

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

--oOo-- **REPORTER CERTIFIED
TRANSCRIPT**

10X GENOMICS, INC.
Petitioner
v.
BIO-RAD LABORATORIES, INC.
Patent Owner

--oOo--

Case No. IPR2020-00086
U.S. Patent No. 9,562,837

and

Case No. IPR2020-00087
U.S. Patent No. 9,562,837

and

Case No. IPR2020-00088
U.S. Patent No. 9,896,722

and

Case No. IPR2020-00089
U.S. Patent No. 9,896,722

REMOTE VIDEOTAPED DEPOSITION OF

Shelley Anna, Ph.D.

Tuesday, October 27, 2020

VOLUME 1

(Pages 1 - 232)

REPORTED BY:
Kelly Shainline
CSR No. 13476, RPR, CRR
File No. 20-32559



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VIDEOGRAPHER: David Manzo

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2 BEFORE THE PATENT TRIAL AND APPEAL BOARD

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4 10X GENOMICS, INC.
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6 v.
7 BIO-RAD LABORATORIES, INC.
8 Patent Owner

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10 Case No. IPR2020-00086
11 U.S. Patent No. 9,562,837

12 and

13 Case No. IPR2020-00087
14 U.S. Patent No. 9,562,837

15 and

16 Case No. IPR2020-00088
17 U.S. Patent No. 9,896,722

18 and

19 Case No. IPR2020-00089
20 U.S. Patent No. 9,896,722

21 BE IT REMEMBERED that, pursuant to Notice, and
22 on Tuesday, October 27, 2020, commencing at 10:09 a.m.

23 thereof, via Zoom, before me, Kelly L. Shainline, a
24 Certified Shorthand Reporter, personally appeared

25 SHELLEY ANNA, PH.D.

called as a witness by the Petitioner, who, having been
first duly sworn, was examined and testified as follows:

	1	--oOo--
	2	P R O C E E D I N G S
10:09:11	3	THE VIDEOGRAPHER: Good morning. We are going
10:09:13	4	on the record. The time on the screen is 10:09 a.m.
10:09:18	5	Eastern Daylight Time. Today's date is October 27th,
10:09:24	6	2020. And we are located virtually via Zoom video
10:09:30	7	conferencing with all parties appearing remotely.
10:09:33	8	This is the beginning of media number 1 of the
10:09:36	9	deposition of Dr. Shelley Anna in the matter of
10:09:41	10	10x Genomics, Inc., versus Bio-Rad Laboratories, Inc.,
10:09:47	11	in front of the United States Patent Trial and Appeal
10:09:50	12	Board. The case numbers are IPR2020-00086, 00087,
10:10:00	13	00088, and 00089.
10:10:05	14	My name is David Manzo. I'm a legal video
10:10:09	15	specialist here on behalf of Chase Litigation Services.
10:10:13	16	The Court Reporter is Kelly Shainline, also on
10:10:17	17	behalf of Chase Litigation Services.
10:10:20	18	Counsel, would you please identify yourselves
10:10:22	19	and state whom you represent.
10:10:26	20	MS. JAMESON: Samantha Jameson of Tensegrity
10:10:28	21	Law Group here on behalf of 10x Genomics. And with me
10:10:28	22	is also Robert Gerrity of Tensegrity Law Group.
10:10:39	23	MR. BAKER: James Baker from Quinn Emanuel on
10:10:41	24	behalf of Bio-Rad and the witness. And with me is John
10:10:45	25	McCauley.

10:10:48	1	THE VIDEOGRAPHER: Will the Court Reporter
10:10:49	2	please swear in the witness.
10:10:50	3	SHELLEY ANNA,
10:11:01	4	called as a witness for the Petitioner, having been duly
10:11:01	5	sworn, testified as follows:
10:11:15	6	THE WITNESS: I do, yes.
10:11:16	7	EXAMINATION
10:11:17	8	BY MS. JAMESON:
10:11:17	9	Q. Can you please state your full name for the
10:11:19	10	record.
10:11:19	11	A. My full name is Shelley Lynn Anna.
10:11:23	12	Q. And where are you testifying from today?
10:11:25	13	A. I'm located in Pittsburgh, Pennsylvania.
10:11:30	14	Q. Can you state your address.
10:11:32	15	A. My address -- I'm at my home address which is
10:11:35	16	7044 Reynolds Street in Pittsburgh, Pennsylvania.
10:11:40	17	That's ZIP code 15208.
10:11:44	18	Q. And you understand that you're under oath
10:11:45	19	today just as if you were testifying in court in front
10:11:49	20	of a judge?
10:11:49	21	A. Yes, I do.
10:11:50	22	Q. And you understand that you need to tell the
10:11:52	23	truth?
10:11:52	24	A. Yes, I do.
10:11:53	25	Q. And there's nothing that's going to prevent

10:11:56	1	you from telling the whole and complete truth today?
10:11:59	2	A. No, there's nothing.
10:12:03	3	Q. Do you have any hard copies of documents with
10:12:06	4	you today?
10:12:06	5	A. Yes. I have hard copies of my four
10:12:09	6	declarations of the two patents at issue and also the
10:12:13	7	three references Ismagilov, Quake and Thorsen.
10:12:22	8	Q. I'm going to ask that if you are looking at a
10:12:25	9	document, if you can let me know what document that is
10:12:29	10	and what part of the document you're looking at.
10:12:31	11	A. I will.
10:12:33	12	Q. And that applies whether it's an electronic
10:12:35	13	document or one of your hard copies.
10:12:38	14	A. Okay.
10:12:39	15	Q. Because we're going to be taking your
10:12:42	16	deposition over Zoom today, it's going to be
10:12:47	17	particularly important that we not talk over each other
10:12:49	18	because Zoom doesn't always pick up multiple voices at
10:12:52	19	the same time. So if you let me finish asking my
10:12:55	20	question and then you provide your answer, I'll try to
10:12:57	21	do the same, let you finish your answer before I ask my
10:13:00	22	next question.
10:13:02	23	A. Okay. Sounds good.
10:13:03	24	Q. Okay. I have marked for your deposition the
10:13:09	25	four notices of deposition in the IPR proceedings,

10:13:13	1	IPR2020-00086, 00087, 00088, and 00089, and those are
10:13:24	2	Exhibits 1 through 4.
10:13:25	3	(Exhibits 1 through 4 were marked for
10:13:25	4	identification.)
10:13:26	5	BY MS. JAMESON:
10:13:26	6	Q. And do you have those, Dr. Anna?
10:13:29	7	A. Yes, I do.
10:13:32	8	Q. I'm also going to mark now your declarations.
10:14:30	9	And those are going to be Exhibits 5 through 8.
10:14:34	10	(Exhibits 5 through 8 were marked for
10:14:34	11	identification.)
10:14:36	12	BY MS. JAMESON:
10:14:36	13	Q. And the Exhibit Number 5 is going to be your
10:14:40	14	declaration in IPR2020-00086.
10:14:46	15	So do you have all of those as well?
10:14:49	16	A. Yes. I can see all of those.
10:15:06	17	Q. Dr. Anna, did you write your declarations in
10:15:10	18	these four IPR proceedings?
10:15:12	19	A. I worked with my -- the attorneys Jim Baker
10:15:16	20	and John McCauley to do that, but, yes -- sorry. We
10:15:21	21	worked together. It was a joint effort. They handled
10:15:24	22	the typing, but the ideas and opinions expressed in them
10:15:28	23	are mine.
10:15:29	24	Q. So you didn't write them yourself?
10:15:30	25	A. Well, I wrote them in conjunction. They

10:15:33	1	handled the typing, but I gave them the ideas and
10:15:36	2	opinions that are expressed in them.
10:15:46	3	Q. Do your declarations contain all of your
10:15:48	4	opinions related to the invalidity of patents number
10:15:52	5	9,562,837 and 9,896,722?
10:15:59	6	A. They contain the opinions that I've expressed
10:16:01	7	in those declarations within the scope of things that I
10:16:04	8	was asked to consider.
10:16:11	9	Q. Do you stand behind the opinions that are
10:16:13	10	stated in those declarations?
10:16:14	11	A. Yes, I do.
10:16:16	12	Q. Are you aware of any errors in them?
10:16:19	13	A. No, I'm not aware of any errors.
10:16:56	14	Q. Dr. Anna, I want to start by asking you about
10:16:58	15	your opinion that the sample tube that's disclosed in
10:17:05	16	Ismagilov is not the claimed separation chamber.
10:17:13	17	So first off, is that your opinion?
10:17:15	18	A. Are you referring to a specific piece of text
10:17:18	19	that we can look at?
10:17:21	20	Q. Sure. We can look at -- let's start by
10:17:28	21	looking at your declaration in IPR 086.
10:17:37	22	A. Okay.
10:17:41	23	Q. And let's take a look at paragraph 126 of that
10:17:44	24	declaration.
10:18:00	25	A. Okay. I'm at paragraph 126.

10:18:13	1	Q. And do you see there the reference to a
10:18:15	2	disclosure Ismagilov that relates to a sample tube?
10:18:20	3	A. Yes. I see what I've written there and it
10:18:22	4	says the petitioner then relies on another separate
10:18:25	5	disclosure in Ismagilov explaining, quote, the outlet
10:18:28	6	can be adapted for receiving, for example, a segment of
10:18:33	7	tubing or a sample tube, end quote, or alternatively a
10:18:37	8	micropipette. I do not believe that this section of the
10:18:42	9	specification describes a separation chamber or a
10:18:45	10	droplet receiving outlet.
10:18:54	11	Q. Now, it's your opinion that Ismagilov '091
10:18:57	12	discloses a sample tube that's downstream of a
10:19:02	13	microfluidic droplet generator; correct?
10:19:08	14	A. Well, I see what I've written there. I stand
10:19:10	15	by what I've written there that Ismagilov explains the
10:19:14	16	outlet can be adapted for receiving a segment of tubing
10:19:21	17	or a sample tube or a micropipette.
10:19:25	18	Q. So is it your opinion or not that
10:19:28	19	Ismagilov '091 discloses a sample tube downstream of a
10:19:33	20	microfluidic droplet generator?
10:19:34	21	A. Well, I'd have to look back at the exact
10:19:36	22	language expressed in Ismagilov. That -- here what I've
10:19:40	23	stated is that I recognize that Ismagilov has said that
10:19:45	24	the outlet can be adapted for receiving this segment of
10:19:48	25	tubing or sample tube.

10:19:53	1	Q. I have also now marked the Ismagilov patent
10:19:58	2	which is patent number 7,129,091.
10:20:03	3	(Exhibit 9 was marked for identification.)
10:20:04	4	BY MS. JAMESON:
10:20:04	5	Q. That should be Exhibit 9. Do you see that,
10:20:07	6	Dr. Anna?
10:20:07	7	A. Yes, I do.
10:20:21	8	Q. And could you please take a look at column 17
10:22:09	9	of Ismagilov.
10:22:33	10	A. Okay.
10:22:33	11	Q. The portion of column 17 is going to be
10:22:37	12	lines 27 through 30.
10:22:42	13	Let me know when you've had a chance to take a
10:22:44	14	look at that.
10:22:45	15	A. Yes, I'm looking at it right now.
10:22:47	16	Q. Okay. And Ismagilov is referring there to a
10:22:53	17	sample tube. Do you see that?
10:22:56	18	A. I see what looks to be the same quote that I
10:22:59	19	placed in my declaration about the outlet being able to
10:23:03	20	be adapted for receiving a segment of tubing or a sample
10:23:06	21	tube. Is that what you're referring to?
10:23:08	22	Q. That's what I'm referring to.
10:23:11	23	A. Okay.
10:23:14	24	Q. And Ismagilov discloses now having a sample
10:23:20	25	tube downstream of microfluidic droplet generator; is

10:23:27	1	that correct?
10:23:45	2	(Witness reviewing document.)
10:24:00	3	THE WITNESS: So your question is whether I
10:24:01	4	agree that it's pertaining to a sample tube downstream
10:24:04	5	of a microfluidic channel; is that what you asked?
10:24:08	6	BY MS. JAMESON:
10:24:09	7	Q. A microfluidic droplet generator.
10:24:12	8	A. Microfluidic droplet generator. Well, I mean
10:24:15	9	that particular paragraph refers to a group of manifolds
10:24:18	10	that lead to or from -- that can facilitate movement of
10:24:22	11	plugs, which I would also construe to mean droplets,
10:24:25	12	from different analysis units through branch channels,
10:24:29	13	et cetera.
10:24:32	14	And then the plurality of analysis units that
10:24:40	15	can collect a solution from associated branch channels
10:24:42	16	into a manifold which routes the flow of solution to an
10:24:44	17	outlet and then the outlet can be adapted for receiving
10:24:48	18	a segment of tubing or a sample tube.
10:24:51	19	So in the sense that those -- and so I believe
10:24:54	20	what they're referring to is droplet -- at least
10:24:58	21	channels that contain droplets or plugs and that then
10:25:02	22	those droplets or plugs plus the surrounding fluid would
10:25:07	23	flow downstream.
10:25:08	24	And then it appears that they're suggesting
10:25:10	25	that the tubing or sample tube can be connected or at

10:25:14	1	least can be adapted to receive -- the outlet can be
10:25:18	2	adapted to receive that.
10:25:19	3	And so if you're asking if it's downstream,
10:25:22	4	it's likely downstream since flow typically goes from
10:25:26	5	the channel to that.
10:25:34	6	Q. Ismagilov '091 discloses situating a sample
10:25:37	7	tube downstream of a microfluidic droplet generator;
10:25:40	8	correct?
10:25:42	9	A. Well, Ismagilov discloses adapting the outlet
10:25:46	10	for receiving a segment of tubing or a sample tube.
10:25:50	11	Q. How is that different from the question that I
10:25:52	12	asked?
10:25:53	13	A. Well, repeat the question that you asked.
10:25:55	14	Q. Sure. Ismagilov '091 discloses situating a
10:25:58	15	sample tube downstream of a microfluidic droplet
10:26:02	16	generator.
10:26:03	17	A. Well, it doesn't specifically say downstream.
10:26:06	18	In some instances it might be downstream, but it just
10:26:09	19	says that the outlet can be adapted to receive the
10:26:13	20	tubing or the sample tube.
10:26:16	21	Q. Ismagilov, in this passage that you were just
10:26:19	22	reading in column 17, is describing plugs in channels;
10:26:23	23	correct?
10:26:25	24	A. Well, there is a reference to plugs, to
10:26:28	25	channels that facilitate the movement of plugs from

10:26:33	1	different analysis units.
10:26:36	2	Q. And those plugs need to be generated
10:26:39	3	somewhere; correct?
10:26:43	4	A. Presumably they would be generated somewhere.
10:26:45	5	It's not really referenced how they're generated, in
10:26:48	6	this paragraph at least.
10:26:50	7	Q. But based on your understanding of Ismagilov,
10:26:51	8	those droplets would be generated in the system;
10:26:58	9	correct?
10:27:01	10	MR. BAKER: Objection to form.
10:27:03	11	THE WITNESS: Sorry?
10:27:04	12	MR. BAKER: I said objection to form.
10:27:06	13	THE WITNESS: Okay. Sorry. I couldn't hear
10:27:07	14	you.
10:27:09	15	I'm sorry, now I've lost track of the
10:27:11	16	question. Can you repeat it, please.
10:27:13	17	BY MS. JAMESON:
10:27:13	18	Q. Sure. Based on your understanding of
10:27:15	19	Ismagilov, there is a droplet generator that would be
10:27:21	20	generating those droplets; correct?
10:27:25	21	A. Well, I do understand that Ismagilov discusses
10:27:29	22	droplet generators. But, again, this paragraph
10:27:31	23	specifically just talks about a group of manifolds
10:27:35	24	consisting of several channels and that those can be
10:27:39	25	included to facilitate the movement of plugs. So it

10:27:42	1	really doesn't, this paragraph at least. If you want to
10:27:44	2	point me to a different reference part of the reference,
10:27:46	3	that's fine, but this one, at least, doesn't
10:27:49	4	specifically talk about the droplet generator being
10:27:52	5	attached to that.
10:28:01	6	Q. Based on your understanding of Ismagilov,
10:28:06	7	where would the droplets be generated?
10:28:12	8	MR. BAKER: Objection to form.
10:28:15	9	THE WITNESS: Based on my understanding of
10:28:18	10	Ismagilov, where -- I mean, again, you could point me to
10:28:21	11	a specific reference that -- Ismagilov is a very large
10:28:24	12	reference. It does talk about droplet generation.
10:28:27	13	There's a lot of different references to it. So are you
10:28:32	14	talking about a specific part of it?
10:28:34	15	BY MS. JAMESON:
10:28:34	16	Q. So if this passage in column 17 in Ismagilov
10:28:38	17	is discussing droplets, where, based on your
10:28:44	18	understanding of Ismagilov, would those droplets be
10:28:46	19	generated?
10:28:48	20	MR. BAKER: Objection to form.
10:28:50	21	THE WITNESS: I don't understand what you mean
10:28:51	22	by "where." Ismagilov talks about droplet generators.
10:28:55	23	But in this paragraph, Ismagilov does not specifically
10:28:58	24	reference where those droplets are generated. So it
10:29:01	25	could be any of the -- it could be anything. I don't

10:29:04	1	know what you mean.
10:29:04	2	BY MS. JAMESON:
10:29:10	3	Q. If there are droplets being discussed in
10:29:13	4	channels in this passage in column 17, they would have
10:29:19	5	been generated upstream of those channels; correct?
10:29:28	6	A. This passage does not discuss where the
10:29:30	7	droplets are generated. It just discusses the movement
10:29:34	8	of plugs or droplets which we could construe as droplets
10:29:39	9	in these channels. So it doesn't really discuss where
10:29:41	10	the generation happens. It could be -- it does not
10:29:46	11	specifically say that that's happening on chip.
10:29:53	12	Q. Are you aware of disclosures in Ismagilov of
10:29:57	13	droplet generation that's occurring off of chip?
10:30:03	14	A. Well, I'm aware that drop -- all I'm saying is
10:30:06	15	that Ismagilov discusses droplet generation in a variety
10:30:10	16	of different ways. It -- and all I'm saying is that
10:30:13	17	this paragraph doesn't specifically connect that droplet
10:30:16	18	generation to these manifolds.
10:30:19	19	I'm happy to look at a different passage, but
10:30:22	20	this one isn't specifically talking about where the
10:30:24	21	droplets are generated. So I can't connect those two
10:30:27	22	things.
10:30:48	23	Q. Ismagilov does disclose droplet generators,
10:30:51	24	though; correct?
10:30:52	25	A. Ismagilov describes droplet generators.

