today? 14 A Well, as I said, the process occurred 15 over a while, and I worked together with Ms. Rowe 16 and Ms. Campbell over time. I think we've covered 17 it all. 18 Q So let me ask you this. Between the time 19 when you submitted your report and the deposition 20 today, how many times have you met in preparation 21 for this deposition? 22 MR. MESTITZ: Objection, form.	12 1 comes to mind. Mr. Malackowski was deposed and, 2 like, I can't go get the deposition from some 3 website. I have to get it. So there's some 4 logistical things. If you want to call those 5 meetings, I'm not sure how to count those. 6 So I'm trying to focus in on a question 7 that I can answer with some specificity when I'm 8 responding to you. That's why I'm giving you sort 9 of the qualifiers as I'm trying to be as specific as 10 I can. 11 Q Yeah, and I appreciate that. I'm just 12 trying to figure out sort of what you did. 13 A Sure. 14 Q And so aside from meetings where you were 15 in a room or on a phone call with counsel, you did 16 other things to prepare for the deposition. That's 17 what I'm hearing. 18 Is that correct? 19 A If you define preparing for the 20 deposition as, like, all the time leading up to the 21 deposition, of course. 22 Q So what else did you do to prepare for

13 1 the deposition? 2 A Well, I gave you an example. If we take 3 a broader view, I reviewed Mr. Malackowski's 4 deposition transcript. That would be an example. 5 His report. 6 Q Aside from Mr. Malackowski's deposition 7 transcript, did you review any additional documents 8 not cited in your declaration to prepare for your 9 deposition today? 10 A Not cited. I'm trying to think of a way 11 to answer that with some absolute certainty. It 12 doesn't seem like it. I don't know if that's 13 possible for me to answer with absolute certainty 14 because mind is, like, I'm a human being. 15 But the focus of the work that I did 16 related to the materials that are in my deposition. 17 Q In your declaration? 18 A Excuse me. In my report. 19 Q And did you review any documents, 20 including documents that may be cited in your 21 declaration, in preparation for the deposition 22 today?	15 1 anybody could remember that. 2 So it sounds like you read that 3 correctly. 4 Q Okay. So I just want to make sure the 5 record is clear. 6 You're retained on behalf of BioNTech SE, 7 BioNTech Manufacturing GmbH, BioNTech U.S. Inc. and 8 Pfizer Inc. Yes? 9 A Yes, those are the entities listed. 10 Q You're also retained by BioNTech and 11 Pfizer in connection with a District Court 12 litigation against Moderna, right? 13 A I am. My firm is. That's correct. 14 Q Aside from these IPRs and the District 15 Court litigation, have you done any work for any 16 BioNTech entity previously? 17 A I don't think so. 18 Q Have you done any work with any Pfizer 19 entity previously? 20 A It's possible, but I can't think of 21 anything specific. 22 Q When were you first contacted to work on
14 1 A Yes. 2 Q What documents did you review? 3 A I think at some point I took a look at 4 the materials -- all the materials I cited. 5 Probably the materials that Mr. Malackowski cited by 6 reference. That's kind of practically the types of 7 materials I reviewed. 8 Q You're retained on behalf of BioNTech SE, 9 BioNTech Manufacturing GmbH, BioNTech U.S. Inc., and 10 Pfizer Inc., right? 11 A I think so. You're asking me about my 12 report now? 13 Q Well, I'm asking you who retained you. 14 But if you want a reference, it's in paragraph 8 of 15 your declaration. 16 A I have my report, so that would be where 17 I would check. 18 Q Well, I would expect you to know who 19 retained you. But I understand if you want to 20 check. 21 A Well, I know generally, but I don't know 22 the legal entities that you read. I don't know that	16 1 this matter? 2 MR. MESTITZ: Objection to form. 3 A Hmm. It's been some time now. Let me 4 see if there's something that can refresh my memory. 5 I feel like this matter has been going 6 on -- when you say "this matter," you mean this 7 particular matter? You mentioned the District 8 Court. 9 Q Well, let me ask you a prefatory question 10 first. 11 A Sure. 12 Q Is your retention covering -- strike 13 that. 14 Do you have a single retention agreement 15 that covers the District Court litigation and these 16 IPRs? 17 A I think there's a single retention 18 agreement, yes. 19 Q Okay. When were you first contacted 20 regarding the IPRs in particular? 21 A It's been some time. I'd need some -- to 22 give you some specifics as to the date, maybe if I

17 1 could remind myself when the IPRs were instituted or 2 something like that. It's been some time. 3 Q Okay. But you expect it was around the 4 time the IPRs were instituted? 5 A That's not exactly what I said. I said 6 that might remind me. I'm just trying to remember 7 what the dates might be. 8 Q Okay. Do you recall when you were first 9 contacted in connection with the District Court 10 litigation? 11 A It's been some time. 12 Q So you work for Charles River Associates? 13 A I do. 14 Q And correct me if I'm wrong, but that's a 15 change from when you were first retained. 16 Is that right? 17 A That's correct. 18 Q And you previously worked for Kroll? 19 A That's right. 20 Q Is the retention agreement that you have 21 between Charles River Associates, Paul Hastings, and 22 Williams & Connolly?	19 1 are a little less familiar to me, I can't give you a 2 super specific answer. But I would say over a 3 hundred hours. 4 Q Approximately how many hours has Ms. Rowe 5 worked on this matter? 6 A I don't know. 7 Q And how about Ms. Campbell? 8 A I can't give you that with specificity, I 9 think, as I'm getting familiar with our systems and 10 reporting. 11 Q Okay. Do you think they've spent more 12 time than you or less time? 13 A That, I'm not certain, actually. Maybe a 14 little more. But I can't tell you for sure. 15 Q Approximately how many hours has CRA 16 billed to Pfizer and BioNTech or their firms? 17 A Did you say "for their firms"? 18 Q Or their firms. I don't know if you're 19 billing Paul Hastings, Williams & Connolly, or 20 Pfizer. 21 A I don't know. 22 Q Do you know if all of your time spent on
18 1 A I think the answer is yes. I may have 2 missed a word. Can you re-ask it? 3 Q Is the retention agreement for this 4 matter between Charles River Associates, Paul 5 Hastings, and Williams & Connolly? 6 A I believe that would be a fair way to 7 characterize it, yes. 8 Q Charles River Associates is 9 compensated -- 10 A Well, I think in the agreement, it's -- 11 just to be more specific, like, the way that it's 12 written in the report, it's even more specific. But 13 I think generally, you're correct. 14 Q Charles River Associates is being 15 compensated at \$950 an hour for your work on this 16 matter. 17 Is that right? 18 A Yes. 19 Q About how many hours have you spent 20 working on these IPRs? 21 A Normally, I'd have a better estimate for 22 you, but because I've changed firms and our systems	20 1 the matter has been billed? 2 A Through the last billing period, I'm 3 certain that it has. 4 Q Approximately how much has CRA been paid 5 for its work on this matter? 6 A I haven't reviewed that. I don't know. 7 Q And what's Ms. Rowe's rate? 8 A I'd have to check on this particular 9 matter. Let's -- I'll give you a range of between 10 750 and \$850 per hour. 11 Q What's Ms. Campbell's rate? 12 A Probably directionally, \$500 per hour. 13 Q Aside from Ms. Rowe and Ms. Campbell, 14 have you discussed your work on this case with 15 anyone else at CRA? 16 MR. MESTITZ: Objection to form. 17 A Not that really comes to mind. 18 Q And aside from counsel and your 19 colleagues at CRA, have you talked to anyone else 20 about your work in this matter? 21 MR. MESTITZ: Objection to form. 22 A I think -- I think that may cover it, if

21 1 I understand your question correctly. 2 Q Okay. Now, you submitted a declaration 3 in this matter. Yes? 4 A I did. 5 Q And you have that declaration in front of 6 you? 7 A I do. I mean, we can use -- I don't know 8 if you have one or -- 9 Q If it's an unadulterated copy, which I 10 understand that it is, you're fine to keep that one. 11 MS. CURTIS: I assume you guys also have 12 them, but I've got a copy if you would like it. 13 (Previously marked Exhibit 1163 presented 14 to the witness.) 15 BY MS. CURTIS: 16 Q So your declaration is Exhibit 1163, 17 correct? 18 A I see that, yes. 19 Q So Exhibit 1163 is a copy of your 20 declaration regarding commercial success, correct? 21 A Yes. 22 Q Okay if we just call this your	23 1 A Correct. 2 Q Sitting here today, are you aware of any 3 errors in your declaration? 4 A Not anything material. Maybe I saw a few 5 typos and such. But I didn't see anything material. 6 Q And you fully stand by every opinion you 7 offered in your declaration? 8 A I do. 9 Q How did you prepare your declaration? 10 MR. MESTITZ: Objection to form. 11 A I used MS Word. 12 Q Sat down at your computer and just 13 started typing? 14 A At some level, I think that's what I did. 15 I mean, super high level. I think if you even step 16 back further, like, I used this framework to think 17 about that. If I were to understand or define my 18 assignment, I gather materials, I analyze them, and 19 then I write. And it's an iterative process. 20 But ultimately, I issued a report that I 21 wrote. So it depends kind of at the level of 22 abstraction that you try to address that question.
22 1 declaration? 2 A Sure. 3 Q Okay. Your declaration was submitted in 4 IPR 2023-01358, correct? 5 A Yes. 6 Q Your declaration was also submitted in 7 IPR 2023-01359, correct? 8 A Yes. 9 Q IPR 2023-01358 challenges U.S. Patent 10 10,702,600, correct? 11 A That's my understanding, yes. 12 Q Is it okay if we call that the '600 13 patent today? 14 A Yes. 15 Q Okay. And IPR 2023-01359 challenges U.S. 16 Patent 10,933,127, correct? 17 A Yes. 18 Q Okay if we call that the '127 patent? 19 A Let's do it. 20 Q Okay. You signed your declaration, yeah? 21 A I did. 22 Q It's dated August 30th, 2024, correct?	24 1 Q Okay. You mentioned you used a framework 2 to think about the assignment. What's the 3 framework? 4 A So I wrote about that in paragraph 12, to 5 evaluate economic nexus and to respond to 6 Mr. Malackowski and his report. So I would say 7 those were the -- that's at least a part of the way 8 to describe that framework. 9 Q How did you identify the sources cited in 10 your declaration? 11 A You mean find, like, or what do you mean, 12 "identify"? 13 Q I guess you tell me. How did you come 14 across all of the stuff that's cited in your 15 declaration? Did you go out and look for it? Did 16 counsel provide it? Some combination? 17 A I'd say the better description is I went 18 out and looked for information. I performed 19 research, gathered information. 20 Q And that's something that Ms. Rowe and 21 Ms. Campbell assisted with? 22 A They did.

