

In the Matter Of:

PARSE BIOSCIENCES vs

10X GENOMICS

JOHN QUACKENBUSH

June 26, 2024



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

3
4 PARSE BIOSCIENCES, INC.,
5 Petitioner

6
7 v.

8 10X GENOMICS, INC.,
9 Patent Owner.

10
11 Case IPR2023-00958
12 Patent 10,697,013
13

14
15 ORAL DEPOSITION OF
16 JOHN QUACKENBUSH, PH.D.

17
18 Wednesday, June 26, 2024
19
20
21
22

23 Reported by:

24 SUSAN ASHE, Certified Electronic Reporter

25 Job No.: 945571

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1	Wednesday, June 26, 2024	1	CONTENTS
2	9:23 a.m. Eastern Daylight Time	2	THE WITNESS
3		3	John Quackenbush, Ph.D.
4		4	
5		5	BY MR. REINES
6		6	
7	Oral deposition of JOHN QUACKENBUSH,	7	EXHIBITS
8	PH.D., taken on behalf of the Petitioner, beginning	8	Exhibit No. Marked
9	at 9:23 a.m., on Wednesday, June 26, 2024, at the	9	Exhibit 1100 Rebuttal Report of
10	law offices of Weil, Gotshal & Manges LLP, 2001-M	10	John Quackenbush, Ph.D.
11	Street, Northwest, Suite 600, Washington, D.C.,	11	June 14, 2024
12	before Susan Ashe, Certified Electronic Reporter,	12	
13	and a Notary Public of the District of Columbia.	13	
14		14	PREVIOUSLY MARKED EXHIBITS
15		15	Exhibit No. Introduced
16		16	Exhibit 1001 U.S. Patent 10,697,013 11
17		17	Exhibit 1001 U.S. Patent 10,240,197 11
18		18	Exhibit 1002 Declaration of
19		19	John Quackenbush, Ph.D. 18
20		20	Exhibit 1003 International Publication
21	www.LexitasLegal.com/Premier Lexitas	21	No. WO 2010/117620 A2
22		22	"Linnarsson Reference" 37
23		23	Exhibit 2013 Expert Declaration of
24		24	John Quackenbush, Ph.D.
25		25	Case IPR2023-00958 6

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1	APPEARANCE OF COUNSEL:	1	PREVIOUSLY MARKED EXHIBITS
2	On behalf of the Petitioner:	2	Exhibit No. Introduced
3	WEIL, GOTSHAL & MANGES LLP	3	Exhibit 2013 Expert Declaration of
4	BY: EDWARD R. REINES, ESQ.	4	John Quackenbush, Ph.D.
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8	edward.reines@weil.com	8	INSTRUCT THE WITNESS
9		9	Page/Line Page/Line Page/Line
10	On behalf of the Patent Owner and the Witness:	10	89/9 90/15
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25		25	

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1 WEDNESDAY, JUNE 26, 2024; 2 9:23 A.M. EASTERN DAYLIGHT TIME 3 --000-- 4 Whereupon, 5 JOHN QUACKENBUSH, PH.D. 6 having been first duly sworn, was examined 7 and testified as follows: 8 COURT REPORTER: Will Counsel 9 please identify themselves for the record. 10 MR. REINES: Ed Reines, on 11 behalf of Petitioner Parse. 12 MS. RAYMOND: Megan Raymond, on 13 behalf of Patent Owner 10X from 14 Groombridge Wu Baughman & Stone. 15 COURT REPORTER: Thank you. 16 EXAMINATION 17 BY MR. REINES: 18 Q. Please state your name for the record. 19 A. My name is John Quackenbush, 20 Q-u-a-c-k-e-n-b-u-s-h. 21 (Whereupon, Exhibit 2013 in the -958 IPR 22 Proceeding, previously marked, was presented to the 23 witness.) 24 Q. I'd like to show you what's been 25 designated Exhibit 2013 in the -958 IPR	1 I don't remember the date when it was 2 taken, but I believe that's correct. 3 Q. But you do remember your deposition taken 4 in the -867 -- -876 IPR proceeding? 5 A. Yes. I believe it was with regard to the 6 '981 patent. 7 Q. And at the time that you gave answers, you 8 did your best to give your most accurate testimony. 9 Is that correct? 10 A. Yes, I did. 11 Q. And have you reviewed your transcript in 12 any way at all between the time that it was taken on 13 February 28, 2024 and today? 14 A. I reviewed it after the transcript was 15 prepared to look for major errors. I don't recall 16 if I saw any. 17 And I've looked it over in preparing for 18 it today. 19 Q. Based on your reviews of the February 28, 20 2024 transcript, have you seen anything that you 21 consider to be wrong or inaccurate? 22 MS. RAYMOND: Objection; form. 23 A. So it accurately reflects, to the best of 24 my knowledge, the answers I gave that day. 25 I was responding to Dr. Cooper and his
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1 proceeding -- or actually, let me take that one 2 back. 3 A. All right. 4 Q. And would you please confirm that this is 5 your expert declaration. 6 A. This is my expert declaration responding 7 to Dr. Cooper and the arguments he presents 8 regarding the '013 patent. 9 (Whereupon, Exhibit 2013 in the -955 IPR 10 Proceeding, previously marked, was presented to the 11 witness.) 12 Q. And I'd like to show you next Exhibit 2013 13 in the -955 proceeding. Please also confirm that 14 this is your declaration. 15 A. Yes. Thank you. This is my 16 declaration -- again, responding to Dr. Cooper with 17 regard to the '197 patent. 18 Q. And I'd like to show you your deposition 19 taken on February 28, 2024 in a related IPR matter. 20 A. Thank you. 21 Q. You're welcome. 22 And do you recall your deposition was 23 taken on February 28, 2024? 24 A. The date is "February 28, 2024." I have 25 no reason to doubt that.	1 arguments. 2 There are probably places where Dr. Cooper 3 has introduced additional arguments or additional 4 evidence has come to light. And if we come across 5 those and I recognize them, I'll call them to your 6 attention. 7 Q. But in terms of whether you saw any of 8 your testimony that you didn't think was accurate -- 9 not accurately transcribed, but accurate in terms of 10 the truth -- was there anything that you saw in your 11 deposition transcript, February 28, 2024, that you 12 thought was inaccurate? 13 MS. RAYMOND: Objection; form. 14 A. So there are two questions. 15 One is whether it was truthful. And my 16 testimony given on February 28th was truthful in 17 responding to the questions and Dr. Cooper's 18 arguments. 19 Some of those presentations or some of 20 Dr. Cooper's arguments may have evolved a bit. 21 And so, if I was asked the same question 22 about the '197 or '013 patents, my answers might -- 23 they might differ a little bit just because of the 24 evolving situation -- in my understanding and, I 25 believe, Dr. Cooper's understanding. So....

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1 Q. Okay. So let me do it this way. 2 Do you believe that the answers -- based 3 on your reviews, do you believe the answers that you 4 gave in your February 28, 2024 deposition were 5 accurate at the time that you gave them? 6 A. They're accurate and reflected my 7 knowledge and understanding to the best of my 8 ability as of February 28th. 9 Q. I'd like to show you Paper 9 from the '013 10 proceeding, which is IPR2023-958. 11 Is this a document that you've seen 12 before? This is the decision granting the 13 institute -- the institution of the -958 proceeding. 14 A. I don't recall seeing this, and I don't 15 believe it's included in my materials cited. 16 Q. I'd like to show you the institution 17 decision in the -- for the '197 patent. 18 This is also Paper 9. 19 A. Thank you. 20 Q. Have you ever read the institution 21 decision in -- for the '197 patent? 22 A. Again, I don't recall seeing this. And 23 it's not listed in my materials cited for my '197 24 declaration. 25 And so, I do not believe that I've seen	1 of -- both of the documents. 2 Q. You understand that the preferred 3 embodiment of the '013 patent and the '197 patent is 4 the reflex method? 5 A. I don't know if they're described as the 6 "preferred embodiment." 7 I know the reflex method is one embodiment 8 of the invention in both of these patents -- or the 9 inventions claimed in both of these patents. 10 Q. And do you understand the reflex method? 11 A. Yes, I do. 12 Q. And does the reflex method involve 13 fragmentation? 14 MS. RAYMOND: Objection; scope. 15 A. So I don't recall reading it in that 16 detail in preparing for my declaration today. 17 I don't believe Dr. Cooper makes arguments 18 about the '197 patent or the '013 patent and the 19 reflex method involving fragmentation. 20 And my goal in preparing my declarations 21 that we're here to discuss today was to respond to 22 Dr. Cooper's arguments about obviousness. 23 Q. Starting with the '013 patent -- get that 24 in front of you, please. 25 A. All right.
Page 11	Page 13
1 it. 2 Q. I get a lot of the paper on the table. 3 We'll start getting -- 4 A. All right. 5 Q. -- further into this. 6 I'd like to show you the '013 patent, 7 which is Exhibit 1001. 8 (Whereupon, Exhibit 1001, previously 9 marked, was presented to the witness.) 10 Q. And the '197 patent -- 11 A. Thank you. 12 Q. -- which is also Exhibit 1001. 13 (Whereupon, Exhibit 1001, previously 14 marked, was presented to the witness.) 15 A. Thank you. 16 And I recognize both of these documents. 17 Q. Thank you very much. 18 Have you read these two patents? 19 A. Yes, I have. 20 Q. And did you do that before you completed 21 your declarations in these IPR proceedings? 22 A. I certainly did. 23 I cited to both of these, and both of them 24 are included in the materials considered. 25 I believe it's on or about Page 8 in both	1 Q. Do you know what the inventive concept is 2 of these claims, if any? 3 MS. RAYMOND: Objection; form, 4 calls for a legal conclusion, scope. 5 A. So I don't believe Dr. Cooper made 6 arguments in his declarations about what the 7 inventive concept was in these patents. And I don't 8 believe that was something I had to respond to. 9 So I'm not prepared to offer an opinion 10 about that today. 11 Q. And with respect to the '197 patent -- if 12 you could get that in front of you, please. 13 A. Sure. I'm trying to keep things 14 partitioned by patents. So.... 15 All right. I have it. 16 Q. And for Claims 1 through 26 of the '197 17 patent, what do you understand to be the inventive 18 contribution? 19 MS. RAYMOND: Objection; form, 20 calls for legal conclusion, scope. 21 A. Again, Dr. Cooper, I don't believe, in the 22 '197 or the '013 patent made arguments about the 23 inventive concepts that were presented. So I didn't 24 have an opportunity to respond. 25 And my response largely dealt with his

Page 14 1 arguments about obviousness. So I'm not prepared to 2 offer an opinion about the inventive concepts in the 3 patent today. 4 Q. But with respect to the '1- -- the claims 5 of the '013 patent or the '197 patent, can you 6 identify what the inventive contribution is at this 7 time, notwithstanding what Dr. Cooper's opinions, 8 were? 9 MS. RAYMOND: Objection; form, 10 calls for a legal conclusion, scope. 11 A. So it's outside the scope of my reports. 12 If you can point me to places in the 13 reports where I've offered that opinion, I'd be 14 happy to refresh my memory. Otherwise, I'm not 15 really prepared to offer an opinion today. 16 Q. Turning to your expert report for the '013 17 patent. 18 A. All right. 19 Q. In Paragraph 19, which is on Page 9, you 20 state there that there -- you identify the four 21 factors for the obviousness determination. Lexitas 22 Do you see that? 23 A. Yes, I do. 24 Q. And the last one is "objective indicia," 25 sometimes called "secondary considerations."	Page 16 1 A. Again, it wasn't necessary for me to be 2 able to respond to Dr. Cooper. I was able to 3 respond to him on the face of his arguments by 4 analyzing the methods and theories he had proposed. 5 And so, I don't recall doing that analysis 6 in the context of this matter...or these matters. 7 Q. In Paragraph 23 of your declaration, you 8 state: 9 ...in making a 10 determination as to whether or 11 not the claimed invention would 12 have been obvious to persons of 13 ordinary -- of skill, the Board 14 must consider certain objective 15 "indicia" or factors, such as 16 commercial success, unexpected 17 results, copying, and praise by 18 others in the field. 19 Do you see that? 20 A. Yes, I do. 21 Q. And did you believe it would be helpful 22 for the Board if you provided them evidence so they 23 could consider it -- 24 MS. RAYMOND: Objection -- 25 Q. -- on these topics?
Page 15 1 Do you see that? 2 A. Yes, I do. 3 Q. And you're familiar with that? 4 A. Yes, I am, in general terms. 5 Q. And you've given objective indicia 6 testimony in other contexts. 7 Is that correct? 8 A. I believe I have, yes. 9 Q. With respect to the '013 patent and '197 10 patent, have you considered the issue of objective 11 indicia or secondary considerations? 12 MS. RAYMOND: Objection; form. 13 A. So I haven't offered any opinions on those 14 in my reports. That wasn't required for me to 15 respond to Dr. Cooper, and my assignment in 16 preparing these reports was to respond to 17 Dr. Cooper's arguments about obviousness. 18 So I didn't believe it was necessary to do 19 that in responding to Dr. Cooper. So I don't 20 believe I've offered any objective indicia arguments 21 in either report. 22 Q. Did you evaluate whether there was 23 secondary consideration evidence to support your 24 positions with respect to either the '013 or the 25 '197 patent?	Page 17 1 MS. RAYMOND: Objection; form. 2 A. I'm sorry. Would you repeat the question, 3 please. 4 Q. Yes. In making a determin- -- do you 5 believe it would be helpful for the Board if you 6 provided them evidence so they can consider 7 secondary considerations since they're required to 8 consider that topic? 9 MS. RAYMOND: Objection; form. 10 A. So I was responding to Dr. Cooper's 11 arguments. And I didn't believe it was necessary 12 for me to provide additional evidence beyond that 13 which is -- beyond that which is presented in my 14 reports. 15 Q. If you turn to Paragraph 25 of your 16 declaration in the -- regarding to the '013 patent. 17 A. I'm there. 18 Q. I believe it's the same as with respect to 19 the '197, if you want to put them side by side. 20 But I think they're the same. 21 A. I believe you're correct. Right. 22 Q. With respect to the technologies that a 23 person of ordinary skill in the art would have been 24 familiar with, do you see you've listed six 25 different items there?