10:31:00	1	Q. And so at least one configuration of a system
10:31:07	2	as described by Ismagilov would be to have a droplet
10:31:12	3	generator upstream of a channel that contains a droplet;
10:31:19	4	correct?
10:31:22	5	A. Are you referring to a specific place where
10:31:24	6	Ismagilov has described that configuration you're
10:31:27	7	talking about?
10:31:28	8	Q. Is that something that Ismagilov has
10:31:30	9	disclosed?
10:31:31	10	A. Well, I don't remember the exact specifics of
10:31:34	11	the texts. I mean, I wouldn't necessarily be surprised,
10:31:37	12	but I can't recall a specific place where they've
10:31:42	13	described that embodiment you're talking about.
10:31:45	14	Q. So you're not aware of any disclosure in
10:31:48	15	Ismagilov where there's a droplet generator upstream of
10:31:52	16	a droplet in a channel?
10:31:55	17	A. I'm just not -- I just don't recall at the
10:31:57	18	moment exactly where they would have made that specific
10:32:00	19	connection you're asking about.
10:32:04	20	Q. Having a droplet generator upstream of a
10:32:06	21	droplet in a channel?
10:32:08	22	A. Right.
10:32:16	23	Q. Okay. Let's take a look -- let's take a look
10:32:22	24	at Figure 3 in Ismagilov.
10:32:46	25	A. Okay. I'm looking at Figure 3.

10:32:51	1	Q. Does Figure 3 show a droplet generator?
10:32:55	2	A. I would say Figure 3 appears to show a droplet
10:32:58	3	generator. Again, I could go and read the specific
10:33:02	4	caption that is used to describe that, but from the --
10:33:06	5	based on what I see in the figure, it appears that
10:33:08	6	droplets are being generated at the T-junction that's
10:33:11	7	shown there.
10:33:13	8	Q. And that droplet generator is upstream of the
10:33:18	9	droplets that are in the channel?
10:33:21	10	A. I don't know that. Where does it connect
10:33:24	11	that?
10:33:25	12	Q. Is that what's shown in Figure 3?
10:33:28	13	A. Figure 3 just shows droplets in a serpentine
10:33:33	14	channel that I presume are being generated at that
10:33:36	15	T-shaped junction at the top of the image. It doesn't
10:33:38	16	show what happens to them after that.
10:33:42	17	Q. It shows the droplets after they're generated
10:33:44	18	in channel; correct?
10:33:46	19	A. It shows the droplets in the serpentine
10:33:51	20	channel. And again presumably they're being generated
10:33:54	21	at that T-shaped junction at the top of the image. It
10:33:58	22	really doesn't say anything about the flow. They could
10:34:02	23	be sitting still for all I know. I'd have to look at
10:34:05	24	the specifics again. They're just in that channel.
10:35:00	25	Q. To have resulted in the generation of the

10:35:02	1	droplets that you see in the channel, there was flow
10:35:04	2	through the system and those droplets were then
10:35:07	3	generated at that T-shaped junction that you were
10:35:10	4	referring to; correct?
10:35:13	5	A. Well, again, you're asking me to remember
10:35:16	6	specific language used in Ismagilov, and I don't recall
10:35:19	7	exactly what the language was.
10:35:21	8	Usually, and you know, in this case, I'm
10:35:24	9	presuming based on looking at the image that there would
10:35:28	10	have been flow to generate those droplets. But I'd have
10:35:32	11	to look at the specific text to be -- you know, to get
10:35:35	12	the exact language that Ismagilov declared in this.
10:35:43	13	I'd be happy to go look at that if you'd like.
10:36:34	14	Q. Ismagilov discloses having a droplet generator
10:36:38	15	and droplets in a channel downstream of that generator;
10:36:43	16	correct?
10:36:45	17	A. Again, I don't quite recall the exact language
10:36:47	18	that Ismagilov uses. If we're looking at a droplet
10:36:50	19	generator here in Figure 3 and if there was flow being
10:36:54	20	used to generate them, which there sometimes is, then
10:36:57	21	those droplets would be downstream of the droplet
10:37:00	22	generator.
10:37:48	23	Q. Dr. Anna, do you understand that the Ismagilov
10:37:50	24	family of patents that includes the Ismagilov '091
10:37:54	25	patent that you've opined on includes patent

10:37:57	1	applications that are being prosecuted by Bio-Rad with
10:38:00	2	pending claims that expressly claim collecting droplets
10:38:03	3	in a sample tube?
10:38:08	4	A. I guess I'm not completely sure what you're
10:38:10	5	asking. I was asked to consider what was disclosed in
10:38:15	6	this patent, the '091 patent of Ismagilov. I wasn't
10:38:20	7	asked to consider other Ismagilov patents or the family
10:38:24	8	of Ismagilov patents. I don't know what those include.
10:38:30	9	Q. I'm going to mark another exhibit and this is
10:38:51	10	going to be Exhibit 10. This is a patent publication.
10:38:55	11	It's publication number 2018/0272351.
10:39:02	12	(Exhibit 10 was marked for identification.)
10:39:02	13	BY MS. JAMESON:
10:39:03	14	Q. Do you see that, Dr. Anna?
10:39:05	15	A. Yes, I do.
10:39:06	16	Q. Okay. And can you take a look at the related
10:39:10	17	U.S. application data --
10:39:13	18	A. Okay.
10:39:14	19	Q. -- on the first page.
10:39:16	20	And then in the right-hand column, do you see
10:39:19	21	that the earliest application there listed is patent
10:39:25	22	7,129,091?
10:39:30	23	A. I see patent 7,129,091 listed there.
10:39:34	24	Q. And that's the Ismagilov '091 patent that
10:39:38	25	you've opined on; correct?

10:39:40	1	A. Yes.
10:39:40	2	Q. Okay.
10:39:43	3	MR. BAKER: Samantha, I just want to object to
10:39:45	4	the introduction of this exhibit. I don't think it's
10:39:50	5	part of the record yet. I'll object on grounds of
10:39:58	6	relevance as well.
10:40:02	7	MS. JAMESON: Well, we certainly disagree and
10:40:05	8	we think it's relevant.
10:40:08	9	Q. All right. So, Dr. Anna, please take a look
10:40:12	10	at the last -- the last two pages.
10:40:20	11	A. Of this Exhibit 10?
10:40:22	12	Q. Of Exhibit 10.
10:40:30	13	Can you take a look at claim 16 for me.
10:40:52	14	A. Claim 16 is on the second-to-last page?
10:40:55	15	Q. It's on the second-to-last page. It's the
10:40:58	16	first -- it's the first claim listed there, but the
10:41:01	17	numbering starts at 16.
10:41:03	18	A. Yeah, I see that.
10:41:05	19	Q. Can you read that claim, please.
10:41:07	20	A. Claim 16 says: A method of forming a
10:41:10	21	plurality of plugs and conducting a reaction in at least
10:41:13	22	one thereof, the method comprising --
10:41:18	23	Q. You can read it to yourself. You don't have
10:41:19	24	to read it out loud.
10:41:25	25	A. Sure.

10:41:26	1	Q. Thank you.
10:42:04	2	A. Okay. I've read claim 16.
10:42:06	3	Q. Okay. Please also take a look at claim 32,
10:42:10	4	which will be on the last page.
10:42:33	5	A. Okay.
10:42:35	6	Q. And claim 16 describes forming a plurality of
10:42:42	7	plugs of aqueous fluid.
10:42:54	8	MR. BAKER: Objection to form, foundation, and
10:42:55	9	relevance.
10:42:56	10	THE WITNESS: So I think it's important to
10:42:57	11	note that I was not asked to opine on this patent. I
10:43:00	12	haven't looked at it, at least not recently. So I can't
10:43:03	13	give you details about what's in this patent. I can
10:43:06	14	only see what's written on the page.
10:43:07	15	It does say -- claim 16 of this patent does
10:43:10	16	say, "A method of forming a plurality of plugs and
10:43:13	17	conducting a reaction in at least one thereof," and so
10:43:17	18	on. And there's some claim limitations after that.
10:43:21	19	BY MS. JAMESON:
10:43:22	20	Q. And then claim 32 describes that that
10:43:28	21	plurality of plugs that's generated is then collected in
10:43:32	22	a segment of tubing or a sample tube that is downstream
10:43:37	23	of the junction that's used to generate the droplets;
10:43:41	24	correct?
10:43:42	25	A. Well, again, I haven't been asked to opine on

10:43:44	1	this patent. What I can see on the page is that
10:43:48	2	claim 32 says, "The method of claim 16, further
10:43:51	3	comprising the step of collecting the plurality of plugs
10:43:54	4	in a segment of tubing or the sample tube through an
10:43:57	5	outlet of the microfluidic device positioned downstream
10:44:02	6	of the junction, wherein the plugs remain separated by
10:44:05	7	the immiscible carrier fluid."
10:44:41	8	Q. And so I'll ask again if you are now aware
10:44:47	9	that the Ismagilov family of patents, including the
10:44:50	10	Ismagilov '091 patent you opined on, includes patent
10:44:54	11	applications that have claims that are expressly
10:45:00	12	directed to collecting droplets in a sample tube
10:45:03	13	downstream of a droplet generator?
10:45:06	14	MR. BAKER: Objection to form, foundation, and
10:45:07	15	relevance.
10:45:11	16	THE WITNESS: What I'm aware of is that you
10:45:13	17	put another Ismagilov patent in front of me that also
10:45:17	18	has some history that involves the patent that I opined
10:45:22	19	on, that has claim 32 which says what I quoted before,
10:45:26	20	about claim 16 further comprising the step of collecting
10:45:29	21	the plurality of droplets in a segment of tubing or the
10:45:32	22	sample tube through an outlet of a microfluidic device
10:45:35	23	positioned downstream of the junction wherein the plugs
10:45:38	24	remain separated by the immiscible carrier fluid. And
10:45:42	25	that's pretty much all I can say since I haven't looked

10:45:46 1 at this patent.

10:46:00 2 BY MS. JAMESON:

10:46:01 3 Q. And talking about Ismagilov '091 now, is it
10:46:12 4 your opinion that Ismagilov '091 discloses a sample tube
10:46:18 5 downstream of a microfluidic droplet generator?

10:46:24 6 A. Well, again, we've talked about this before.
10:46:27 7 I don't -- if you want to point me to specific language
10:46:30 8 that says that, I'd be happy to look at it. But what
10:46:32 9 the -- the passages that we've directly looked at don't
10:46:37 10 specifically connect that in the way that you're
10:46:39 11 describing.

10:46:40 12 Q. So Ismagilov does not disclose a droplet
10:46:43 13 generator upstream of a sample tube?

10:46:52 14 A. Well, again, we looked at specific passages.
10:46:55 15 I don't have the other passages memorized. We talked
10:46:58 16 about passages in which Ismagilov discloses a droplet
10:47:02 17 generator and we talked about some passages in which
10:47:05 18 there's the possibility for a sample tube to be received
10:47:09 19 from a manifold of channels.

10:47:12 20 But connecting those two to say that the
10:47:14 21 droplet generator is upstream and the other part is
10:47:17 22 downstream is not something I can expressly remember
10:47:23 23 in -- from the text.

10:48:18 24 Q. And so you formed no opinion one way or the
10:48:20 25 other in preparing your declaration about whether

10:48:23	1	Ismagilov discloses a droplet generator upstream of a
10:48:26	2	sample tube?
10:48:28	3	A. I'm just not sure I used those exact words
10:48:30	4	that you're using. If you -- I can look back at my
10:48:35	5	declaration if you'd like. It might take me a minute to
10:48:37	6	find that. I don't know if you have a specific passage
10:48:41	7	in mind.
10:48:42	8	Q. Whether or not you used exactly those words,
10:48:44	9	did you form an opinion one way or the other about
10:48:49	10	whether Ismagilov discloses a droplet generator upstream
10:48:53	11	of a sample tube?
10:48:56	12	A. Well, I don't expressly remember what I stated
10:49:00	13	in my declaration about that specific question you're
10:49:02	14	asking. I don't have all the words memorized. It's
10:49:05	15	clear that Ismagilov discusses droplet generators and
10:49:09	16	also that Ismagilov discusses that segment that we
10:49:12	17	looked at about the manifolds of channels.
10:49:16	18	I don't recall specifically connecting those
10:49:17	19	with the words "upstream" and "downstream." And I don't
10:49:21	20	think that those are disclosed expressly in those
10:49:25	21	passages that we looked at a little bit ago.
10:50:34	22	Q. So whether or not you used the words
10:50:35	23	"upstream" or "downstream," is it your understanding of
10:50:42	24	Ismagilov that the droplets in the channels are
10:50:52	25	downstream of a droplet generator?

10:50:59 1 A. The Ismagilov patent is like 90-something
10:51:02 2 pages long. I don't recall if there's a specific place
10:51:05 3 where Ismagilov says the droplet generator is upstream.
10:51:09 4 It's possible.

10:51:11 5 Like I said, Ismagilov certainly discloses
10:51:14 6 droplet generators in various forms. And Ismagilov also
10:51:18 7 discloses this passage that we looked at explicitly
10:51:23 8 about manifolds and the ability for those -- for the
10:51:27 9 outlet to receive the sample tube and et cetera.

10:51:30 10 But, again, I don't have 94 pages memorized.
10:51:34 11 I don't recall exactly where those -- the connection
10:51:37 12 between those two is made. I'd have to presume it, and
10:51:41 13 I can't do that without looking at the text.

10:51:44 14 Q. Ismagilov does describe at some length the
10:51:48 15 generation of droplets; correct?

10:51:53 16 A. There's numerous references to droplet
10:51:56 17 generators in Ismagilov.

10:51:59 18 Q. And Ismagilov also describes that the
10:52:06 19 generated droplets then flow through channels; correct?

10:52:13 20 A. Well, again, in the passage we looked at,
10:52:16 21 Ismagilov describes plugs, which we can construe as
10:52:20 22 droplets. We presume that he's disclosing them to be in
10:52:25 23 the channels. It is not described in that passage
10:52:27 24 specifically where those plugs were generated.

10:52:43 25 Q. So it's your opinion that Ismagilov does not

10:52:46	1	have a sufficient disclosure of a droplet generator
10:52:51	2	upstream of a sample tube?
10:52:56	3	A. All I'm saying is that in 94 pages it's
10:52:59	4	possible he said something like that, but I don't recall
10:53:02	5	specific language connecting the droplet generators
10:53:05	6	upstream, as you've said, of the manifold.
10:53:12	7	I'd be happy to look at specific text if you
10:53:15	8	want, or I can look through it and see if I can find a
10:53:18	9	place where it's explicitly expressed that way, but I
10:53:21	10	have not -- I don't recall that off the top of my head.
10:53:24	11	Q. So it's your opinion that absent express
10:53:30	12	language making that connection of a droplet generator
10:53:32	13	to a manifold, Ismagilov does not sufficiently disclose
10:53:38	14	a droplet generator upstream of a sample tube?
10:53:41	15	A. I'm not saying he doesn't sufficiently
10:53:43	16	disclose it. I'm saying I don't remember the exact text
10:53:45	17	where he does. In the passages we've looked at, it's
10:53:52	18	not expressly disclosed.
10:54:17	19	Q. But you agree that Ismagilov does disclose
10:54:20	20	droplet generators?
10:54:21	21	A. Yes, Ismagilov discusses droplet generators.
10:54:26	22	Q. And so when Ismagilov is describing droplets
10:54:33	23	as in the passage in column 17, those droplets could
10:54:38	24	have been generated in a droplet generator; correct?
10:54:42	25	A. They could have been, but it doesn't say that

10:54:45	1	explicitly.
10:54:59	2	I just want to state that I can't always hear
10:55:01	3	Jim. I'm not sure if -- I just can't always hear what
10:55:05	4	he says.
10:55:06	5	MR. BAKER: Thanks, Shelley. Can you hear me
10:55:09	6	now?
10:55:09	7	THE WITNESS: That's much better. Thank you.
10:55:11	8	MR. BAKER: Okay. I think I'm just not being
10:55:15	9	loud enough.
10:55:16	10	THE WITNESS: Okay. Thank you.
10:55:25	11	BY MS. JAMESON:
10:55:25	12	Q. So even if there are other possible ways to
10:55:28	13	generate droplets, one possible way to generate droplets
10:55:36	14	in Ismagilov is going to be at a droplet generator?
10:55:44	15	A. Certainly Ismagilov discloses many droplet
10:55:46	16	generators so that's a way of generating droplets.
10:55:50	17	Q. Okay. And that's the only way that Ismagilov
10:56:03	18	discloses generating droplets; correct?
10:56:09	19	A. I mean, again, in 94 pages I don't recall
10:56:12	20	exactly whether he might have disclosed some other ways.
10:56:15	21	And we're talking pretty generally anyway. Ismagilov
10:56:19	22	talks about droplet generators. I couldn't sit here
10:56:21	23	today and enumerate exactly what all those different
10:56:24	24	droplet generators look like that he disclosed. We
10:56:28	25	could look through the text and find them if you'd like.