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25 1 Q And did counsel provide you with any 2 documents that you didn't separately find? 3 A I mean, it's possible, but nothing really 4 comes to mind. 5 Q Okay. Why don't you turn to Attachment C 6 of your declaration. 7 A Okay. 8 Q You've got Attachment C before you? 9 A I do. 10 Q Attachment C to your declaration is a 11 list of the documents cited in your declaration, 12 correct? 13 A That's correct. 14 Q Did you consider any documents in forming 15 your opinion that are not listed in Attachment C? 16 A Hmm. The idea is to do that. I think 17 I'd have to check and see if we separately listed 18 out the materials cited by Mr. Malackowski. I 19 reviewed all of those. 20 So it's possible that you can add to this 21 list by reference. 22 Q So if you put in a single list the	27 1 Q So anything material to your opinion 2 would be here in Attachment C or possibly cited in 3 Mr. Malackowski's report? 4 A I've tried to -- that's how I've tried to 5 go about this. 6 (Reporter interruption.) 7 Q Aside from Mr. Malackowski's deposition 8 transcript, which I understand that you read after 9 submitting your report, do you -- 10 A No, I don't think -- 11 Q Right. You would have had it before you 12 submitted your report. 13 A That's normally true, but that's not true 14 here. 15 Q Yeah. 16 A The sequencing. 17 Q Of course. A little bit odd. 18 A I can understand why you said that. But 19 now we've got the record correct. 20 Q So let me ask you this. Have you 21 reviewed any documents related to this case since 22 your declaration was signed that are not cited in
26 1 documents in Attachment C and the documents cited in 2 Mr. Malackowski's declaration, that would be the 3 universe of documents you considered in forming your 4 opinion? 5 A I think within reason. A couple of 6 things. It's a manual process, and sometimes people 7 miss something like that, given the volume of 8 information that's here. 9 And then the other thing, sort of for 10 context, is that if I had to list every single thing 11 that I saw during my research, like if -- searching 12 for something on the Internet, for example, I do a 13 Google search or what have you and have a bunch of 14 tabs open on my computer, I don't think it would be 15 realistic or reasonable to catalogue every single 16 thing that I saw in that way, and I don't think 17 that's the intent of this process. I've never 18 understood it to be that way. 19 So those are the two main things that 20 come to mind when you ask me that question that are 21 sort of exceptions. But those seem to be reasonable 22 ordinary course exceptions, if you will.	28 1 your declaration? 2 A So that seems like it's possible, but 3 nothing comes to mind. That's a pretty broad 4 question, and I don't know that I remember anything 5 like that. But there's been some time that's 6 elapsed, and so it's possible. 7 Q Did you ask to review any documents that 8 you weren't given? 9 A No. 10 Q Were you directed to focus on or ignore 11 any particular parts of documents you were given? 12 A No. 13 Q About how long did you spend reviewing 14 the documents listed in Attachment C prior to 15 submitting your declaration? 16 A Well, I said over a hundred hours. 17 That's part of the process for preparing this 18 report. 19 Q And you couldn't -- well, strike that. 20 Do you know how much time you spent 21 reviewing documents versus drafting? 22 A I don't even know how to distinguish

29 1 those two things, frankly. They sort of fit hand in 2 glove. 3 But if you ask me to make that 4 distinction, I don't. I don't know, because of that 5 reason. 6 Q Okay. You can turn back to paragraph 8. 7 Do you have paragraph 8 in front of you? 8 A Yes. 9 Q The purpose of your declaration is to 10 respond to a May 29th, 2024 declaration submitted by 11 James Malackowski, correct? 12 A Yes. 13 Q Your declaration does not respond to any 14 of Moderna's other expert declarations in this 15 matter, correct? 16 A Well, it may in terms of how the process 17 works, but in terms of my work and my focus, it's on 18 Mr. Malackowski's work. 19 Q Your declaration does not respond to 20 Dr. Fuller's declaration, correct? 21 A Not in a way that I focused on. It's 22 possible there may be some issues that I'm not aware	31 1 one another, I think. 2 Q Your declaration addresses certain of 3 Mr. Malackowski's opinions regarding commercial 4 success, correct? 5 A Yes. 6 Q You don't offer any opinions on issues 7 other than commercial success. 8 Is that fair? 9 MR. MESTITZ: Objection to form. 10 A Well, there may be some, but in terms of 11 just describing my work at a high level, I would say 12 that that's true. 13 Q You don't offer opinions on validity, 14 right? 15 A Like, not broadly. That relates to this 16 specific issue, my work. 17 Q And you don't offer opinions on 18 anticipation or obviousness, right? 19 A Same answer. 20 Q You don't offer opinions on reasonable 21 expectation of success, correct? 22 A The same type of answer.
30 1 of. 2 Q You didn't cite Dr. Fuller's declaration 3 in your declaration, correct? 4 A I don't think so. 5 Q Your declaration does not respond to 6 Dr. Chan's declaration? 7 A The same answer. 8 Q And you didn't cite Dr. Chan's 9 declaration, correct? 10 A Same answer. Not that I remember. We 11 can look through this, but I don't recall that. 12 Q Now, you did review Dr. Krause's 13 declaration before you submitted your declaration, 14 correct? 15 A I did. 16 Q And you cite that -- you cite 17 Dr. Krause's declaration? 18 A I do. 19 Q Your declaration doesn't directly respond 20 to Dr. Krause's declaration, right? 21 A Yeah, he's a technical expert, and 22 technical experts sort of are engaged directly with	32 1 Q You don't offer opinions on motivation to 2 combine, right? 3 A Same. 4 Q And you don't offer opinions on other 5 objective indicia of nonobviousness aside from 6 commercial success, right? 7 A Yeah, same. Not directly. This is -- my 8 report is where I focused, and whatever happens in 9 the process, I couldn't possibly know. But I think 10 I've described what I've done in my report. 11 Q Why don't you turn to Attachment A of 12 your declaration. 13 A Okay. 14 Q You have Attachment A in front of you? 15 A I do. 16 Q What is Attachment A? 17 A It's my CV. 18 Q Attachment A has a summary of your 19 credentials and your experience? 20 A It does. 21 Q You have a BS from Bradley University? 22 A I do.

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33 1 Q You have an MBA from University of 2 Maryland? 3 A I do. 4 Q You're not a lawyer, right? 5 A Correct. 6 Q You don't have legal training, right? 7 A Not formal legal training. 8 Q Do you have informal legal training? 9 A Well, I've taken coursework, business law 10 courses, for example. And this is not my first 11 deposition. And I am older than I wish I was, but 12 that also means that I've gained experience. 13 So I was trying to leave some room for 14 that. 15 Q Okay. You're not offering legal opinions 16 in this case, right? 17 A Correct. 18 Q You're not an expert in FDA law and 19 procedure? 20 A True. 21 Q And you're not offering opinions on FDA 22 law or procedure, right?	35 1 deposition, or trial, in a case involving a 2 pharmaceutical product? 3 A In the past four years -- 4 MR. MESTITZ: Objection to form. 5 Go ahead. 6 A I don't know. I've done work on matters 7 involving pharmaceuticals, but I don't know how 8 that's worked out in terms of consulting work, I see 9 one here, versus expert testimony. 10 Q And can you just say for the record what 11 that is. 12 A It's a matter involving Novartis and 13 Regeneron. 14 Q Any other work for pharmaceutical 15 companies that you can recall in the past four 16 years? 17 MR. MESTITZ: Object to form. 18 A Well, I'm working on actually several 19 things and have worked on several things, though 20 that work can tend to be more on the consulting side 21 of what I do. 22 Q About how much of your work is on
34 1 A That's correct. 2 Q You're not a technical expert, right? 3 A I agree. 4 Q And you're not offering technical 5 opinions in this case? 6 A I'm not offering technical opinions, 7 that's correct. 8 Q And you're not a person of skill in the 9 art in the '600 or '127 patent? 10 A I agree. 11 Q Why don't you turn to Attachment B while 12 we're at the end of the declaration here. 13 A Okay. 14 Q You have Attachment B in front of you? 15 A I do. 16 Q What is Attachment B? 17 A It's a listing of my testimony. It's at 18 least four years of testimony. It goes back 19 actually further than that. Just to be cautious, so 20 it at least discloses that. But that's what it is. 21 Q And in the past four years, have you 22 given any testimony, whether in a form of a report,	36 1 pharmaceuticals versus other kinds of products? 2 MR. MESTITZ: Form. 3 A I'd say it ebbs and flows, changes over 4 time. I don't know that I can give you a 5 percentage. 6 Q Based on the cases listed in Attachment B 7 to your declaration, would it be fair to say that 8 the majority of your work is in cases involving 9 technical products? 10 MR. MESTITZ: Form. 11 A No. I think it's a range of products. 12 I'm not sure how I would categorize that. I think, 13 like Mr. Malackowski, I do work across industries. 14 Q And how would you characterize the 15 industries that are reflected in your work over the 16 past four years? 17 A Just in the way that I just did. 18 Q And can you get any more specific about 19 what the industries are? 20 A I've worked across several industries. 21 Q What are the industries that you've 22 worked across?

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37 1 A I've done work in the pharmaceuticals, 2 the health care, I think software, 3 telecommunications. Those would be some examples. 4 Q Consumer electronics? 5 A Yes. 6 Q Okay. You interviewed Dr. Griffin and 7 Dr. Moon in forming your opinions in this case, 8 right? 9 A I did. 10 Q I'd like to talk first about your 11 interview with Dr. Moon. 12 How many times did you interview 13 Dr. Moon? 14 MR. MESTITZ: Objection to form. 15 A So I'll say at least once. 16 Q So you can only recall one interview? 17 A Yeah. I chose -- I should say yes. I 18 chose to answer that question in a way that I don't 19 want to limit myself because some time has 20 transpired. It's hard to believe, but it's October. 21 And I'm fortunate I have a -- I've 22 inherited a good memory. I feel pretty good about	39 1 Q Do you recall anyone other than counsel 2 or colleagues at CRA being on that meeting? 3 A No. 4 Q How long did you speak to Dr. Moon? 5 A I'd say between 20 and 40 minutes. 6 Q Whose idea was it to interview Dr. Moon? 7 MR. MESTITZ: Objection to form. 8 A I would say at some point, it was mine. 9 I wanted to speak with technical experts. I 10 couldn't possibly know who was retained and who was 11 responsible for what. But in that sense, it was 12 something that I requested. 13 Q So you asked to speak with the technical 14 experts in this matter? 15 A I did. 16 Q What did you ask Dr. Moon in that 17 meeting? 18 A So the best way -- if you want to gain an 19 understanding of that, let me respond this way and 20 see if it's helpful -- would be to go through my 21 report and look at the places where I cited to my 22 interview of him and the things that he told me that
38 1 my memory. But I also know how my memory works. 2 And I can recall speaking with him at 3 least once. That's the best I can do, knowing those 4 things. 5 Q When was your interview with Dr. Moon? 6 A Sometime prior to August 30th. 7 Q You don't recall the date? 8 A I wish I could do that. 9 MR. MESTITZ: Form. 10 A I'm working to have that type of memory, 11 but I can't give you a specific date. It was 12 sometime leading up to August 30th. 13 Q Was it in person? 14 A No. 15 Q Was it on the phone? 16 A It was by videoconference. 17 Q Who was in the meeting? 18 A Hmm. I don't want to marginalize anyone 19 else that might have been on it, but really, it 20 was -- I was focused on interviewing him. And I'm 21 sure there were other people, but I couldn't give 22 you a list with certainty.	40 1 were pertinent to my work. 2 The questions I asked him, I documented 3 in my report, and I noted those in footnotes. It's 4 not necessarily exhaustive. And again, I'm a human 5 being, so I can summarize what he said. But that 6 would be -- those would be the types of things. 7 Q At a high level, how would you summarize 8 what Dr. Moon told you on the interview? 9 A Well, one of the things he told me is 10 about the history of the discoveries and advances in 11 mRNA, and I wrote about that in, for example, 12 paragraph 93. 13 Q What's your understanding of Dr. Moon's 14 area of expertise? 15 A I'd have to look at his CV to be really 16 specific. But I understand that he has -- that he's 17 a technical expert who has experience in this field. 18 Q Was there anything Dr. Moon told you that 19 you didn't include in your declaration? 20 A Just reflecting on my past answer. 21 I think, within reason, I included the 22 things that he told me or described the things that

41 1 he told me in my report that I thought were relevant 2 to my analysis. 3 Q Let's talk about your interview with 4 Dr. Griffin. How many times did you interview 5 Dr. Griffin? 6 A At least once. 7 Q You can only recall one interview? 8 A I can only recall? So I recall one 9 interview, and it's possible that there were more, 10 that I spoke with him twice. I don't think so. I 11 think I spoke with him once. But again, I'm a human 12 being. But my recollection is once. 13 Q When was that meeting? 14 A Sometime in the period leading up to 15 August 30th. 16 Q Was that meeting a videoconference? 17 A It was. 18 Q Who was in the meeting? 19 A It's the same. I really remember 20 speaking directly with him and engaging with him. 21 There were other people. I couldn't recite to you 22 who was able to make it and who wasn't. But I was	43 1 the development of mRNA that span decades. And he 2 talked about mRNA vaccines and the technology. That 3 would be a high-level way of describing what he told 4 me. 5 Q Turn to page 46 of your declaration. 6 A Sure. 7 Q You've got page 46 in front of you? 8 A Yes. 9 Q Your declaration has a section called, 10 mRNA Vaccine Technologies: Prior Art and Moderna's 11 Place in the Technological Path. 12 Right? 13 A Yes. 14 Q You state that mRNA advancements were 15 decades in the making before the asserted priority 16 dates, right? 17 A Yes. 18 Q And you got that understanding of what 19 mRNA advancements were in the prior art from your 20 interviews with Dr. Moon and Dr. Griffin, correct? 21 A I would say specifically in terms of the 22 technology here. I think there's also general
42 1 focused on speaking with Dr. Griffin. 2 Q Other than counsel and your colleagues at 3 CRA, was anyone else on the meeting? 4 A No, not that I recall. 5 Q How long did you speak to Dr. Griffin? 6 A I think that's probably also between 20 7 and 40 minutes, but it may be more like -- more like 8 40 than 20. 9 Q What did you ask Dr. Griffin to tell you 10 about? 11 A What did I ask him to tell me about? I 12 mean, I had questions about the technology. I had 13 questions for him about Mr. Malackowski's 14 characterization of the technology and his 15 assumptions. And then I would say the types of 16 things that I wrote in my report. 17 Q What did -- strike that. 18 What's a summary of what Dr. Griffin told 19 you? How would you characterize his message? 20 A I would summarize it as I wrote in my 21 report. One of the ways that I did is -- that I 22 said is that there were discoveries and advances in	44 1 information that relates to that topic. 2 Q So let's delve into it a little bit more 3 specifically. 4 What did Dr. Moon tell you about mRNA 5 advancements in the prior art? 6 A Hmm. I think the best way to be able to 7 tell you that is to go through my report and look at 8 the citations to Dr. Moon. I think that we can do 9 that. 10 Dr. Moon told me a little bit more about 11 LNPs and lipids and delivery systems. I think 12 that's his area of focus, as I understand it. And I 13 cite to him a bit more, at least in part of my 14 report about that. 15 But I think, just turning through my 16 report, that the types of things that they told me 17 are noted in my report and with footnotes. 18 Q What did Dr. Griffin tell you about mRNA 19 advancements in the prior art? 20 A He walked me through the history of mRNA 21 technologies, and then he also told me the types of 22 things that I cited to him for.