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1 A. So the six items I've listed here are 2 responding to Dr. Cooper's opinions offered in a 3 different matter. I believe it is the '981 patent 4 IPR matter that we had discussed earlier. 5 And these are the six criteria that 6 Dr. Cooper had offered. And I believe he offers 7 them in this matter as well. 8 Q. That's what I wanted to clarify. 9 So when you're addressing Dr. Cooper's 10 opinion on the person of ordinary skill in the art, 11 you would reference the other earlier proceeding. 12 But you're actually addressing his opinion 13 in this proceeding. Right? 14 A. That's correct. 15 Q. Okay. 16 A. So -- I'm sorry, I do actually cite to his 17 declaration in this matter. It's Exhibit 1002. 18 And the six criteria here are the criteria 19 that Dr. Cooper listed. 20 And as I note, whether I apply my 21 definition, which is at the top, or Dr. Cooper's 22 definition, my opinions would not change under 23 either definition of a person of ordinary skill. 24 Q. Did you have an understanding of 25 Dr. Cooper's opinion regarding the skill level in	1 person of ordinary skill in the art. 2 I offered an alternative definition, which 3 appears at the top, which doesn't call out specific 4 techniques. 5 But I believe a person of ordinary skill 6 in the art with a "Ph.D. in molecular biology, 7 molecular genetics, biochemistry, physics, 8 mechanical engineering, or a related discipline, 9 with two years of academic, research, or industry 10 experience in the field of genomic or transcriptome 11 sequencing" would have been familiar with these 12 techniques. 13 Q. In 2009? 14 A. In 2009, correct. 15 Q. In 2009, what would be have been the level 16 of skill in the art regarding the restriction 17 enzymes? 18 MS. RAYMOND: Objection; form. 19 A. So I'm not sure I understand your 20 question. 21 If I look at Dr. Cooper's list of six 22 techniques, he doesn't include restriction enzymes. 23 But the use of restriction enzymes was 24 well known in the field of molecular biology. 25 Rich Roberts, who founded NEB, New England
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1 the art sufficient to apply that to the prior art in 2 this case? 3 A. So I'm not sure I understand your 4 question. 5 Dr. Cooper, I believe, simply lists these 6 areas. He doesn't provide detailed arguments as to 7 why these particular skills, he believes, were 8 necessary. 9 In some cases, he doesn't really define 10 them in great detail. 11 But if I look at this list of techniques 12 and methods that one should be familiar with, I, as 13 of 2009, which is the priority date for both of 14 these patents, the '013 and '197 -- I was familiar 15 with these techniques. 16 Q. Would a person of ordinary skill in the 17 art have been familiar with the six techniques 18 listed in Paragraph 25 of your declaration in 2009? 19 MS. RAYMOND: Objection; form, 20 scope. 21 A. So these are the techniques that 22 Dr. Cooper asserts a person of ordinary skill in the 23 art would have been familiar with. 24 So my understanding is that these are the 25 techniques that Dr. Cooper felt would characterize a	1 Biolabs, and Ron Davis, were two early pioneers, and 2 I believe they did a lot of their work in 3 discovering and characterizing restriction enzymes 4 as far back as the 1970s, maybe earlier. 5 Q. What were the restriction enzymes known to 6 persons of ordinary skill in the art in 2009? 7 MS. RAYMOND: Objection; form, 8 scope. 9 A. There were many restriction enzymes that 10 were known. 11 So restriction enzymes are enzymes 12 typically derived from bacteria. So they're often 13 cataloged or referred to using a three-letter code 14 at the beginning. 15 The first letter is the genus, and the 16 second two letters represent the species from which 17 they're derived. 18 And for example, "EcoRI" is a restriction 19 enzyme. I believe it was the first, which is what 20 the "RI" refers to. "ECO" refers to E. coli. 21 I couldn't tell you when that was first 22 characterized, but there are large numbers of 23 restriction enzymes. I have no idea what the count 24 was. 25 You might be able to find that in an

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1 archived version of -- at least an approximate count 2 in the archived version of NEB's catalog. 3 Q. All right. Would a person of ordinary 4 skill in the art in 2009 have been familiar with the 5 "BtsCl" [sic] restriction enzyme? 6 A. So Dr. Linnarsson and his patent -- and I 7 don't know what date that was filed -- refers to the 8 use of Bts T -- Bst [sic], excuse me, Cl -- I. 9 So, some might. 10 I don't know if that was available through 11 the NEB catalog or through other restriction enzyme 12 vendors. 13 But information about available -- 14 commercially available restriction enzymes are 15 pretty easy to find. 16 And so, I would assume, as of 2009, at a 17 time when there were web-based interfaces and the 18 Internet was alive and well, that people could have 19 easily found information about restriction enzymes 20 that they would use in their laboratory assays. 21 Q. Are you familiar with any other Bts 22 restriction enzymes -- well, let me start again. 23 Would a person of ordinary skill in the 24 art in 2009 have been familiar with any other Bts 25 restriction enzymes, other than the Bts and "ClI"	1 bacteria. 2 There are thousands of restriction 3 enzymes, probably tens of thousands of restriction 4 enzymes. 5 So I don't know anyone, except maybe Rich 6 Roberts, who has a mental catalog of all of them. 7 Q. And were you researching to find -- well, 8 let me ask you: How did you come about finding the 9 reference to what you're saying is "BstI" enzyme? 10 A. I believe I found it, or I believe I may 11 have been pointed to it by one of the attorneys at 12 Groombridge. 13 I do know it's represented on the NEB 14 catalog. 15 So I don't recall exactly how I came 16 across it. But I do remember finding it and finding 17 the restriction site -- the recognition site in the 18 NEB catalog. 19 I keep saying "Bst." It should actually 20 be "Bts," and I apologize for that. 21 Q. What would a person of ordinary skill in 22 the art in 2009 have known of the use of tags to 23 overcome amplification bias? 24 MS. RAYMOND: Objection; form. 25 A. So there are many different ways that a
Page 23	Page 25
1 that was in Linnarsson -- or ClI? 2 A. So there are a number of other "Bst" 3 restriction enzymes. 4 I'm assuming that, as of 2009, many of 5 those would have appeared in online catalogs. 6 I believe Dr. Cooper may have cited to a 7 paper describing some "Bst" enzymes -- or I may have 8 cited to it. I remember seeing one. 9 One could have easily got information 10 about those enzymes, and I recall at least one 11 enzyme. It was "BstI," which had a slightly 12 different cut site to "Bst" ClI, and it's one I 13 actually discovered between February 28th and today. 14 Q. I'm sorry? 15 A. It's an enzyme I actually came across 16 doing some research between February 28, 2024 and 17 today. 18 Q. Oh, I see. So you learned about it then. 19 So you learned about the Bts -- which 20 enzyme did you learn about since your February 28th 21 deposition? 22 A. "BstI." And I think I actually refer to 23 it in my report. 24 "BstI" is a restriction enzyme that's 25 derived from the same bacteria, and I forget the	1 person of ordinary skill in the art could use the 2 word "tag" to refer to different things. 3 One use of "tag" -- "tag" can be almost 4 anything which is attached to a piece of DNA. 5 And one common use of tags to overcome 6 amplification bias -- and I believe this is 7 something that Linnarsson refers to as being 8 incredibly useful for reducing amplification bias -- 9 is the introduction and use of universal primers for 10 techniques like PCR amplification. 11 Q. Was the use of tags, using universal 12 primers, within the level of ordinary skill in the 13 art in 2009? 14 MS. RAYMOND: Objection; form, 15 scope. 16 A. Would you repeat the question, please. 17 Q. Yes. Was the use of tags, using universal 18 primers, within the level of skill in the art in 19 2009? 20 MS. RAYMOND: Objection; form, 21 scope. 22 A. So I'm not sure what you consider within 23 the level of skill of persons of ordinary skill in 24 the art. 25 I do know that the use of tags that

Page 26 1 included universal primers was something that was 2 used. It's a technique that I'm actually familiar 3 with and had used by 2009. 4 So as an independent technique, it was one 5 that people had certainly -- well, that I had 6 certainly had familiarity with. 7 And I believe that someone who meets the 8 criteria that I laid out for a person of ordinary 9 skill in the art would likely have known about that 10 or could have easily found it by looking in the 11 literature. 12 Q. And another competency that Dr. Cooper 13 identified for persons of ordinary skill in the art 14 that I believe you agreed with, in terms of the six 15 listings was "single-cell analysis." 16 What about single-cell analysis was in 17 the -- within the basic competency of a person of 18 ordinary skill in the art in 2009? 19 A. So first, I think you mischaracterized my 20 earlier testimony. 21 I don't necessarily agree with Lexitas 22 Dr. Cooper's list. 23 I do believe that a person of ordinary 24 skill in the art, under my definition, would have 25 been familiar with many of these.	Page 28 1 are older parents. We went through in vitro 2 fertilization. So I became very familiar with a lot 3 of the techniques that were used -- have actually 4 spoken to -- at national reproductive medicine 5 meetings. 6 And there are techniques like 7 pre-implantation genetic diagnoses that are 8 performed that do PCR amplification and mutation 9 detection on single cells from a developing embryo. 10 I was also involved in a project in which 11 we analyzed single cells that were extracted from 12 the amniotic fluid in pregnant females -- again, 13 using a variety of techniques. 14 So people had recognized that one could 15 perform analysis on single cells. 16 The single-cell analysis, again, is 17 something Dr. Cooper does not define when he 18 presents this list. So I'm not sure what he was 19 thinking. 20 But a person of ordinary skill in the art, 21 under my definition, would -- and if I put myself in 22 that position -- would have known about techniques 23 associated with the analysis of single cells. 24 Q. What were the goals for improving 25 single-cell analysis in 2009 versus what is
Page 27 1 Dr. Cooper offers this list. And as I 2 said earlier, applying his list or my criteria, my 3 opinions would not have changed. 4 Dr. Cooper doesn't provide -- I don't 5 recall -- a great deal of information about what he 6 refers to or what he means by "single-cell 7 analysis." 8 So I can tell you that, as of 2009, I had 9 done different experiments and worked on different 10 projects that included the analysis of single cells, 11 including an analysis that I believe I described to 12 you in a previous matter that involved doing 13 limiting dilutions of cells in solution and doing 14 PCR on individual cells. 15 Q. What would a person of ordinary skill in 16 the art, as you've defined it in this matter, have 17 within their basic competency regarding single-cell 18 analysis? 19 MS. RAYMOND: Objection; form. 20 A. So I haven't done that kind of detailed 21 analysis. 22 I can tell you that there are other forms 23 of single-cell analysis that were regularly 24 performed. 25 My son was born in 2009. My wife and I	Page 29 1 screening now? 2 MS. RAYMOND: Objection; form, 3 scope. 4 A. So there are many different people. 5 You might consider being a person of 6 ordinary skill in the art, either my definition or 7 Dr. Cooper's definition. 8 Dr. Cooper doesn't provide made any 9 information in his declaration, that I recall, 10 detailing what he means by "single-cell analysis." 11 He said a person of ordinary skill in the 12 art would have been familiar with associated tools, 13 methods, and techniques that include single-cell 14 analysis. 15 There are thousands of scientists. Many 16 might have different goals. And it's not something 17 that I could offer an informed opinion about today, 18 because it's not something I devoted time to 19 researching. 20 Q. Were there any challenges for single-cell 21 analysis in 2009, of which you are aware? 22 MS. RAYMOND: Objection; form, 23 scope. 24 A. So again, it's not something I could offer 25 an informed opinion about today.