10:56:57	1	Q. And Ismagilov discloses generated droplets
10:57:01	2	collecting in a pool of droplets in a sample tube;
10:57:06	3	correct?
10:57:07	4	A. Where does it explicitly state that?
10:57:10	5	Q. We're looking -- so let's look back at
10:57:12	6	column 17.
10:57:33	7	A. Oh, I'm sorry. We're back in Exhibit 9;
10:57:36	8	right?
10:57:36	9	Q. We are back -- yes, we're back in Exhibit 9.
10:57:40	10	A. Sorry. I was looking in the wrong place.
10:57:42	11	Hold on.
10:57:54	12	Okay. So I'm back at column 17.
10:57:56	13	Q. Okay. Now, Ismagilov discloses generated
10:58:03	14	droplets collecting in a pool in a sample tube; correct?
10:58:14	15	MR. BAKER: Objection to form.
10:58:27	16	THE WITNESS: I don't see anything there that
10:58:29	17	describes a pool. I'm not sure where you're getting
10:58:33	18	that.
10:58:42	19	BY MS. JAMESON:
10:58:42	20	Q. Ismagilov discloses collecting droplets in a
10:58:45	21	sample tube?
10:58:50	22	MR. BAKER: Objection to form and foundation.
10:59:01	23	THE WITNESS: I don't -- also don't see
10:59:03	24	anything that says collecting droplets in a sample tube.
10:59:07	25	I see the -- I see sample tube, but it doesn't

10:59:12	1	specifically refer to collecting droplets.
10:59:27	2	BY MS. JAMESON:
10:59:28	3	Q. Are the generated droplets accumulating in a
10:59:33	4	sample tube?
10:59:37	5	A. I don't know. I mean, that passage we're
10:59:41	6	looking at doesn't say that specifically, it doesn't
10:59:45	7	talk --
10:59:46	8	(Zoom audio distortion; clarification by the
10:59:46	9	Certified Stenographer.)
10:59:58	10	THE WITNESS: I'll try and remember what I
10:59:59	11	said. I think I said I don't know. This passage
11:00:03	12	doesn't describe where the droplets are going and it
11:00:07	13	doesn't describe where the droplets were generated.
11:00:19	14	BY MS. JAMESON:
11:00:19	15	Q. So based on this passage, you don't understand
11:00:21	16	where the droplets are?
11:00:24	17	A. It just doesn't say it. It just says -- you
11:00:30	18	know, if you look earlier in that passage, say around
11:00:35	19	line 20, it says: "A group of manifolds...can be
11:00:40	20	included to facilitate the movement of plugs from
11:00:43	21	different analysis units through the plurality of branch
11:00:47	22	channels and to the appropriate solution outlet."
11:00:50	23	It doesn't say anything about the plugs after
11:00:52	24	that. And so it doesn't say those droplets -- it
11:00:58	25	doesn't say the plugs or droplets are collecting

11:01:01	1	specifically in a specific place. It just -- all it
11:01:04	2	talks about is that those plugs are in the channels.
11:01:07	3	Q. So you don't understand where the droplets are
11:01:09	4	in this example?
11:01:10	5	A. I didn't say I don't understand it. I'm just
11:01:13	6	telling you what it says.
11:01:15	7	Q. So I'm asking for what you understand,
11:01:18	8	Dr. Anna, when you're reading this passage --
11:01:21	9	A. I understand --
11:01:21	10	Q. -- which you've opined on.
11:01:24	11	So as you said, the passage describes that the
11:01:30	12	droplets move through the plurality of channels and to
11:01:38	13	an outlet.
11:01:39	14	What's your understanding -- as I understand,
11:01:43	15	you're saying you're an expert in this field -- happens
11:01:46	16	to the droplets next with respect to the sample --
11:01:48	17	sample tube?
11:01:52	18	MR. BAKER: Objection to form and foundation.
11:01:58	19	THE WITNESS: All I'm saying is that when I
11:02:00	20	read that passage that starts on line 18, all it says
11:02:05	21	about plugs is that these manifolds facilitate the
11:02:10	22	movement of plugs from different analysis units through
11:02:13	23	the plurality of branch channels and to the appropriate
11:02:17	24	solution outlet.
11:02:21	25	So it says that the plugs are actually in

11:02:25	1	analysis units and it says that this manifold
11:02:30	2	facilitates the movement of the plugs through those
11:02:34	3	branch channels and to the outlet.
11:02:39	4	It does not describe what happens next. And
11:02:41	5	in order to opine about what happens next, I would have
11:02:43	6	to know some more details about, you know, what's
11:02:46	7	happening in this. I can -- I can't interpret what
11:02:52	8	Ismagilov means, I can say what he says, and he doesn't
11:02:55	9	say anything about where those plugs go.
11:03:07	10	BY MS. JAMESON:
11:03:08	11	Q. So the first -- the first sentence of this
11:03:11	12	paragraph describes moving plugs to the appropriate
11:03:20	13	solution outlet. Do you see that?
11:03:24	14	A. What I see is it says, "A group of
11:03:27	15	manifolds...can be included to facilitate the movement
11:03:30	16	of plugs from different analysis units through the
11:03:35	17	plurality of branch channels and to the appropriate
11:03:38	18	solution outlet."
11:03:39	19	So it doesn't say they're moving. It actually
11:03:43	20	just says it's facilitating the movement. So they could
11:03:46	21	move through that if those manifolds facilitate that
11:03:49	22	movement. It doesn't actually say they're moving there,
11:03:51	23	and it doesn't say what happens to them after that.
11:03:58	24	Q. Is your understanding that the droplets move
11:04:05	25	to the appropriate solution outlet?

11:04:10	1	A.	My understanding is that this group of
11:04:12	2		manifolds facilitates the movement of plugs, again,
11:04:16	3		through the plurality of branch channels and to the
11:04:20	4		appropriate solution outlet.
11:04:26	5	Q.	So the droplets end up at the solution outlet?
11:04:30	6	A.	It doesn't say where the droplets end up. It
11:04:33	7		says this facilitates their movement to the appropriate
11:04:37	8		solution outlet, and all the other things.
11:04:39	9	Q.	So you don't know whether the droplets end up
11:04:41	10		at the solution outlet?
11:04:42	11	A.	No. It doesn't say that.
11:06:46	12	Q.	So based on this passage, the movement of
11:06:52	13		plugs is facilitated through the plurality of branch
11:06:57	14		channels into the appropriate solution outlet?
11:07:02	15	A.	That's what the passage says.
11:07:11	16		It actually says that they can be -- the
11:07:13	17		manifolds can be included to facilitate that movement.
11:07:18	18	Q.	And that outlet can be adapted for receiving a
11:07:22	19		sample tube; correct?
11:07:39	20	A.	Well, it says the outlet can be adapted for
11:07:42	21		receiving a sample -- a segment of tubing or a sample
11:07:47	22		tube. It doesn't specifically say the appropriate
11:07:50	23		solution outlet, but we can -- that's -- I don't know
11:07:54	24		that's specifically what they're talking about, but it
11:07:56	25		does say the outlet can be adapted to receive that.

11:08:00	1	Q. What do you mean when you say you don't know
11:08:01	2	whether -- what specifically they're talking about is
11:08:08	3	the appropriate solution outlet?
11:08:11	4	A. Well, I mean, the first sentence that starts
11:08:14	5	with "a group of manifolds" and ends with "the
11:08:17	6	appropriate solution outlet," I mean by saying "the
11:08:20	7	appropriate solution outlet" implies that they may have
11:08:23	8	more than one outlet.
11:08:24	9	And then down later it says the outlet can be
11:08:27	10	adapted for receiving a segment of tubing, it doesn't
11:08:30	11	say which outlet. So that's all I'm saying. It could
11:08:33	12	be that one.
11:08:44	13	I mean, right before that it says "which
11:08:46	14	routes the flow of solution to an outlet." So assuming
11:08:50	15	that's the appropriate solution outlet, we could connect
11:08:53	16	those sentences together. I don't know that for sure.
11:08:57	17	Q. You don't know whether the same word used in
11:08:59	18	the same paragraph has the same meaning; is that what
11:09:03	19	you're saying?
11:09:07	20	A. No. I'm just saying "the appropriate solution
11:09:08	21	outlet" refers to a specific outlet, and then it doesn't
11:09:13	22	say the appropriate solution outlet can be adapted for
11:09:16	23	receiving. It just says the outlet can be adapted for
11:09:20	24	receiving. So I mean I could assume that they mean the
11:09:22	25	appropriate solution outlet, but it also could mean one

11:09:26	1	of the other implied outlets.
11:09:36	2	Q. There isn't any other -- the outlet that's
11:09:41	3	described in this paragraph than the appropriate
11:09:43	4	solution outlet; right?
11:09:47	5	MR. BAKER: Objection to form and foundation.
11:09:51	6	THE WITNESS: This passage doesn't describe
11:09:52	7	how many outlets there are. It just says in that first
11:09:56	8	sentence that starts with "a group of manifolds" and
11:10:00	9	ends with "to the appropriate solution outlet." It just
11:10:03	10	says -- that implies that there might be an
11:10:06	11	inappropriate solution outlet. So if there's more than
11:10:08	12	one outlet, it doesn't really say in this passage which
11:10:12	13	of those outlets we might be talking about in the last
11:10:15	14	sentence.
11:10:18	15	BY MS. JAMESON:
11:10:18	16	Q. It doesn't exclude the appropriate solution
11:10:20	17	outlet; right?
11:10:22	18	A. No, it doesn't. It just doesn't say
11:10:24	19	specifically which one we're talking about.
11:11:56	20	Q. Okay. The appropriate solution outlet can be
11:12:02	21	adapted for receiving a sample tube; correct?
11:12:10	22	MR. BAKER: Objection to form and foundation.
11:12:13	23	THE WITNESS: Just to be clear that that is
11:12:15	24	not what the passage says. There's a sentence in the
11:12:19	25	passage that says, "A group of manifolds...can be

11:12:22	1	included to facilitate movement of plugs from different
11:12:25	2	analysis units, through the plurality of branch channels
11:12:29	3	and to the appropriate solution outlet."
11:12:31	4	And then there's another sentence later in
11:12:34	5	that passage that says, "The outlet can be adapted for
11:12:36	6	receiving, for example, a segment of tubing or a sample
11:12:40	7	tube, such as a standard 1.5 milliliter centrifuge
11:12:44	8	tube." It doesn't say that the outlet of that last
11:12:48	9	sentence is specifically the appropriate solution
11:12:50	10	outlet.
11:12:51	11	Q. But you agree that the outlet in that last
11:12:53	12	sentence doesn't exclude the appropriate solution
11:12:56	13	outlet; correct?
11:12:57	14	A. It doesn't exclude it. It also doesn't
11:12:59	15	specifically say that it is that.
11:13:08	16	Q. One of the things this paragraph covers, if
11:13:12	17	the appropriate solution outlet isn't excluded from the
11:13:16	18	outlet, is that the appropriate solution outlet can be
11:13:21	19	adapted to receive a sample tube; correct?
11:13:27	20	MR. BAKER: Objection to form and foundation.
11:13:30	21	THE WITNESS: Again, it doesn't specifically
11:13:31	22	say that. It just says the thing in the first sentence
11:13:35	23	about a group of manifolds being able to facilitate
11:13:39	24	movement of plugs from analysis units through branch
11:13:42	25	channels into the appropriate solution outlet. And then

11:13:47	1	the last sentence says the outlet can be adapted for
11:13:50	2	receiving, et cetera, et cetera.
11:13:52	3	It doesn't specifically say that that outlet
11:13:56	4	that is referred to in that second-to-last sentence is
11:14:00	5	the appropriate solution outlet.
11:14:02	6	As you've said, it doesn't exclude that. It
11:14:04	7	just doesn't specifically -- it doesn't specify that
11:14:07	8	that's exactly which one they're talking about. They
11:14:10	9	could be talking about a different outlet.
11:14:12	10	BY MS. JAMESON:
11:14:12	11	Q. So if it's not excluded, then it's included in
11:14:16	12	what the outlet could refer to; correct?
11:14:19	13	MR. BAKER: Objection to form.
11:14:21	14	THE WITNESS: I don't know if it's included.
11:14:22	15	It certainly isn't excluded, but it doesn't specifically
11:14:26	16	say that it's connected that way.
11:14:29	17	BY MS. JAMESON:
11:15:56	18	Q. The passage says that the outlet can be
11:15:58	19	adapted for receiving a sample tube; correct?
11:16:05	20	A. Yes. That last -- second-to-last sentence
11:16:08	21	that says, "The outlet can be adapted for receiving, for
11:16:11	22	example, a segment of tubing or a sample tube...."
11:16:16	23	Q. And there can be droplets at that outlet;
11:16:25	24	correct?
11:16:28	25	A. I don't know that. All I know is that the

11:16:32	1	earlier passage talks about a group of manifolds that
11:16:35	2	can be included to facilitate the movement of plugs,
11:16:38	3	which again I would construe to be the same as droplets.
11:16:42	4	It does not say that the droplets end up at
11:16:45	5	the outlet. It says it facilitates the movement of
11:16:48	6	plugs through the branch channels into the appropriate
11:16:51	7	solution outlet. Whether or not they end up there is
11:16:54	8	not stated here.
11:17:17	9	Q. So if the passage says that it facilitates the
11:17:20	10	movement of plugs through the branch channels to an
11:17:23	11	appropriate solution outlet, why is it your opinion that
11:17:26	12	you're not sure if they end up there?
11:17:29	13	A. Because I don't know all of the details of
11:17:31	14	what actually happens when you try to move plugs through
11:17:35	15	those channels into the outlet. There's -- flow of
11:17:41	16	droplets in microchannels is pretty complex. There's no
11:17:45	17	guarantee that the droplets actually end up at the
11:17:48	18	outlet just because there's manifolds there to
11:17:50	19	facilitate that movement.
11:18:10	20	MS. JAMESON: All right. We've been going
11:18:12	21	about an hour. So why don't we take a break.
11:18:15	22	THE WITNESS: Okay.
11:18:16	23	THE VIDEOGRAPHER: We're going off the record
11:18:17	24	at 11:18 a.m.
11:18:19	25	(Recess taken at 11:18 a.m.)

11:47:47	1	(Proceedings resumed at 11:47 a.m.)
11:47:47	2	THE VIDEOGRAPHER: We are back on the record
11:47:49	3	at 11:47 a.m.
11:47:52	4	BY MS. JAMESON:
11:47:53	5	Q. Dr. Anna, in your declaration, you don't
11:47:58	6	articulate any other reading of the paragraph in
11:48:03	7	column 17 regarding the -- how one of ordinary skill
11:48:14	8	would read paragraph 17; correct?
11:48:20	9	MR. BAKER: Objection to form and foundation.
11:48:25	10	THE WITNESS: Are you referring to column 17,
11:48:27	11	not paragraph --
11:48:29	12	BY MS. JAMESON:
11:48:29	13	Q. Let me ask the question again.
11:48:37	14	And let's actually take a look at
11:48:39	15	paragraph 126 of your declaration in the 086 IPR.
11:48:47	16	A. That's Exhibit 5; right?
11:48:49	17	Q. That is Exhibit 5, that's correct.
11:48:55	18	A. Okay. And which paragraph?
11:48:58	19	Q. 126.
11:49:00	20	A. Okay.
11:49:10	21	Q. So take a look at paragraph 126.
11:49:33	22	A. Okay. I've looked at it.
11:49:34	23	Q. In your declaration, you don't articulate any
11:49:39	24	reading of the passage in column 17 that we've been
11:49:45	25	discussing; correct?

11:49:47	1	MR. BAKER: Objection to form.
11:49:50	2	THE WITNESS: I don't know what you're asking.
11:49:51	3	I can see what I wrote in my declaration. Do you want
11:49:54	4	me to repeat that?
11:49:57	5	BY MS. JAMESON:
11:49:58	6	Q. No. Let me ask it again.
11:50:02	7	So in your declaration, you're not
11:50:05	8	articulating anything more about the meaning of the
11:50:12	9	paragraph that we've been discussing in column 17 than
11:50:16	10	what's stated there in paragraph 126; correct?
11:50:20	11	MR. BAKER: Objection to form and foundation.
11:50:26	12	THE WITNESS: Well, what I said in
11:50:28	13	paragraph 126 is that the petitioner relies on another
11:50:34	14	separate disclosure in Ismagilov explaining, and then
11:50:37	15	there's a quote that we've read multiple times before.
11:50:41	16	And I say I do not believe that this section of the
11:50:45	17	specification describes a separation chamber or a
11:50:47	18	droplet receiving outlet.
11:50:50	19	I don't really know what you're asking. But
11:50:52	20	that's what I've said in that particular paragraph.
11:51:02	21	BY MS. JAMESON:
11:51:03	22	Q. So you don't have any opinions on how to read
11:51:08	23	the sentences in the paragraph that we've been looking
11:51:12	24	at in column 17 together as one of ordinary skill?
11:51:20	25	MR. BAKER: Objection to form.

11:51:23	1	THE WITNESS: Well, again, what I've
11:51:25	2	articulated in my declaration is that this disclosure in
11:51:30	3	Ismagilov is that I do not believe that this section of
11:51:32	4	the specification describes a separation chamber or
11:51:36	5	droplet receiving outlet. So that's what I've said in
11:51:39	6	my declaration, and that's the opinion that I've stated
11:51:41	7	there.
11:51:45	8	BY MS. JAMESON:
11:51:45	9	Q. And in your declarations, you don't express
11:51:48	10	any opinion regarding how one of ordinary skill in the
11:51:51	11	art would read and understand the sentences of the
11:51:55	12	paragraph at column 17, lines 18 through 30, of
11:51:59	13	Ismagilov; right?
11:52:00	14	MR. BAKER: Objection to form.
11:52:02	15	THE WITNESS: Again, I don't have every word
11:52:04	16	in my declaration memorized. I don't recall
11:52:06	17	specifically saying about that, but if there's another
11:52:09	18	place that you'd like me to look at, I'd be happy to.
11:52:14	19	126 doesn't really pertain to anything except that
11:52:20	20	particular statement there.
11:52:21	21	BY MS. JAMESON:
11:52:22	22	Q. And you don't have any opinions one way or the
11:52:24	23	other how one of ordinary skill would read and
11:52:26	24	understand the sentences of the paragraph at column 17,
11:52:30	25	lines 18 through 30, in Ismagilov; correct?