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45 1 Q What did he tell you about the history of 2 mRNA technology? 3 A Well, one of the things would be that 4 advancements were decades in the making. There's a 5 long history and hundreds -- as I wrote, many 6 hundreds of scientists over the years. 7 Those were the types of things he said. 8 Q And that's generally true of science, 9 right? It's cumulative? 10 MR. MESTITZ: Objection to form. 11 A I think that can depend upon what you're 12 talking about. 13 Q It's pretty typical in the pharmaceutical 14 field to have work build on work that's come before? 15 MR. MESTITZ: Form. 16 A That can vary. I think that there's 17 different scenarios. 18 Q You're not suggesting that mRNA -- the 19 mRNA field is different from other scientific fields 20 in that regard, right? 21 MR. MESTITZ: Form. 22 A So I would defer to a technical expert.	47 1 for mRNA advancements, and there had been a lot of 2 energy by many hundreds of scientists dedicated over 3 many years. 4 Q Your declaration doesn't compare the time 5 or energy expended on mRNA versus any other 6 scientific field. True? 7 A I don't have a specific comparison, but I 8 think generally, my declaration addresses that, and 9 I think that that's inherent to what Dr. Griffin and 10 what Dr. Moon told me. 11 Q So what did Dr. Griffin and Dr. Moon tell 12 you about that? 13 A Well, they told me the types of things 14 that I wrote about, for example, in paragraphs 89 15 and 90. 16 Q And paragraphs 89 and 90 do not contain 17 any comparison of mRNA to other scientific fields. 18 Yes? 19 A Not specifically, but I think what 20 they're discussing and what they told me was within 21 context and in a relative sense. 22 Q They didn't mention any other specific
46 1 But I do think the mRNA field is different than 2 others that I've seen. 3 Q In what way? 4 A I think the time and the energy and the 5 different technologies that have been included over 6 time. That would be one way to describe that. 7 Q And did you compare, in forming your 8 opinions, the mRNA field to any other scientific 9 field? 10 A So in terms of the science, I would defer 11 to Dr. Griffin, Dr. Moon, and other technical 12 experts for that. 13 Q And I'm just asking about your opinions 14 in your declaration. 15 Your declaration doesn't compare the mRNA 16 field with other scientific fields. 17 Is that fair? 18 A I don't know. I don't know if that's 19 fair. I think that -- I think it's pretty -- I 20 think it's pretty well understood that mRNA had 21 taken -- really the things that I wrote about in 22 paragraph 89, that it had been decades in the making	48 1 technologies to you? 2 A I think they may have. 3 Q What did they tell you? 4 A I wish I had that type of memory. But I 5 do recall that what they described to me was in a 6 relative sense. 7 Q Sitting here today, you have no point of 8 comparison between mRNA and other scientific fields 9 in terms of time or energy to develop? 10 MR. MESTITZ: Objection to form. 11 A Hmm. I'm trying to think. 12 I think that this description -- these 13 descriptions, as I understand it, as they come from 14 Dr. Griffin and Dr. Moon, are relative. I'm trying 15 to think if -- I know that Mr. Malackowski didn't 16 address this, in a lot of ways, as I wrote in my 17 report. 18 And I don't know that there is a 19 specific, like, numeric comparison, but I think the 20 comparisons are inherent to my analysis and to what 21 Dr. Griffin and Dr. Moon told me, for example. 22 Q So what I'm trying to figure out is

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49 1 relative to what. You said that your understanding 2 is, this description is relative. Relative to what? 3 A I would -- for specifics as to 4 technologies and the ones that they provided to me, 5 I would speak to Dr. Griffin or Dr. Moon. 6 Q Your declaration doesn't say what it's 7 relative to? 8 A I'll think about whether there's 9 something, and let you know, that is, like, more 10 specific. But I can tell you, as I sit here right 11 now, they did provide me with those types of 12 comparisons, and these comments are on a relative 13 sense. 14 Q And you didn't put that in your 15 declaration, correct? 16 A Put what? 17 Q You didn't put the relative comparison of 18 mRNA to another field in your declaration. True? 19 A I think that it is clear that it's in a 20 relative sense. I don't know that there's any 21 specific comparisons, and I can't think of any 22 specific comparisons that Mr. Malackowski made	51 1 provided details as to that, and I think that 2 there's other sources that are consistent with that 3 as well. 4 Q Such as? What other sources are 5 consistent with that? 6 A Well, as I'm looking -- I'm looking at 7 the footnotes in -- on page 47, footnotes 174 and 8 175, I noted that in addition to Dr. Griffin, I 9 cited to those, for example. 10 Q And are you suggesting that those 11 citations include some relative evaluation of the 12 time and effort spent on mRNA development versus 13 other technical areas? 14 A Well, I don't have everything memorized, 15 but I do think that there's that type of description 16 or characterization is made in at least some of 17 these documents, yes. 18 Q Your declaration doesn't contain a 19 quantitative evaluation of the time and effort spent 20 developing mRNA technologies versus other 21 technologies, correct? 22 A I don't have any one specific comparison,
50 1 either. 2 Q So what is it about what you've written 3 in your declaration that you think implies relative 4 evaluation? 5 A Well, there's a bunch. I think some of 6 these statements that I make, clearly they're in a 7 relative sense. 8 Paragraph 92, for example, describes how 9 technology in mRNA vaccines is complex. 10 Paragraph 91 goes to that. For both of those I 11 cite, in addition to a variety of materials, to 12 Dr. Griffin. I think those ideas are inherent to 13 those paragraphs. 14 Q Other areas of pharmaceutical development 15 are complex, right? 16 MR. MESTITZ: Objection to form. 17 A They can be. 18 Q And you didn't compare those areas to 19 mRNA? 20 A Well, I think those comparisons are 21 inherent to the descriptions that I've provided 22 here, and I think that Dr. Griffin and Dr. Moon have	52 1 but I think those comparisons are inherent to the 2 things that we've been talking about. 3 MR. MESTITZ: We've been going about an 4 hour. So you should wrap this line whenever you 5 want. 6 MS. CURTIS: Okay. We can take a break 7 now. 8 (Recess from 10:04 a.m. until 10:17 a.m.) 9 BY MS. CURTIS: 10 Q So we were talking about the path of mRNA 11 development. Yes? 12 A Yes, I remember. 13 Q Just trying to reorient everyone to the 14 discussion. 15 A Understood. 16 Q So your discussion of the prior art does 17 not mention the Schrum reference, correct? 18 A So I don't know that I -- I don't know if 19 I make that specific reference, but I may. That's 20 something that I would leave to technical experts, 21 that level of specificity. 22 Q You don't cite the exhibit that is the

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53 1 Schrum reference asserted in this IPR, correct? 2 A I may. That's something I would depend 3 on technical experts for, that level of specificity. 4 Q Well, I'm not asking about anything about 5 the reference. I'm just asking you to confirm, your 6 declaration does not cite that reference, correct? 7 A I mean, if it doesn't say that 8 specifically, then it doesn't. But I'm citing to 9 Dr. Griffin, for example, for those types of things. 10 Q Okay. Your declaration doesn't cite 11 Schrum? 12 A I don't know if I mention it 13 specifically, but it may. And then I would depend 14 on Dr. Griffin for that level of specificity. 15 Q I'm not asking about the reference. 16 Do you understand that? 17 A I thought you were asking about the 18 reference. So how are you making that distinction? 19 Q Let me be clear. I'm not asking you 20 about the substance of the reference Schrum, okay? 21 A Okay. 22 Q You don't cite Schrum in your	55 1 A Well, he talked about some specifics 2 technically, and I left those to him. That's his 3 area. 4 Q I'm going to try one more time. 5 You didn't cite Schrum specifically in 6 your declaration, correct? 7 A Well, I don't know that I listed that in 8 those words, but some of the information may go to 9 that, and then I would depend upon Dr. Griffin, for 10 example, for those types of things. 11 Q And you can't point me to any citation of 12 Schrum in your declaration, sitting here today, 13 correct? 14 A I don't know that I could do that with 15 just the materials that I have right here. 16 Q Okay. You don't recall anything specific 17 that Dr. Griffin told you about Schrum? 18 MR. MESTITZ: Form. 19 A He did provide some specificity in terms 20 of discussing prior art, but I didn't list that in 21 my report because that's his area of responsibility. 22 He's the technical expert.
54 1 declaration? 2 A I may. I may not use those words. And I 3 do cite to Dr. Griffin, for example, and depend upon 4 him for things like that. 5 Q Do you understand what prior art is 6 asserted in this IPR? 7 A Generally. 8 Q Do you understand that the Schrum 9 reference is one of those pieces of prior art? 10 A Yes, that rings a bell. 11 Q You didn't cite the exhibit in your 12 declaration, Schrum? 13 A I don't know if I did or didn't, if by 14 some other way. I do by referring to Dr. Griffin, 15 though. 16 Q And did Dr. Griffin tell you anything 17 about Schrum? 18 MR. MESTITZ: Objection to form. 19 A He may have. He may have. 20 Q You don't remember one way or the other 21 whether Dr. Griffin told you about Schrum in your 22 interview?	56 1 Q And in discussing the advancements in 2 mRNA technology, you didn't include Schrum, correct? 3 MR. MESTITZ: Form. 4 A I don't know that I could say that. 5 We're in the same loop here. I would rely upon 6 Dr. Griffin for something like that. And some of 7 the materials in here may include that reference. 8 Because that's Dr. Griffin's focus, I left that type 9 of thing to him. 10 Q You did cite some specific work in this 11 section, correct? 12 A Some. 13 Q You cited work from Dr. Karikó and 14 Dr. Weissman? 15 A Yes. 16 Q You cited several other exhibits that you 17 referred to earlier regarding the advancements in 18 mRNA technology, right? 19 A There's other things in this section, 20 yes. 21 Q But you didn't cite Schrum, correct? 22 A I can't tell you with specificity that