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1 I believe if we look at the '013 and '197 2 patents, Dr. Brenner and his colleagues may have 3 commented on that. 4 I don't believe Dr. Cooper offered 5 opinions about challenges associated with 6 single-cell analysis. 7 And so, that's something I'm not prepared 8 to offer testimony about today. 9 Q. Would you turn to the '013 patent, please. 10 A. All right. I have it. 11 Q. If you turn to Column 13, please. 12 A. All right. I'm there. 13 Q. And if you go to the paragraph at line 40 14 through 65. 15 A. I see that. Yes. 16 Q. And did you review that passage of the 17 '013 patent before you formulated your opinions in 18 this matter? 19 A. So I recall reading it. I don't 20 understand fully what you mean by "review." I have 21 read it. 22 But I don't believe I cited to this in my 23 report because I don't believe Dr. Cooper presents 24 arguments about what's -- what appears in Column 13 25 lines 40 through 63 of the '013 patent.	1 hybridization using a label" as -- in some context, 2 what he considers or what they consider to be 3 conventional techniques. 4 Q. Did you consider those techniques to be 5 conventional in 2009 where you read this? 6 A. So I don't believe I offered any opinions 7 in either of my two reports about -- about whether 8 or not techniques were conventional. 9 If you can point me to places in my report 10 to have offered those opinions, I'd be happy to 11 refresh my memory. 12 Q. But just on the question of whether 13 hybridization was a conventional technique in 2009, 14 do you have an opinion on that in this matter? 15 A. Again, what is conventional or not 16 conventional is going to depend on context. It's 17 going to depend on how it's used. It's going to 18 depend on its combination with other things. 19 So while Dr. Brenner and his colleagues 20 broadly define -- or include hybridization as a 21 conventional technique, you know, I'd have to 22 understand more fully what context they were 23 thinking about in this context. 24 For example, in PCR, which was a technique 25 invented by Kary Mullis, I believe, in the 1970s --
Page 31	Page 33
1 Q. When you read the paragraph at Column 13, 2 line 40 through 63 of the '013 patent, did you 3 understand it? 4 A. So I understand the plain and simple 5 language. 6 I don't know -- I don't know what you mean 7 by understand it in the context of these IPR 8 matters, but I definitely understood the paragraph. 9 Q. Okay. And do you agree that, as of 2009, 10 conventional techniques included "hybridization, 11 ligation, and detection of hybridization using a 12 label"? 13 MS. RAYMOND: Objection; scope. 14 A. So again, I don't believe Dr. Cooper 15 offered any testimony in his declarations about the 16 particular line that you called out in the '013 17 patent. 18 I don't believe I responded to that in my 19 declaration. 20 I would have to reread sections of this -- 21 of the '013 patent to understand what Dr. Brenner 22 and his colleagues are referring to in this context. 23 But the plain and simple language is that 24 Dr. Cooper -- or, sorry, Dr. Brenner includes 25 "hybridization, ligation, and detection of	1 and I believe he received the Nobel prize in 1997 -- 2 "hybridization" refers to the binding of a DNA 3 primer to its complementary strand. 4 One can also talk about hybridization of 5 nucleic acid samples to a fixed array, which is 6 something I was very involved with in the early 7 2000s up to 2009 -- hybridization-based techniques 8 for detecting nucleic acids. 9 One could also talk about hybridization in 10 terms of screening libraries, using very different 11 approaches. 12 So broadly speaking, the -- people would 13 be familiar with the term "hybridization." 14 To understand what Dr. Brenner and his 15 colleagues are referring to here, I'd have to read 16 the section of the patent in more detail. 17 I didn't prepare a response to that 18 question in responding to Dr. Cooper's arguments, 19 because I don't believe he made one. 20 Q. Have you ever used the reflex process? 21 MS. RAYMOND: Objection; scope. 22 A. To the best of my recollection, I do not 23 recall using what Dr. Brenner and his colleagues 24 refer to as the "reflex process" in my own research, 25 but I clearly understand what's being described in

Page 34 1 the patents. 2 Q. Do you know if anyone other than the 3 Brenner group ever used the -- reflex method? 4 MS. RAYMOND: Objection; scope. 5 A. It's not something I investigated in 6 preparing my reports or testimony today. 7 I don't believe Dr. Cooper provided any 8 arguments about the -- whether others -- anyone had 9 used the reflex method. 10 Dr. Cooper refers to methods by Linnarsson 11 and McCloskey. And the bulk of the work I did today 12 involves understanding Dr. Cooper's arguments and 13 responding to them in preparing my declarations and 14 preparing for my testimony. 15 Q. But as a factual matter, do you know 16 whether anyone ever used the reflex method, other 17 than The Brenner Group? 18 MS. RAYMOND: Objection; scope. 19 A. I have no basis in which to provide an 20 opinion, because it's not something that I've 21 investigated in the process of preparing for this 22 IPR matter. 23 Q. At Paragraph 13 -- excuse me, at 24 Column-13, line 40, the same paragraph that we were 25 just looking at, do you see the reference that:	Page 36 1 the '013 and '197 patents clearly represented 2 something that the Patent Office saw as being 3 inventive. 4 You know, I often think of my nephew. My 5 nephew is a very good professional chef. 6 He hasn't invented any new cooking 7 techniques, but he comes up with some really 8 interesting new recipes and approaches to preparing 9 food that use tried-and-tested methods but in 10 interesting combinations. 11 Q. Have you found any indication in '013 or 12 '197 patents that the combination of the claimed 13 subject matter of those patents is not conventional? 14 MS. RAYMOND: Objection; form. 15 Q. In other words, have you seen that 16 otherwise indicated? 17 MS. RAYMOND: Objection; form, 18 scope. 19 A. So Dr. Cooper doesn't present any analysis 20 about the -- whether or not these techniques are 21 conventional or the patents are conventional. 22 Dr. Cooper offers arguments about 23 obviousness based on combinations of two or three 24 different references, and those are the responses 25 that are included in my declaration and what I'm
Page 35 1 The practice of the 2 present invention may employ, 3 unless otherwise indicated, 4 conventional techniques.... 5 And then it goes on. 6 Do you see that? 7 A. Yes, I do. 8 Q. Okay. And have you seen any indication 9 that the claimed subject matter of the '013 or '197 10 patent is not conventional? 11 MS. RAYMOND: Objection; form, 12 scope. 13 A. So I haven't done an analysis of 14 conventionality in preparing my response to 15 Dr. Cooper's arguments or in preparing for my 16 testimony today. 17 So that's -- I'm not prepared to offer any 18 testimony -- I'm not prepared to offer any testimony 19 about the convention- -- about the inventions and 20 whether or not they're conventional. 21 I would -- though, I do believe that the 22 combination of techniques, whether or not individual 23 elements, might represent conventional approaches -- 24 so-called "conventional" approaches. 25 The combination of techniques outlined in	Page 37 1 prepared to testify about today. 2 MR. REINES: Why don't we take a 3 break and -- thank you. 4 (Whereupon, a recess was taken from 10:14 5 a.m. until 10:26 a.m.) 6 (Whereupon, Exhibit 1003, previously 7 marked, was presented to the witness.) 8 BY MR. REINES: 9 Q. All right. I'd like to show you what's 10 been marked as Exhibit 1003, which is the Linnarsson 11 reference. 12 A. Thank you. 13 Q. Do you understand that Linnarsson, as a 14 patent document, is presumed enabled? 15 MS. RAYMOND: Objection; scope. 16 Q. Well, let me ask this question: Did you 17 or did you not presume that Linnarsson was enabled? 18 A. So, I believe "enabled" is a legal term of 19 art. So I'm not fully sure what that would mean in 20 this context. 21 My understanding is -- so this is not a 22 U.S. patent. And also, I'm not familiar with the 23 requirements on international patent law. 24 My assumption based on my limited 25 understanding is that the inventors were in

Page 38 1 possession of the invention they claimed. 2 But I haven't fully -- I haven't done an 3 analysis of enablement of the Linnarsson patent. 4 Q. Did you read the Linnarsson patent 5 application carefully? 6 A. It's a patent application or a patent? 7 Q. It's an application. 8 A. Okay. I have read it carefully, yes. 9 Q. And based on your careful review of the 10 Linnarsson patent, did you have any reason to 11 believe that the technologies disclosed in here 12 would not work for their intended purpose? 13 MS. RAYMOND: Objection; form. 14 (Witness reading.) 15 A. So I don't believe Dr. Cooper offers any 16 arguments about whether or not the Linnarsson method 17 was enabled. So I had nothing to respond to. 18 I don't believe Dr. Cooper offered any 19 opinions about whether or not the Linnarsson method 20 or methods described, particularly in Example 1 and 21 2, would work for their intended methods -- or for 22 their intended applications. 23 I don't believe Dr. Cooper provided an 24 analysis of enablement of the claims of the patent. 25 So I'm not really prepared to offer an opinion about	Page 40 1 Q. Did you review the claims of Linnarsson as 2 part of your work in this matter? 3 A. So I did read the claims in Linnarsson -- 4 yes. 5 Q. And in terms of Claim 1 as operated with 6 the addition of Claim 13, do you understand how that 7 method works? 8 A. So I don't believe Dr. Cooper made 9 arguments about the claims that appear in 10 Linnarsson's patent. 11 Dr. Cooper's arguments refer to methods 12 that are reflected in Examples 1 and 2 in the 13 patent. Those examples refer back to Figures, I 14 believe, 2, 3, 4, and 11. And Dr. Cooper references 15 those fairly extensively. 16 So I didn't provide -- I didn't do an 17 analysis of Claims 1 and 13 to the extent that I 18 could offer an opinion today. 19 Q. In Claim 13, it refers to the method using 20 a combination of tags. 21 Do you see that? 22 A. I do see that, yes. 23 Q. Okay. And when you read this carefully, 24 what did you understand the combination of tags 25 would be in Linnarsson?
Page 39 1 that today. 2 Q. Did you, Dr. Quackenbush, as a person 3 skilled in the art that carefully reviewed 4 Linnarsson see anything that raised any issues as to 5 whether Linnarsson's technology would work for its 6 intended purpose? 7 MS. RAYMOND: Objection -- 8 Q. Just, did you? 9 MS. RAYMOND: Objection; form, 10 scope. 11 A. So that kind of analysis wasn't required 12 for me to respond to Dr. Cooper and his arguments. 13 So I'm not prepared to offer testimony 14 about that today. 15 Q. If you identified anything, let me know. 16 A. I certainly will. 17 Q. But to date, you have not. 18 Is that correct? 19 MS. RAYMOND: Objection; form, 20 scope. 21 A. So doing that analysis wasn't something 22 that was required for me to reply to Dr. Cooper's 23 arguments. 24 So I'm not prepared to offer testimony 25 about that today.	Page 41 1 MS. RAYMOND: Objection; scope. 2 A. So I haven't performed that analysis. I 3 don't believe Dr. Cooper offered arguments about 4 Claim 13 of the patent. 5 And so, I'm not prepared to offer 6 testimony today. 7 If I'm mistaken and you can point me to a 8 place in my reports on either the '013 or '197 9 patent, I'd be happy to refresh my memory. 10 Q. Did you consider in your opinions the 11 embodiment of the method of the invention of 12 Linnarsson described in Figure 1? 13 MS. RAYMOND: Objection; form. 14 A. So I'm not sure...I understand your 15 question. I have reviewed Figure 1, and I read the 16 caption for Figure 1. 17 But I don't believe a detailed analysis of 18 Figure 1 was required for me to respond to 19 Dr. Cooper's assertions about Linnarsson. 20 And so, I haven't performed that analysis. 21 And I'm not prepared to offer testimony today. 22 Q. I think in your testimony before you said 23 your understanding is Dr. Cooper's relying primarily 24 on Figures 2, 3, 4, and 11. 25 Is that correct?

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1 A. So I don't know if I said "rely." 2 Dr. Cooper refers to Figures -- I believe, 3 Figures 2, 3, 4, and 11 in different places in his 4 report. And I believe I responded to those. 5 And I'd be happy to discuss those or any 6 other references to figures that appear in my 7 report. 8 Q. When you prepared your opinions in this 9 proceeding, did you understand Dr. Cooper's 10 obviousness theory to rebut it? 11 A. To the best of my -- to the best of my 12 ability, I tried to understand Dr. Cooper's 13 obviousness theories. 14 There are places where Dr. Cooper -- and I 15 couldn't point to them, sitting here right now, but 16 I recall them being, in places, somewhat 17 inconsistent or confusing. 18 So to the best of my ability, I read them, 19 understood them as well as I could, and presented 20 arguments that appear in my declarations. 21 Q. Were you able to understand Dr. Cooper's 22 obviousness theory? 23 MS. RAYMOND: Objection; asked 24 and answered. 25 A. Again, I understood it to the best of my	1 recall any specific examples. 2 As I mentioned, I read his arguments, 3 interpreted them to the best of my ability, and 4 presented my responses to Dr. Cooper's arguments. 5 Q. If you'd turn to the '013 institution 6 decision, please. It's Paper 9. 7 A. I have that. 8 Q. If you'd review the description of 9 Linnarsson on Page 6, where it starts with the 10 heading "Linnarsson," through to the end of Page 7. 11 Can you tell me if there's anything in 12 here with which you disagree. 13 MS. RAYMOND: Objection; scope. 14 (Witness reading.) 15 A. So as I mentioned earlier, I had not 16 previously reviewed this document. 17 And now, I am only reading the three 18 paragraphs on page -- or two paragraphs, excuse 19 me -- on Page 6 and 7 that you are referring to. 20 I don't know who prepared this description 21 of Linnarsson, but it's a brief description. 22 The first paragraph includes a brief 23 summary of Linnarsson, and the second paragraph 24 describes some of the prosecution history for 25 Linnarsson.
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1 ability, given what Dr. Cooper presented. 2 There are different obviousness theories 3 he offers in different documents for the two 4 different patents. 5 He cites to slightly different 6 combinations of art, although the arguments 7 significantly overlap. 8 And I'd be happy to discuss my responses 9 to Dr. Cooper's particular opinions in detail, as 10 outlined in my declaration. 11 Q. Was there anything about Dr. Cooper's 12 obviousness theories that you didn't understand? 13 MS. RAYMOND: Same objections. 14 A. Sitting here at this moment, I can't point 15 to anything. 16 Dr. Cooper's arguments weren't always 17 clear. To the best of my ability, I reviewed them 18 and responded to them and displayed my understanding 19 of his arguments, as described in my two 20 declarations in these two IPR matters. 21 Q. Can you identify anything about 22 Dr. Cooper's obviousness theory that you consider to 23 be unclear to you? 24 MS. RAYMOND: Same objections. 25 A. Sitting here at this moment, I can't	1 In cross-referencing the citations to 2 Linnarsson with the quotes that are extracted from 3 Linnarsson, I haven't been able to find two of them 4 at the referenced positions. The third, I have. 5 So I believe this is a representation, I'm 6 assuming, from the Patent Review Board that 7 summarizes at least part of their understanding of 8 what is in Linnarsson. 9 Q. Right. And then the question is: When 10 the Board decision sets forth the description of 11 Linnarsson on Pages 6 and 7, is there anything there 12 that you see that's inaccurate? 13 MS. RAYMOND: Objection; form. 14 Q. Based on your work in this case. 15 A. So it's not a fulsome analysis of 16 everything that's in Linnarsson. It's a brief 17 summary that largely relies on apparent citations to 18 Linnarsson. 19 I believe the citations are correctly 20 reproduced. 21 The title is clearly "Gene Expression 22 Analysis in Single Cells." That is correct. 23 I haven't been able to find the second 24 quotation or the third quotation. 25 The fourth one, I have found.