11:52:35	1	MR. BAKER: Objection to form.
11:52:39	2	THE WITNESS: I'm not exactly sure how you
11:52:40	3	want me to answer that. Are you asking me to speculate
11:52:44	4	on how a person of ordinary skill would interpret that?
11:52:47	5	I have not -- at least in paragraph 126, the opinion
11:52:51	6	that I've stated is that that particular phrase about
11:52:55	7	the outlet being able to be adapted for receiving a
11:52:59	8	segment of tubing or a sample tube, that I do not
11:53:02	9	believe that that section of the specification describes
11:53:04	10	a separation chamber or droplet receiving outlet.
11:53:09	11	You can look elsewhere where I might have
11:53:11	12	talked about a person of ordinary skill, I could do
11:53:14	13	that, but that's not what I'm referring to in that
11:53:17	14	paragraph right there.
11:53:17	15	BY MS. JAMESON:
11:53:18	16	Q. In your declarations, you don't express an
11:53:20	17	opinion one way or the other of how one of ordinary
11:53:23	18	skill would read and understand the sentences of the
11:53:26	19	paragraph at column 17, lines 18 through 30, in
11:53:31	20	Ismagilov; correct?
11:53:32	21	MR. BAKER: Objection to form.
11:53:35	22	THE WITNESS: Again, I don't have every word
11:53:37	23	in my declaration memorized. I can look through it
11:53:39	24	again and see if there's something specifically
11:53:42	25	articulating what you've just said. The part that

11:53:45	1	refers to that paragraph you're talking about is in, as
11:53:49	2	far as I recall, in paragraph 126 here, that's just
11:53:52	3	about that one phrase that we've read before.
11:53:58	4	BY MS. JAMESON:
11:53:59	5	Q. And you don't have any opinions one way or the
11:54:02	6	other of how one of ordinary skill would read and
11:54:05	7	understand the sentences of the paragraph at column 17,
11:54:09	8	lines 18 through 30, in Ismagilov; correct?
11:54:12	9	MR. BAKER: Objection to form.
11:54:14	10	THE WITNESS: Sorry. The opinion that I've
11:54:15	11	stated is in paragraph 126 which states again that the
11:54:19	12	outlet can be adapted for receiving segment tubing or
11:54:24	13	sample tube and that I do not believe that that section
11:54:27	14	of the specification describes a separation chamber or
11:54:30	15	droplet receiving outlet.
11:54:32	16	It doesn't connect things in the way that
11:54:34	17	you're asking. And I don't know if there's specific
11:54:36	18	other language in the sense that I just don't recall the
11:54:39	19	exact words. So if you'd like me to look through my
11:54:42	20	declaration to find other words, we can do that.
11:54:44	21	BY MS. JAMESON:
11:54:46	22	Q. In paragraph 126 of your declaration, you
11:54:50	23	don't express an opinion one way or the other of how one
11:54:53	24	of ordinary skill would read and understand the
11:54:55	25	sentences of the paragraph at column 17, lines 18

11:54:59	1	through 30, in Ismagilov; correct?
11:55:02	2	MR. BAKER: Objection to form.
11:55:04	3	THE WITNESS: Again, in paragraph 126, the
11:55:05	4	opinion that I'm expressing is that that phrase, "the
11:55:09	5	outlet can be adapted for receiving...a segment of
11:55:11	6	tubing or a sample tube," doesn't -- sorry. I have
11:55:17	7	expressed my opinion that that section of the
11:55:20	8	specification does not describe a separation chamber or
11:55:22	9	a droplet receiving outlet.
11:55:28	10	BY MS. JAMESON:
11:55:28	11	Q. And that's your opinion even though you can't
11:55:30	12	tell me what outlet that paragraph is referring to?
11:55:37	13	A. You asked me if I was expressing an opinion
11:55:40	14	there about whether -- how a person of ordinary skill
11:55:43	15	would read that whole paragraph. And what I've told you
11:55:47	16	and as you can see based on what's written, I've
11:55:50	17	expressed an opinion about how the outlet can be adapted
11:55:55	18	for receiving a segment of tubing or a sample tube and
11:55:59	19	how that my opinion does not describe a separation
11:56:03	20	chamber or a droplet receiving outlet. So it doesn't
11:56:07	21	pertain to what you're asking.
11:56:08	22	Q. Sitting here today, you're not aware of
11:56:10	23	anywhere else in your declaration where you state an
11:56:12	24	opinion regarding how one of ordinary skill in the art
11:56:15	25	would read and understand the sentences of the paragraph

11:56:18	1	at column 17, lines 18 through 30, of Ismagilov; right?
11:56:22	2	MR. BAKER: Objection to form.
11:56:24	3	THE WITNESS: Like I said, I don't have every
11:56:27	4	line of my declaration memorized. Where I do know I've
11:56:31	5	referred to that paragraph is here in paragraph 126 and
11:56:36	6	I have specifically referred here to that phrase about
11:56:39	7	the outlet and how it can be adapted for receiving,
11:56:43	8	et cetera, and how my opinion about that is that it does
11:56:46	9	not describe a separation chamber or a droplet receiving
11:56:49	10	outlet.
11:56:50	11	Again, if you'd like to look through or I'm
11:56:52	12	happy to look through and see what else I said about
11:56:54	13	that, but I don't recall exact language like you've
11:56:59	14	described at the moment. Because I don't have my
11:57:04	15	declaration memorized.
11:57:13	16	BY MS. JAMESON:
11:57:14	17	Q. Now my question was sitting here today you're
11:57:17	18	not aware of anywhere else in your declaration where you
11:57:20	19	state an opinion regarding how one of ordinary skill in
11:57:23	20	the art would read and understand the sentences of the
11:57:26	21	paragraph at column 17, lines 18 through 30, of
11:57:30	22	Ismagilov; correct?
11:57:32	23	MR. BAKER: Objection to form.
11:57:41	24	THE WITNESS: Again, if you're asking me to go
11:57:43	25	through my whole declaration and tell you what I've said

11:57:45	1	about that particular column or paragraph, I'd be happy
11:57:50	2	to do so. Right now what I recall talking about
11:57:54	3	specifically is, as you've shown me in paragraph 126
11:57:59	4	that you've directed me to look at that, and there I'm
11:58:02	5	talking about how the outlet can be adapted, that phrase
11:58:07	6	in Ismagilov, and about my own opinion that the section
11:58:10	7	of that specification does not describe a separation
11:58:12	8	chamber or a droplet receiving outlet.
11:58:46	9	BY MS. JAMESON:
11:58:49	10	Q. So you're saying right now sitting here today
11:58:51	11	you're not aware of anywhere else in your declaration
11:58:53	12	where you state an opinion regarding how one of ordinary
11:58:56	13	skill in the art would read and understand the sentences
11:58:59	14	of the paragraph at column 17, lines 18 through 30, of
11:59:04	15	Ismagilov; correct?
11:59:06	16	MR. BAKER: Objection to form.
11:59:09	17	THE WITNESS: You directed me to paragraph 126
11:59:12	18	which does not say what you've just said. It states my
11:59:17	19	opinion about whether or not that outlet can be adapted
11:59:20	20	for receiving a sample -- a segment of tubing or a
11:59:25	21	sample tube, whether or not -- and expresses my opinion
11:59:28	22	that that section of the specification does not describe
11:59:32	23	a separation chamber or a droplet receiving outlet.
11:59:36	24	Would you like me to look for other text? I
11:59:38	25	don't recall at the moment exactly where I've referred

11:59:41	1	to that. I'd be happy to read other sections if you'd
11:59:48	2	like.
12:00:34	3	BY MS. JAMESON:
12:00:37	4	Q. And I'm not asking you to read through your
12:00:39	5	whole declaration. I'm asking if based on your time
12:00:43	6	spent carefully preparing your declarations and
12:00:46	7	preparing to testify today you can recall offering any
12:00:49	8	opinion in your declarations regarding how one of
12:00:52	9	ordinary skill in the art would read and understand the
12:00:55	10	sentences of the paragraph at column 17, lines 18
12:00:58	11	through 30, of Ismagilov?
12:01:00	12	MR. BAKER: Objection to form.
12:01:12	13	THE WITNESS: So as we've been sitting here,
12:01:15	14	again, I don't have my declaration memorized. But I do
12:01:18	15	see here that if you look a couple paragraphs later --
12:01:21	16	hang on, I've lost it now -- I have a reference to
12:01:28	17	Ismagilov at 17, lines 18 through 22, which is not the
12:01:32	18	entire section you're referring to. We could take a
12:01:35	19	look at that, at what I've stated as an opinion there if
12:01:37	20	you'd like.
12:01:38	21	BY MS. JAMESON:
12:01:38	22	Q. Which paragraph are you looking at?
12:01:41	23	A. 129.
12:02:21	24	Q. And this paragraph also doesn't -- doesn't
12:02:33	25	state an opinion regarding how one of ordinary skill in

12:02:36 1 the art would read and understand the sentences of the
12:02:38 2 paragraph at column 17, lines 18 through 30, of
12:02:43 3 Ismagilov; correct?

12:02:45 4 A. Well, it certainly does describe some opinions
12:02:48 5 about what the terminology means in the sentence as in
12:02:52 6 column 17, lines 18 through 22, which is not the entire
12:02:57 7 passage you're talking about but is the initial part of
12:02:59 8 it.

12:03:09 9 Q. And that's referring to, I should say
12:03:14 10 paragraph 129 of your declaration in the 086 IPR is
12:03:20 11 referring to "the manifold is only described as
12:03:24 12 facilitating the movement of plugs from different
12:03:27 13 analysis units"; correct?

12:03:29 14 A. Well, that's what it says there in one of the
12:03:31 15 sentences that I've written. It says, "As Ismagilov
12:03:33 16 states the manifold is only described as facilitating
12:03:36 17 the movement of plugs from different analysis units."
12:03:38 18 And I believe that's consistent with what I said earlier
12:03:42 19 as well.

12:03:45 20 Q. And sitting here today, you can't read
12:03:48 21 Dr. Ismagilov's work and understand what outlet he's
12:03:54 22 referring to in the second-to-last sentence in the
12:04:02 23 paragraph at lines 18 through 30 in column 17?

12:04:07 24 A. Well, I believe that, as we discussed before
12:04:09 25 the break, Ismagilov does not expressly state which

12:04:14	1	outlet he means. And the first sentence in that
12:04:18	2	paragraph, we could go back to it, but the first
12:04:20	3	sentence in that paragraph talks about going to an
12:04:22	4	appropriate solution outlet which implies that there
12:04:26	5	could be other outlets.
12:04:27	6	And then this sentence at the end of that
12:04:29	7	paragraph that refers to -- well, in fact the previous
12:04:33	8	sentence that's referred to in paragraph 126 of my
12:04:35	9	declaration talks about the -- an outlet being able to
12:04:40	10	be -- whatever it says -- configured or adapted, I
12:04:47	11	guess, to accept a sample tubing or sample tube.
12:04:51	12	Again, there's no express declaration in
12:04:54	13	Ismagilov that the appropriate solution outlet and the
12:04:57	14	outlet referred to in that last sentence are the same
12:05:00	15	thing. As we've said before, it doesn't exclude it, but
12:05:04	16	it also doesn't expressly include it.
12:06:04	17	Q. Dr. Anna, based on your time preparing these
12:06:08	18	declarations and preparing to testify today, you can't
12:06:12	19	identify other paragraphs than 126 and 129 that relate
12:06:20	20	to how one of ordinary skill in the art would read and
12:06:23	21	understand the sentences of the paragraph at column 17,
12:06:26	22	lines 18 through 30?
12:06:29	23	A. Again, I just don't recall the exact language
12:06:31	24	that I used in Ismagilov -- not in Ismagilov -- in my
12:06:35	25	declaration. If you'd like me to look through my

12:06:38	1	declaration to find other references to that section,
12:06:40	2	I'd be happy to. I don't recall doing that. I don't --
12:06:44	3	but I'd have to look to find out if I actually said
12:06:47	4	words to the effect of what you're saying.
12:06:50	5	Q. And I'm asking if whether sitting here today
12:06:53	6	you can recall any other instances in your declaration,
12:06:57	7	whether -- where you would have offered opinions about
12:07:02	8	how you read the sentences of paragraphs -- of the
12:07:05	9	paragraph at lines 18 through 30 of column 17? And if
12:07:10	10	your answer is no, that right now you can't recall that,
12:07:13	11	that's fine.
12:07:14	12	A. Well, I believe what I said is that I don't
12:07:15	13	have my declaration memorized so I don't know exactly
12:07:18	14	where I would have said that to the effect of what
12:07:21	15	you're saying.
12:07:23	16	Q. And so my question is right now sitting here,
12:07:26	17	you can't think of other passages in your declaration
12:07:30	18	where you had offered an opinion about how you read the
12:07:34	19	sentences at lines 18 through 30 of column 17?
12:07:39	20	A. I believe what I said, and I'll repeat again,
12:07:41	21	is that I don't have my declaration memorized and
12:07:44	22	therefore I don't recall exactly where I would have said
12:07:47	23	something to the effect of what you're describing.
12:07:50	24	Q. That's not my question. My question is
12:07:54	25	whether sitting here right now you can think of any

12:07:59	1	other passages in your declaration where you've offered
12:08:02	2	an opinion on how you read the sentences at lines 18
12:08:05	3	through 30 of column 17?
12:08:08	4	A. I'm not sure how that doesn't answer your
12:08:10	5	question. I said I don't recall exactly where I would
12:08:12	6	have stated language like what you've said because I
12:08:15	7	don't have my declaration memorized.
12:08:19	8	Q. I'm asking what you can recall right now. So
12:08:23	9	whether or not you have your declaration memorized, can
12:08:25	10	you recall right now any other passages in your
12:08:29	11	declaration where you would have offered an opinion
12:08:33	12	about how you would read the sentences at lines 18
12:08:36	13	through 30 of column 17?
12:08:38	14	A. If you're thinking of something specific, I
12:08:41	15	would be happy to read it or look through it. I believe
12:08:43	16	that I've said that because I don't have my declaration
12:08:46	17	memorized, I don't remember exactly where I would have
12:08:49	18	said that.
12:08:50	19	Q. And that means right now you can't recall any
12:08:53	20	other places where you would have said that in your
12:08:55	21	declaration.
12:08:56	22	A. I do not recall a place where I had said
12:08:59	23	something to the effect of what you've said. I might
12:09:01	24	have. I don't remember the exact language.
12:09:30	25	Q. All right. Dr. Anna, can you please take a

12:09:35	1	look at paragraph 141 of your declaration.
12:09:37	2	A. The same one -- same 086 declaration?
12:09:40	3	Q. The same 086 declaration.
12:09:44	4	A. And that is 141, you said?
12:09:48	5	Q. Paragraph 141.
12:09:49	6	A. Okay.
12:09:50	7	Q. Can you please read that paragraph to
12:09:52	8	yourself.
12:10:20	9	(Witness reviewing document.)
12:10:20	10	THE WITNESS: Okay. I've read it.
12:10:21	11	BY MS. JAMESON:
12:10:22	12	Q. Okay. And your opinion is that the sample
12:10:38	13	tube is inserted into the end of an outlet port in a
12:10:45	14	horizontal plane; is that correct?
12:11:00	15	A. I don't think that's exactly what I said here.
12:11:02	16	What I said here is that if we can glean anything about
12:11:08	17	the device outlets in Ismagilov from the figures, that
12:11:11	18	the outlet port would be considered to be in the
12:11:15	19	horizontal plane. That's what I said in the first
12:11:17	20	sentence of that paragraph.
12:11:18	21	And then what I said is that a person of
12:11:22	22	ordinary skill would therefore just as easily understand
12:11:25	23	the disclosure that the petitioner relies on to be
12:11:29	24	describing a sample tube centrifuged to a micropipette
12:11:32	25	inserted into the end of the outlet port in the

12:11:37	1	horizontal plane.
12:11:38	2	So I didn't say my opinion is that it's in the
12:11:41	3	horizontal plane. I just said my opinion is you could
12:11:44	4	understand it to be that way just as easily as a
12:11:48	5	different way.
12:11:52	6	Q. And Ismagilov doesn't disclose a horizontal
12:11:56	7	attachment of a sample tube to an outlet port; correct?
12:12:01	8	MR. BAKER: Objection to form.
12:12:04	9	THE WITNESS: I don't recall exactly what's at
12:12:05	10	that location in Ismagilov. I could go look at it to
12:12:09	11	answer your question more accurately.
12:12:13	12	I appear to have said that if anything can --
12:12:16	13	well, I did say, not appeared. If anything can be
12:12:19	14	gleaned about the device outlets from the figures, it
12:12:22	15	would appear that the outlet port is considered to be in
12:12:25	16	the horizontal plane. So I would have to look at it
12:12:29	17	exactly to see if it discloses what you just said.
12:12:31	18	BY MS. JAMESON:
12:12:31	19	Q. And when you say "just as easily," that means
12:12:34	20	that a person of ordinary skill in the art could also
12:12:37	21	understand the sample tube to be inserted vertically;
12:12:46	22	correct?
12:12:46	23	A. The sample or the sample tube?
12:12:49	24	Q. The sample tube.
12:12:51	25	A. Well, I've said here that they could just as

12:12:53	1	easily understand it to be inserted into the horizontal
12:12:56	2	plane. I'm not sure what you're asking.
12:13:03	3	So, yeah, I mean we can understand it to -- it
12:13:06	4	does not really get specific here is what I'm saying
12:13:09	5	about how the sample tube or the centrifuge tube or
12:13:13	6	micropipette are configured. I would probably need to
12:13:19	7	go back and look at Ismagilov in that section I'm
12:13:22	8	referring to to remember exactly what that looks like.
12:13:25	9	Q. And when you say that a person of ordinary
12:13:28	10	skill would just as easily understand the disclosure,
12:13:32	11	what you're referring to there is one of ordinary skill
12:13:35	12	would just as easily understand it to be vertically as
12:13:38	13	opposed to horizontally inserted; correct?
12:13:42	14	MR. BAKER: Objection. Form and foundation.
12:13:45	15	THE WITNESS: Yeah, I said in paragraph 141, I
12:13:48	16	said a POSA, a person of ordinary skill, would therefore
12:13:54	17	just as easily understand -- I didn't say the thing
12:13:55	18	about just as easily understanding it to be in the
12:13:58	19	vertical plane right there.
12:14:00	20	In the previous paragraph, in paragraph 140, I
12:14:03	21	talk a little bit about what the petitioner assumes. So
12:14:06	22	the petitioner is assuming that collecting with a
12:14:10	23	micropipette requires a well and reservoir extending out
12:14:18	24	of the horizontal plane. And I say a number of things
12:14:21	25	after that, basically saying that my opinion is that

12:14:25	1	there are no disclosures supporting the petitioner's
12:14:29	2	assumptions that those undisclosed vertical wells or
12:14:34	3	reservoirs must necessarily exist in the devices that
12:14:37	4	are disclosed in Ismagilov.
12:14:39	5	So I haven't said anything about whether you
12:14:41	6	could just as easily understand it to be vertical. I'm
12:14:45	7	really discussing my opinions about the petitioner's
12:14:48	8	assumptions about that particular configuration.
12:14:52	9	BY MS. JAMESON:
12:14:53	10	Q. When you're using the language "just as
12:14:56	11	easily," what you're referring to there is a person of
12:15:01	12	ordinary skill could just as easily understand it to be
12:15:05	13	vertical as opposed to being horizontal.
12:15:09	14	MR. BAKER: Objection to form and foundation.
12:15:10	15	THE WITNESS: That's not what I said.
12:15:12	16	What I said is that a person of ordinary skill
12:15:15	17	would just as easily understand the disclosure to be
12:15:17	18	describing a sample tube, et cetera, inserted in the end
12:15:21	19	of the outlet port in the horizontal plane. I didn't
12:15:25	20	say anything about vertical right there.
12:15:28	21	BY MS. JAMESON:
12:15:29	22	Q. What is "just as easily" referring to then if
12:15:31	23	it's not the vertical orientation?
12:15:35	24	A. In that sentence, I say it's just as easily
12:15:38	25	and could just as easily be understood that those items

12:15:42	1	are inserted into the end of the outlet port in the
12:15:45	2	horizontal plane.
12:15:48	3	Q. "Just as easily" is describing a relationship.
12:15:52	4	One thing is just as easily understood as another;
12:15:56	5	correct?
12:15:56	6	MR. BAKER: Objection to form.
12:16:01	7	THE WITNESS: Well, again, as I said, in
12:16:03	8	paragraph 140 I describe my opinions about the
12:16:08	9	petitioner's assumptions that some wells or reservoirs,
12:16:11	10	which again are undisclosed, the assumption that the
12:16:15	11	petitioner is making is that they are vertical. And
12:16:18	12	then in paragraph 141 I say that a person of ordinary
12:16:22	13	skill could just as easily understand those items to be
12:16:26	14	inserted into the end of the outlet port in the
12:16:30	15	horizontal plane.
12:16:31	16	BY MS. JAMESON:
12:16:31	17	Q. And so the answer to my question earlier was
12:16:35	18	yes, it is saying it could just as easily be understood
12:16:40	19	as having a vertical or a horizontal orientation.
12:16:48	20	A. Well, I believe that the opinion that I've
12:16:49	21	expressed is that the petitioner makes the assumption of
12:16:53	22	vertically oriented wells that again are not disclosed,
12:16:56	23	and then I say that the person of ordinary skill would
12:17:00	24	just as easily understand those to be inserted in the
12:17:04	25	horizontal plane.