57 1 that's specifically listed. But I would depend upon 2 Dr. Griffin for that level of specificity. 3 Q You don't cite Schrum. I'll represent 4 that to you. Okay? Do you accept my representation 5 that you don't specifically cite Schrum? 6 A I can accept your representation. 7 Q Okay. So you don't cite Schrum, right? 8 A Well, you're making a representation to 9 me that it's not specifically in my report. 10 Dr. Griffin did provide me with some 11 descriptions and described his work and research as 12 to the state of the art and the prior art. I left 13 that to him to describe in detail because that's 14 where he's an expert. 15 And as to whether any of this sort of 16 goes to that, some of these other references, I'd 17 have to defer to him. 18 Q So you have a section in your declaration 19 on the prior art, correct? 20 MR. MESTITZ: Form. 21 A So what I discuss is prior art and 22 Moderna's place in the technological path. I would	59 1 got a report, and I discuss this in a lot of detail. 2 Let me give you some, and let's see what is relevant 3 for your work. 4 Q You didn't think it was relevant to 5 specifically cite Schrum in this section? 6 A I think I put in what's relevant and 7 relied upon technical experts for technical issues. 8 Q Do you understand that another reference 9 asserted by petitioners in these IPRs is the Geall 10 reference? 11 A That sounds familiar, yes. 12 Q You don't specifically cite the Geall 13 reference in your declaration, correct? 14 A I mean, it would be the same. I'm 15 deferring to Dr. Griffin or Dr. Moon for those types 16 of things. And specificity and in general terms, 17 there may be some reference to that here. But 18 that's the type of thing I would defer to the 19 technical experts for. 20 Q As you sit here today, you can't point me 21 to any direct citation to the Geall reference in 22 your declaration. True?
58 1 cite to technical experts for prior art analyses, 2 for example. 3 Q You're not doing an analysis of the prior 4 art, correct? 5 A Not as a technical expert, no. 6 Q Did Dr. Griffin tell you anything about 7 Moderna's work on mRNA? 8 MR. MESTITZ: Objection to form. 9 A I think that was among the things that he 10 described. 11 Q What did Dr. Griffin tell you about 12 Moderna's work on mRNA? 13 A We can look in my report and see what I 14 cite to him for. I think he may have discussed the 15 other Moderna patents, for example. 16 Q What did he tell you about that? 17 A I think what he told me is that this is a 18 field that has many different technologies and there 19 were decades of research by many hundreds of 20 scientists. And he gave examples of those. 21 And I think that he has that in his 22 report. I think he at some point said, look, I've	60 1 A I can point you to Dr. Griffin and 2 Dr. Moon and the work that they've done and what 3 they've told me in general terms. And I don't know, 4 if we searched on that word, if we found it, but I 5 think the concept of the prior art and the stated 6 art is discussed in detail. 7 Q Sir, I'm asking about your declaration. 8 You can't point me to a specific citation 9 to the Geall reference in your declaration, correct? 10 A I don't know that I could identify that 11 specifically, as I sit here right now. It may be 12 referenced indirectly in some of the materials I 13 cited. And the prior art issues and the 14 specificity, I cite to Dr. Griffin and Dr. Moon for. 15 So I think that I do, but I'm not a 16 technical expert, so I don't have the same level of 17 detail that a technical expert would. 18 Q I just want you to focus on my question. 19 Okay? 20 Sitting here today, you cannot point me 21 to a specific citation to the Geall reference in 22 your declaration, correct?

61 1 A I think that I answered your question. I 2 would give you the same answer, if that's the same 3 question. 4 Q And the answer is, you can't, right? 5 A No, that's not the answer I gave you. 6 Q Okay. So where in your declaration is 7 there a specific citation to Geall? 8 A I'll give you the same type of answer, 9 that I'm citing to Dr. Griffin and Dr. Moon and 10 technical experts. They've discussed the prior art 11 in detail. I'm relying upon them and that 12 information and their descriptions in detail on 13 that. And some of the references that I have in my 14 report and footnotes may relate to that. 15 I would defer to that for a technical 16 expert, too. I think I've made clear that that's 17 the type of thing that I would defer to a technical 18 expert on. 19 Q You put specific citations in your 20 declaration. Geall is not one of them. Yes? 21 MR. MESTITZ: Asked and answered. 22 A I would gave you the same answer to that	63 1 refreshes my memory, and I don't know what other 2 materials might be available to do that. I can't 3 think of anything specifically to do that, that I 4 could give you an example of. 5 Q Your declaration has not refreshed your 6 recollection about what Dr. Griffin and Dr. Moon 7 told you about Geall, correct? 8 A Not with that level of specificity as to 9 the prior art and issues that they would have looked 10 into, into detail. I would defer to them for 11 specifics like that. 12 Q Your discussion of the prior art in your 13 declaration doesn't mention the Yang reference 14 specifically, correct? 15 A I don't know that I refer to that in that 16 way, in the same way that we've discussed with 17 Geall, for example. 18 Q Your discussion of the prior art in your 19 declaration does not mention the Altmeyer reference 20 specifically, correct? 21 A Not in the way that you're asking. I 22 think that it may in the way that I'm discussing,
62 1 as I've given you a few times in a row now. 2 Q Did Dr. Griffin or Dr. Moon tell you 3 anything about Geall on your calls? 4 MR. MESTITZ: Object to the form. 5 A They may have. They may have. They good 6 did go into some technical detail, yes, to 7 illustrate the types of things they were telling me. 8 Q Do you recall anything that Dr. Griffin 9 or Dr. Moon told you about Geall? 10 A I would need something to refresh my 11 memory as to that level of detail. 12 Q You didn't include that detail in your 13 declaration, correct? 14 MR. MESTITZ: Form. 15 A Well, I may have -- as I said, I may have 16 indirectly, but that level of specific type of 17 information, I would defer to Dr. Griffin and 18 Dr. Moon for. 19 Q Is there anything that would refresh your 20 recollection about what you talked about with 21 Dr. Griffin and Dr. Moon? 22 A Well, looking at my report, that	64 1 and certainly the state of the art and prior art and 2 Dr. Griffin and Dr. Moon's work, they provided me 3 with some detail about that, that work that they've 4 done that I would defer to them for. 5 Q Did Dr. Griffin or Dr. Moon tell you 6 anything about Yang or Altmeyer when you talked to 7 them? 8 MR. MESTITZ: Form. 9 A They may have, yes. 10 Q You don't recall specifically whether 11 Dr. Griffin or Dr. Moon talked to you about Yang or 12 Altmeyer? 13 A So they went into, like, more details as 14 technologists about the specific references, as I 15 think would be natural for them, and I defer to them 16 for that type of -- for that type of specificity, 17 them and technical experts. 18 Q Did Dr. Griffin tell you that Geall does 19 not describe mRNA? 20 MR. MESTITZ: Objection to form. 21 A I don't -- I would need something to 22 refresh my memory on that level of specificity.

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65 1 Q Sitting here today, you don't recall 2 whether Dr. Griffin told you that Geall does not 3 describe mRNA, right? 4 MR. MESTITZ: Form. 5 A I would need something specific to 6 refresh my memory on that topic. 7 Q Do you have notes from your call with 8 Dr. Griffin? 9 A I tried to put the salient points from a 10 financial and economic perspective directly into my 11 report. 12 Q Did Dr. Griffin tell you that Geall does 13 not describe LNPs? 14 MR. MESTITZ: Form. 15 A He may have. I don't have -- I would 16 defer to him for that level of specificity, though. 17 I'm not a technical expert. 18 Q Did Dr. Moon tell you that Geall does not 19 describe LNPs? 20 MR. MESTITZ: Form. 21 A Again, they may have. I would defer to 22 them for that level of technical specificity.	67 1 They did provide me with, sort of using 2 their vocabulary, descriptions and the work that 3 they did. And I leave that to them for the work 4 that they've done. They're the technical experts. 5 So anything like that in terms of the 6 specificity, I would defer to them, or technical 7 experts as to those particular issues. 8 Q You understand I'm asking you about what 9 you recall from what they told you. 10 Is that clear? 11 A Yes. 12 Q Okay. Did Dr. Griffin tell you that 13 Geall does not report having made and used an LNP 14 encapsulating mRNA? 15 MR. MESTITZ: Form, asked and answered. 16 A Same. I wouldn't have that level 17 specificity in my memory, and I would defer to them 18 for that. 19 Q Did Dr. Moon tell you that Geall does not 20 report having made and used an LNP encapsulating 21 mRNA? 22 MR. MESTITZ: Form and asked and
66 1 Q Did Dr. Griffin tell you that Geall does 2 not report encapsulation of mRNA? 3 MR. MESTITZ: Form. 4 A So any level of specificity that you're 5 discussing like that about the technology, just to 6 go back and address the prior answers, whether 7 something did or didn't, I would defer to technical 8 experts for. They describe the state of the art and 9 the prior art and provided me with the types of 10 things that I cited in my report for. 11 Q And I'm just trying to understand what 12 they told you on the interviews that you're relying 13 on them for. 14 Did Dr. Moon tell you that Geall does not 15 report encapsulation of mRNA? 16 MR. MESTITZ: Form. 17 A I don't know that I could tell you. I'm 18 not a technical expert, and I've also -- this is a 19 patent infringement case with specific technical 20 issues. 21 So I would defer to them for that level 22 of specificity. Same for my prior answers.	68 1 answered. 2 A I would leave those types of issues to 3 them as technical experts. 4 Q You don't recall if they said that? 5 A Not that level of specificity. 6 Q Did Dr. Griffin tell you that Geall 7 discloses only self-replicating RNA molecules as the 8 RNA, unlike the mRNA used in Comirnaty? 9 MR. MESTITZ: Form. Also argumentative. 10 A I don't know that I could remember that 11 level of specificity, all those types of things, and 12 I would defer to technical experts for those types 13 of things. 14 Q You don't recall? 15 A What I remember is what I'm telling you, 16 is that they gave some specificity as to what they 17 were discussing, but they're the scientists and 18 technical experts, and I'm relying upon them. 19 Q You don't recall whether Dr. Moon told 20 you that Geall discloses only self-replicating RNA 21 molecules as the RNA, unlike the mRNA used in 22 Comirnaty?

69 1 MR. MESTITZ: Form and argumentative. 2 A For those types of issues, same. I would 3 defer to the technical expert for that type of 4 thing, and I wouldn't be able to remember that level 5 of detail, sitting here right now. 6 Q You don't recall whether Dr. Griffin or 7 Dr. Moon told you that Geall discloses only 8 liposomes encapsulating the RNA, unlike the LNPs 9 used in Comirnaty? 10 MR. MESTITZ: Form, argumentative. 11 A That level of specificity, I would defer 12 to them. I can't give you, like, a specific 13 recollection of the scientific details. That's 14 their area of expertise. 15 Q And aside from what you have cited in 16 your declaration, you don't recall the specifics of 17 what Dr. Griffin and Dr. Moon told you, correct? 18 A I mean, I would defer to them for what 19 they said they provided me with. Some descriptions 20 from their perspective and their specific scientific 21 opinions, I think that's their area of expertise, 22 and I would leave it to them.	71 1 specificity, I would defer to them. 2 So the answer to that question is, I 3 think I've done my best to include that in my 4 report, that my memory, I've also tried to describe 5 to you. In terms of going into details, I would 6 defer to them as to the types of specifics that you 7 are asking about. 8 Q Mr. Malackowski offered the opinion that 9 Comirnaty and Spikevax achieved significant market 10 success, right? 11 A Yes. I think he did. If you're 12 representing that that's a specific thing that he 13 said, but I think generally I know what you're 14 talking about. 15 Q And you don't disagree with 16 Mr. Malackowski that Comirnaty and Spikevax have 17 achieved significant market success, right? 18 MR. MESTITZ: Objection to form. 19 Go ahead. 20 A I mean, there's been some measures of 21 some ways that there's been success. I think the 22 jury is still out, if you will, that we're still --
70 1 Q I'm just asking for your recollection. 2 A I gave you -- I'm sorry, I didn't -- 3 (Cross-talk.) 4 Q So you don't recall any of the technical 5 detail of what Dr. Griffin and Dr. Moon told you 6 beyond what is included in your declaration. Fair? 7 MR. MESTITZ: Form, asked and answered. 8 A I don't think that's fair. I gave you 9 some description of what I recalled and sort of how 10 my memory works and how the conversation went. So 11 I'm giving you additional color beyond what's in my 12 declaration from memory. 13 But I would defer to them for the 14 specifics. And I've included, I think, what the 15 salient points are in my report. 16 Q Is there anything we haven't already 17 talked about that you recall Dr. Moon or Dr. Griffin 18 telling you on the interviews you had with them? 19 A So I'm going to give you the same type of 20 answer. I can't remember verbatim everything they 21 said or all the examples that they used. I don't 22 know that I could. And with any level of	72 1 haven't seen the entirety of the cycle. But there's 2 been sales, for example, that I've included in my 3 report, I don't think Mr. Malackowski would disagree 4 with either. 5 Q Your declaration doesn't offer an opinion 6 that Comirnaty is not commercially successful. 7 Fair? 8 MR. MESTITZ: Form. 9 A Yeah, I focus on the nexus to any 10 success, and I think that's the way that I would 11 answer that. 12 Q And similarly, you didn't offer the 13 opinion that Spikevax is not commercially 14 successful, correct? 15 MR. MESTITZ: Form. 16 A I think that I focused on the nexus to 17 any success. 18 Q I'll direct you to paragraph 35. Let me 19 know when you're there. 20 A Okay. Okay. 21 Q So you mention in your declaration that 22 Pfizer's Pevnar 13 was Pfizer's best selling