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1 And I believe the summary of the fourth 2 quotation is correct. 3 Q. All right. If you would review the Board 4 decision's description of McCloskey on Page 8, 5 Heading 2, and tell me if there's anything you 6 identify as being inaccurate. 7 And if so, please identify it now. 8 MS. RAYMOND: Objection; scope. 9 (Witness reading.) 10 A. So again, this is the first time I am 11 seeing this document. 12 I don't have a copy of McCloskey in front 13 of me to cross-reference. 14 But I believe that the first McCloskey 15 document is entitled "Encoding PCR Products with 16 Batch-Stamps and Barcodes." 17 Q. You don't have to go through and -- 18 sentence by sentence, just for efficiency. So let 19 me just ask if there's anything in the Board's 20 description of McCloskey on Page 8 that you see 21 that's inaccurate, identify it now. 22 MS. RAYMOND: Same objection. 23 Q. Please try to stay to that question. 24 A. So the only piece which is the Board's 25 description of McCloskey is the very first place	1 A. So there are two places. 2 So if you look at the end of the very 3 first paragraph -- right? 4 Such an encoding 5 oligonucleotide with two tag 6 sequences is the heart of what 7 Petitioner relies upon with 8 respect to McCloskey. 9 So that -- it says: 10 See, for example, 11 Petition-22 to 23. 12 And then quotes that petition. 13 So I haven't read that petition. I don't 14 know what the context is of the quotation that 15 appears here. 16 I'm assuming that the Board is accurately 17 reflecting what appears in that petition, but I have 18 no firsthand knowledge. And so, I cannot render an 19 opinion as to whether or not that's an accurate 20 representation or not. 21 I'm assuming it is. 22 I do believe Dr. Cooper discusses the 23 batch stamp -- what I believe McCloskey refers to as 24 the "batch stamp," which is used to identify batch. 25 And I believe with McCloskey, it's the day
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1 where they quote from McCloskey. 2 It then reads: 3 Session and encoding 4 oligonucleotide with two tag 5 sequences is the heart of what 6 Petitioner relies upon -- in 7 respect to McCloskey. 8 I don't know what document they're 9 referring to. Are they referring to a petition? 10 And I believe that's an accurate 11 representation of what the Board believes the 12 petition is stating. 13 And then, there's also a statement about 14 the petitioner believing this is prior art. 15 I haven't done an analysis of the petition 16 to understand whether or not this is correct. And I 17 haven't done an analysis of McCloskey as prior art. 18 But I can tell you that the first 19 paragraph quoting McCloskey is likely fully correct. 20 Q. In terms of when you say you haven't read 21 the petition to understand this, what is it that you 22 don't know whether the petition asserts -- 23 MS. RAYMOND: Objection -- 24 Q. -- which statement? 25 MS. RAYMOND: Objection; form.	1 on which certain acids were run -- an assay batch, 2 and then a barcode, which is a 7-nucleotide -- 3 7-base oligonucleotide that is used or described as 4 being used for distinguishing alleles. 5 But I'd have to review McCloskey even to 6 provide some opinion about -- to provide a fully 7 accurate description of what appears in McCloskey. 8 So I believe it accurately represents the 9 Board's -- well, it actually quotes, at least, the 10 petition. I'm not sure exactly what's in the 11 petition itself. 12 Q. Turning to Page 15. 13 Do you see where it says the sentence: 14 This is so because, as 15 patent owner argues, McCloskey 16 teaches "a barcode that 17 uniquely identifies and 18 distinguishes polynucleotides." 19 A. I'm sorry, where? 20 Q. It's the third sentence. 21 A. Yes, I see that sentence. Yes. 22 Q. Okay. Do you have any reason to disagree 23 with the Board that McCloskey teaches "a barcode 24 that uniquely identifies and distinguishes 25 polynucleotides"?

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1 (Witness reading.) 2 A. So I believe you're incorrectly 3 characterizing the statement that appears in the 4 institution decision. 5 The statement actually begins: 6 This is so because, as 7 patent owner argues, McCloskey 8 teaches, quote, a barcode that 9 uniquely identifies and 10 distinguishes polynucleotides. 11 So I believe what's appearing here is a 12 summary of what the attorneys representing Parse 13 have presented in one of their petitions. 14 And I don't know the context in which this 15 appears. I'd be happy to discuss McCloskey and the 16 arguments that Dr. Cooper presents. 17 I don't recall Dr. Cooper making this 18 statement, but I'd be happy to review his 19 declarations and the places in my declaration which 20 have responded to them. 21 Q. But do you agree or disagree that www.LexitasLegal.com/Premier 22 McCloskey teaches "a barcode that uniquely Lexitas 23 identifies and distinguishes polynucleotides"? 24 A. So I don't believe I've stated that 25 anywhere in my report.	1 formulated an opinion on that? 2 A. So this may be summarizing -- since this 3 is in the petitioner's words, this may be 4 summarizing statements made by Dr. Cooper. 5 I haven't read the petition. I'm only now 6 seeing the institution decision. So I don't know 7 the context of how this is presented. 8 The arguments here may be arguments that 9 are provided by Dr. Cooper, referring back to the 10 previous discussion about a barcode. 11 Thinking about this a little bit more, and 12 the patent owner argues that.... 13 (Witness reading.) 14 A. I don't know. I'd have to read this in 15 much greater detail. 16 I know Dr. Cooper presents arguments about 17 McCloskey and McCloskey's barcodes, and I would be 18 happy to respond to those. 19 One of the things that McCloskey teaches 20 is the use of a 7-nucleotide barcode. Dr. Cooper 21 refers to that extensively. 22 A 7-nucleotide barcode only has 16,384 -- 23 so, 4 to the 7th power -- different possible 24 sequences. 25 And as Dr. Cooper points out, if one were
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1 I don't believe Dr. Cooper has made that 2 particular assertion, although I'm happy to be 3 proved incorrect. 4 So if you'd like to refer me to places in 5 my report where I've described -- or responded to 6 this particular statement, I would be happy to do 7 so. 8 Q. If you turn to Page 14. 9 A. I'm on Page 14. 10 Q. Okay. Great. The first full sentence, it 11 states: 12 In petitioner's words, 13 quote, it would have been 14 obvious to utilize Linnarsson's 15 cDNA library preparation to 16 introduce a cell tag and then 17 further introduce a second tag 18 that distinguished 19 polynucleotides (as taught by 20 McCloskey) using ligation 21 techniques that were well known 22 in the art. 23 Do you see that? 24 A. Yes, I do. 25 Q. And do you disagree with that? Have you	1 to try to uniquely tag all of the polynucleotides 2 represented by messenger RNAs in a eukaryotic cell, 3 of which there are, again, given Dr. Cooper's 4 estimates, between 60,000 and 300,000 individual 5 mRNAs, Dr. Cooper argues that you would need ten 6 times that number -- so 600,000 to 3 million 7 different barcodes. 8 And those 16,384 barcodes, given 9 Dr. Cooper's arguments, would not be able to tag 10 even the 60,000 RNAs with his lower estimates. 11 So you know, there are statements that -- 12 in petitioner's words, I actually believe you said 13 this. I have no reason to doubt that the Board is 14 quoting that correctly. 15 But, you know, the devil's in the details. 16 And we really have to analyze Dr. Cooper's arguments 17 and look at them in the context of what he presents 18 as potentially invalidating obvious prior art. 19 Q. Sitting here now, do you have an opinion 20 as to whether the petition is correct that it is 21 obvious to utilize Linnarsson's cDNA library 22 preparation to introduce a cell tag and then further 23 introduce a second tag to distinguish 24 polynucleotides, as taught by McCloskey, using 25 ligation techniques that were well known in the art?

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1 MS. RAYMOND: Objection; scope, 2 form. 3 (Witness reading.) 4 A. So again, the Patent Board, I believe, is 5 correctly quoting the petition. I have no reason to 6 doubt that. 7 Dr. Cooper presents arguments about 8 combining Linnarsson and McCloskey. And that's what 9 this statement is referring to. 10 So I will just refer to the '013 11 declaration that I prepared, and I won't go through 12 the entirety of the arguments presented here. 13 But I'd be happy to do that in detail in 14 responding to Dr. Cooper's assertions. 15 But if we start on Page 44, Dr. Cooper -- 16 I'm responding to Dr. Cooper's arguments that 17 Linnarsson, in view of McCloskey and the knowledge 18 of a person of skill in the art, renders the claims 19 of the '013 patent obvious. 20 First, I outline on Page 44 that 21 Dr. Cooper fails to provide a motivation to combine 22 these. 23 He shows -- or has not shown that a tag 24 can be successfully added via ligation -- via 25 ligation, excuse me, to the method described in	1 Dr. Cooper, or at least the petitioner, made in this 2 matter. 3 Q. Now, in terms of a single yeast cell, how 4 many mRNA would there be? 5 A. I don't believe Dr. Cooper provides any 6 citation to a single yeast cell. 7 If you'd like to share his report, I'd be 8 happy to refresh my memory. 9 Q. Do you know how many mRNA are in a single 10 yeast cell? 11 MS. RAYMOND: Objection; scope. 12 A. Yeast has about 6,000 genes. 13 But I haven't reviewed how many 14 transcripts are likely to appear in a yeast cell, 15 because, to the best of my recollection, I don't 16 believe Dr. Cooper provides any arguments about 17 yeast. I believe the estimates Dr. Cooper provides 18 are about mammalian cells. 19 But I'd be happy to have my recollection 20 updated if it is incorrect. 21 Q. Can you say anything more about the number 22 of mRNA, other than 6,000, when you're referring to 23 single yeast cells? 24 MS. RAYMOND: Objection; scope. 25 A. So first, I didn't say "6,000." I
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1 Linnarsson and that his other ligation assertions 2 also fail. 3 So although, yes, I believe it is correct 4 that you and the other attorneys representing Parse 5 have asserted it would have been obvious to combine 6 these, I believe the arguments that Dr. Cooper 7 prevents -- presents in support of that fail. 8 And as I mentioned in Page 44 through 53 9 of my -- or, sorry, through 60 in my declaration, I 10 outline those, and I'd be happy to discuss those in 11 detail. 12 In fact, even going beyond what you 13 pointed out, the PTAB decision ac- -- or PTAB 14 institution decision actually says: 15 It is unclear from this 16 statement alone how the prior 17 art teachings purportedly would 18 have been combined, at least 19 because the statement fails to 20 identify the structure to which 21 the second tag would be 22 located. 23 So even the PTAB itself raises -- like I 24 said, they accurately quoted this, but they raised 25 some questions about the presentation that	1 mentioned 6,000 genes. 2 But it's not something I reviewed in 3 preparation for -- to prepare my declarations or in 4 preparation for my testimony today. 5 If we made an assumption -- and now, this 6 is purely speculation -- but if we made the 7 assumption that each gene in yeast was transcribed 8 once -- and that's an assumption which I can tell 9 you, for a variety of reasons, would be incorrect -- 10 but if each gene was transcribed once, resulting in 11 one messenger RNA, based on Dr. Cooper's arguments 12 you would need 60,000 tags to uniquely tag all of 13 those. And that's fewer than the 16,000 -- or 14 that's far -- sorry, far more -- at least four times 15 more than -- about four times more than the 16,384 16 7-mers that McCloskey described and that Dr. Cooper 17 refers to. 18 So again, I don't think Dr. Cooper's made 19 any arguments about yeast. But in the interest of 20 responding to your question, I can provide at least 21 an uninformed speculation. 22 Q. In terms of the 7 bases used for tagging 23 in McCloskey, is there any reason that you can 24 identify why a person of ordinary skill in the art 25 wouldn't increase the number of bases in the tag if