12:17:27	1	Q.	The only support that you're identifying in
12:17:30	2		your declaration for the outlet port being considered to
12:17:37	3		be in the horizontal plane is what you've cited here,
12:17:41	4		Ismagilov columns 39, 53 to 40, line 2, and figure 22D;
12:17:49	5		is that correct?
12:17:52	6	A.	I don't know if that's the only support.
12:17:53	7		That's what I reference right there.
12:17:58	8	Q.	And so my question was that's the only support
12:18:00	9		that you're identifying in your declaration.
12:18:02	10	A.	I don't know that. I can see what I've
12:18:04	11		declared -- or what I've written down in paragraph 141.
12:18:08	12		It doesn't mean that I didn't refer to something else a
12:18:11	13		different place.
12:18:17	14	Q.	You don't recall any other support in your
12:18:20	15		declaration relating to whether the outlet is considered
12:18:27	16		to be in the horizontal plane.
12:18:30	17	A.	Again, I don't have my declaration memorized.
12:18:32	18		I could look through it and see if I talked about other
12:18:35	19		things about the horizontal plane. Right here in
12:18:38	20		paragraph 141 of my declaration, I'm citing that
12:18:43	21		particular place in Ismagilov. It doesn't mean I
12:18:46	22		haven't included any other support elsewhere. I just
12:18:50	23		don't know where that would be right at the moment.
12:18:53	24	Q.	And my question is, sitting here today, you
12:18:56	25		aren't aware of any other support in your declaration;

12:18:59	1	correct?
12:19:00	2	A. What I'm saying is that in this location in
12:19:03	3	paragraph 141, I referred to this particular citation.
12:19:08	4	I cannot remember exactly where I might have said some
12:19:12	5	other form of support in my declaration because I don't
12:19:14	6	have it memorized. I would be happy to look through it
12:19:18	7	and see if we can find other places where I put other
12:19:22	8	support. I don't think the conclusion that I've
12:19:24	9	referred to it here means that I haven't supported it by
12:19:24	10	others means elsewhere.
12:19:30	11	Q. My question is just, sitting here today, you
12:19:32	12	aren't aware of any other support in your declaration.
12:19:34	13	And it sounds like what you're saying is, yes, right now
12:19:37	14	sitting here today you can't think of any other support
12:19:40	15	in your declaration. Is that correct?
12:19:40	16	A. Again, I said that I don't recall specific
12:19:43	17	language I've used where I've specifically referred to
12:19:46	18	something else because I don't have my declaration
12:19:48	19	memorized. I clearly refer to this place here, but that
12:19:52	20	doesn't mean I haven't elsewhere.
12:19:56	21	Q. Please try to answer my question, Dr. Anna.
12:19:58	22	And that's just that sitting here today, you can't think
12:20:02	23	of another place in your report where you would have
12:20:07	24	offered support for the outlet being considered to be in
12:20:10	25	a horizontal plane.

12:20:12	1	MR. BAKER: Objection to form.
12:20:14	2	THE WITNESS: It's not clear to me how I'm not
12:20:15	3	answering your question. I have said I clearly referred
12:20:19	4	to this Ismagilov reference that you already listed here
12:20:22	5	in paragraph 141. I don't remember all the words in my
12:20:26	6	declaration. So there may be another place where I've
12:20:29	7	provided additional support. Right now I don't recall
12:20:32	8	where that is exactly.
12:22:08	9	BY MS. JAMESON:
12:22:08	10	Q. Dr. Anna, were you familiar with sample tubes
12:22:12	11	in 2006?
12:22:17	12	A. Had I ever heard of sample tubes? Sure.
12:22:34	13	Q. I'm going to mark another exhibit. This is
12:22:42	14	going to be Exhibit 11.
12:22:48	15	(Exhibit 11 was marked for identification.)
12:22:48	16	BY MS. JAMESON:
12:22:48	17	Q. Do you see this exhibit, Dr. Anna?
12:22:51	18	A. Yes.
12:22:52	19	Q. Okay. Is this a sample tube of the type that
12:23:02	20	you would be familiar with in 2006?
12:23:06	21	MR. BAKER: Objection to form and foundation.
12:23:11	22	THE WITNESS: Well, it's a website from Amazon
12:23:16	23	that describes a Fisherbrand Microcentrifuge tube. I
12:23:24	24	don't recall if I specifically would have known about
12:23:26	25	this particular type of microcentrifuge tube. I'm also

12:23:30	1	not entirely sure what -- are you trying to equate
12:23:33	2	microcentrifuge tubes with sample tubes?
12:23:37	3	BY MS. JAMESON:
12:23:37	4	Q. A 1.5 milliliter microcentrifuge tube is an
12:23:42	5	example of a sample tube; correct?
12:23:44	6	MR. BAKER: Objection to form. Foundation.
12:23:46	7	Outside the scope. And I also object to the exhibit
12:23:51	8	itself.
12:23:55	9	THE WITNESS: I believe there is a statement
12:23:57	10	in the section of Ismagilov that we were looking at
12:24:00	11	before that uses as an example a 1.5-milliliter
12:24:07	12	centrifuge tube. Whether this is the specific
12:24:10	13	centrifuge they're talking about -- and again I'd have
12:24:13	14	to look to see if that's the exact language that they
12:24:16	15	used. I'll just do that here.
12:24:21	16	It says a standard 1.5 milliliter centrifuge
12:24:26	17	tube, in Ismagilov.
12:24:27	18	So I'm not sure what you're asking. Are you
12:24:29	19	asking if this is the specific microcentrifuge tube that
12:24:32	20	they were talking about in Ismagilov?
12:24:33	21	BY MS. JAMESON:
12:24:34	22	Q. I'm asking is this illustration in the
12:24:39	23	document an example of a standard 1.5 milliliter
12:24:47	24	centrifuge tube?
12:24:49	25	A. I don't know.

12:24:49	1	MR. BAKER: Same objection.
12:24:50	2	THE WITNESS: Sorry.
12:24:52	3	MR. BAKER: Same objections.
12:24:56	4	THE WITNESS: It doesn't say standard
12:24:57	5	1.5 milliliter centrifuge tube. It says Fisherbrand
12:25:03	6	Premium Microcentrifuge Tube 1.5 milliliter. So, you
12:25:07	7	know, it seems like it holds the same volume, has the
12:25:10	8	word "centrifuge." Is it the same thing? I don't know.
12:25:13	9	BY MS. JAMESON:
12:25:14	10	Q. So you don't know what a standard 1.5 mil
12:25:15	11	centrifuge tube was in 2006?
12:25:21	12	A. I didn't say that. I don't know if this is
12:25:23	13	specifically what they're referring to.
12:25:26	14	Q. Is this an example of a standard 1.5 mil
12:25:31	15	centrifuge tube?
12:25:34	16	MR. BAKER: Same objections.
12:25:35	17	THE WITNESS: All I can say is that this is an
12:25:37	18	example of something that says "microcentrifuge tube"
12:25:41	19	that has 1.5 milliliters. It doesn't say anything about
12:25:46	20	it being standard. I can't tell you one way or the
12:25:49	21	other whether this is what they looked like in 2006. I
12:25:51	22	don't even know when this was pulled up. This is just a
12:25:54	23	website that shows a microcentrifuge tube. Whether it's
12:25:57	24	the same exact thing that Ismagilov was referring to in
12:26:01	25	that reference, I couldn't tell you.

12:26:03	1	BY MS. JAMESON:
12:26:03	2	Q. So I'm going to ask you again. Based on your
12:26:06	3	knowledge as someone who has worked in the microfluidic
12:26:14	4	field, do you know what is a standard 1.5 milliliter
12:26:22	5	centrifuge tube?
12:26:23	6	A. I have a general understanding of what
12:26:25	7	centrifuge tubes are.
12:26:28	8	Q. So my question was do you know in the
12:26:34	9	2006-2007 time period what a standard 1.5 mil centrifuge
12:26:40	10	tube was?
12:26:45	11	A. Well, I mean, I know what a centrifuge tube
12:26:48	12	is. I don't know what they're referring to when they
12:26:51	13	say a standard 1.5 milliliter centrifuge tube. They
12:26:55	14	could be referring to any number of things.
12:26:58	15	This appears to be a microcentrifuge tube with
12:27:00	16	that same volume. Is that what they're referring to? I
12:27:04	17	couldn't tell you.
12:27:05	18	Q. Okay. So you don't understand what Ismagilov
12:27:07	19	is referring to in the passage in column 17 as a
12:27:09	20	standard --
12:27:12	21	(Audio cross-talk.)
12:27:12	22	BY MS. JAMESON:
12:27:12	23	Q. Let me finish my question, which is -- and
12:27:18	24	I'll start again.
12:27:19	25	So you don't understand what Ismagilov is

12:27:21	1	referring to in the passage in column 17 as a 1.5 mil
12:27:26	2	centrifuge tube?
12:27:29	3	MR. BAKER: Objection to form and foundation.
12:27:33	4	THE WITNESS: What I understand is that
12:27:34	5	Ismagilov refers to a standard 1.5 milliliter centrifuge
12:27:40	6	tube. That's pretty straightforward.
12:27:42	7	I've heard of a centrifuge tube. I understand
12:27:45	8	what the volume 1.5 milliliters refers to. So I'm not
12:27:51	9	sure what you're asking. Yes, I understand what a
12:27:53	10	centrifuge tube is.
12:27:53	11	BY MS. JAMESON:
12:27:53	12	Q. My question is in the passage in Ismagilov, do
12:27:56	13	you understand what a standard 1.5 mil centrifuge tube
12:28:03	14	is?
12:28:06	15	A. I'm not sure how I haven't answered that. I
12:28:08	16	said I understand what a centrifuge tube is and what
12:28:13	17	1.5 milliliters is. That's pretty straightforward.
12:28:26	18	Q. So the answer is, yes, you understand what a
12:28:28	19	standard 1.5 mil centrifuge tube is?
12:28:31	20	MR. BAKER: Objection to form.
12:28:33	21	THE WITNESS: I believe what I said is I
12:28:34	22	understand what a centrifuge tube is and I understand
12:28:37	23	what 1.5 milliliters means.
12:28:41	24	BY MS. JAMESON:
12:28:41	25	Q. So, Dr. Anna, you seem to be leaving the word

12:28:44	1	"standard" out of your answer. So I'm trying to
12:28:47	2	understand if you are trying to exclude something or
12:28:49	3	not. So please answer just my question.
12:28:59	4	A. What I'm saying is that it's not entirely
12:29:02	5	clear what Ismagilov might have meant by "standard." He
12:29:07	6	could have -- you've asked me before whether that might
12:29:09	7	be this exhibit that you're showing me, and I don't -- I
12:29:12	8	can't answer that. I don't know what Ismagilov was
12:29:15	9	thinking of when he said "standard."
12:29:17	10	I do know what a centrifuge tube is. I know
12:29:20	11	they come in various forms. I don't know what he meant
12:29:23	12	by "standard" if you're going to select from various
12:29:25	13	different centrifuge tubes you can find or could have
12:29:30	14	found in 2006.
12:29:31	15	But I do know what a centrifuge tube is and I
12:29:34	16	do know what 1.5 milliliters means. What I'm less sure
12:29:39	17	about is what he specifically meant by "standard." I
12:29:41	18	don't know that he was referring to one specific product
12:29:44	19	necessarily.
12:29:47	20	Q. And you don't have opinions in your
12:29:49	21	declaration about what Ismagilov was referring to as a
12:29:54	22	standard 1.5 mil centrifuge tube?
12:29:58	23	A. I don't believe that I looked at what he might
12:30:01	24	have specifically meant. Again, I'd have to look
12:30:04	25	through my declaration, but I don't believe I said

12:30:06	1	anything about -- specifically opining about the meaning
12:30:09	2	of a standard microcentrifuge tube.
12:30:32	3	Q. Now, what's shown in Exhibit 11, is that,
12:30:35	4	based on your understanding, a 1.5 milliliter centrifuge
12:30:41	5	tube?
12:30:43	6	MR. BAKER: Hold on just one second, Dr. Anna.
12:30:46	7	Can you repeat that question?
12:30:49	8	BY MS. JAMESON:
12:30:49	9	Q. Is what's shown in Exhibit 11 a 1.5 milliliter
12:30:55	10	centrifuge tube?
12:30:58	11	MR. BAKER: Okay. And, again, I just object
12:31:00	12	to the introduction of the exhibit.
12:31:07	13	THE WITNESS: The exhibit you're showing me
12:31:10	14	seems to show a 1.5 milliliter microcentrifuge tube.
12:31:37	15	BY MS. JAMESON:
12:31:38	16	Q. And do you see where it refers to an outside
12:31:41	17	diameter of 10.8 millimeters?
12:31:49	18	A. I see at the bottom of the list of
12:31:51	19	specifications for this item that it says outside
12:31:52	20	diameter 10.8 millimeters.
12:32:02	21	Q. And is that consistent with your understanding
12:32:06	22	of a typical diameter for a 1.5 milliliter centrifuge
12:32:15	23	tube?
12:32:16	24	MR. BAKER: Objection to form and foundation
12:32:17	25	and to the document.

12:32:21	1	THE WITNESS: I really don't believe that I've
12:32:23	2	ever measured the top of a centrifuge tube or really
12:32:26	3	thought about it previously. It's possible. I can't --
12:32:29	4	I don't know the answer to that question.
12:32:32	5	BY MS. JAMESON:
12:32:32	6	Q. Is it in the right approximate range based on
12:32:35	7	your knowledge of 1.5 milliliter centrifuge tubes?
12:32:42	8	MR. BAKER: Same objections.
12:32:43	9	THE WITNESS: Again, really when you talk
12:32:46	10	about a centrifuge tube, what you're talking about is
12:32:51	11	the volume. The outside diameter could potentially be
12:32:54	12	in different configurations depending on the exact
12:32:57	13	configuration of the centrifuge tube. So perhaps.
12:33:01	14	It seems to be -- 10.8 millimeters seems to be
12:33:06	15	referring to this particular product. I don't know if
12:33:09	16	these products were the same ones that were used in
12:33:11	17	2006. It could be.
12:33:12	18	BY MS. JAMESON:
12:33:16	19	Q. Based on your knowledge of 1.5 milliliter
12:33:20	20	centrifuge tubes, is a diameter of around 1 centimeter a
12:33:30	21	typical diameter for such centrifuge tubes?
12:33:34	22	MR. BAKER: Same objections.
12:33:35	23	THE WITNESS: Again, I think centrifuges can
12:33:38	24	come in various shapes and diameters and so forth.
12:33:41	25	Really the most important thing about them is that

12:33:42 1 they're 1.5 -- or what their volume is stated. In this
12:33:45 2 case, we're talking about one that holds
12:33:47 3 1.5 milliliters.

12:33:52 4 I really haven't thought about the outside
12:33:53 5 diameter of centrifuge tubes too much in the past so I
12:33:57 6 can't tell you if that's common or not. It could be.

12:34:05 7 BY MS. JAMESON:

12:34:06 8 Q. Based on your knowledge of 1.5 milliliter
12:34:10 9 centrifuge tubes, is 1 centimeter the right order of
12:34:16 10 magnitude for the diameter?

12:34:19 11 MR. BAKER: Same objections.

12:34:20 12 THE WITNESS: I couldn't tell you. I mean, it
12:34:22 13 appears that this particular product has that outer
12:34:25 14 diameter. So this one has that. I don't know if I can
12:34:28 15 say that generally.

12:34:50 16 Q. Have you ever used a 1.5 milliliter centrifuge
12:34:54 17 tube that had a diameter less than 1 millimeter?

12:35:00 18 A. I have no idea.

12:35:02 19 Q. Less than a millimeter?

12:35:04 20 A. I -- I don't know. I don't recall even using
12:35:06 21 a 1.5 milliliter centrifuge tube. It's possible that I
12:35:11 22 did, but I didn't make a log of which centrifuge tubes I
12:35:16 23 may or may not have used.

12:35:18 24 Q. Have you ever heard of a 1.5 milliliter
12:35:20 25 centrifuge tube that had a diameter of 1 millimeter?

12:35:25	1	A.	I don't know that I've even thought about it.
12:35:29	2	Q.	So you just don't know?
12:35:31	3	A.	Yeah, I just don't know. It's possible.
12:35:35	4	Q.	Have you ever used a 1.5 milliliter centrifuge
12:35:39	5		tube?
12:35:39	6	A.	I also don't know the answer to that question.
12:35:42	7		I've certainly used centrifuge tubes. I have no idea if
12:35:46	8		they were 1.5 milliliter, off the top of my head.
12:38:29	9	Q.	Does Ismagilov disclose pooling droplets into
12:38:32	10		a sample tube?
12:38:49	11	A.	I don't recall Ismagilov using the word
12:38:51	12		"pooling" droplets into a sample tube specifically.
12:38:57	13	Q.	What word would you use instead of pooling?
12:39:02	14	MR. BAKER:	Objection to form.
12:39:03	15	THE WITNESS:	I don't know. I don't know that
12:39:05	16		Ismagilov discussed that, but if you recall a place
12:39:09	17		where he did, I'd be happy to take a look at it.
12:39:12	18	BY MS. JAMESON:	
12:39:12	19	Q.	Does Ismagilov only cover reactions that
12:39:16	20		happen in microfluidic channels in droplets?
12:39:26	21	MR. BAKER:	Hold on just one second, Dr. Anna.
12:39:28	22		I just want to look at that question again.
12:39:46	23		Okay. Go ahead.
12:39:52	24	THE WITNESS:	Okay. I need you to repeat the
12:39:54	25		question. Sorry.