73 1 product for years, right? 2 A Yes. 3 Q And you also mention that Plevnar 13 was 4 the best-selling vaccine in pharmaceutical history, 5 right? 6 A Whatever the document cites in 7 footnote 58. 8 Q Well, I'm just reading the last clause of 9 paragraph 35. You wrote, It was the best-selling 10 vaccine in pharmaceutical history, correct? 11 A Yeah. I mean, there's an article that 12 refers to that. 13 Q Okay. And that article is Exhibit 1190? 14 A That's one of the two things in there. 15 Q And the second one is Exhibit 1191? 16 A Yes, in that footnote. 17 MS. CURTIS: Why don't we go ahead and 18 take a look at those. 19 (Previously marked Exhibit 1190 presented 20 to the witness.) 21 BY MS. CURTIS: 22 Q So do you have before you Exhibit 1190?	75 1 make a speaking objection. But I disagree that the 2 question that you asked is encompassed within the 3 scope. 4 A It depends on how you define 5 "commercially successful." There's been some 6 success, I think, in general terms in a layperson's 7 sense. 8 Q Let's focus on Exhibit 1190. You have no 9 reason to doubt the accuracy of Exhibit 1190? 10 A I think directionally -- I haven't vetted 11 the specific numbers, but I think directionally, 12 this seems accurate, consistent with other 13 information. 14 Q You relied on Exhibit 1190? 15 A It's one of the materials I cited in the 16 background section. 17 Q Pfizer collected 23.4 billion in revenues 18 on sales of Plevnar 13 from 2015 through 2018? 19 A That's how it was described in this 20 article. 21 Q And Exhibit 1190 also describes Pfizer 22 collecting \$5.8 billion in revenues on Plevnar 13 in
74 1 A Yes. 2 Q And this is the exhibit you cite for the 3 proposition that Plevnar 13 was Pfizer's 4 best-selling product for years? 5 A I cite to this, yes. 6 (Previously marked Exhibit 1191 presented 7 to the witness.) 8 BY MS. CURTIS: 9 Q And you also have Exhibit 1191 in front 10 of you? 11 A Yes. 12 Q Exhibit 1191 is the document you cite for 13 the proposition that Plevnar 13 was the best-selling 14 vaccine in pharmaceutical history? 15 A Yes, there's a list in here. 16 Q And you'd agree that Plevnar 13 is 17 commercially successful, correct? 18 MR. MESTITZ: Objection to form. Also 19 scope. Outside the scope. 20 MS. CURTIS: Well, it's in his 21 declaration. 22 MR. MESTITZ: Well, I won't -- I won't	76 1 2018, right? 2 A I see the reference to -- yes, it says 3 the last year, and this was from February 2019. So 4 I can see where you're getting the timing. 5 Q Moderna realized more than 17 billion in 6 revenues on Spikevax in 2021, right? 7 A I don't know that I could give you, like, 8 that level of specificity from memory. But I'll 9 accept your representation. 10 Q And let me back up just a couple steps. 11 Do you recall that Mr. Malackowski 12 includes a summary of revenue numbers for Spikevax 13 and Comirnaty? 14 A He includes some financials. 15 Q And your declaration doesn't dispute the 16 accuracy of Mr. Malackowski's description of the 17 revenues for Spikevax and Comirnaty, correct? 18 A I'm not taking issue with that 19 specifically, no. 20 Q And Pfizer realized more than 36 billion 21 in revenues on Comirnaty in 2021, correct? 22 A Well, I don't have that type of memory,

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77 1 although it's pretty good. I can't give you that, 2 like, level of specificity. But I can accept your 3 representation on that. 4 Q So Spikevax and Comirnaty each made 5 several times more revenue in 2021 than Pevnar 13 6 did in 2018, right? 7 MR. MESTITZ: Form. 8 A I mean, if you're just comparing those 9 two numbers, one is larger than the other. I can 10 agree with you on that. 11 Q By several times, right? 12 A I don't think that's actually true. 13 MR. MESTITZ: Form. 14 Q Well, at least for Pfizer's revenue, 15 several times? 16 A That may be true mathematically. 17 Q Is there another sense in which it's not 18 true? 19 A You asked me to make some assumptions 20 about numbers, and you're asking me if one is bigger 21 than another, and you're asking me if one is several 22 times larger than another. You're comparing two	79 1 Q Okay. Let's take a look at paragraph 11 2 of your declaration. 3 Do you have paragraph 11 in front of you? 4 A Yes. 5 And I hate to do this, but can I take, 6 like, three minutes to use the rest room? 7 MS. CURTIS: Of course. 8 (Recess from 10:49 a.m. until 10:52 a.m.) 9 BY MS. CURTIS: 10 Q So you have paragraph 11 of your 11 declaration before you? 12 A I do. 13 Q And you state there that Pfizer and 14 BioNTech contest that Comirnaty infringes the '600 15 patent and the '127 patent, correct? 16 A Yes. 17 Q What's the basis for your understanding 18 that Pfizer and BioNTech contest that Comirnaty 19 infringes the '600 and '127 patents? 20 A I think generally, there's a disagreement 21 about that. There's a range of things. 22 Q So I just want to be clear about this.
78 1 different time periods. 2 But setting that aside, one number is 3 larger than the other, and I think your mathematical 4 comparisons, like, after you corrected your first 5 one, I think it was okay, like, in terms of what you 6 said specifically, the math. 7 Q And you don't dispute the math, right? 8 A Your math a moment ago? I did, and then 9 you corrected it. 10 Q And what are you referring to that was 11 incorrect? 12 A I wasn't sure that your characterization 13 about several times applied to Spikevax, I think, 14 for example. 15 Q So Spikevax's revenue in 2021 was almost 16 but not quite three times Pevnar 13's revenue in 17 2018? 18 A What are the numbers you provided me 19 with? 20 Q 5.8 and 17 billion. 21 A Yeah, in rough terms, that's how the math 22 works.	80 1 You understand there's no disagreement 2 about that in the IPRs, right? 3 A Oh, if you're saying that this is 4 specific to invalidity, I think that's -- that's 5 true. I think I was using this in a sort of more 6 general sense. 7 Q And you're not aware of Pfizer and 8 BioNTech arguing in any paper in these proceedings, 9 the IPRs, that Comirnaty does not practice the '600 10 or '127 patent, correct? 11 A I don't know that I would -- I could give 12 you, like, something that says that. But I wouldn't 13 want to make a blanket statement about that either. 14 Q Sitting here today, you're not aware of 15 any paper in these IPRs where Comirnaty disputes -- 16 let me strike that. Try again. 17 Sitting here today, you're not aware of 18 any paper in these IPRs where Pfizer and BioNTech 19 dispute that Comirnaty practices the '600 or '127 20 patents, correct? 21 A I couldn't cite to you anything. I think 22 there's challenges as to validity.

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81 1 Q You're not aware of any expert testimony 2 that Pfizer and BioNTech have put forward that 3 Comirnaty does not practice the '600 or '127 4 patents? 5 A I don't know that I could give you that 6 level of specificity or speak on behalf of a 7 technical expert. 8 Q For your part, you assumed that Comirnaty 9 and Spikevax practice the '600 and '127 patents? 10 A Yes, I incorporate claims of the '600 and 11 '127 patent. I write that in the second sentence of 12 this paragraph. 13 Q Take a look at paragraph 14. 14 A Okay. 15 Q Do you have paragraph 14 in front of you? 16 A I do. 17 Q Your understanding that the '600 and '127 18 patents claim priority to October of 2015, correct? 19 A That's what I wrote. 20 Q Spikevax and Comirnaty both launched in 21 late 2020, correct? 22 A Yes.	83 1 instances like that, that that product was 2 commercially successful, right? 3 MR. MESTITZ: Form. 4 A Yeah, I don't have any specific 5 recollection of that. Every case is specific, and 6 the facts are specific. I wouldn't rule that out. 7 I didn't suggest there's an absolute rule here that 8 applies. 9 Q Okay. Turn to page 72 of your 10 declaration. 11 A Okay. 12 Q Do you have page 72 in front of you? 13 A I do. 14 Q Okay, great. You have a section in your 15 declaration titled Macroeconomic and Regulatory 16 Considerations. Yes? 17 A I do. 18 Q And governments played a role in the 19 launch of Spikevax and Comirnaty, right? 20 A Yes. 21 Q Governments played a role in the launch 22 of Spikevax and Comirnaty because of the public
82 1 MR. MESTITZ: Objection to form. 2 A I mean, there's more -- I said they're 3 created and released in 2020 is what I describe in 4 the second sentence. 5 Q There's no requirement to show commercial 6 success at the priority date, correct? 7 MR. MESTITZ: Objection to form. 8 A Like a specific requirement? I'm not 9 sure there's a specific requirement or rule like 10 that. 11 Q And it's not uncommon, in fact, for a 12 product to launch after the patents are filed that 13 the product practices, right? 14 MR. MESTITZ: Form. 15 A Not uncommon. That happens is what I 16 would say. 17 Q In fact, you have opined in cases 18 involving patents filed years before a product 19 launches, correct? 20 MR. MESTITZ: Form. 21 A There's probably instances like that. 22 Q And you've represented to the Board in	84 1 health crisis caused by COVID-19, right? 2 A I agree. 3 Q And governments, among other things, 4 provided an expedited approval process for COVID-19 5 vaccines, correct? 6 MR. MESTITZ: Form. 7 A I would say that they availed themselves 8 of expedited approval processes. 9 Q I just want to make sure I have your 10 testimony clear. 11 Is the "they" in that last answer 12 governments or -- 13 A Yes. 14 Q -- manufacturers? 15 So governments made available an 16 expedited approval process for COVID-19 vaccines? 17 A That's probably a better way of saying 18 it. 19 Q Okay. Governments provided subsidies for 20 development of COVID-19 vaccines, correct? 21 MR. MESTITZ: Form. 22 A There were programs that -- and funding,

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85 1 if that's what you're referring to. I refer to that 2 later. 3 Q Moderna and Pfizer and BioNTech were not 4 the only companies that attempted to develop 5 COVID-19 vaccines in 2020, correct? 6 A That's correct. 7 Q And you're aware that over 200 companies 8 attempted to develop COVID-19 vaccines? 9 MR. MESTITZ: Form. 10 A It depends at what point in time you're 11 talking about. I do think, like, initially, there 12 was sort of widespread interest. I don't know if 13 the number you cite is exactly right. There's 14 different ways you can measure it. 15 Q And those other companies had access to 16 the expedited approval processes that governments 17 made available, correct? 18 MR. MESTITZ: Form. 19 A They didn't necessarily leverage them or 20 have the ability to leverage them as others did. 21 But there was some general availability that 22 companies were able to leverage in different ways.	87 1 A No. I was waiting for you to ask another 2 question. 3 Q Can you point me to where in your 4 declaration you respond to that point? 5 A Paragraph 113. 6 Q And so let me know if I have this wrong, 7 but it looks like your response is that 8 Mr. Malackowski didn't analyze why Pfizer and 9 BioNTech's other candidates would not have practiced 10 the '600 and '127 patents. 11 Is that right? 12 A I said he did not identify particular 13 inventions of the '600 or '127 patents that caused 14 candidates -- you can say those candidates, 15 referring to what's in the prior sentence -- to be 16 selected or identify which of the candidates 17 included the '600 or '127 patents. 18 That's what I wrote. 19 Q And you didn't undertake to analyze 20 whether the other candidates investigated by Pfizer 21 and BioNTech would practice the '600 and '127 22 patents, right?
86 1 Q And other companies also had access to 2 governmental incentives to develop COVID-19 3 vaccines, correct? 4 MR. MESTITZ: Form. 5 A I think my answer would be the same. It 6 was -- there was a dynamic process. Different 7 companies were in different positions. Some of them 8 leveraged the opportunities or the programs and were 9 able to and some weren't. 10 Q Pfizer and BioNTech investigated vaccine 11 candidates other than what ultimately became 12 Comirnaty, right? 13 A There were different vaccine candidates 14 that they considered. 15 Q Your declaration doesn't consider whether 16 the other candidates tested would have practiced the 17 '600 or '127 patents, right? 18 MR. MESTITZ: Form. 19 A I think that's a topic that 20 Mr. Malackowski raised that I responded to. 21 Q And are you trying to find the location 22 where you respond to that?	88 1 A So I can get Mr. Malackowski's report 2 out. I think part of what I've written here is that 3 he's implying that the others did not, and it's not 4 clear if he is saying that in an absolute sense or 5 saying that there's some that do and some that 6 don't. We can look at his declaration and see if 7 he's more specific. My recollection is that he's 8 not. 9 And so I kind of considered both 10 possibilities. And what I'm raising here as an 11 issue is that he didn't identify what caused those 12 candidates to be selected or which specifically 13 included the '600 or '127 patents. 14 Q Of the companies that tried to develop 15 COVID-19 vaccines, Pfizer and BioNTech's Comirnaty 16 was the first to be authorized in the U.S., right? 17 A I think that's true. 18 Q And Moderna's Spikevax was the second 19 COVID-19 vaccine to be authorized in the U.S. one 20 week later, right? 21 A That's consistent with my memory. 22 Q You're not aware of any other COVID-19