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1 they wanted to uniquely tag a larger number of 2 polynucleotides? 3 MS. RAYMOND: Objection; scope. 4 (Witness reading.) 5 A. Would you repeat the question, please. 6 Q. The tags in McCloskey in the example are 7 7 bases long. 8 Is that correct? 9 A. The tags described by McCloskey, to the 10 best of my recollection, are 7 bases long. 11 And I believe that's what Dr. Cooper also 12 describes. 13 Q. Is there any reason that you can identify 14 why a person skilled in the art wouldn't increase 15 the number of bases in the tag if they wanted to 16 uniquely tag a larger number of polynucleotides? 17 MS. RAYMOND: Objection; 18 objection. 19 A. So first, that's a rather compound 20 question. 21 And if I can correct the record, earlier I 22 said 16,384. The number should have been 16,348 23 [sic] different 7-mers. 24 But to answer your question -- and again, 25 it's a compound question -- Dr. Cooper proposes an	1 Just given the construction of Linnarsson's assay, 2 it might be difficult to sequence through that and 3 obtain sufficient information. 4 But again, Dr. Cooper hasn't proposed 5 that. And I haven't done a thorough analysis. 6 So I'm not prepared to offer testimony 7 about modifications to Linnarsson that Dr. Cooper 8 himself has not proposed. 9 Q. What were the length of labels that 10 persons of ordinary skill in the art were using in 11 the 2009 time period, if you know? 12 MS. RAYMOND: Objection; form. 13 A. In 2009 people were using labels for a 14 variety of different purposes, and there could be a 15 range of different labels for different purposes. 16 The only barcode label to uniquely tag 17 polynucleotides that Dr. Cooper offers is 18 McCloskey's 7-mer. 19 Q. No. My question to you was just a 20 historical fact. 21 In the 2009 time period, what were the 22 range of lengths of labels that were commonly used 23 by persons of ordinary skill in the art? 24 MS. RAYMOND: Objection; form, 25 scope.
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1 idea that McCloskey's tags could be ligated at 2 different points in the Linnarsson workflow. 3 And starting -- and I'm not going to read 4 through the entirety of my opinions about this. 5 But in section... 6 Well, I'm not going to look even all the 7 way back there. 8 But in various sections, I describe -- of 9 my report, I describe why that ligation itself would 10 fail. 11 The second thing is that Dr. Cooper only 12 describes the use of 7-nucleotide barcodes and 13 doesn't propose anything else, other than the use of 14 the 7-nucleotide barcodes, particularly in looking 15 at Claim 1 of each of the '013 and '197 patents. 16 And in that context, Dr. Cooper doesn't 17 provide a mechanism by which that would be increased 18 to be able to create enough barcodes, to be able to 19 have ten times more than the number of transcripts 20 that appear in a mammalian cell as -- so at least 21 600,000 to 3 million, given Dr. Cooper's estimates. 22 And at least one simple reason why that 23 might not be feasible, even if one -- even if 24 Dr. Cooper had proposed it, which he doesn't -- one 25 reason why that might present a challenge could be:	1 Q. If you know. 2 A. It would depend on the context. And it's 3 not a number that I researched, because Dr. Cooper 4 doesn't present arguments about a range of labels. 5 Q. Do you know if it's more or less than 50 6 bases? 7 MS. RAYMOND: Objection; scope, 8 form. 9 A. The length would depend on the context, 10 and it's not something I'm prepared to testify about 11 today. 12 Dr. Cooper proposes a 7-mer as a barcode 13 to identify polynucleotides. And so, I'm happy to 14 discuss Dr. Cooper's arguments. 15 Q. Do you know of any label in the 2009 time 16 period or before -- the length of any label? 17 MS. RAYMOND: Objection; form, 18 scope. 19 A. Label for what? 20 Q. Anything. Obviously, DNA -- or mRNA. 21 A. People used labels of different lengths 22 depending on their purposes. 23 Dr. Cooper only offers opinions about the 24 7-nucleotide barcodes. And so, those are the ones 25 that I'm prepared to discuss.

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1 Q. How would a person of ordinary skill in 2 the art, in 2009, know to use labels of different 3 lengths depending on their purposes? 4 A. So that's a complex question that would 5 depend on what an individual is doing, their own 6 expertise. 7 Again, I'm not in a position to speculate 8 today. I'm only here to provide responses to 9 Dr. Cooper's arguments regarding combining McCloskey 10 and Linnarsson. 11 And Dr. Cooper in his presentation only 12 refers to 7-mers. 13 So if Dr. Cooper now has different 14 theories that aren't presented here, I really can't 15 respond to those. 16 Q. By 2009, had you ever used labels for 17 mRNA? 18 A. So -- 19 Q. In your lab. 20 A. So I believe in previous -- in my previous 21 testimony regarding the -- "I want to get the number 22 correct -- the '981 patent, I talked about some uses 23 of what you might refer to as "labels." I will 24 refer to them as "barcodes." 25 One of those applications that I described	1 arguments. 2 Dr. Cooper presents a 7-nucleotide 3 barcode, which gives you "16,348" different 4 possibilities. And that's not enough to label the 5 60- to 300,000 transcripts in a mammalian cell 6 uniquely. 7 Q. You stated that how a person of ordinary 8 skill in the art would determine the length of a 9 label would depend on a number of different factors. 10 Do you recall that testimony? 11 A. Yes, I do. 12 Q. And just based on your knowledge as an 13 expert in this matter, what are the different 14 factors that a person of ordinary skill in the art 15 would have considered in 2009 on that? 16 MS. RAYMOND: Objection; scope. 17 A. So sitting here this moment, I don't 18 believe I could fully detail those. 19 Q. Can you identify any? 20 A. I would like to actually do some research, 21 so I could offer a full and complete answer to the 22 question. 23 I pointed to some examples, like multiplex 24 sequencing. And even there, the length of the 25 multiplex barcode would depend on the particular
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1 in some detail previously -- and I would be happy to 2 discuss -- is the use of multiplex barcodes. This 3 was something that was a common part of the Illumina 4 workflow for sequencing. 5 And I don't know the length of those 6 barcodes, but they were barcodes that were used to 7 label -- not RNAs, but cDNAs derived from RNAs -- 8 so, to label those cDNA molecules from some 9 different biological sources -- so a tissue sample 10 from one individual, a tissue sample from another 11 individual -- to uniquely label those so they could 12 be sequenced together, and then what we would refer 13 to as "demultiplexing." 14 So we would run a multiplex assay with 15 these multiplex barcodes and then demultiplex them. 16 So that's just one of many different 17 possibilities. 18 And again, the -- how one would determine 19 that length could depend on a number of different 20 factors. 21 Q. What are the factors that go into the 22 length of a label? 23 A. I'm not prepared to offer a fulsome 24 testimony today because that's not something that I 25 needed to consider in responding to Dr. Cooper's	1 application and even the number of samples one was 2 going to multiplex. 3 Q. And why would the length of the labels in 4 this multiplex sequencing context depend on the 5 number of samples? 6 MS. RAYMOND: Objection; scope. 7 A. So it would depend on a variety of 8 different factors. 9 And I'm not sure I could detail all of 10 those, so I'm not prepared to offer testimony on 11 that today. 12 Q. Can you identify any? 13 MS. RAYMOND: Same objections. 14 A. Again, I wouldn't want to misrepresent any 15 particular decisions that one might make. 16 I'd have to think about it in the context 17 of the particular application, and I'm not prepared 18 to offer testimony about that today. 19 Q. Do you have any opinions in this matter as 20 to what a person of ordinary skill in the art, in 21 2009, would know about the length they should use 22 for a label? 23 MS. RAYMOND: Objection; scope. 24 A. So if you can point to my declarations in 25 either of these two matters where I describe that,

Page 66 1 I'd be happy to discuss that with you. 2 I don't believe I've offered opinions 3 about that, because I don't believe Dr. Cooper has 4 presented any opinions other than using a 5 7-nucleotide barcode, as described in McCloskey. 6 MR. REINES: Okay. All right. 7 Well, why don't we take a break. 8 (Whereupon, a recess was taken from 11:20 9 a.m. until 11:37 a.m.) 10 BY MR. REINES: 11 Q. If you turn to Page 43 [sic] of your 12 declaration. 13 A. Page 43? 14 Q. Yeah. We can use the -- in the -958 15 proceeding. 16 A. All right. 17 Q. And the only claim construction you refer 18 to here is in Paragraph 56 where you performed 19 regarding "sample." 20 Is that correct? 21 (Witness reading.) 22 Q. So starting in Paragraph 55, I provide my 23 understanding. For the purposes of the IPR process, 24 the claim terms are construed with their plain -- 25 with their ordinary and customary meaning.	Page 68 1 entirety of a polynucleotide. 2 And so, I don't have Dr. Cooper's reports 3 in front of me. But those are the assertions that 4 I'm responding to in my declaration. 5 Q. But with respect to the reflex method, do 6 you know what portion of the tag polynucleotide is 7 sequenced? 8 Do you have any idea at all, based on your 9 careful reading of the patents? 10 MS. RAYMOND: Objection; scope. 11 A. That's not an analysis that I've done in 12 preparation of the declarations that I'm testifying 13 about today. 14 And I'm not in a position to offer an 15 opinion about that at this time. 16 Q. And in the reflex method, you can sequence 17 just from the primer site alone, correct? -- not 18 necessarily the entire polynucleotide that's tagged. 19 MS. RAYMOND: Objection; scope. 20 (Witness reading.) 21 A. If you can point me to where in my 22 declaration -- either of my declarations I offer an 23 opinion about the reflex method and how it's 24 practiced, I would be happy to discuss that. 25 Given the fact that I haven't offered
Page 67 1 And the only term for which I offer any 2 analysis or clarification is the word "sample," 3 which appears in Claim 1 of the '013 patent. 4 So, you're correct. That's the only term 5 which I offer outside of its ordinary and customary 6 meaning. 7 And in Paragraph 57, I reiterate: 8 For all other terms, I've 9 been asked to assume they have 10 their plain and ordinary 11 meaning as they would have been 12 understood by persons of skill 13 in light of the specification. 14 So in the context of the specification of 15 the, in this case, '013 patent. 16 Q. Can you identify anywhere in the reflex 17 method where the entire tag polynucleotide is 18 sequenced? 19 MS. RAYMOND: Objection; scope. 20 A. So that's not an analysis that I performed 21 in preparing my declarations today and that I'm 22 prepared to testify about. 23 Dr. Cooper makes assertions about 24 sequencing in Linnarsson -- or makes assertions 25 about sequencing and the requirement to sequence the	Page 69 1 opinions about that, I'm not prepared to offer an 2 opinion today. 3 Q. Based on your careful reading of the 4 patents in suit, do you know how the reflex method 5 works? 6 A. Generally, I know how the reflex method 7 works, at least in some of its incarnations. 8 But I haven't reviewed those in detail in 9 preparation for my testimony. And so, I'm not 10 prepared to offer opinions today. 11 Q. Does Figure 3 of Linnarsson require 12 biotinylation? 13 MS. RAYMOND: Objection; form. 14 (Witness reading.) 15 A. So if we look at Linnarsson in the 16 description of the figures, Figure 3, the caption 17 says: 18 Figure 3 shows an example 19 of a template switching 20 oligonucleotide comprising a 5' 21 amplification sequence (APS), a 22 cell tag and a 3' sequence for 23 template switching. 24 And you'll recall that Figure 3 is one 25 example of the template-switching oligonucleotide.

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1 The reference to Figure 3 comes on Page 24 2 of Linnarsson in Example 1. 3 So Example 1 is describing the STRT method 4 and its application. And in it, it refers to 5 Figure 2, Figure 3, Figure 4, and then, I also 6 believe, Figure 11 -- at least Dr. Cooper in his 7 presentation links -- it does -- I believe it does 8 refer to Figure 11. 9 But Dr. Cooper in his description of the 10 STRT method refers to Figures 2, 3, 4, and 11 as 11 capturing the STRT method. 12 And so in that broader context, while the 13 figure caption doesn't mention biotin, the figure 14 caption is only really showing the DNA sequence 15 elements of the template-switching oligonucleotide, 16 or "TSO," in the context of how it's described. 17 And the STRT workflow would require a 18 biotin to be able to function. 19 And Dr. Cooper doesn't provide any 20 alternatives to including a biotin in carrying out 21 the STRT method. 22 Q. In terms of why there's no identification 23 of biotin in Figures 3 and 4, you have no way of 24 knowing why Linnarsson did or didn't include that? 25 MS. RAYMOND: Objection; form.	1 McCloskey's encoding 2 oligonucleotide's batch-stamp 3 allows one, instead, to 4 distinguish between nucleic 5 acids arising from a cell in 6 the sample and contaminant 7 nucleic acids arising from the 8 cells from prior samples. 9 Do you see that? 10 A. I do, yes. 11 Q. And so, the McCloskey batch stamps allows 12 a researcher to distinguish between the different -- 13 between two different cells. 14 Is that right? 15 MS. RAYMOND: Objection; form. 16 (Witness reading.) 17 A. So the method disclosed in McCloskey is a 18 method that's presented as one for detecting 19 cross-contamination between batches. 20 The example that McCloskey uses to 21 motivate that is a description of an analysis of 22 whooping cough, in which assays were run on multiple 23 days. And as often happened when assays like PCR 24 are run, a great deal of genetic material is 25 amplified or copied and can carry over between days.
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1 A. I was not present when Linnarsson prepared 2 this document. So I'm not in a position to 3 speculate as to why it wasn't included, other than 4 saying my best guess is what they were simply trying 5 to do is to show the oligonucleotide sequence. 6 I would refer you back to Figure 11, which 7 has a more complete description of the STRT method, 8 which is described in Example 1 and where Figure 3 9 is first referenced. 10 Q. If you'd turn to Paragraph 71 of your 11 report. 12 A. I'm there. 13 Q. Oh, I see. If you could... 14 All right. Do you have this for the '197 15 patent proceeding? 16 A. Do I have...? 17 Q. Paragraph 71. 18 I want to make sure we're on the right 19 declaration. 20 A. So I have both declarations in front of 21 me. 22 Q. Paragraph 71 from the '197 proceeding. 23 A. All right. 24 Q. If you could go to the middle of this 25 paragraph, where it says:	1 So to solve the problem of this carryover 2 and cross-contamination between days, McCloskey 3 proposes using a batch stamp to look at that 4 cross-contamination. 5 McCloskey then provides an example -- and 6 again, I don't have the paper in front of me, so I'm 7 going from memory -- but provides an example of 8 analyzing a bulk DNA sample. 9 By a "bulk sample" I mean, one that 10 consists of many cells. 11 And the way I know that's true is that 12 McCloskey analyzes, I believe, 2.71 micrograms of 13 DNA. 14 And the approximate amount of DNA that's 15 in a single cell is about 6 picograms -- so, 16 thousands of times less -- or hundreds of times 17 less. So there are at least hundreds, if not 18 thousands, of cells present in what McCloskey 19 describes. 20 McCloskey then has a passing reference to 21 analysis of a single cell, but doesn't provide any 22 description of how to do that. 23 So the way McCloskey is presented -- and I 24 described this in the paragraph, that -- in the 25 sentence you called out:

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1 McCloskey's encoding 2 oligonucleotide batch-stamps 3 allows one, instead, to 4 distinguish between nucleic 5 acid samples arising from a 6 cell in the sample -- that's 7 being analyzed today -- 8 So.... 9 -- and contaminant nucleic 10 acids arising from cells in 11 prior samples. 12 So you analyze the cell today. You 13 analyze the cell tomorrow. And the batch stamp 14 represents those batches of one cell being analyzed 15 today and one cell being analyzed tomorrow. 16 McCloskey includes no 17 sequence that distinguishes 18 among cells from the same 19 sample, nor does it disclose 20 isolating cells such that each 21 tagged polynucleotide would be Lexitas 22 able to trace back to its cell 23 of origin. 24 So McCloskey's passing reference seems to 25 imply just the analysis of a single cell from a	1 to distinguish between the 60- to 300,000 different 2 transcripts that would occur in a cell. 3 Q. Just getting back to my question, the tags 4 in McCloskey can be used to distinguish between 5 different nucleic acids from a single cell, right? 6 -- because you stated that he'd only have one cell 7 in the sample. 8 MS. RAYMOND: Objection; form. 9 A. So McCloskey does not describe how that 10 would be performed or how one might have to modify 11 the protocol. 12 McCloskey -- again, I don't have the 13 reference in front of me -- McCloskey does not 14 disclose single-cell analysis, but includes a 15 passing reference to avoid batch contamination in 16 samples for which there is limited DNA -- or -- I 17 think it says "limited DNA." Again, I don't have 18 McCloskey in front of me. 19 And McCloskey does provide, for bulk 20 samples, an example of distinguishing between two 21 separate alleles from the same gene DNA. 22 But I don't believe McCloskey ever 23 describes the kind of analysis with single cells 24 that you're referring to. 25 Q. In your declaration --
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1 single sample, and avoiding the problem of batch 2 contamination. 3 Q. And the tags in McCloskey can be used to 4 distinguish between different nucleic acids from 5 that single cell that you just referenced? 6 MS. RAYMOND: Objection; form. 7 A. So McCloskey provides an example of the 8 analysis of a single gene. 9 And I believe I refer to it -- but I don't 10 recall exactly what that gene was -- to identify 11 different alleles. 12 So it's not a cDNA analysis. It's an 13 analysis of DNA sequence, where the complexity is 14 substantially reduced because they're only looking 15 at a single gene. 16 That gene -- every individual has two 17 copies of DNA -- one inherited from their biological 18 mother, one inherited from their biological father. 19 And there are potential variations that 20 appear in that DNA, which we refer to as "alleles." 21 And McCloskey's batch stamp -- sorry, 22 excuse me, McCloskey's 7-mer barcode could be used 23 to distinguish between separate alleles. 24 But as we discussed earlier, the "16,348" 25 different variants of the 7-mer would not allow one	1 Let's start with the '197 patent 2 declaration. 3 A. All right. 4 Q. -- you don't have the rules set out for 5 what's analogous prior art. 6 How come you didn't include that? 7 MS. RAYMOND: Objection; scope. 8 (Witness reading.) 9 A. So I don't have Dr. Cooper's reports in 10 front of me -- or his declarations in front of me. 11 I don't believe Dr. Cooper has provided a 12 definition of "analogous prior art." 13 But if you'd like to show those to me and 14 if he does, I would be happy to correct my 15 recollection. 16 I believe the burden of proof of 17 identifying analogous prior art falls on Dr. Cooper. 18 And I was not asked to provide a 19 definition -- or I did not feel it was necessary, 20 excuse me, to provide a definition, because it 21 wasn't necessary to respond to Dr. Cooper's 22 arguments. 23 Q. You presumed, for purposes of your 24 opinions in this matter, that a person of ordinary 25 skill in the art would have full familiarity with

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1 Linnarsson and McCloskey and the full range of 2 teachings they contain. Right? 3 A. Could you repeat the question, please. 4 Q. Yes. You presume, for purposes of your 5 opinions in this matter, that a person of ordinary 6 skill in the art would have full familiarity with 7 Linnarsson and McCloskey and the full range of 8 teachings they contain. 9 A. So I don't believe I would characterize it 10 that way. Right? 11 Q. Well, let me show you your paragraph 26. 12 A. Please. 13 Q. In Paragraph 26, if you could go to the 14 bottom of that. 15 A. This is in the '197 declaration? 16 Q. Yeah. 17 A. Okay. 18 Q. Yes. 19 A. Yes. 20 Q. All right. You state at the end -- the 21 last sentence of Paragraph 26 says: 22 I understand that a person 23 of skill is presumed to have 24 knowledge of all relevant prior 25 art and therefore would have	1 would have been familiar with them. 2 However, I'm not intending this statement 3 to mean that a person of ordinary skill in the art 4 would have known these references to exist, in large 5 part because -- I think I pointed out previously, I 6 forget what journal McCloskey appeared in, but it 7 was a rather obscure journal. 8 And the title, even, of the McCloskey 9 paper wouldn't be one that would alert one that it 10 might be relevant to particular experiments that 11 that individual might be doing. 12 The title of the McCloskey paper, which is 13 called out on Page -- where is it? -- Page 38 is 14 "Encoding PCR Products with Batch-stamps and 15 Barcodes." 16 And the batch stamps, again, were 17 described as being useful for looking at 18 cross-contamination between batches. 19 The Linnarsson patent is a patent 20 application -- not a patent, apparently, but a 21 patent application -- to the "World Patent 22 Organization," "Worldwide Patent Organization." 23 And most of the scientists I know don't 24 read patent applications as part of their normal 25 work. But having read it, if they were familiar
Page 79	Page 81
1 been familiar with each of the 2 references cited herein and the 3 full range of teachings they 4 contain. 5 Do you see that? 6 A. Yes, I do. 7 Q. Okay. And you understand that Linnarsson 8 and McCloskey are references cited in here -- i.e., 9 meaning your declaration? 10 A. So you're asking what really comes down to 11 a multipart question. Right? 12 So -- 13 Q. Well, I'm just asking you whether the -- 14 when you said "the references cited herein," you 15 mean cited in your declaration? 16 A. The references cited in my declaration. 17 But if I read this -- right? -- what I'm 18 referring to here is the fact that one of ordinary 19 skill in the art could take Linnarsson and take 20 McCloskey, since these are the -- since these are 21 the references that Dr. Cooper uses in his 22 arguments -- they would be able to read them and 23 understand them. 24 And in providing my analysis, I'm assuming 25 that, in having read them and understood them, they	1 with it, they would have understood it. 2 So in doing my analysis, I'm assuming that 3 the person of skill in the art -- and this is a 4 hypothetical -- would have known about these, would 5 have been able to evaluate them, and would have been 6 able to understand whether or not they represent, as 7 Dr. Cooper suggests, invalidating prior art. 8 And throughout the analysis I present in 9 both of my declarations, under that -- under the 10 assumption that someone did know of these -- would 11 one see them as invalidating prior art? 12 And I believe, based on the arguments in 13 my declaration, it's clear that they would not 14 represent invalidating prior art alone or in 15 combination. 16 MR. REINES: I'm going to move 17 to strike that as abusively nonresponsive 18 and far too long. 19 So -- I mean, I'm just -- I'd 20 ask you not to do that anymore. I don't 21 think it reflects well on the process. 22 So let me just ask you some 23 specific questions. Try to be as 24 responsive as you can. 25 And I know you want to advocate

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1 for your client. But don't do that if 2 it's nonresponsive. 3 THE WITNESS: You asked me a 4 specific question, and I gave the best 5 answer I could -- and I will continue to 6 do that. 7 MR. REINES: I'd ask the reader 8 to go up and read the last question and 9 answer, and ask themselves whether that's 10 responsive or is that someone arguing and 11 disregarding the question. 12 And I'm sure the reader can make 13 their own judgment. 14 BY MR. REINES: 15 Q. All right. You state here: 16 I understand that a person 17 of -- 18 A. I'm sorry. Where are you? 19 Q. The same place, the same sentence. 20 A. So it's -- which paragraph? 21 Q. It's Paragraph 26, the last sentence. 22 A. Okay. Thanks. 23 Q. This is what my last question was about. 24 I'm going to ask questions more particular to try to 25 just keep you on track.	1 So it's not a requirement for being a 2 person of skill in the art that one was familiar 3 with them, but we're making the assumption that they 4 were. 5 And under that hypothetical, then we 6 perform the analysis which is set out in my 7 declaration. 8 Q. And what is your understanding is the 9 basis as to why you are required to assume that a 10 person of ordinary skill in the art has the 11 knowledge of all the relevant prior art? 12 MS. RAYMOND: Objection; form. 13 A. So Dr. Cooper is presenting an argument, 14 and Dr. Cooper is presenting an argument in which he 15 asserts that Linnarsson and McCloskey represent 16 relative -- relevant prior art. 17 So one could argue with that, and I can 18 present some arguments about why one might not be 19 familiar with it. 20 But if we assume that Dr. Cooper is 21 correct, and we assume that Linnarsson and McCloskey 22 are relevant prior art, then for the purposes of the 23 analysis I carried out, I'm going to assume that a 24 person of skill in the art did have knowledge of 25 those references.
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1 It says here: 2 I understand that a person 3 of skill is presumed to have 4 knowledge of all relevant prior 5 art.... 6 Do you see that? 7 A. Yes. 8 Q. And that's something that the attorneys 9 told you. 10 Is that correct? 11 A. I've been instructed that that is what one 12 should assume. 13 Q. Okay. So in terms of performing the 14 obviousness analysis, one assumes that the person of 15 skill in the art has the knowledge of all the 16 relevant prior art, even if that's a hypothetical? 17 A. So as I answered in your previous 18 question -- right? -- this is a hypothetical -- this 19 is a hypothetical exercise. Right? 20 So number one, if we assume that, as 21 Dr. Cooper asserts, McCloskey and Linnarsson do 22 represent relevant prior art -- and that's an 23 assumption -- then one would assume, in doing the 24 analysis I performed, that the person of skill in 25 the art would have been familiar with those.	1 And then, given the other knowledge that a 2 person of skill in the art would have and reading 3 those in the context of Dr. Cooper's arguments, one 4 could ask, do Dr. Cooper's arguments make sense? 5 So you know, the baseline for doing -- for 6 responding to Dr. Cooper's hypotheticals about this 7 being prior art and how it's invalidating, a natural 8 assumption is to assume that the person performing 9 that analysis would have been familiar with them and 10 would have been able to analyze what's presented in 11 them, particularly in the context of Dr. Cooper's 12 arguments. 13 Q. Right. I think you misunderstood my 14 question. 15 A. Okay. 16 Q. My question isn't about Dr. Cooper. 17 You're going to have to, I think, abandon 18 your Dr. Cooper schtick for this question. 19 It states here: 20 I understand that a person 21 of skill is presumed to have 22 knowledge of all relevant prior 23 art.... 24 I'm going to get -- I'm going to refine 25 the questioning, and it should be good.