12:39:55	1	BY MS. JAMESON:
12:39:56	2	Q. Sure. Does Ismagilov only cover reactions
12:39:58	3	that happen in microfluidic channels in droplets?
12:40:03	4	A. Does Ismagilov only cover reactions...
12:40:07	5	Sorry, I lost track of all the words that you
12:40:10	6	said. Does Ismagilov cover reactions -- sorry, can you
12:40:13	7	repeat it? I apologize. I'm having a little trouble
12:40:16	8	putting all the words together.
12:40:18	9	Q. Let me repeat it.
12:40:19	10	Does Ismagilov only cover reactions in
12:40:22	11	droplets in microfluidic channels?
12:40:25	12	A. Does he only cover reactions in droplets in
12:40:28	13	microchannels? I don't know. That's a lot of specific
12:40:30	14	things put together. I don't know that I can say he
12:40:33	15	only covers that specific combination of things.
12:40:37	16	Q. Does Ismagilov only cover droplets in
12:40:42	17	microchannels?
12:40:45	18	A. Also not clear in 94 pages whether he talks --
12:40:51	19	I think he does talk about some other things besides
12:40:53	20	droplets in microchannels. He certainly does cover
12:40:57	21	droplets in microchannels.
12:40:59	22	Q. Does Ismagilov also cover droplets in a sample
12:41:02	23	tube?
12:41:03	24	A. Does Ismagilov cover droplets in a sample
12:41:06	25	tube? I'd have to look back. I don't know that he

12:41:11	1	specifically discloses droplets in a sample tube. I
12:41:14	2	don't recall exactly on that.
12:41:21	3	Q. So sitting here today it's your opinion that
12:41:27	4	Ismagilov only covers droplets in channels?
12:41:34	5	A. I don't think I said that. In fact, I said
12:41:37	6	specifically that I wasn't sure that he only covered
12:41:40	7	droplets in channels. In fact, we were specifically
12:41:44	8	talking about microchannels, not just channels.
12:41:47	9	Ismagilov talks a lot about droplets in microchannels.
12:41:51	10	But as I said, that's a 94-page reference. He talks
12:41:58	11	about a lot of things.
12:42:05	12	Q. But it's your opinion that Ismagilov
12:42:07	13	doesn't -- doesn't disclose droplets in a sample tube.
12:42:18	14	A. I don't specifically recall a passage where
12:42:22	15	Ismagilov discloses droplets in a sample tube. He may
12:42:25	16	have. I just don't remember text that specifically
12:42:29	17	discloses that, off the top of my head. Again, it's
12:42:33	18	94 pages so there's a lot there.
12:42:44	19	Q. And you're not aware, sitting here today, of
12:42:51	20	Ismagilov disclosing anything other than droplets in
12:42:56	21	channels -- microchannels; correct?
12:43:01	22	A. I don't think I said that. I said that
12:43:03	23	Ismagilov talks about droplets in microchannels and he
12:43:06	24	also talks about a lot of other things in that 94-page
12:43:10	25	reference.

12:43:10	1	Q.	Can you think of any other location for
12:43:13	2		droplets other than in the microchannels that Ismagilov
12:43:19	3		discloses?
12:43:22	4	A.	Are you asking me to speculate about where
12:43:24	5		else droplets can go?
12:43:26	6	Q.	No, Dr. Anna. I'm asking if you can think of
12:43:31	7		any other location other than a microchannel that
12:43:34	8		Ismagilov discloses as a location for the droplets?
12:43:40	9	A.	Off the top of my head -- again, it's a
12:43:43	10		94-page reference so off the top of my head, I don't
12:43:46	11		remember exact language where he would have talked about
12:43:49	12		droplets being somewhere else. He could have. I just
12:43:52	13		don't recall off the top of my head exactly what that
12:43:55	14		would have been.
12:43:56	15	Q.	So you don't recall any disclosure in
12:44:00	16		Ismagilov of droplets being anywhere other than in
12:44:04	17		channels?
12:44:09	18	A.	Like I said, I recall lots of discussion of
12:44:13	19		droplets in channels. I don't recall exactly where he
12:44:16	20		might have said droplets could be somewhere else. It's
12:44:19	21		possible he did. I don't have the whole 94-page
12:44:23	22		reference memorized.
12:44:25	23	Q.	You've studied the Ismagilov reference;
12:44:26	24		correct?
12:44:27	25	A.	Yes, I have.

12:44:28	1	Q. And based on your study, you can't identify
12:44:35	2	anywhere in Ismagilov that would cover droplets being
12:44:40	3	anywhere other than in a microchannel?
12:44:44	4	A. I believe what I said is that Ismagilov did
12:44:47	5	discuss droplets in microchannels a lot. Might have
12:44:51	6	discussed somewhere else. I don't recall exactly where
12:44:54	7	that would have been right at the moment.
12:45:04	8	Q. But based on your study, it's your belief that
12:45:06	9	Ismagilov doesn't cover anything other than droplets in
12:45:11	10	microchannels?
12:45:13	11	A. I don't think that's what I said. What I said
12:45:15	12	is Ismagilov covers droplets in microchannels
12:45:18	13	extensively. Is it possible that somewhere in the
12:45:21	14	94-page reference he talks about just droplets being
12:45:25	15	somewhere else? Maybe. I don't recall exactly where
12:45:27	16	that was at the moment.
12:45:36	17	Q. Are you saying that you know there was
12:45:38	18	somewhere elsewhere where he discussed droplets being
12:45:41	19	somewhere else other than a microchannel and you just
12:45:44	20	can't remember where that was? Or are you saying you
12:45:47	21	don't now recall whether or not there was somewhere else
12:45:50	22	in Ismagilov?
12:45:51	23	A. I don't recall whether or not there was
12:45:54	24	somewhere else besides droplets being in microchannels,
12:45:57	25	off the top of my head.

12:46:09	1	Q. Ismagilov discloses reactions in droplets in
12:46:15	2	microchannels; correct?
12:46:20	3	A. There's discussion of reactions in droplets in
12:46:24	4	microchannels in Ismagilov, yes.
12:46:44	5	Q. Ismagilov doesn't cover anything other than
12:46:47	6	reactions that are occurring in droplets in
12:46:51	7	microchannels; correct?
12:46:58	8	A. I'm sorry. You said Ismagilov doesn't
12:47:00	9	disclose anything other than reactions in droplets in
12:47:05	10	microchannels?
12:47:07	11	Q. That's close enough, yes.
12:47:10	12	A. I don't know that. He certainly talks a lot
12:47:14	13	about reactions in droplets in microchannels. He also
12:47:18	14	talks about droplets in microchannels. I don't believe
12:47:21	15	that he -- I don't know that there was -- I'm sorry.
12:47:24	16	How do I want to answer this? I don't think I can say
12:47:31	17	that that was the only thing that he discussed. I'm
12:47:34	18	not -- not willing to say that.
12:47:37	19	Q. Are the only reactions that Ismagilov
12:47:41	20	disclosed reactions that are occurring in droplets in
12:47:44	21	microchannels?
12:47:46	22	A. The only reactions -- again, I'm not sure off
12:47:50	23	the top of my head if he discussed other reactions.
12:47:53	24	Q. Based on your study, you're not aware of any
12:47:56	25	other reactions other than in droplets in microchannels?

12:48:01	1	A. Well, again, those are the specific. In fact,
12:48:04	2	I wasn't even asked to opine about the reactions part of
12:48:08	3	it. I know he discusses reactions in droplets in
12:48:11	4	microchannels. I haven't specifically -- I don't
12:48:14	5	specifically recall right now whether he discussed other
12:48:16	6	types of reactions.
12:49:49	7	Q. It's your opinion that Ismagilov doesn't
12:49:52	8	disclose pooling droplets and then removing them using a
12:50:00	9	pipette for downstream applications; correct?
12:50:11	10	A. I don't recall that specific language,
12:50:12	11	pooling. Is there a place in the document that you're
12:50:15	12	thinking of?
12:50:23	13	Q. I'm -- so let me ask it again.
12:50:28	14	Ismagilov doesn't disclose collecting droplets
12:50:30	15	and then removing them using a pipette for downstream
12:50:34	16	applications. That's your opinion; correct?
12:50:40	17	A. Again, are you talking about a specific place
12:50:43	18	in Ismagilov?
12:50:43	19	Q. I'm talking about anywhere in Ismagilov. Does
12:50:47	20	anywhere Ismagilov disclose collecting droplets and then
12:50:49	21	removing them by pipette for downstream applications?
12:51:26	22	A. I don't recall that specific language off the
12:51:27	23	top of my head, but again I'd be happy to look at a
12:51:31	24	specific place if you're talking about one.
12:51:32	25	Q. Whether or not you recall the specific

12:51:34	1	language, do you recall that concept in Ismagilov?
12:51:50	2	A. I don't think so. I don't know. It's
12:51:51	3	possible. I just can't remember exactly now. It's a
12:52:00	4	little hard for me to, you know, think about all the
12:52:03	5	different things that were said in a 94-page reference,
12:52:06	6	plus the others. So, again, you know, if you'd like me
12:52:09	7	to look at specific language, I would be happy to do
12:52:13	8	that.
12:52:13	9	Q. I'm asking based on your understanding and
12:52:17	10	your study of Ismagilov right now whether it's your
12:52:26	11	opinion that Ismagilov discloses collecting droplets and
12:52:30	12	removing them by pipette for downstream applications?
12:52:52	13	A. Again, I don't specifically remember exactly
12:52:55	14	whether that would have been disclosed in Ismagilov or
12:52:58	15	elsewhere or where that would have been. I don't -- I
12:53:01	16	don't know off the top of my head. I don't recall off
12:53:03	17	the top of my head.
12:53:11	18	Q. And based on your study of Ismagilov to
12:53:14	19	prepare for your deposition today, you don't know
12:53:17	20	whether or not Ismagilov disclosed collecting droplets
12:53:24	21	and removing them by pipette for downstream
12:53:28	22	applications?
12:53:30	23	A. I don't recall the specific disclosure of
12:53:33	24	droplets being collected and moved off chip, or however
12:53:36	25	you said it, with a pipette.

12:53:41	1	Q. So it's your opinion that Ismagilov doesn't
12:53:43	2	disclose collecting droplets by pipette and moving them
12:53:48	3	off chip for downstream application?
12:53:50	4	A. I didn't say that. I just said I don't recall
12:53:52	5	specifically where that combination of concepts would
12:53:57	6	have been put together in Ismagilov.
12:53:59	7	Q. Do you have an opinion one way or the other
12:54:02	8	whether Ismagilov discloses collecting droplets by
12:54:07	9	pipette and moving them off chip?
12:54:10	10	A. Again, I don't recall a specific place in
12:54:12	11	Ismagilov where the disclosure of collecting droplets by
12:54:17	12	pipette and moving them off chip would have been
12:54:19	13	disclosed.
12:54:20	14	Q. Do you have an opinion one way or the other on
12:54:23	15	it?
12:54:24	16	A. Do I have an opinion about whether or not
12:54:25	17	droplets were collected and moved off chip?
12:54:29	18	Q. Based on the disclosures of Ismagilov.
12:54:32	19	A. Like I said, I don't remember exactly where in
12:54:35	20	Ismagilov it would have been disclosed to do that
12:54:37	21	specific combination of things. I don't recall a place
12:54:39	22	at the moment.
12:54:42	23	Q. So you don't have an opinion regarding whether
12:54:46	24	or not Ismagilov discloses collecting droplets by
12:54:52	25	pipette and moving them off chip?

12:54:55	1	A. What I said is I don't recall a place where
12:54:58	2	that specific combination of collecting droplets with a
12:55:02	3	pipette and moving them off of the chip is disclosed.
12:55:08	4	Q. And so that means you don't have an opinion on
12:55:11	5	whether Ismagilov discloses collecting droplets in a
12:55:19	6	pipette and moving them off chip.
12:55:22	7	MR. BAKER: Objection to form and foundation.
12:55:29	8	THE WITNESS: You're asking me to talk about
12:55:32	9	whether or not Ismagilov disclosed a very specific
12:55:35	10	combination of events, collecting droplets in a pipette
12:55:39	11	and moving them off chip. And I don't recall a specific
12:55:43	12	place where that would have been disclosed in Ismagilov
12:55:46	13	right now in that combination.
12:55:54	14	BY MS. JAMESON:
12:55:54	15	Q. And so you don't have any opinion sitting here
12:55:56	16	right now that Ismagilov disclosed collecting droplets
12:56:08	17	in a pipette and moving them off chip.
12:56:10	18	MR. BAKER: Objection to form.
12:56:13	19	THE WITNESS: Again, you're asking me to talk
12:56:19	20	about whether a specific combination of events was
12:56:22	21	disclosed in Ismagilov. And right now I don't recall
12:56:26	22	where text would have been that would have specifically
12:56:29	23	connected those particular events that you're
12:56:32	24	describing.
	25	/ / /

12:56:35	1	BY MS. JAMESON:
12:56:36	2	Q. And so Ismagilov only described the droplets
12:56:44	3	in the microchannels?
12:56:49	4	A. I don't believe I said that either. I do
12:56:51	5	believe that Ismagilov described droplets in
12:56:54	6	microchannels quite extensively. Whether or not he
12:56:58	7	described droplets elsewhere besides microchannels,
12:57:02	8	that, I don't recall exactly what he said about that
12:57:04	9	right now.
12:57:36	10	Q. So you don't know whether Ismagilov covers a
12:57:39	11	system in which droplets are pooled.
12:57:45	12	MR. BAKER: Objection to form.
12:57:50	13	THE WITNESS: Whether Ismagilov covers a
12:57:51	14	system in which droplets are pooled. Again, I don't
12:57:54	15	remember that language about droplets being pooled in
12:57:57	16	Ismagilov.
12:58:01	17	BY MS. JAMESON:
12:58:02	18	Q. So you don't know whether Ismagilov discloses
12:58:10	19	a system in which multiple droplets are collected
12:58:19	20	together in one area.
12:58:28	21	MR. BAKER: Objection to form.
12:58:44	22	THE WITNESS: Again, Ismagilov is like
12:58:47	23	94 pages. It's got a lot of text. If we're talking
12:58:51	24	about places where he's describing -- I'm sorry, what
12:58:56	25	did you say, multiple droplets being collected in one

12:58:59	1	area? Possibly. But I don't recall exactly where he
12:59:05	2	described that specific configuration.
12:59:08	3	It would be much easier if we talked about
12:59:10	4	specific text. It's not -- you know, he talked about a
12:59:13	5	lot of different things.
12:59:21	6	BY MS. JAMESON:
12:59:21	7	Q. Is it your opinion that Ismagilov disclosed a
12:59:25	8	system where multiple droplets were collected together
12:59:30	9	in one compartment?
12:59:35	10	A. Well, now you're using different language
12:59:37	11	about compartment. And I don't specifically remember
12:59:39	12	whether he said the word "compartment" in that 94-page
12:59:43	13	reference. I think that it's possible. But that idea
12:59:47	14	of droplets coming together -- multiple droplets coming
12:59:53	15	together in a compartment, I don't know if he
12:59:56	16	specifically talked about that.
01:00:11	17	Q. So you're saying Ismagilov did not disclose
01:00:14	18	the idea of droplets coming together in a compartment.
01:00:19	19	A. I didn't say that. I just said that I'm not
01:00:21	20	sure exactly where he talked about that specific
01:00:23	21	configuration.
01:00:25	22	Q. So you think he did talk about that
01:00:26	23	configuration, you just can't remember where?
01:00:30	24	MR. BAKER: Objection.
01:00:31	25	THE WITNESS: I don't know --

01:00:31	1	MR. BAKER: Objection to form.
01:00:32	2	THE WITNESS: Sorry, Jim.
01:00:35	3	I don't know if he talked about them coming
01:00:37	4	together. I mean, that's a pretty general thing anyway.
01:00:40	5	The idea of droplets coming together is pretty vague.
01:00:43	6	So if we could talk about specific configurations, he
01:00:48	7	might have talked about that. But that's language that
01:00:50	8	I don't remember right at the moment.
01:01:17	9	MS. JAMESON: All right. I think we've been
01:01:18	10	going for about another hour. Should we take a break?
01:01:23	11	MR. BAKER: Sure.
01:01:24	12	THE VIDEOGRAPHER: We're going off the record
01:01:26	13	at 1:01 p.m.
01:01:28	14	(Recess taken at 1:01 a.m.)
01:59:25	15	(Proceedings resumed at 1:59 a.m.)
01:59:25	16	THE VIDEOGRAPHER: We are back on the record
01:59:26	17	at 1:59 p.m.
01:59:40	18	BY MS. JAMESON:
01:59:42	19	Q. Dr. Anna, could you please take a look in your
01:59:47	20	report in the 086 case at paragraph 35.
02:00:23	21	A. Okay. Paragraph 35.
02:00:26	22	Q. Paragraph 35.
02:00:27	23	You offered the opinion that wells and
02:00:30	24	reservoirs disclosed in Ismagilov were made by commonly
02:00:33	25	known techniques including the use of cork borers;

02:00:39	1	correct?
02:00:49	2	A. Well, what I say -- I can't remember exactly
02:00:52	3	how you phrased the question. What I say is that the
02:00:55	4	references to outlet ports or wells or reservoirs that
02:00:58	5	are relied on by petitioner are not disclosing --
02:01:01	6	oops -- any new design or configuration but are merely
02:01:04	7	referencing commonly known -- I'm sorry, I keep having
02:01:08	8	trouble with the scrolling here -- elements of
02:01:12	9	microfluidic device -- yeah, I'm sorry, yeah -- elements
02:01:14	10	of microfluidic devices. And then this is evidenced by
02:01:17	11	the reference to the use of cork borers or syringe
02:01:21	12	needles to cut holes into the PDMS when preparing the
02:01:24	13	devices.
02:01:26	14	Q. So it's your opinion that the wells or
02:01:29	15	reservoirs in Ismagilov were made by the use of cork
02:01:39	16	borers?
02:01:49	17	A. Well, I mean, it's my opinion that the
02:01:51	18	reference in the location that I've cited talks about
02:01:55	19	using cork borers or syringe needles to cut holes in the
02:02:03	20	PDMS.
02:02:29	21	Q. And so is it your opinion that the wells or
02:02:33	22	reservoirs in Ismagilov could have been made by using a
02:02:39	23	cork borer?
02:02:53	24	A. Well, it's my opinion that it's referenced in
02:02:58	25	that reference to use cork borers or syringe needles to

02:03:03 1 cut the holes into the PDMS and that that's what the
02:03:07 2 reference is to outlet ports or reservoirs that the
02:03:12 3 petitioner is relying upon.

02:03:27 4 Q. And so it's your opinion that the outlet
02:03:31 5 ports, reservoirs, or wells could have been made by the
02:03:35 6 cork borers that you're referring to and citing
02:03:39 7 Ismagilov for here in paragraph 35.

02:03:44 8 A. Well, Ismagilov references the use of cork
02:03:48 9 borers or syringe needles to cut holes into the PDMS,
02:03:52 10 and that's what I say in paragraph 35. I say that my
02:03:55 11 opinion is that the references to outlet ports or wells
02:03:59 12 or reservoirs that are relied upon by the petitioner are
02:04:02 13 not disclosing any new design or configuration but are
02:04:05 14 merely referencing commonly known elements of
02:04:08 15 microfluidic devices from the time of the disclosed
02:04:13 16 invention.

02:04:15 17 Q. And those commonly known elements of
02:04:19 18 microfluidic devices is referring to the holes that are
02:04:24 19 cut by cork borers or syringe needles; correct?

02:04:32 20 A. I mean, there are many commonly known elements
02:04:34 21 of microfluidic devices, of course. In this case we're
02:04:37 22 talking about holes that are punched using cork borers
02:04:41 23 or syringe needles as one way to get those holes into
02:04:45 24 the PDMS. That was a standard thing that was done at
02:04:48 25 the time.

02:04:49 1 Q. And in particular when you're referring to the
02:04:52 2 outlet ports, wells, or reservoirs, you're saying that
02:04:58 3 those were elements of microfluidic devices that could
02:05:08 4 have been made by cork borers.