89 1 vaccine that has achieved the same revenue numbers 2 as Comirnaty or Spikevax, right? 3 MR. MESTITZ: Form. 4 A The same? They're all different. 5 They've all achieved different levels of revenues. 6 Q Let me be more specific. 7 You're not aware of any other COVID-19 8 vaccine that has achieved revenue numbers as high as 9 Comirnaty or Spikevax, correct? 10 MR. MESTITZ: Form. 11 A I think in the U.S., what you say may be 12 true for a period of time. 13 Q Are you aware of any geography or time 14 period where a COVID-19 vaccine other than Comirnaty 15 or Spikevax achieved higher revenue numbers than 16 Comirnaty or Spikevax? 17 MR. MESTITZ: Form. 18 A Can you ask your question again? I don't 19 think I followed it. 20 Q Are you aware of any geography or time 21 period where a COVID-19 vaccine other than Comirnaty 22 or Spikevax achieved higher revenue numbers than	91 1 A Historically has had, I think is -- may 2 be more accurate. 3 Q Let's take a look at paragraph 65 of your 4 declaration. 5 A Okay. 6 Q Do you have paragraph 65 in front of you? 7 A I do. 8 Q You agree that nexus may be presumed when 9 the patent owner shows that the asserted objective 10 indicia -- sorry. Let me strike that so I make sure 11 I get this right. 12 You agree that nexus may be presumed when 13 the patent owner shows that the asserted objective 14 evidence is tied to a specific product, that product 15 embodies the claimed features, and is coextensive 16 with them. Correct? 17 A Well, I would say I understand that is a 18 part of the legal framework, as I wrote in my 19 report. 20 Q And you applied that legal framework in 21 coming to your opinions, correct? 22 A I'd say that I applied that understanding
90 1 Comirnaty or Spikevax? 2 MR. MESTITZ: Same objection. 3 A Around the world? I think there's -- I 4 don't know that I could give you, like, a global or 5 a panoptic accounting of, like, country by country, 6 if that occurred. But I think that's a possibility 7 in some countries. 8 Q But you don't know? 9 A Well, I'd need a document or information 10 to provide me with something specific. But I think 11 there's different situations in different countries. 12 Q Let me put it this way. You didn't 13 include in your declaration an analysis of revenues 14 for other COVID-19 vaccines, correct? 15 A I think I cite to some information for 16 other COVID-19 vaccines, but I don't know that 17 there's, like, a comparison that's any different 18 than what Mr. Malackowski might have available to 19 him. 20 Q In the U.S., no other COVID-19 vaccine 21 has revenues as high as Comirnaty or Spikevax, 22 right?	92 1 as I wrote, among other things. I did so from a 2 financial and economic perspective. 3 Q So I want to break that standard down a 4 bit. 5 Thinking about the revenue numbers that 6 Mr. Malackowski offers, you wouldn't dispute that 7 those revenue numbers are tied to specific products, 8 meaning Comirnaty and Spikevax, correct? 9 MR. MESTITZ: Objection to form. 10 A Tied to? Well, they relate to. I don't 11 know that I would use that. Or they're from, like 12 as reported. 13 Q Okay. So they are the revenue numbers 14 for Spikevax and Comirnaty specifically, right? 15 A I think there are some revenue numbers 16 for Spikevax and Comirnaty. 17 Q And I'm just returning to the language of 18 paragraph 65. You see there the phrase, tied to a 19 specific product? 20 A I do. 21 Q And you don't dispute that the revenue 22 numbers for Spikevax and Comirnaty are tied to

93 1 Spikevax and Comirnaty, right? 2 MR. MESTITZ: Form. 3 A Well, that's why -- 4 MR. MESTITZ: Calls for a legal opinion. 5 A -- I answered your question earlier the 6 way that I did is, I mean, that's a legal term in a 7 certain context, and I think it relates to patents. 8 The revenues are what they are, and this is part of 9 a broader idea. 10 Q This is a quotation of the legal standard 11 you applied, correct? 12 A This is a quotation from a case that I 13 understand relates to when a nexus may be presumed 14 for commercial success. 15 Q And you opine on nexus in this case, 16 right? 17 A Yes, I have economic opinions that relate 18 to nexus. 19 Q And do you have any understanding of what 20 it means to be tied to a specific product? 21 A That's a word that I see people use, and 22 I think in terms of it being used here, it's part of	95 1 Q So let me, before we get to 2 coextensiveness, just return to that first sentence 3 of paragraph 65. 4 Do you have that in mind? 5 A I have it right in front of me. 6 Q Good. Even better than in mind. 7 So the second of the three clauses there 8 says, that product embodies the claimed features. 9 Do you see that? 10 A Yes. 11 Q You don't dispute that Spikevax and 12 Comirnaty embody the claimed features of the '600 13 and '127 patents, right? 14 MR. MESTITZ: Object to form. Also asked 15 and answered. 16 A So there's, I think, some disagreement on 17 that, like we've talked about, and I've made an 18 assumption, like, earlier that we talked about. I 19 can -- I think like most people that have done this 20 type of work, I can entertain hypotheticals, so I 21 can consider both ideas, that it does or doesn't, on 22 a variety of different dimensions, and I think I
94 1 a broader sentence, part of which I quoted. 2 Q Do you dispute that the revenue numbers 3 for Spikevax and Comirnaty are tied to Spikevax and 4 Comirnaty? 5 A I wouldn't use that term, if you're just 6 reporting revenues of a product. 7 Q Why not? 8 A Because that generally has -- when that 9 term is used, that's, like, not a financial or 10 economic term; that's a legal term. And when it's 11 being used here, it relates to something more 12 specific, and at least in part in this sentence 13 describes claimed features and coextensiveness. 14 Q You have an understanding of 15 coextensiveness? 16 A I think it depends what the context is 17 that you'd ask me. But I know what the word means. 18 Q You applied your understanding of what 19 coextensiveness means to the issues in this case. 20 Yes? 21 A The next sentence relates to that, at 22 least in part, if that's what you're asking about.	96 1 address this that in my report, and as we've 2 discussed earlier, at least in part. 3 Q I just want to make sure I'm clear on 4 what assumptions you're applying when you gave your 5 opinions in this declaration. 6 You don't dispute, for purposes of your 7 declaration, that Spikevax and Comirnaty embody the 8 claimed features of the '600 and '127 patents, 9 right? 10 A So I understand there's a dispute about 11 that, and I also have made the assumption that I 12 described earlier. We can point specifically to it 13 in my report. I wrote in paragraph 11, I will 14 assume that both Comirnaty and Spikevax incorporate 15 claims of the '600 and '127 patent. And I go on to 16 say that there's many other technologies as well. 17 So I think we've talked about that, and 18 my assumptions are clear. 19 Q Is it accurate to say that of the three 20 requirements in the first sentence of paragraph 65, 21 you only dispute that the objective evidence is not 22 coextensive -- well, let me rephrase that.

97 1 Is the only thing you dispute in the 2 first sentence of paragraph 65 that Comirnaty and 3 Spikevax are coextensive with the claims of the '600 4 and '127 patent? 5 MR. MESTITZ: Form. 6 A So I don't -- I understand your question, 7 like, in plain English, but I don't understand your 8 question in that I don't think it's an accurate 9 characterization of what's here. 10 Q Why not? 11 A Because it's only, like, part of a 12 sentence. And you're reducing it to, like, some 13 rules and, like, a pronged test. 14 And also, there's a phrase that says, 15 asserted objective evidence. And that's, I think, 16 pretty encapsulating. 17 Q So -- 18 A There's probably other reasons. But just 19 to respond to your question, like, those two things 20 came to mind. 21 Q Okay. And you understand that this case 22 that you're quoting is a description of the law on	99 1 mischaracterized. 2 Q Is there any portion of the standard you 3 quote in paragraph 65, first sentence, from Fox 4 Factory that you did not apply in coming to your 5 opinions in this case? 6 A I think that I applied this from a 7 financial point of view. 8 Q Okay. And I -- 9 A I'm not a lawyer, as we've talked about 10 now several times. 11 Q And I want to understand how you applied 12 this standard, okay, so that's what I'd like to talk 13 about now. 14 In terms of whether the asserted 15 objective evidence is tied to a specific product, 16 you didn't dispute that in your declaration, right? 17 MR. MESTITZ: Form, asked and answered. 18 A Well, what do you mean by "asserted 19 objective evidence," and what do you mean by "tied 20 to"? I mean, I'm not here to object to language 21 that I understand applies, but I don't know 22 specifically what part of my report you're referring
98 1 presumption of nexus? 2 A It's from a case, and my understanding is 3 that it relates to presumption of nexus and 4 provides, like, some reasonable framework. I'm not 5 a lawyer, but that's my understanding, is that it's, 6 like -- I'm describing a concept. I don't -- I 7 think I'll just leave it there. 8 Q Is the quotation in the first sentence of 9 paragraph 65 of your declaration from the Fox 10 Factory case the standard that you applied in 11 evaluating presumption of nexus in your declaration? 12 MR. MESTITZ: Form. 13 A I consider this as background and as a 14 general understanding of some of the issues that 15 courts may consider, and then I apply my financial 16 and economic training and skill sets. 17 Q Is there any portion of the quote from 18 Fox Factory on paragraph 65 of your declaration that 19 you disagree with? 20 MR. MESTITZ: Form. 21 A I don't disagree with anything as long as 22 it's being placed in proper context and not being	100 1 to when you -- when you're referring to those two 2 phrases. 3 Q You quoted Fox Factory in paragraph 65, 4 correct? 5 A Yes, in part. 6 Q What was your understanding of the 7 quotation that you included in paragraph 65, first 8 sentence? 9 A I think it's as written as part of a 10 broader case and as part of more that I've written. 11 And I understand these are the types of issues that 12 courts may be interested in. 13 Q Do you have an understanding of what the 14 phrase "asserted objective evidence" means? 15 A So we can look at the case, it's part of 16 what the case says, and be more specific about what 17 it means. 18 But I think generally, it is consistent 19 with my memory and reasonable to think that that, in 20 some way at least, refers to the facts and 21 circumstances of each particular case and relates to 22 the patented technology in that case.