Page 86 1 When you state, "I understand that a 2 person of skill is presumed to have knowledge of all 3 relevant prior art," is that understanding specific 4 to only this declaration or is that your 5 understanding as a general principle of obviousness 6 law? 7 A. So I'm not an attorney, and I can't render 8 a legal opinion. I'm not a patent agent, and I 9 don't know patent law. 10 I am a scientist who, in the context of 11 this proceeding, represents someone who could 12 perform this hypothetical and analyze what a person 13 of ordinary skill in the art might understand. 14 You're asking me to divorce my answer from 15 Dr. Cooper and what Dr. Cooper presents, but I don't 16 believe that's the correct test I should be 17 applying. 18 Dr. Cooper has made arguments to which I 19 was asked to respond, and the basis for my response 20 is the assumption that a person of skill in the art 21 would have been familiar with the references and 22 potentially other relevant references that one would 23 have had access to and would have had possession of 24 at the time the analysis was to be performed -- so, 25 prior to 2009.	Page 88 1 "relevant" since he is the one making the arguments 2 to which I was asked to respond. 3 So if I assume Dr. Cooper is correct, and 4 I could argue that these are not relevant since they 5 don't render the claims of the two patents 6 obvious -- but if I make the assumption that 7 Dr. Cooper is correct, then I can perform the 8 analysis, which I did. 9 And so, my assumption is that these do 10 represent at least relevant art -- although, as I 11 point out in both declarations, they don't represent 12 art which renders either one of the two patents 13 obvious. 14 Q. When you state, "I understand that a 15 person of skill is presumed to have knowledge of all 16 relevant prior art," where did you gain that 17 understanding? 18 A. So I'm not a patent attorney or a licensed 19 patent agent. In performing this exercise, I rely 20 on guidance from the attorneys with whom I'm 21 working. 22 And the assumption that I was asked to 23 make was that one carrying out the analysis that 24 Dr. Cooper proposes would understand at least those 25 references as prior art.
Page 87 1 So I can't really divorce myself from 2 Dr. Cooper, because that was the exercise I was 3 asked to perform. There's a specific context for 4 this. 5 MR. REINES: I object to that 6 response as abusing the process. 7 BY MR. REINES: 8 Q. The question was: When you state, "I 9 understand that a person of skill is presumed to 10 have knowledge of all relevant prior art," is that 11 understanding specific to only this declaration or 12 is it your understanding that's a general principle 13 of obviousness law? 14 A. So as I answered in my previous question, 15 I'm neither a patent attorney nor a licensed patent 16 agent. I don't know the breadth and depth of patent 17 law. 18 I believe you're asking me to render a 19 legal opinion, which I'm not prepared to do. 20 As I told you previously, the exercise I 21 carried out was an exercise of responding to 22 Dr. Cooper. 23 So I don't know how you would define 24 "relevant." 25 I relied on Dr. Cooper to define	Page 89 1 So this statement that you're calling out 2 actually refers to the understanding that I have 3 gained in the context of this matter from discussing 4 with this -- this with the attorneys representing 5 10X. 6 Q. And what particular attorney instructed 7 you that a person of skill in the art is presumed to 8 have knowledge of all relevant prior art? 9 MS. RAYMOND: Objection; 10 privilege. 11 I instruct the witness not to 12 answer. 13 A. So I've been instructed not to answer. 14 MR. REINES: Okay. That's an 15 inappropriate instruction since it's the 16 basis for his assumption of his opinion. 17 MS. RAYMOND: Work product. 18 And I don't think that the 19 particular individual is relevant or not 20 protected. 21 BY MR. REINES: 22 Q. Where did you obtain the understanding of 23 the obviousness rules that you applied in this 24 matter? 25 (Witness reading.)

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1 A. So the legal standards for obviousness, to 2 the best of my understanding, are laid out in this 3 '197 report and the -095 matter, starting on Page 8 4 and continuing through -- in the context of this 5 matter, through the top of Page 11. And I cite 6 patent law. 7 As you might imagine, I am not intimately 8 familiar with patent law. So this is another 9 example where my understanding here reflects my 10 discussions with the attorneys in preparing the 11 declaration that I filed -- or that they filed on my 12 behalf. 13 Q. And which particular attorneys gave you 14 the patent rules that you're applying? 15 MS. RAYMOND: Objection, based 16 on privilege and work product. 17 I instruct the witness not to 18 answer. 19 A. I've been instructed not to answer. 20 MR. REINES: The identity of the 21 person who provided the information? Lexitas 22 MS. RAYMOND: Yeah. 23 BY MR. REINES: 24 Q. What were you told about the presumption 25 that a person of skill in the art -- well, first of	1 relevant prior art and nonanalogous prior art? 2 MS. RAYMOND: Objection, scope. 3 (Witness reading.) 4 Q. And please try to answer my question as 5 directly as you can without including extraneous 6 information. 7 (Witness reading.) 8 A. Would you repeat the question, please. 9 Q. Do you know what the rules are as the 10 difference between relevant prior art and 11 nonanalogous prior art? 12 MS. RAYMOND: Objection; scope. 13 A. So I don't believe I discussed that 14 anywhere in my declaration. I believe those both 15 may be legal terms of art. 16 I'm neither a patent attorney nor a 17 licensed patent agent, so I haven't performed that 18 analysis. 19 Paragraph 24 in this declaration actually 20 lays out how I considered prior art, and this was 21 based on my understanding of the Board's decision to 22 institute this IPR. And that's based on arguments 23 presented by attorneys for Parse, as well as the 24 declarations cited by Dr. Cooper that include 25 Linnarsson, McCloskey, and McCloskey II.
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1 all, do you know that there's a rule in patent law 2 for obviousness, that a person of skill in the art 3 is presumed to have knowledge of all relevant prior 4 art? 5 A. So I don't know if that's a rule or not. 6 Again, I'm not a patent attorney. 7 How one defines "relevant" is, I think, a 8 question of opinion. 9 In performing the exercise as I did, as I 10 stated previously, I'm going to assume that 11 Dr. Cooper's identification of these represents 12 relevant prior art. 13 I might disagree with Dr. Cooper as to 14 whether or not they are relevant. And I believe I 15 offer opinions that would indicate they are likely 16 not relevant. 17 But if one assumes Dr. Cooper is correct, 18 could one read those references and understand them 19 based on being a person of ordinary skill in the 20 art? And is Dr. Cooper correct in his assertions 21 that they are invalidating prior art by rendering 22 the patents obvious? And my conclusion was that 23 they are not. 24 Q. And do you know what the rules are of 25 obviousness as to what the difference is between	1 And so, to the extent that those represent 2 either relevant or analogous prior art, I don't 3 know. I'll leave that to the Board and the 4 attorneys to determine. 5 Q. Were you asked to formulate any opinions 6 regarding analogous prior art? 7 A. To the best of my recollection, I wasn't 8 given that specific task. 9 But to the best of my understanding, 10 creating an exhaustive list of prior art was not my 11 responsibility. 12 What I was asked to do is to respond to 13 the references and the arguments that Dr. Cooper 14 provided, and that is what is laid out in my 15 declarations. 16 Q. Can you provide a straight answer as to 17 whether you were given a assignment to give an 18 opinion as to whether the prior art relied upon by 19 Dr. Cooper was analogous or not? 20 MS. RAYMOND: Objection; asked 21 and answered. 22 A. So to the best of my knowledge, I don't 23 know -- I don't know what the legal term "analogous" 24 prior art represents and how that is distinguished 25 from "relevant" prior art.

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1 I was asked to review Dr. Cooper's 2 arguments. I don't believe Dr. Cooper draws a 3 distinction between "relevant" and "analogous" prior 4 art either. 5 So in the context of preparing this 6 declaration, I can't see how that was necessary, and 7 I don't recall being asked to do so. 8 Q. You state in your declaration that a 9 person of ordinary skill in the art would have been 10 familiar with each of the references cited herein. 11 Does that include Linnarsson and 12 McCloskey? 13 A. So as I discussed earlier, what I was 14 asked to do is to carry out a hypothetical exercise, 15 and -- 16 MR. REINES: I'm withdrawing the 17 question. 18 BY MR. REINES: 19 Q. It states here, do you see the words where 20 it says: 21 ...therefore would have www.LexitasLegal.com/Premier Lexitas 22 been -- 23 A. I'm sorry. Where are we? 24 Q. The last sentence of Paragraph 26. 25 It says:	1 carry out my analysis based on that assumption. 2 Q. And in terms of that assumption, did you 3 also assume that a person of ordinary skill in the 4 art would be familiar with Linnarsson and the 5 McCloskey references and the full range of teachings 6 they contain? 7 MS. RAYMOND: Objection; scope, 8 form. 9 Q. Just like you wrote in Paragraph 26, the 10 last sentence. 11 I'm not sure why you're fighting now. 12 A. Could you repeat the question, please. 13 Q. Yes. In your declaration, you say: 14 I understand that a person 15 of skill is presumed to have 16 knowledge of all relevant prior 17 art, and therefore would have 18 been familiar with each of the 19 references cited herein.... 20 I think we've established that includes 21 Linnarsson and McCloskey. 22 A. Um-hum. 23 Q. Is that correct? 24 A. So again, I want to make sure we're clear 25 that familiarity with Linnarsson and McCloskey and
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1 ...therefore would have 2 been familiar with each of the 3 references cited herein.... 4 When I'm just asking, "each of the 5 references cited here," does that include Linnarsson 6 and McCloskey? 7 Please try to answer that question 8 directly. 9 A. So your question is not necessarily well 10 formed. Right? 11 So I'm not using familiarity with those 12 references to define a person of ordinary skill in 13 the art. Right? 14 I -- in this sentence, what I'm actually 15 doing is describing the exercise that I carried out. 16 So I am going to assume that a person of 17 ordinary skill in the art would have had knowledge 18 of the references that Dr. Cooper cites in his 19 report. 20 It's a hypothetical. It's not a 21 definition. 22 So I'm assuming that a person of ordinary 23 skill in the art walks into this situation, is 24 familiar with Linnarsson, McCloskey I, McCloskey II, 25 and other references that Dr. Cooper cites, and then	1 McCloskey II and the other references cited herein 2 and the full range of what they teach is not meant 3 to define a person of ordinary skill in the art. 4 It's meant to provide context for the exercise that 5 I carried out. 6 So I'm assuming that a person of ordinary 7 skill in the art would have had knowledge of this in 8 order to be able to respond to Dr. Cooper and the 9 arguments that he presents. Right? And that's the 10 extent of it. 11 So it's not a definition of "person of 12 ordinary skill in the art." It provides context for 13 how one would carry out this analysis. 14 So I'm going to assume that a person of 15 ordinary skill in the art, to evaluate Dr. Cooper's 16 assertions, would have been familiar with this, 17 these references, would have understood the full 18 range of their teachings, provided their 19 descriptions, and would have been able to interpret 20 Dr. Cooper's analysis and render an opinion as to 21 whether or not Dr. Cooper was correct. 22 Q. And you state here -- when it says, 23 "...therefore would have been familiar with 24 McCloskey and Linnarsson," the "therefore" is 25 because a person of skill is presumed to have

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1 knowledge of all relevant prior art. 2 Is that correct? 3 MS. RAYMOND: Objection; asked 4 and answered. 5 A. So I believe, once again, you're 6 mischaracterizing the testimony that I'm offering. 7 Right? 8 I can read into your question the 9 suggestion that a person of ordinary skill in the 10 art must have had knowledge of these, and that's not 11 the exercise. 12 The exercise is that Dr. Cooper makes 13 assertions about obviousness based on a person of 14 ordinary skill in the art having access to a 15 particular set of references. Right? 16 At any point in time, there's not a 17 scientist in the world who knows all possible 18 references that exist in the literature. 19 There are hundreds of thousands of papers 20 published every year. Right? 21 The relevant exercise would be: If a 22 person of ordinary skill in the art had access to a 23 set of references, could they analyze them and 24 interpret them? And that's the exercise that I 25 carried out.	1 have been able to understand them, would have been 2 able to interpret them. 3 So I can only comment on -- 4 Q. And the reason you would make that 5 assumption is because you understand that's a rule 6 of law that you're being told by counsel -- or is 7 that not true? 8 If it's not true, then that's great. 9 A. I can only comment on the work that I did. 10 I'm not here to provide a legal opinion. 11 And I'm -- unless you can point me to 12 places where I provide such legal opinions in my 13 declarations, I'm not prepared to testify about 14 those today. 15 Q. Okay. Here you say: 16 I understand that a person 17 of skill in the art is presumed 18 to have knowledge of all 19 relevant prior art... 20 Which is a bedrock principle of 21 obviousness law, whether you know that or not. 22 And then you say: 23 ...therefore would have 24 been familiar with each of the 25 references cited herein....
Page 99	Page 101
1 Dr. Cooper has done research and 2 identified this set of references. And Dr. Cooper, 3 I would assume, did not -- even though he might 4 characterize himself as a person of skill in the 5 art, likely did not have familiarity with these 6 references before he undertook his exercise of doing 7 an obviousness analysis. 8 So in the same way, I'm going to start 9 with the -- where Dr. Cooper left off. I'm going to 10 assume a person of ordinary skill in the art did 11 have access to these. And then I'm going to carry 12 out the exercise, which I did. 13 Q. When it says, "I understand that a person 14 of skill is presumed to have knowledge of all 15 relevant prior art," you're saying you don't know 16 whether that's a general principle of obviousness 17 law or not? 18 A. So in carrying out the exercise I carried 19 out, I'm -- 20 Q. Answer my question, please. 21 A. I'm trying to answer your question. 22 In carrying out the exercise I carried 23 out, what I did was: I assumed that the person 24 doing the analysis -- right? -- reading these 25 papers, would have been familiar with them, would	1 That's an admission that these references 2 are relevant, isn't it? 3 MS. RAYMOND: Objection; asked 4 and answered. 5 Q. If you're being reasonable. 6 A. I would differ with you. 7 Q. Okay. 8 A. So I don't believe it's a requirement that 9 a person of skill in the art know that. Right? 10 This is a hypothetical exercise. 11 The hypothetical exercise is: If these 12 are relevant prior art -- right? -- and Dr. Cooper 13 may assert that they are -- you also talked about 14 some other type of prior art, which I don't 15 recall -- but Dr. Cooper's presented these as pieces 16 of prior art, which he believes, in combination, 17 render the claims of the '197 and '013 patents 18 obvious. 19 So I was asked to carry out a hypothetical 20 exercise. 21 I believe the requirement of that 22 hypothetical exercise -- and I'll take your word for 23 it -- is that the person of skill in the art doing 24 this would have been familiar with these two 25 references or these three references and would have