02:05:14 5 A. What I'm saying is that when the petitioner
02:05:16 6 refers to outlet ports or wells or reservoirs, they're
02:05:20 7 referring to those commonly known elements which are of
02:05:26 8 microfluidic devices and one way to make those holes cut
02:05:29 9 into the PDMS is to use cork borers and syringe needles.

02:05:50 10 Q. Okay. Please take a look in your report now
02:05:52 11 at paragraph 132.

02:05:57 12 A. Was that 132?

02:05:58 13 Q. 132. If you're looking at the electronic
02:06:02 14 version, the PDF, it should be on page 53.

02:06:05 15 A. Okay. I'm almost there.

02:06:13 16 Okay. I'm there.

02:06:17 17 Q. And do you see in the middle of the paragraph
02:06:20 18 there's a sentence that says: A diameter of
02:06:24 19 1 millimeter would generally be the same size or larger
02:06:27 20 than the size of a punch hole created by the standard
02:06:30 21 technique from that time frame disclosed in Ismagilov
02:06:33 22 using a syringe needle or cork borer?

02:06:36 23 A. I see that part.

02:06:45 24 Q. Did cork borers at the time come in sizes
02:06:47 25 other than 1 millimeter?

02:06:52	1	A.	I really don't know. I don't believe that I
02:06:55	2		ever shopped for a cork borer at that time so I don't
02:06:59	3		know what sizes they came in.
02:07:20	4	Q.	So you don't know what sizes cork borers came
02:07:23	5		in?
02:07:24	6	A.	Right. That's what I said.
02:07:26	7	Q.	Okay. What's the basis of your opinion that a
02:07:54	8		1 millimeter hole could have been punched by a cork
02:07:58	9		borer?
02:08:02	10	A.	What's the basis of my opinion? Well, that
02:08:05	11		people have used cork borers to punch 1 millimeter holes
02:08:09	12		in microfluidic devices.
02:08:11	13	Q.	But you also testified that you don't know
02:08:13	14		what the sizes of cork borers were?
02:08:16	15	A.	I didn't say I didn't know any sizes that they
02:08:19	16		came in. I said I didn't know all of the sizes they
02:08:22	17		came in. They come in sizes around a millimeter.
02:08:26	18		People have used them for that. I didn't say I didn't
02:08:29	19		know any sizes or all the sizes.
02:08:34	20	Q.	So the only thing you know about cork borers
02:08:36	21		is that they came in a size of a millimeter?
02:08:40	22	A.	What I know is that people have used cork
02:08:42	23		borers to punch holes that are approximately a
02:08:44	24		millimeter in size.
02:08:48	25	Q.	What are all the other sizes of cork borers

02:08:51	1	that you're aware of?
02:08:53	2	A. I couldn't tell you other sizes that cork
02:08:56	3	borers come in. Like I said, I've never shopped for a
02:09:00	4	cork borer. So I don't know the whole list of sizes you
02:09:03	5	could talk about.
02:09:05	6	Q. What sizes of cork borers are you aware of?
02:09:11	7	A. Like I said, I haven't shopped for a cork
02:09:13	8	borer so I can't list sizes that they come in for you.
02:09:18	9	I'm aware that they are used to punch holes in
02:09:20	10	microfluidic devices that are approximately a millimeter
02:09:23	11	in size.
02:09:25	12	Q. What's the basis of your opinion that cork
02:09:29	13	borers can be used to punch holes that are a millimeter
02:09:38	14	in size?
02:09:44	15	A. It's my experience that people in the
02:09:45	16	microfluidics community use cork borers to punch holes
02:09:50	17	that are approximately a millimeter in size.
02:10:04	18	Q. Are cork borers used to punch holes that are
02:10:09	19	2 millimeters in size in PDMS?
02:10:15	20	A. I don't know. I'm not aware of particular
02:10:16	21	examples of that.
02:10:18	22	Q. 3-millimeters in size?
02:10:19	23	A. Same. I can't -- I don't know that. I'm
02:10:20	24	aware of holes that are punched that are approximately a
02:10:24	25	millimeter in size. It doesn't rule out the possibility

02:10:27	1	that other sizes could be punched.
02:10:28	2	Q. You just don't know what other sizes of holes
02:10:34	3	could be punched with a cork borer.
02:10:38	4	A. No. What I said is that I'm aware that cork
02:10:41	5	borers can be used to punch 1 millimeter holes because
02:10:46	6	that is typically what people in the microfluidics
02:10:48	7	community do. I have not investigated in detail what
02:10:51	8	other possible sizes cork borers could be used to punch.
02:11:20	9	Q. And you don't have anything in your report
02:11:29	10	that would dispute that there are larger sizes of cork
02:11:33	11	borers; correct?
02:11:38	12	A. Well, I certainly haven't made a list of all
02:11:40	13	the possible cork borers that you could purchase. What
02:11:44	14	I said is a diameter of 1 millimeter would generally be
02:11:48	15	the same size or larger than the size of a punch hole
02:11:50	16	created by the standard techniques from that time frame
02:11:55	17	disclosed in Ismagilov using a syringe needle or a cork
02:11:58	18	borer.
02:12:25	19	Q. A cork borer is a tool that's used to cut
02:12:28	20	holes in cork ordinarily, but it can also be used to cut
02:12:35	21	holes in other substances; correct?
02:12:39	22	A. I'm not sure where that language is coming
02:12:41	23	from.
02:12:44	24	Q. Is that what a cork borer is? I'm just asking
02:12:47	25	for your understanding.

02:12:49	1	A. It's a reasonable explanation of a cork borer.
02:12:52	2	I don't know that I've looked up the definition of a
02:12:55	3	cork borer or explored all the different things it could
02:12:58	4	be used for.
02:13:20	5	Q. Taking a step back for a minute. I just want
02:13:23	6	to confirm. You don't have anything in your declaration
02:13:27	7	that would dispute that there are larger sizes of cork
02:13:30	8	borers; correct?
02:13:33	9	A. Again, I wasn't asked to opine about different
02:13:36	10	sizes of cork borers. What I've stated here, again, is
02:13:42	11	that a diameter of 1 millimeter would generally be the
02:13:46	12	same size or larger than the size of a punch hole
02:13:48	13	created by the standard techniques from that time frame
02:13:52	14	disclosed in Ismagilov using a syringe needle or a cork
02:13:55	15	borer.
02:13:56	16	So all I'm stating is that cork borers and
02:13:59	17	syringe needles were used to create punch holes that
02:14:02	18	were in the range of 1 millimeter. I wasn't asked to
02:14:07	19	opine on other sizes.
02:14:24	20	Q. All right. Dr. Anna, have you ever used a
02:14:26	21	cork borer?
02:14:29	22	A. I don't think I personally have used a cork
02:14:31	23	borer. I believe my students have. I've used syringe
02:14:34	24	needles to punch holes when I've done the experiments
02:14:38	25	myself.

02:14:39 1 Q. Do you know what a cork borer is?

02:14:42 2 A. Well, I know it's a device used to punch holes
02:14:44 3 in PDMS. It probably could be used for other things,
02:14:48 4 but I haven't used it for other purposes or explored
02:14:52 5 that.

02:14:53 6 Q. A cork borer is basically a metal tube that's
02:14:58 7 sharpened on one end so that you can push it down into a
02:15:01 8 surface and drill a hole down into it; correct?

02:15:08 9 A. That sounds reasonable, but I don't know that
02:15:10 10 I've found something that defines that particular
02:15:12 11 language. That would be consistent with the use of a
02:15:16 12 syringe needle which is basically the same thing that
02:15:18 13 you described.

02:15:30 14 Q. Is there anything that you would change about
02:15:33 15 my description of a cork borer?

02:15:36 16 A. Again, I wasn't asked to define specifically
02:15:39 17 what a cork borer is so I don't -- sitting here today, I
02:15:43 18 don't think I could do that for you. But your
02:15:46 19 description sounds reasonable, but I don't -- I can't
02:15:48 20 say on my own whether I should add something to that or
02:15:51 21 not.

02:15:53 22 Q. You're -- you're offering opinions about cork
02:15:54 23 borers, though; correct?

02:15:57 24 A. Well, I offered the opinion that cork borers
02:15:59 25 and syringe needles were typically used to punch holes

02:16:02 1 in PDMS in diameters that are typically about
02:16:05 2 1 millimeter. And that is based on my experience as an
02:16:12 3 expert in microfluidics and my knowledge of what other
02:16:14 4 people have done to create those holes.

02:16:21 5 Q. And so based on your understanding of a cork
02:16:24 6 borer, it's correct that it's a metal tube that's
02:16:30 7 sharpened on one end that you can then push into a
02:16:32 8 surface to drill down to create a hole?

02:16:38 9 A. Again, I haven't looked up the specific
02:16:40 10 definition of a cork borer. That seems reasonable.
02:16:44 11 That would make sense as a thing that could be used to
02:16:46 12 create a hole in PDMS. That's basically identical to
02:16:50 13 what happens when you use a syringe needle to do the
02:16:53 14 same thing.

02:16:54 15 So that would be a consistent definition, but
02:16:56 16 I don't know for sure that that's the definition I would
02:16:58 17 use if I had investigated that.

02:17:02 18 Q. And when you're using a cork borer and
02:17:06 19 you've -- once you've drilled it down through a surface,
02:17:09 20 when you pull it out there's going to be a plug of
02:17:14 21 whatever substance you're going -- you were digging into
02:17:17 22 that comes out with the cork borer; correct?

02:17:21 23 A. Well, like I said, I haven't specifically used
02:17:23 24 a cork borer to witness that happening. But by your
02:17:26 25 description of the cork borer, it sounds like it's the

02:17:29 1 same essential thing as a syringe needle that's been
02:17:33 2 used for that purpose. And that's what happens when you
02:17:35 3 use a syringe needle to punch the hole. You do get a
02:17:39 4 little plug of the PDMS. So that would make sense.
02:17:42 5 Like I said, I haven't personally used a cork borer.

02:17:54 6 Q. In that sense, it works like a post hole
02:17:59 7 digger, right, where you're digging down and taking out
02:18:02 8 a part of the substance to make a hole?

02:18:09 9 A. Well, my experience with a post hole digger is
02:18:12 10 a little different than that. I guess I can understand
02:18:16 11 how you're discussing removing material. You're
02:18:18 12 certainly removing material. But I don't know that I
02:18:21 13 would equate this to a post hole digger.

02:18:23 14 Q. Is it like a cookie cutter, elongated cookie
02:18:29 15 cutter?

02:18:30 16 A. I guess we could make that analogy. I mean,
02:18:33 17 you're cutting out material that's in a certain shape
02:18:38 18 and removing that material. I guess that makes sense.

02:18:47 19 Q. And when you're using a cork borer to cut
02:18:50 20 through PDMS, you're going to cut all the way through
02:18:56 21 the entire depth of the PDMS; correct?

02:19:01 22 MR. BAKER: Objection to form and foundation.

02:19:06 23 THE WITNESS: I guess, you know, in what
02:19:09 24 specific scenario are you talking about? You could.
02:19:11 25 People do. I don't know -- you asked if I was going to

02:19:15	1	do that. I don't know if you mean in a specific
02:19:18	2	situation. You don't -- certainly you don't have to cut
02:19:20	3	all the way through.
02:19:21	4	BY MS. JAMESON:
02:19:21	5	Q. So, for example, when we're talking about in
02:19:25	6	the context of Ismagilov, Ismagilov's use of cork
02:19:29	7	borers, in those instances if you're using a cork borer,
02:19:33	8	you would cut all the way through the depth of the PDMS;
02:19:39	9	correct?
02:19:43	10	MR. BAKER: Objection to form.
02:19:45	11	THE WITNESS: Again, I still don't think
02:19:47	12	that's specific enough. I mean, cork borers and syringe
02:19:50	13	needles were commonly used to punch holes in PDMS as
02:19:58	14	similar to how it's described in Ismagilov. I don't
02:20:02	15	know for sure that Ismagilov would have always punched
02:20:05	16	all the way through or not. And I don't know that I
02:20:07	17	would, given a situation, either.
02:20:10	18	So I guess I would need to know more
02:20:12	19	information about specifically what you mean or what
02:20:14	20	context you're talking about.
02:20:15	21	BY MS. JAMESON:
02:20:16	22	Q. Ismagilov discloses making a microfluidic chip
02:20:24	23	by molding channels into the bottom of a piece of PDMS;
02:20:31	24	correct?
02:20:33	25	A. Where does he say that specifically?

02:20:51	1	Q. You don't recall if there's any description in
02:20:53	2	Ismagilov of molding channels into PDMS?
02:20:57	3	A. There might be. I mean, that was a common way
02:20:59	4	to make microfluidic channels and that was the way a lot
02:21:03	5	of Ismagilov work did. I don't know for sure exactly
02:21:06	6	where he talked about the fabrication. I'm not saying
02:21:09	7	there isn't a place in there where he discloses that. I
02:21:13	8	just don't recall exactly where it is.
02:21:15	9	Q. Okay. Let's take a look at column 16 of
02:21:19	10	Ismagilov. And --
02:21:21	11	A. Remind me again, is that Exhibit 9?
02:21:26	12	Q. That is Exhibit 9. You're correct.
02:21:29	13	A. Okay. So column 16.
02:21:31	14	Q. It should be on page 46 of the PDF.
02:21:33	15	A. Yeah, I have that. I'm here.
02:21:36	16	Q. Okay. Do you see in column 16 at lines 23 to
02:21:47	17	25, Ismagilov says, "Channels may be molded onto
02:21:51	18	optically transparent silicon rubber or
02:21:54	19	polydimethylsiloxane (PDMS), preferably PDMS."
02:22:02	20	Do you see that?
02:22:03	21	A. I see where it says that.
02:22:04	22	Q. Okay. And so Ismagilov discloses molding
02:22:07	23	channels into PDMS; correct?
02:22:12	24	A. Well, that's what that sentence says. That
02:22:14	25	sentences says channels may be molded into optically

02:22:19 1 transparent, et cetera, PDMS. There's also other
02:22:22 2 methods that are disclosed there too so it's not the
02:22:26 3 only one, but that's one that is disclosed.

02:22:28 4 Q. And in lines 35 to 36, it says, "Holes may be
02:22:33 5 cut into the PDMS using, for example, a tool such as a
02:22:37 6 cork borer or syringe needle."

02:22:39 7 Do you see that?

02:22:40 8 A. I do.

02:22:41 9 Q. Okay. So according to Ismagilov, you could
02:22:47 10 mold channels into PDMS and then you could use a cork
02:22:52 11 borer to cut through the PDMS.

02:23:16 12 A. Well, what Ismagilov specifically says is
02:23:19 13 holes may be cut into the PDMS using, for example, a
02:23:23 14 tool such as a cork borer or a syringe needle. He
02:23:26 15 doesn't say you have to cut through it. So I don't know
02:23:32 16 whether in this case he's talking about cutting through
02:23:34 17 or just cutting a hole into it that isn't all the way
02:23:38 18 through. I think either are possible.

02:23:41 19 Q. In the example where the channels are molded
02:23:44 20 into the PDMS, those channels will be on -- on one side
02:23:50 21 of that PDMS substrate; correct?

02:23:59 22 MR. BAKER: Objection to form.

02:24:07 23 THE WITNESS: So in this case, at least in
02:24:10 24 this paragraph that I'm looking at, it doesn't talk
02:24:14 25 about where the channels end up when you mold into the

02:24:17	1	PDMS. So that's not specifically something that
02:24:23	2	Ismagilov discloses.
02:24:25	3	BY MS. JAMESON:
02:24:26	4	Q. So Ismagilov doesn't disclose where you would
02:24:28	5	make channels in PDMS. That's your opinion?
02:24:33	6	A. Well, I don't know about the rest of the
02:24:34	7	reference. But we're looking at this specific paragraph
02:24:39	8	and it doesn't say channels end up on one side of the
02:24:42	9	PDMS. It just says channels may be molded into this
02:24:46	10	optically transparent silicone material, PDMS.
02:24:52	11	Q. Let's take a look at the last sentence of this
02:24:54	12	paragraph. It's on lines 39 through 41 where it says,
02:24:57	13	"The PDMS channels can then be placed onto a microscope
02:25:01	14	cover slip (or any other suitable flat surface), which
02:25:06	15	can be used to form the base/floor or top of the
02:25:10	16	channels."
02:25:11	17	Do you see that?
02:25:11	18	A. I do.
02:25:12	19	Q. That means that there will be one surface of
02:25:15	20	the PDMS that has channels in it and then those channels
02:25:22	21	are closed, for example, using a microscope cover slip.
02:25:46	22	A. So, you know, I mean, this particular
02:25:49	23	paragraph really just talks about being able to mold
02:25:53	24	into PDMS and it talks about different ways of casting
02:26:00	25	the PDMS.

02:26:02	1	That last sentence does say that PDMS channels
02:26:06	2	can be placed onto a microscope cover slip. It just
02:26:09	3	doesn't say exactly -- it doesn't explicitly state that
02:26:13	4	the PDMS channels are on one side of the PDMS. And I
02:26:18	5	don't think that's really a requirement. But that seems
02:26:21	6	to be what's implied here, which can form the base or
02:26:25	7	floor. And that certainly was typical in microfluidic
02:26:27	8	fabrication at the time.
02:26:42	9	Q. And in a situation where the microfluidic
02:26:45	10	substrate would have these PDMS channels that were
02:26:54	11	closed with this glass cover slip, if one was going to
02:26:59	12	use a cork borer, one would cut through that PDMS
02:27:06	13	substrate down to reach those channels; correct?
02:27:13	14	MR. BAKER: Objection to form.
02:27:17	15	THE WITNESS: I'm not sure why it has to be
02:27:19	16	that way. Where do you see that it specifies that it
02:27:23	17	has to be cut through like that?
02:27:25	18	BY MS. JAMESON:
02:27:25	19	Q. If you didn't, there wouldn't be any fluidic
02:27:28	20	connection; right?
02:27:29	21	A. Connection with what?
02:27:33	22	Q. The hole that you're cutting with the cork
02:27:35	23	borer.
02:27:40	24	A. I'm confused. You don't have to cut a hole
02:27:44	25	with a cork borer in a specific direction. It's

02:27:48 1 possible to cut a hole with a cork borer, doesn't have
02:27:52 2 to go all the way through, it can be cut -- it doesn't
02:27:55 3 have to be cut down like you described. So I'm not sure
02:27:58 4 why that specific configuration.

02:28:05 5 Q. If you have -- if you're going to make a
02:28:10 6 microfluidic substrate that has PDMS with channels that
02:28:13 7 are going to be closed by a glass cover slip or a
02:28:18 8 microscope cover slip and you're going to be cutting a
02:28:27 9 hole with a cork borer, would you be cutting a hole to
02:28:33 10 make a connection with the microfluidic channels?

02:28:38 11 MR. BAKER: Objection to form.