101 1 Q Let me see if this sounds right to you. 2 Would you understand the asserted 3 objective evidence to be the evidence of objective 4 indicia of nonobviousness advanced by the patent 5 owner? 6 A I'd have to read the paragraph and the 7 words that precede this to try to, like, read 8 something into this. That's not what I'm trying to 9 do here. 10 Q Do you have any understanding of what 11 asserted objective evidence is, without having read 12 the case? 13 MR. MESTITZ: Do you mean in the context 14 of -- form. 15 A Can you re-ask that question, please. 16 Without having -- I didn't understand what you're 17 asking. 18 Q Yeah. So you said you'd want to read the 19 case to get the context. So I'm asking, without 20 having the case in front of you, do you have an 21 understanding of what asserted objective evidence 22 means?	103 1 in front of you? 2 A I do. 3 Q And I want to talk about how you analyze 4 nexus or not to the revenue numbers for Spikevax and 5 Comirnaty. All right? 6 A Sure. 7 Q And you analyzed that in part by applying 8 the legal standard in Fox Factory. 9 Is that fair? 10 A Well, I have an understanding of the 11 legal standard generally, as I wrote in this 12 section. I'm not a lawyer, so I don't know that I 13 could totally agree with that just, like, flatly 14 without that context. 15 Q There are three parts to this presumption 16 of nexus, right? 17 A In this sentence, you can break -- this 18 part of the sentence, you can break it down into 19 three pieces. 20 Q Is what's described in this quotation 21 your understanding of the current state of law on 22 presumption of nexus?
102 1 MR. MESTITZ: Form. 2 A Well, I thought I answered that. I think 3 in general terms, that would relate to the specific 4 facts and circumstances of any particular case. And 5 to be more specific than that, we need to, I think, 6 review maybe the case or the paragraph in its 7 entirety. 8 Q Do you understand the revenue and sales 9 numbers for Spikevax and Comirnaty to be within the 10 ambit of the asserted objective evidence? 11 MR. MESTITZ: Form. 12 A I think that's among the facts we have to 13 consider here. The question here is nexus to those 14 facts. 15 Q Okay. Now I want to talk about that. 16 A Is this a good time to take a break? 17 MS. CURTIS: Sure. Any time you want. 18 THE WITNESS: All right. Thank you. 19 (Recess from 11:23 a.m. until 11:36 a.m.) 20 BY MS. CURTIS: 21 Q So when last we left off, we were talking 22 about Fox Factory. Do you still have paragraph 65	104 1 A I think within context, sure. 2 Q Did you analyze whether the revenue 3 numbers for Spikevax and Comirnaty were tied to 4 Spikevax and Comirnaty? 5 A We talked about that earlier. Like, I 6 think it's asserted objective evidence is tied to a 7 specific product, that's typically a legal term. 8 The revenues of Spikevax and Comirnaty are the 9 revenues of Spikevax and Comirnaty. 10 My understanding is, is that this relates 11 to the -- as it goes on to say, something more 12 specific, the product embodies the claimed features. 13 So it's talking about patents specifically. 14 And it's also relating to presumption of 15 nexus, that concept. 16 Q Did you analyze whether the revenues for 17 Spikevax and Comirnaty -- well, strike that. 18 Did you analyze whether Spikevax and 19 Comirnaty embody the claimed features? 20 MR. MESTITZ: Objection to form, asked 21 and answered. 22 A Well, I made assumptions about that.

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105 1 Q And your assumption was that Spikevax and 2 Comirnaty incorporate the claims of the '600 and 3 '127 patents? 4 MR. MESTITZ: Form, asked and answered. 5 A I think the language that I used -- so I 6 assume Comirnaty and Spikevax incorporate claims of 7 the '600 and '127 patent, as an assumption. 8 Q You analyzed whether Spikevax and 9 Comirnaty are coextensive with the claimed features 10 of the '600 and '127 patent, right? 11 A So I think that's largely a technical 12 opinion, and I addressed that in different places in 13 my report. 14 Q So whether a product is coextensive with 15 the claims of a patent is a technical issue, right? 16 MR. MESTITZ: Objection to form. 17 A I think you can have -- you can look at 18 that from a technological point of view. 19 Q Is there some non-technological point of 20 view from which you looked at the question of 21 coextensiveness? 22 A I think economically, you can look at	107 1 where I discuss this. Mr. Malackowski testified 2 that Spikevax and Comirnaty are not complex 3 multicomponent products. He said that the patented 4 technology can't be separated. 5 My understanding is that Spikevax and 6 Comirnaty have many significant unpatented features 7 and they are not coextensive with the asserted 8 claims. 9 I continued to write that there's 10 multiple considerations that relate to success. And 11 I continued to go on. 12 Those would be some examples of where I 13 address that issue. 14 Q Okay. And I don't mean this to be 15 confusing or anything. I read your report, and I 16 understood your opinion to be that Comirnaty and 17 Spikevax are not coextensive with the claimed 18 features. 19 Is that an accurate understanding? 20 A I think from an economic point of view, 21 that is consistent with what I've seen. I think 22 there's also -- you can take a look at this from a
106 1 other intellectual property and intangible assets 2 that might contribute to revenue. I've discussed 3 that in my report. 4 Q You dispute that Comirnaty and Spikevax 5 are coextensive with the claims of the '600 and '127 6 patents, right? 7 A So my understanding is, that wouldn't be 8 the correct way to describe things. And I think 9 there's other contributions, as I discussed. 10 Q So do you agree that Comirnaty and 11 Spikevax are coextensive with the claims of the '600 12 and '127 patents? 13 MR. MESTITZ: Form, asked and answered. 14 A Well, I've written about this in my 15 report in different places, so I would defer 16 specifically to what I wrote on this topic. 17 Q What's your opinion on coextensiveness of 18 Spikevax and Comirnaty to the '127 and '600 patents? 19 A So my opinions on that topic would be as 20 I wrote in my report. 21 Q Which are what? 22 A For example, there's a couple places	108 1 technological perspective, and I cite to Dr. Griffin 2 for that, as I did earlier. The proposition that 3 they're not coextensive and his opinion of that I 4 document in footnote 160, for example. 5 Q Okay. So let's talk about what 6 coextensiveness means, all right? Do you have that 7 topic in mind? 8 A Yes. 9 Q The existence of unclaimed features alone 10 does not mean that no presumption of nexus applies, 11 right? 12 MR. MESTITZ: Form. 13 A Is there a specific place that I cite 14 that in my report? Where do you get that quote 15 from? You're quoting something. 16 Q I'm just asking about your understanding 17 right now, okay? 18 A Sure. 19 Q You talk about a lot of unclaimed 20 features in your declaration, right? 21 A I do. 22 Q But the existence of unclaimed features

109 1 in general does not mean that there's no presumption 2 of nexus, right? 3 MR. MESTITZ: Form. 4 A I think that depends on the specifics. I 5 discuss the legal framework in paragraph 65, as I 6 understand it. 7 Q But you would agree that there can be a 8 presumption of nexus even when a product has 9 unclaimed features, right? 10 MR. MESTITZ: Form. 11 A Well, I think, as I wrote, there's an 12 example that's provided that unclaimed features 13 amount to nothing more than additional insignificant 14 features. That's in the second sentence of 15 paragraph 65. 16 Q So there are situations where unclaimed 17 features can amount to nothing more than additional 18 insignificant features, right? 19 MR. MESTITZ: Form. 20 A That's an example that's provided in a 21 case that I understand is applicable potentially. 22 Q And you would also agree that the mere	111 1 correspondence"? 2 Q So it's not your opinion that the 3 embodying product has to be in exact alignment with 4 the claims of a patent for there to be nexus, right? 5 A Well, it wouldn't be my opinion about any 6 legal standard. I don't think I made that 7 assumption. I don't recall using the phrase 8 "perfect correspondence" anywhere. 9 Q And perfect correspondence, you 10 understand, is not required? 11 A That's a question? I can assume that 12 it's not. 13 Q And have you read the Fox Factory case 14 recently in preparation for your deposition? 15 MR. MESTITZ: Form. 16 A I've read it and set eyes on it. I've 17 seen it at various points in time. 18 Q Okay. So I could just tell you that the 19 Federal Circuit has said there's rarely a perfect 20 correspondence between the claimed invention and the 21 product. 22 All right? Are we on the same page?
110 1 existence of unclaimed features doesn't necessarily 2 undermine presumption of nexus, correct? 3 MR. MESTITZ: Form. 4 A Well, I think there's potentially more to 5 consider, as I wrote in the next sentence, that 6 there's another example. If the patented invention 7 is only, I'll just paraphrase, part of the 8 successful machine or process, the patentee is not 9 entitled to a presumption of nexus. 10 Q So you don't disagree with me that you 11 can have some unclaimed features and still have 12 nexus, right? 13 A Well, I'm not a lawyer. But my 14 understanding is that if unclaimed features amount 15 to nothing more than additional insignificant 16 features, that that can be a consideration. 17 Q Okay. Perfect correspondence between the 18 claimed invention and the product is not required 19 for nexus, right? 20 MR. MESTITZ: Objection to form. 21 A I'm trying to think. That phrase, can 22 you give me some more context for that, "perfect	112 1 A I'll accept that representation. 2 Q Okay. And you have no reason to disagree 3 with the Federal Circuit on that? 4 A Not if you're representing it – 5 MR. MESTITZ: Form. 6 A – accurately and that needs to be 7 considered in context. 8 Q And for purposes of your declaration, you 9 didn't assume there has to be a perfect 10 correspondence between the claimed invention and the 11 embodying product? 12 A I don't see where I made that assumption. 13 I don't recall making that assumption either. 14 Q Okay. Fox Factory also says, The degree 15 of correspondence between a product and a patent 16 claim falls along a spectrum. 17 Do you agree with that? 18 MR. MESTITZ: Objection to form. 19 A Well, if that's an observation, I agree 20 with that. I'm not here to agree or disagree with 21 the law. 22 Q In your declaration, did you consider

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113 1 where along the spectrum Spikevax and Comirnaty 2 fall? 3 MR. MESTITZ: Form. 4 A Which spectrum are you referring to? 5 Q So if there's a spectrum between 6 correspondence of the product and the patent -- do 7 you have that in mind? 8 A A spectrum between what? What are the 9 two things on each end? Can you please clarify? 10 Q Yes. Let's do a Venn diagram. So we've 11 got the claims of the patent on one hand -- 12 A Okay. 13 Q -- and we have the product on the other 14 hand. 15 A Okay. 16 Q You didn't assume that they have to be a 17 perfect circle, right? 18 MR. MESTITZ: Asked and answered. But... 19 A I don't think I wrote anywhere here that 20 I assumed they have to be a perfect circle. 21 Q And if you put a spectrum between the 22 claims of the patent on one hand and the product on	115 1 I'm not sure that you're -- the illustration you're 2 drawing with your hands is completely accurate. But 3 I'm trying to follow along and answer your 4 questions. 5 Q How would you describe the spectrum of 6 correspondence between patent claims and a product? 7 MR. MESTITZ: Objection to form. 8 A As it's written in the case. They're 9 saying that there's different -- there's a range of 10 possibilities and that each case is fact and 11 circumstance specific. 12 Q So on one end of the spectrum, you've got 13 perfect correspondence. Do you have that in mind? 14 A Sure. 15 Q On another end of the spectrum, they have 16 nothing to do with each other. All right? 17 MR. MESTITZ: Objection to form. 18 A I can make that assumption, if that's 19 what you're asking me to assume. 20 Q Okay. And you didn't analyze in your 21 declaration where on that spectrum Spikevax and 22 Comirnaty fall.
114 1 the other -- do you have that in mind? 2 A Sure. 3 Q Okay. You didn't analyze where along 4 that spectrum Spikevax and Comirnaty fall, right? 5 MR. MESTITZ: Objection to form. 6 A In terms of -- in terms of what? Like -- 7 Q So the Federal Circuit talks about a 8 spectrum between a product and the patent claims in 9 terms of correspondence of the two. 10 Do you understand that? 11 A Yeah, I'll accept that you're 12 representing that language accurately. 13 Q And do you understand the concept of 14 correspondence between the patent claims and the 15 product? 16 A I understand what you're trying to 17 illustrate. 18 Q So you understand that you could have a 19 spectrum between -- a spectrum of correspondence 20 between the patent claims and the product? 21 A Well, I know that from your 22 representation, that that's language that's used.	116 1 Is that right, or am I missing it? 2 MR. MESTITZ: Objection to form. 3 A So I'm not sure what you're illustrating 4 is exactly right. I do think that the technical 5 experts, specifically Dr. Griffin, has addressed 6 that. And I think that this is an instance where 7 there's multiple components and the products are 8 complex. 9 And I'm not sure that it fits to put it, 10 like, on the spectrum that you illustrated, but this 11 is more like a complex multicomponent vaccine, as I 12 wrote in my report and as Dr. Griffin has opined to, 13 than one like Mr. Malackowski described. 14 Q What are the different components of the 15 vaccines that you're referring to? 16 A So, for example -- and we can look at 17 different places in my report -- paragraph 80, 18 there's many significant unpatented features that 19 Dr. Griffin has described. I provide a description 20 of technologies that have been licensed in by both 21 companies as examples. 22 I think Dr. Griffin would also point to