Page 102 1 been able to understand them. 2 And so, that's the exercise I carried out. 3 I'm not using familiarity with these 4 references to define a person of skill in the art. 5 I'm assuming that, in the context of the exercise I 6 carried out, that person of skill in the art would 7 have had familiarity with these references. 8 And there's a very important distinction 9 between those two statements. 10 Q. And where did you get that assumption 11 from? Did that come from counsel? 12 A. Which assumption? 13 Q. The one you just identified. 14 MS. RAYMOND: Objection; form. 15 A. I don't recall all of the discussions we 16 had and whether or not someone told me explicitly 17 that I should assume that a person of skill in the 18 art would have known about these. 19 It's sort of inherent in the exercise I 20 was asked to carry out. 21 So Dr. Cooper presents arguments and cites 22 these three references, then some other materials. 23 Right? 24 And I was asked to put myself in the 25 position of a person of ordinary skill in the art	Page 104 1 a person skilled in the art is presumed to have 2 knowledge of all relevant prior art -- did that come 3 from counsel or is that just something that you -- 4 an assumption you made? 5 That's the nub of it. 6 MS. RAYMOND: Objection; form. 7 A. So again, I'm not -- I don't recall all 8 the details of the explicit conversations that I had 9 with counsel. And I believe those are privileged. 10 I was asked to read Dr. Cooper's 11 analysis -- which I did, in both of these matters. 12 I was asked to assume -- or to read them 13 from the perspective of a person of ordinary skill 14 in the art. And I laid out the criteria for a 15 person of ordinary skill in the art in both of these 16 documents, and I can cite you to the paragraphs. 17 But I won't do that, since we discussed 18 this previously. 19 A natural assumption, then, would be that 20 one should be able to read and understand these. 21 And that's the assumption that I used in looking at 22 Dr. Cooper's arguments and in analyzing his 23 analysis. 24 So I read his description. I read the 25 references. I put myself in the perspective of a
Page 103 1 reading these -- reading Dr. Cooper's analysis, 2 reading the papers themselves and analyzing them, 3 and trying to understand whether or not Dr. Cooper 4 was correct. 5 So with the predicate that we have a 6 person of ordinary skill in the art, under the 7 assumption that they had access to these references, 8 do Dr. Cooper's opinions hold water? Are they 9 correct? And I can tell you, unequivocally, that 10 they are not correct. 11 And those are -- my reasons for that are 12 actually laid out in great detail in the two 13 declarations that I'm here to testify about today. 14 And I would be happy to take you through 15 those arguments if you'd like. 16 Q. Did the assumption that -- 17 MS. RAYMOND: We've been going 18 for about an hour. So if you can take a 19 break soon. 20 MR. REINES: Sure. As soon as I 21 get a square answer, I'm happy to do it. 22 BY MR. REINES: 23 Q. Did the assumption that you should 24 consider Linnarsson and McCloskey as -- within the 25 familiarity of a person of skill in the art, because	Page 105 1 person of ordinary skill in the art. 2 I performed that analysis under the 3 assumption that one would have had access to these 4 references at the time. Right? 5 So I'm granting Dr. Cooper -- Dr. Cooper's 6 assertion that one would have had references that -- 7 would have had access to them and Dr. Cooper's 8 assertion that they were relevant. 9 And if I grant that to Dr. Cooper, I then 10 perform an analysis and say, Does this make sense? 11 All right? 12 So I don't know if it was explicitly 13 stated. It's naturally implicit in the exercise 14 that I know I was asked to carry out -- and that was 15 to read Dr. Cooper's declarations, to read the 16 references, and to interpret them and respond to 17 Dr. Cooper's arguments, determining whether or not 18 he was correct. 19 Q. Is that as concise as you can be? 20 A. Given the somewhat vague nature of the 21 question, I believe it's an honest and fulsome 22 answer. 23 Q. Is it as concise as you could be? 24 A. If you'd like, I can repeat my answer and 25 try to be more concise.

Page 106 1 Q. Okay. Have you ever given an opinion that 2 prior art was not relevant in your many, many 3 expediting efforts? 4 MS. RAYMOND: I think.... 5 A. I don't recall. 6 So, you know, in some sense, I think the 7 arguments that I present here would say -- I don't 8 know what "relevance" means in this context. 9 But I think the arguments that I present 10 here, in both of these declarations, would say that 11 Linnarsson and McCloskey are not relevant prior art 12 in the context of rendering -- as Dr. Cooper 13 suggests, of rendering either of these patents 14 obvious. 15 So whether that's the definition of 16 "relevant" or not, I don't know. 17 But I have offered opinions previously 18 about obviousness. And those are the type of 19 opinions I've rendered in both of these 20 declarations. 21 Q. And in Paragraph 20 -- 22 MS. RAYMOND: Let's stop. I 23 mean, it has been more than an hour. I 24 think you've gotten past that last 25 question.	Page 108 1 A F T E R N O O N S E S S I O N 2 (1:17 p.m.) 3 (Whereupon, Exhibit 1100 was marked for 4 identification.) 5 MR. REINES: All right. Marked 6 as Exhibit 1100 is your rebuttal report in 7 the corresponding district court case. 8 MS. RAYMOND: And if we could -- 9 does that have any confidential 10 information in it? 11 MR. REINES: It's redacted. 12 MS. RAYMOND: Great. Thank you. 13 THE WITNESS: It's still very 14 thick. 15 MR. REINES: All right. 16 THE WITNESS: Thank you. 17 (Witness reading.) 18 BY MR. REINES: 19 Q. All right. I'd like to direct you to 20 Paragraph 324. 21 A. I opened right to it. 22 Q. In the second sentence of Paragraph 324, 23 you say: 24 Elsewhere, he opines that 25 this limitation is rendered
Page 107 1 Would you like to take a break, 2 Dr. Quackenbush? 3 THE WITNESS: Sure. 4 MR. REINES: I'd ask you to be 5 more responsive in future answers. 6 (Whereupon, the deposition recessed for 7 lunch at 12:39 p.m.) 8 - - - 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25	Page 109 1 obvious by Linnarsson, which 2 discloses tagging a plurality 3 of cells with cell-specific 4 tags. 5 Do you see that? 6 A. Yes, I do. 7 Q. And you agree that Linnarsson "discloses 8 tagging a plurality of cells with cell-specific 9 tags," since that's what you wrote in your report? 10 MS. RAYMOND: Objection; form. 11 (Witness reading.) 12 Q. Let me withdraw that question and ask you: 13 Is it within the knowledge of a person of ordinary 14 skill in the art to tag a group of cells with 15 different cell-specific tags? 16 (Witness reading.) 17 A. So this is -- the sentence you're calling 18 out is in a section of my report to the district 19 court that, again, I'm responding to arguments made 20 by Dr. Cooper in the context of that district court 21 case. 22 Dr. Cooper is arguing for lack of written 23 description in -- I'm not sure which patent, I can 24 go back and look -- but, in one of these patents 25 they share -- I believe they all share a common

Page 110 1 written description. And Dr. Cooper presents some 2 contrary -- contradictory statements in his 3 declaration. 4 In some places, he says that the methods 5 disclosed in the Brenner patents are obvious, and 6 points to -- 7 Q. I'm not asking about Dr. Cooper. 8 A. Well, I'm sorry. 9 Q. I'm withdrawing the question. 10 A. That's fine. 11 Q. I'll assume you can't answer it. 12 A. I can answer the question, and I'm happy 13 to if you'd give me time. 14 You're asking -- 15 Q. The reader can look at the question -- 16 A. You're asking me about a report that is 17 not the subject of today's deposition, and you put 18 it in front of me and asked about one question or 19 one sentence out of a few hundred pages -- 20 200-and-some pages. 21 You're asking me a question about and 22 expecting me to answer it without understanding the 23 context. 24 Q. Please turn to Paragraph 328. 25 A. So I'm happy to answer the question in	Page 112 1 your response. I'm asking you whether you can 2 answer with a yes or no. 3 A. If I may answer? 4 Q. Can you answer as a yes or no? 5 Either yes you can or no you can't. 6 Otherwise, it's abusive. 7 A. Yes. In Paragraph 128, I write: 8 I again note that 9 Dr. Cooper's opinions are 10 contradictory -- 11 Q. The question is withdrawn. 12 A. (Continued reading:) 13 -- as elsewhere he 14 opines -- 15 Fine. 16 Q. Okay. 17 A. (Continued reading:) 18 -- that litigate -- that 19 ligation, excuse me -- 20 Q. The question is withdrawn. 21 So if I ask you whether a question can be 22 answered yes or no, do you think you're able to 23 answer whether you can answer something with just a 24 yes or no answer, whether you need to answer with 25 additional verbiage?
Page 111 1 context. 2 And the question about what a POSA knows 3 refers to Dr. Cooper -- 4 Q. I'm asking -- 5 A. -- and his contradictory -- contradictory 6 opinions in his own declaration. 7 So I can -- 8 Q. The question is withdrawn. 9 A. All right. 10 Q. Okay. Let's go to Paragraph 328, please. 11 A. Please, if you're going to withdraw a 12 question, don't editorialize. 13 Q. I have no idea what that means. 14 Move to Paragraph 328, please. 15 Are you there? 16 A. Yes. 17 I'm happy to clarify my statement if you'd 18 like. 19 Q. And this is just whether you can answer 20 yes or no. 21 Do you generally agree that a person of 22 ordinary skill in the art knew how to add tags via 23 ligation, and in the correct workflow this could be 24 a successful approach? 25 I'm not asking you for the substance of	Page 113 1 A. So you're asking me questions about what a 2 person of ordinary skill in the art might know. 3 You're taking sentences out of context. 4 It's important for me to provide that context in 5 providing answers. 6 So unless you're going to allow me to give 7 fulsome answers and unless you're going to ask 8 questions which have simple yes or no answers, 9 context is important. 10 You asked me about what a person of 11 ordinary skill in the art might know, and what they 12 would know would depend on the context. 13 And this paragraph that you're asking 14 about, 328 -- like 324 -- points out Dr. Cooper's 15 inconsistency in the opinions he provides. 16 Q. There's no question pending. 17 You're speaking. 18 A. You just asked me a question. 19 Q. All right. If I ask you whether your name 20 is "John," can you answer that with a yes or no 21 answer? 22 A. That is a question which has an 23 unambiguous answer and doesn't require context. 24 Q. That's not a response. 25 A. You asked me if I could answer it, and I'm

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1 providing an answer. 2 Q. If I ask -- 3 A. Excuse me, sir. 4 Q. No. 5 A. Excuse me. You asked a -- 6 Q. No. 7 A. Excuse me. 8 Q. No. 9 A. Well, then -- 10 MR. REINES: All right. I'm 11 done. 12 You're refusing to answers. We 13 reserve all rights. 14 THE WITNESS: I'm not refusing 15 to answer. 16 MR. REINES: We have this 17 record. It's here. 18 THE WITNESS: Sir, I'm happy to 19 answer questions. 20 MR. REINES: No. That's it. 21 If you can't even answer whether 22 you can give a yes or no answer to a 23 question, then you making a mockery of the 24 deposition. I'm sorry about that. 25 THE WITNESS: My answer was --	1 MS. RAYMOND: What I'm saying is 2 that if you want to take his deposition, 3 this is when he's available and we're 4 happy to continue. 5 I have cross-examination 6 questions. 7 Are you going to leave, or...? 8 MR. REINES: You're going to ask 9 questions? 10 MS. RAYMOND: I have 11 cross-examination questions, yes. 12 MR. REINES: All right. I mean, 13 it's useless for me to answer [sic], but 14 I'm sure he'll be extremely forthcoming 15 and concise with you. 16 MS. RAYMOND: Well, I'm going to 17 take a break and check what questions I 18 want to ask. And I will be back. 19 (Whereupon, a recess was taken from 1:30 20 p.m. until 1:46 p.m.) 21 MS. RAYMOND: We actually have 22 no further questions. 23 Thank you. 24 COURT REPORTER: Would you like 25 a rough draft today?
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1 excuse me, sir -- my answer was yes, 2 because you asked an unambiguous question. 3 MS. RAYMOND: Counsel, I think 4 you've asked a number of questions that 5 have been difficult to answer. We're 6 trying to do our best here. 7 He's here. He's happy to answer 8 your questions. We're happy to sit here 9 and answer them. 10 But there's a very long 11 declaration you're asking about. And so, 12 he's trying to remind himself what was 13 going on in the context of this 14 declaration. 15 MR. REINES: And that's 16 encouraging it. 17 If he can't say whether he can 18 answer yes or no, then it's a lost cause. 19 And you shouldn't be -- you should be 20 encouraging it either. 21 MS. RAYMOND: I'm happy to 22 instruct him to answer yes or no if he 23 can. 24 MR. REINES: You shouldn't be 25 encouraging it.	1 MS. RAYMOND: Yes, please. 2 COURT REPORTER: All right. I'm 3 going to do regular turnaround, if that's 4 okay. 5 MS. RAYMOND: Okay. 6 - - - 7 (Witness excused.) 8 - - - 9 (Deposition concluded at 1:46 p.m.) 10 - - - 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25

CERTIFICATE

I, SUSAN ASHE, a Certified Electronic Reporter and Notary Public, hereby certify that the foregoing is a true and accurate transcript of the deposition of said witness, who was first duly sworn by me on the date and place hereinbefore set forth.

I FURTHER CERTIFY that I am neither attorney nor counsel, nor related to or employed by any of the parties to the action in which this deposition was taken, and further that I am not a relative or employee of any attorney or counsel employed in this action, nor am I financially interested in this case.

Dated this 1st day of July 2024.



Susan Ashe, Notary Public
of the District of Columbia

My commission expires: May 14, 2028.

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