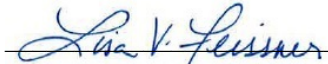
117 1 examples in the prior art and in the field in 2 general. 3 But I talk about the inventions of 4 Drs. Karikó and Weissman as being examples, 5 Cellscript and the NIH as being examples. 6 My understanding is that there's other 7 examples, as I write in my report on, say, 8 paragraph 104, page 54, technologies specific to 9 LNPs and lipid delivery systems. That is something 10 that Dr. Moon has addressed specifically. 11 I think that there's components that are 12 described in Moderna documents and in its forms 10-K 13 that I cite. 14 And then going beyond those, just 15 patented technologies, there's intangibles that are 16 significant here, and I discuss those in detail. 17 Q So let's set aside the intangibles for 18 the moment. 19 In terms of the products themselves, what 20 are the multiple components, based on the sources 21 you just set out? 22 MR. MESTITZ: Form.	119 1 Q What's your understanding of what the 2 claims cover? 3 MR. MESTITZ: Form. 4 A Of the patents in this case? 5 Q Yes. 6 A Let's see if I can find a good summary. 7 So in paragraph 57, the '600 patent 8 generally claims an mRNA encoding for a 9 betacoronavirus spike protein or spike protein 10 subunit formulated in a lipid nanoparticle. 11 There's additional things that I cite in 12 there in that part of my report, including in 13 paragraph 58. 14 And then my understanding is that the 15 '127 patent is substantially similar with the main 16 difference being that the '127 patent claims a 17 method of treatment by administering a vaccine 18 containing an LNP to induce an immune response. 19 That's among the things that I wrote 20 about, but that's generally my understanding. 21 Q Okay. So your understanding of the 22 coverage of the '600 patent, at least claim 1, is
118 1 A I just listed some examples. 2 Q Okay. So let's take Karikó and Weissman. 3 What's the component that you say they contributed 4 to the vaccines? 5 MR. MESTITZ: Form. 6 A So that would come from Dr. Griffin. 7 He's the technical expert. 8 But my understanding is that their 9 technology relates to a specific modification, like 10 I described in paragraph 98. 11 Q What was the contribution of the NIH? 12 MR. MESTITZ: Form. 13 A So I described that in paragraph 102. It 14 relates to stabilization of the spike protein and 15 antigens. There's different patent rights there 16 that Dr. Griffin has identified and Moderna has 17 pointed towards. 18 Q What was the contribution of Acuitas? 19 MR. MESTITZ: Form. 20 A So my understanding is that that relates 21 to LNP technology, and there's technologies that are 22 applicable there, those being examples.	120 1 that it includes mRNA, betacoronavirus spike protein 2 formulated in a lipid nanoparticle, right? 3 MR. MESTITZ: Form, asked and answered. 4 A Well, that's a general description that I 5 have in paragraph 57. That's part of the 6 description. It goes on to – in my report, and as 7 Dr. Griffin explained to me, there's a recitation to 8 a composition, as I wrote about in paragraph 58. 9 Q So the composition is the composition of 10 mRNA encoding a betacoronavirus spike protein 11 encapsulated in an LNP. 12 Is that your understanding? 13 MR. MESTITZ: Form. 14 A No. That's an example that I understand 15 is applicable, as I wrote in that paragraph. 16 Q That's the composition of claim 1 of the 17 '600 patent, right? 18 A There's a recitation to a composition in 19 claim 1. 20 Q And what are the components of Spikevax 21 and Comirnaty that are not encompassed in that 22 composition of paragraph 58?

121 1 MR. MESTITZ: Form, calls for a legal 2 conclusion. 3 A So for that, I would defer to 4 Dr. Griffin. 5 Q That's a technical question, right? 6 A I think it's a technical question in 7 large part, yes. 8 Q Okay. Back to the law on 9 coextensiveness. We're not done with that just yet. 10 If you want to look back at paragraph 65. 11 A All right. 12 Q You understand that coextensiveness is 13 not required for nexus, right? 14 A I'm looking to see where I said that. 15 I'm not sure I said that. But that's consistent 16 with my understanding. 17 Q Coextensiveness is a requirement for a 18 presumption of nexus, but not for nexus in general. 19 Is that fair? 20 A Coextensiveness is a concept that's in 21 presumption of nexus. That's my understanding. 22 Q Your declaration does not discuss the	123 1 And I discuss some issues. I talk about 2 commercial success and nexus in paragraph 64 as 3 well. 4 Those would be a couple of examples. 5 Q Your declaration focuses on presumption 6 of nexus, right? 7 MR. MESTITZ: Form. 8 A I don't think so. I think it relates to 9 nexus. 10 Q Well, that's what you say, right? I'm 11 trying to figure out where you feel that you've 12 addressed that so that we can talk about it. 13 So what are the other ways a patent owner 14 can establish nexus? 15 A Well, you want to show, I think, at the 16 areas that Mr. Malackowski claimed, that he and I 17 addressed, where I think his analysis was 18 insufficient. I cite to his report at length. I 19 don't want to go into too much detail and take up 20 too much of your time. 21 But I understand that relevant 22 consideration is market realities and whether
122 1 other ways a patent owner can show nexus, right? 2 MR. MESTITZ: Objection to form. 3 A I don't know what you mean. 4 Q So let me step back a little bit. 5 Are you aware that a patent owner can 6 show nexus even without showing a presumption of 7 nexus? 8 A I think that's true. 9 Q And you didn't discuss in your 10 declaration any way to prove nexus if the 11 presumption of nexus does not apply, right? 12 MR. MESTITZ: Objection to form. 13 A No, I don't agree with you. 14 Q Where in your declaration do you discuss 15 the other ways of establishing nexus? 16 A Well, so I refer to Mr. Malackowski's 17 report, and so I incorporate that by reference. I 18 don't have to repeat everything that he says. 19 I have paragraph 69 that says -- 20 describes how market realities can impact an 21 assessment of whether a patented feature has a nexus 22 to commercial success.	124 1 there's a connection specifically to the patented 2 inventions and the commercial success of the 3 products, if any. 4 Q And what relationship do market realities 5 have to nexus? 6 MR. MESTITZ: Form. 7 A Well, I think nexus, in terms of economic 8 connection, is to see if those market realities are 9 attributable specifically to the patented 10 inventions. I think I discuss that in numerous 11 places in my report. 12 Q And is it your opinion that market 13 realities have to be attributable to the patented 14 invention? 15 MR. MESTITZ: Objection to form. 16 A No. I think, though, that understanding 17 the market realities can be relevant to see if the 18 patented invention is what is responsible for the -- 19 for any success that might be present. 20 Q Okay. So a patent owner can show nexus 21 where the patented invention is responsible for 22 success of the product.

125 1 Is that your understanding? 2 A Well, I think that can be among the 3 considerations. 4 Q Okay. And the patented invention doesn't 5 have to be entirely responsible for the success of a 6 product for there to be a nexus, correct? 7 A I don't think that's -- I think that's 8 correct. 9 Q Okay. Patent owners can show nexus where 10 objective indicia are reasonably commensurate with 11 the claims, right? 12 MR. MESTITZ: Form. 13 A What do you mean by "reasonably 14 commensurate"? 15 Q Do you have an understanding of what 16 "reasonably commensurate" means? 17 A I'd want to see specifically what you're 18 referring to if you're using that. That sounds like 19 a term from a case or something, and I'd want to 20 know specifically what you are asking. 21 Q You didn't take into consideration in 22 forming the opinions in your declaration what	127 1 would be something to look at. 2 Q Patent owners can show nexus where others 3 in the field have made a prior innovation, right? 4 MR. MESTITZ: Form. 5 A I think that depends. But I don't think 6 I'm disputing that. 7 Q Okay. You don't dispute that patent 8 owners can show nexus where they have licensed other 9 technologies related to the embodying product, 10 right? 11 A Can you ask the question again? I didn't 12 hear the beginning or I missed a couple words. 13 Q You don't dispute that patent owners can 14 show nexus where they have licensed other 15 technologies related to the embodying product, 16 right? 17 A I think that can be a possibility. 18 Q You don't dispute that patent owners can 19 show nexus where the embodying product has multiple 20 components, right? 21 A I think that's a possibility. 22 Q You don't dis- --
126 1 "reasonably commensurate" means in the context of 2 patent law? 3 MR. MESTITZ: Objection to form, 4 mischaracterizes the testimony. 5 A No. I disagree. I'm asking you to 6 specify what you mean by that. I'm not saying that 7 I didn't take that into account. I'm asking you to 8 clarify your question. 9 Q Did you take into account whether the 10 objective indicia are reasonably commensurate with 11 the claims? 12 MR. MESTITZ: Objection to form. 13 A I think that, like, from an economic 14 point of view, that would correspond with my 15 analysis, without knowing specifically what it is 16 that you're -- why you're selecting that term or if 17 there's a case that you're referring to. 18 Q Patent owners can show nexus where 19 evidence of objective indicia comes from the unique 20 features of a claimed combination, right? 21 A Again, I need some context for that. I 22 think that that is potentially a consideration and	128 1 A Without commenting on the law. 2 Q You don't dispute that patent owners can 3 show nexus where the embodying product is the result 4 of research and development efforts, right? 5 A I think that's among the possibilities. 6 I'm not taking any issues with the law. 7 Q You don't dispute that patent owners can 8 show nexus where the embodying product has unique 9 supply chain requirements? 10 A Again, I don't know that there's any 11 absolute rules. Every case is fact-specific. And 12 I'm not commenting on the law. So I'm not taking 13 issue with that in particular. 14 Q You don't dispute that patent owners can 15 show nexus where multiple patents cover the 16 embodying product, right? 17 A I think that's a possibility. I'm not 18 commenting on the law, but I don't think that any 19 one thing like that is dispositive. 20 Q You don't dispute that patent owners can 21 show nexus where there are macroeconomic and 22 regulatory factors encouraging use of the embodying

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33 (129 to 132)

129 1 product? 2 A I think that can – I'm not saying 3 there's, like, an absolute rule that precludes the 4 showing of nexus, just like all these other things, 5 and I'm not taking any issue with the law. I think 6 every situation is specific and fact and 7 circumstance driven. 8 MS. CURTIS: Thank you, sir. I have 9 nothing further at this time. 10 MR. MESTITZ: Let me just take two 11 minutes. 12 (Recess from 12:11 a.m. until 12:15 p.m.) 13 MR. MESTITZ: We can go back on the 14 record. 15 We have nothing. 16 I don't think there's anything in here 17 that requires designation as confidential. 18 MS. CURTIS: I agree. 19 COURT REPORTER: Anything else for the 20 record? 21 MS. CURTIS: I don't think so. 22 (Transcript orders discussed.)	131 1 CERTIFICATE OF SHORTHAND REPORTER - NOTARY PUBLIC 2 3 I, Lisa V. Feissner, RDR, CRR and Notary 4 Public in and for the District of Columbia, do 5 hereby certify: 6 7 That W. CHRISTOPHER BAKEWELL, the witness 8 whose deposition is hereinbefore set forth, was duly 9 sworn by me before the commencement of such 10 deposition, and that such deposition was taken 11 before me and is a true record of the testimony 12 given by such witness. 13 14 I further certify that the adverse 15 parties, BIONTECH SE and PFIZER INC., were 16 represented by counsel at the deposition. 17 18 I further certify that the deposition of 19 W. CHRISTOPHER BAKEWELL, occurred at the offices of 20 WILLIAMS & CONNOLLY on THURSDAY, OCTOBER 3, 2024, 21 commencing at 9:05 and concluding at 12:17. 22
130 1 COURT REPORTER: Thank you. That's all I 2 need. 3 (Off the record at 12:17 p.m.) 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	132 1 I further certify that I am not related 2 to any of the parties to this action by blood or 3 marriage, I am not employed by or an attorney to any 4 of the parties to this action, and that I am in no 5 way interested, financially or otherwise, in the 6 outcome of this matter. 7 8 IN WITNESS WHEREOF, I have hereunto set 9 my hand this 3rd day of OCTOBER, 2024. 10 11 12  13 NOTARY PUBLIC IN AND FOR 14 THE DISTRICT OF COLUMBIA 15 MY COMMISSION EXPIRES JUNE 15, 2028 16 17 18 19 20 21 22

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