02:28:41 12 THE WITNESS: Would you be cutting a hole to
02:28:42 13 make a connection from what to the microfluidic channel?
02:28:45 14 I'm not sure what you're asking.

02:28:47 15 BY MS. JAMESON:

02:28:48 16 Q. Would your hole that you're making with your
02:28:50 17 cork borer connect to the microfluidic channels?

02:28:54 18 A. I don't know. You haven't given me enough
02:28:57 19 information to know that.

02:28:58 20 Q. Ismagilov doesn't give you enough information.

02:29:13 21 A. Not really. I mean, there's a sentence that
02:29:16 22 says holes may be cut into the PDMS using, for example,
02:29:19 23 a tool such as a cork borer or syringe needle. It
02:29:23 24 doesn't say, at least in this paragraph I'm looking at,
02:29:26 25 exactly where those holes are punched.

02:29:30	1	Q. And so you don't know, based on your
02:29:32	2	experience, where you would punch the holes or whether
02:29:34	3	they would connect with the channels?
02:29:40	4	A. Well, again, if I was doing it in a situation
02:29:43	5	that I was -- where I was designing an experiment, I'm
02:29:48	6	sure I would make a decision about where that hole
02:29:51	7	should be punched and what configuration it should be
02:29:54	8	punched in.
02:29:55	9	But when you're asking me to interpret what
02:29:58	10	Ismagilov means, Ismagilov doesn't, at least at this
02:30:00	11	location, specifically say that you have to punch the
02:30:03	12	hole down in a specific location all the way through.
02:30:07	13	It doesn't say any of those things. And it's possible
02:30:09	14	to do other things.
02:30:11	15	And so if you were going to ask me to decide
02:30:14	16	what I would do, I'm going to need more information
02:30:16	17	about what the application of it is.
02:30:25	18	Q. Let's go back to your declaration. Please
02:30:30	19	take a look back at paragraph 35.
02:30:42	20	A. Okay.
02:30:58	21	Q. And here you've said that the outlet ports,
02:31:00	22	wells, or reservoirs could be made with the use of a
02:31:05	23	cork borer; correct?
02:31:11	24	A. Well, I said that the references to outlet
02:31:14	25	ports or wells or reservoirs that are relied on by the

02:31:18	1	petitioner are not disclosing any new design or
02:31:20	2	configuration. They're merely referencing commonly
02:31:23	3	known elements of microfluidic devices from the time of
02:31:26	4	the disclosed inventions. And then I said this is
02:31:29	5	evidenced by the reference to the use of cork borers or
02:31:32	6	syringe needles to cut holes into the PDMS when
02:31:35	7	preparing the devices.
02:31:37	8	So that's what I said.
02:31:40	9	Q. Okay. Let's take a look at paragraph 36 as
02:31:44	10	well where you say that in your opinion a person of
02:31:48	11	ordinary skill in the art would understand that to the
02:31:51	12	extent Ismagilov provided any description of the outlets
02:31:53	13	that were employed in the devices, the reference was
02:31:56	14	merely describing standard off-the-shelf techniques that
02:32:01	15	were well known in the art.
02:32:02	16	Do you see that?
02:32:03	17	A. Uh-huh.
02:32:03	18	Q. And those well-known techniques that you're
02:32:03	19	referring to there are the cork borers and syringe
02:32:07	20	needles to cut holes; correct?
02:32:09	21	A. Well, that's certainly one off-the-shelf
02:32:11	22	standard technique that was used.
02:32:13	23	Q. Those are the only standard off-the-shelf
02:32:15	24	techniques that you're mentioning in these paragraphs;
02:32:17	25	correct?

02:32:18	1	A. Well, I give that as an example that Ismagilov
02:32:22	2	specifically cites about how to make the holes. But
02:32:26	3	making holes in PDMS was just generally a standard thing
02:32:29	4	to do.
02:32:30	5	Q. My question was different. My question was
02:32:34	6	that those techniques of using cork borers and syringe
02:32:42	7	needles are the only standard off-the-shelf techniques
02:32:45	8	that you mentioned in these paragraphs; correct?
02:32:49	9	A. Those are the examples. Cork borers and
02:32:52	10	syringe needles are the examples that I give of punching
02:32:55	11	holes in PDMS, which is a standard off-the-shelf
02:32:58	12	technique of one of many. And also it's just an example
02:33:02	13	of how you might cut the holes. So that just happens to
02:33:07	14	be the examples that I listed because those are
02:33:10	15	discussed in Ismagilov. It doesn't mean those are the
02:33:12	16	only ones that I'm referring to.
02:33:14	17	Q. Now the outlet ports, wells, and reservoirs
02:33:19	18	are all structures that would connect to channels in
02:33:23	19	Ismagilov; correct?
02:33:30	20	A. I don't know where that specific language
02:33:34	21	would be. I don't recall exactly where he says the
02:33:37	22	outlet ports are connected to channels. He might have.
02:33:40	23	I just don't remember the exact language.
02:33:44	24	Q. Based on your understanding of everything
02:33:47	25	Ismagilov discloses, would the outlet ports, wells, and

02:33:51	1	reservoirs be connected to channels?
02:33:54	2	MR. BAKER: Objection to form.
02:33:58	3	THE WITNESS: I would have to find specific
02:34:00	4	language that clearly states that Ismagilov thinks that
02:34:03	5	the outlet ports, wells, or reservoirs are connected to
02:34:06	6	channels. They could be, but I don't know for sure
02:34:09	7	exactly where he disclosed that in that 94-page
02:34:13	8	reference.
02:34:14	9	BY MS. JAMESON:
02:34:14	10	Q. Have you read Ismagilov '091?
02:34:17	11	A. I have.
02:34:17	12	Q. And do you teach classes on microfluidics?
02:34:21	13	A. Yes, I do.
02:34:21	14	Q. And you're a professor at Carnegie Mellon?
02:34:26	15	A. Yes, I am.
02:34:27	16	Q. And you don't know whether Ismagilov discloses
02:34:29	17	that outlet ports, wells, and reservoirs are connected
02:34:33	18	to channels?
02:34:33	19	A. I don't know --
02:34:34	20	MR. BAKER: Objection. Objection to form.
02:34:36	21	THE WITNESS: What I'm saying is that
02:34:38	22	Ismagilov may have used the language "outlet ports,
02:34:42	23	wells, and reservoirs are connected to channels," but I
02:34:45	24	am not aware of that particular language right now and
02:34:47	25	I'd have to go look at the specifics. Being a professor

02:34:50	1	at Carnegie Mellon, I do like to be specific with my
02:34:54	2	language.
02:34:54	3	BY MS. JAMESON:
02:34:55	4	Q. And so based on what you studied and what you
02:34:57	5	know about Ismagilov and your experience, you don't know
02:35:00	6	right now whether the outlet ports, wells, and
02:35:03	7	reservoirs would be connected to channels.
02:35:07	8	A. I don't know if Ismagilov actually states that
02:35:10	9	outlet wells and reservoirs -- outlet ports and wells
02:35:15	10	and reservoirs are connected to channels. I don't know
02:35:17	11	if he's made that very specific connection.
02:35:21	12	Q. And it's -- sitting here today you -- do you
02:35:25	13	have any basis to disagree that Ismagilov discloses that
02:35:29	14	the outlet wells, ports, and reservoirs are connected to
02:35:32	15	channels?
02:35:33	16	MR. BAKER: Objection to form.
02:35:38	17	THE WITNESS: Well, all I said is that I don't
02:35:39	18	know that he makes that specific connection, that he
02:35:45	19	expressly discloses that the outlet ports, wells, and
02:35:50	20	reservoirs are connected to channels. I don't know if
02:35:54	21	he's expressly made that disclosure.
02:36:01	22	BY MS. JAMESON:
02:36:01	23	Q. So you have no basis to disagree then?
02:36:07	24	MR. BAKER: Objection to form.
02:36:11	25	THE WITNESS: I haven't said whether I agree

02:36:13	1	or disagree. I've simply said that I don't know where
02:36:16	2	he expressly discloses that outlets ports, wells, and
02:36:20	3	reservoirs are connected to channels.
02:36:23	4	BY MS. JAMESON:
02:36:24	5	Q. Whether those words are expressly stated, do
02:36:29	6	you understand Ismagilov's disclosures together to mean
02:36:34	7	that outlet ports, wells, or reservoirs would be
02:36:38	8	connected to channels?
02:36:40	9	MR. BAKER: Objection to form.
02:36:44	10	THE WITNESS: Well, again, we're talking about
02:36:46	11	the language that Ismagilov discloses in his -- in the
02:36:50	12	reference that we're referring to. And, again, whether
02:36:55	13	or not he's expressly disclosed whether or not those two
02:36:59	14	things are connected to each other, namely the outlet
02:37:02	15	ports, wells, and reservoirs and the channels, I don't
02:37:08	16	know if he's expressly made that connection.
02:37:10	17	BY MS. JAMESON:
02:37:24	18	Q. Okay. Let's take a look at column 14.
02:37:32	19	A. Of Ismagilov?
02:37:33	20	Q. Of Ismagilov, yes.
02:37:35	21	A. Column 14, okay.
02:37:36	22	Q. It should be on page 45 of the PDF.
02:37:39	23	A. Okay, I'm there.
02:37:40	24	Q. Okay. There, if you look at lines 38, it
02:37:52	25	says, "The inlet and outlet ports may be in fluid

02:37:56	1	communication with the channels or reservoirs that they
02:37:59	2	are connecting or may contain one or more valves."
02:38:03	3	Do you see that?
02:38:04	4	A. Yes, I see that sentence.
02:38:05	5	Q. Okay. So the outlet ports in Ismagilov are
02:38:09	6	disclosed as connected to the channels; correct?
02:38:14	7	A. Well, that's not what it says. It says the
02:38:16	8	inlet and outlet ports may be in fluid communication
02:38:20	9	with the channels or reservoirs that they're connecting.
02:38:27	10	Q. Okay. What's different between what you said
02:38:32	11	and my question?
02:38:36	12	A. I believe you said that the outlet ports are
02:38:39	13	connected to the channels, and that's not necessary. If
02:38:42	14	you're going for fluidic communication, you could --
02:38:47	15	there are different ways to have fluidic
02:38:51	16	communication -- I've lost the language here, whatever
02:38:54	17	it said. It say -- yeah, fluid communication with the
02:38:58	18	channels or reservoirs.
02:38:59	19	So it doesn't mean that they have to be
02:39:01	20	connected. Or I guess rather I would say that I don't
02:39:05	21	know exactly what connected means. Fluid communication
02:39:09	22	is one thing, connected meaning a different thing.
02:39:11	23	Q. Do you have an understanding of what it means
02:39:17	24	to be connected?
02:39:19	25	MR. BAKER: Objection to form.

02:39:22	1	THE WITNESS: In what context?
02:39:27	2	BY MS. JAMESON:
02:39:28	3	Q. In the microfluidic context. What does the
02:39:32	4	word "connected" mean?
02:39:34	5	A. Again, in what context? What's connecting
02:39:37	6	what?
02:39:38	7	Q. Just the general meaning of the word
02:39:40	8	"connected." Do you know what that word means?
02:39:43	9	A. I'm familiar with the word. But when you're
02:39:45	10	going to ask me what it means, especially in a
02:39:48	11	microfluidic context, we need to talk about what we're
02:39:51	12	trying to connect.
02:39:52	13	Q. Okay. Well, why don't you tell me generally
02:39:54	14	what you understand that to mean, the word "connected."
02:39:59	15	A. Would you like a dictionary definition of it?
02:40:03	16	Q. Just your general understanding of it.
02:40:11	17	A. I mean, again, we have to talk about the
02:40:13	18	context. So, you know, "connected" could mean something
02:40:16	19	different in different contexts.
02:40:20	20	Q. So you don't have a general understanding of
02:40:22	21	what the word "connected" means.
02:40:24	22	A. Well, I'm just not willing to give some broad
02:40:28	23	definition that doesn't apply to a context that you're
02:40:31	24	referring to. I need to know more about what you're
02:40:34	25	talking about.

02:40:56	1	Q. Okay. Turning back to the PDMS with channels
02:41:03	2	that are molded into it.
02:41:07	3	If you were going to make a fluid
02:41:12	4	communication between the channels and outlet port,
02:41:20	5	well, or reservoir, one way to do that would be to use a
02:41:25	6	cork borer to cut through the PDMS to reach the
02:41:33	7	channels; is that correct?
02:41:40	8	MR. BAKER: Objection to form.
02:41:43	9	THE WITNESS: Are you asking for my experience
02:41:45	10	and expertise of what I've done in my lab? Are you
02:41:48	11	asking what Ismagilov discloses? Are you asking what
02:41:52	12	other people do?
02:41:54	13	BY MS. JAMESON:
02:41:54	14	Q. Let's start with your experience in the lab.
02:41:59	15	A. Okay. So you asked a fairly specific
02:42:04	16	question. So can you repeat it for me?
02:42:07	17	Q. Sure. If you were going to make a fluid
02:42:14	18	communication between the channels and an outlet port,
02:42:19	19	well, or reservoir, one way to do that would be to use a
02:42:23	20	cork borer to cut through the PDMS to reach the
02:42:26	21	channels.
02:42:31	22	A. Well, I think there's a lot of assumptions in
02:42:34	23	that statement. I mean, if I were making a microfluidic
02:42:40	24	channel out of PDMS, that might be a way to do it.
02:42:45	25	Again, I would make that decision based on applications

02:42:49	1	and what I was actually interested in doing with the
02:42:52	2	PDMS. There's plenty of ways to do it.
02:42:56	3	So, again, you haven't really given me the
02:42:59	4	context that I need to decide whether that's a good way
02:43:01	5	to do it or not.
02:43:06	6	Q. So my question isn't whether it's a good way
02:43:09	7	to do it. It's whether that is a way to do it.
02:43:14	8	A. It is possible to punch the hole through PDMS
02:43:18	9	using cork borers or syringe needle as a way to create a
02:43:23	10	fluidic connection. It is not the only way. It's not
02:43:27	11	necessarily the best way. It's not necessarily always
02:43:31	12	the way. And it's not always the way I would choose to
02:43:34	13	do it.
02:43:48	14	Q. Using a cork borer to make a hole through PDMS
02:43:55	15	down to the channels is consistent with what is being
02:44:00	16	disclosed in Ismagilov in column 16; correct?
02:44:23	17	A. Well, again, as we've talked about Ismagilov
02:44:26	18	makes the statement that holes may be cut into the PDMS
02:44:31	19	using a tool such as a cork borer or syringe needle. So
02:44:35	20	certainly Ismagilov discusses the possibility of
02:44:38	21	punching holes in the PDMS.
02:44:40	22	It doesn't really say that it has to go
02:44:42	23	through. He doesn't say it has to go down. But what he
02:44:45	24	says doesn't necessarily exclude that either. Just
02:44:48	25	again, it's not the only way to do it and there's other

02:44:52	1	ways that are consistent with what he said as well.
02:44:57	2	Q. One of the ways consistent with what's being
02:44:59	3	disclosed in Ismagilov to create a outlet well or
02:45:05	4	reservoir with a fluidic communications with the
02:45:10	5	channels would be to use a cork borer to cut a hole
02:45:14	6	through the PDMS down to the channels. Correct?
02:45:31	7	A. I don't think Ismagilov phrases things the way
02:45:33	8	that you've chosen to phrase them. Ismagilov says that
02:45:37	9	you may cut holes into PDMS using a cork borer or a
02:45:41	10	syringe needle. It does not say that they have -- it
02:45:47	11	has to be done down through, all the way through. It
02:45:51	12	doesn't say what direction it has to be. It doesn't say
02:45:54	13	where they have to be placed.
02:45:58	14	Q. So my question was whether what I described
02:46:02	15	was consistent with Ismagilov.
02:46:07	16	A. Well, what you've described is a possibility,
02:46:10	17	but those things that you've described are not expressly
02:46:16	18	disclosed or even really implicitly exposed in -- or
02:46:22	19	yeah, disclosed, sorry. I have -- stumbling over my
02:46:26	20	words -- in Ismagilov. Ismagilov just has a sentence
02:46:30	21	that says holes may be cut into the PDMS using a tool
02:46:34	22	such as a cork borer or syringe needle. There really
02:46:37	23	isn't an explanation of what that might look like. So
02:46:40	24	maybe it doesn't exclude what you're saying, but it
02:46:42	25	certainly isn't the only possibility.

02:46:46 1 Q. It's your opinion that Ismagilov doesn't have
02:46:49 2 a sufficient disclosure here to explain how you would
02:46:55 3 make a connection between an outlet port, well, or
02:47:00 4 reservoir and a channel; correct?

02:47:03 5 A. Well, this sentence about how the holes are
02:47:06 6 cut does not expressly talk about how the connections
02:47:10 7 are made.

02:47:14 8 Q. And when you've opined on outlet ports, wells,
02:47:19 9 or reservoirs that can be made by cork borers, you don't
02:47:23 10 have an opinion on whether or how those would connect to
02:47:30 11 channels?

02:47:38 12 A. I don't think that -- I'm aware of lots of
02:47:45 13 ways that people have connected outlet ports, wells, and
02:47:53 14 reservoirs to channels. I have opinions about how I
02:47:59 15 might do it.

02:48:00 16 All I'm saying here is that Ismagilov doesn't
02:48:03 17 really explicitly, specifically disclose exactly how
02:48:10 18 that's done, at least at that location that we were
02:48:13 19 looking at just there.

02:48:31 20 Q. So it's your opinion that Ismagilov hasn't
02:48:34 21 sufficiently disclosed a connection between an outlet
02:48:41 22 and a channel.

02:48:47 23 A. Again, Ismagilov is a pretty long reference,
02:48:48 24 but in the sections that we're looking at right now in
02:48:51 25 columns 14 and 16, there really isn't a clear

02:48:56 1 explanation of exactly what the outlet looks like.

02:49:09 2 Q. And so my question was whether it's your
02:49:12 3 opinion that Ismagilov hasn't sufficiently disclosed a
02:49:15 4 connection between an outlet and a channel?

02:49:22 5 A. What I'm saying is that in the segments of the
02:49:25 6 text that we're looking at here, there's not an express
02:49:29 7 connection that Ismagilov makes between the way that
02:49:33 8 the -- for example, if holes are created, where they're
02:49:36 9 created and how they might be connected to the channels.

02:49:40 10 There's a statement that we read before in
02:49:42 11 column 14 that says the inlet and outlet ports may be in
02:49:47 12 fluidic communication with the channels or reservoirs
02:49:50 13 but doesn't really give specifics about what that looks
02:49:53 14 like.

02:50:08 15 Q. And you haven't offered in your declaration
02:50:11 16 any opinions on how inlets or outlet ports would be in
02:50:16 17 fluidic communication with channels; correct?

02:50:22 18 A. Again, I don't have my declaration memorized.
02:50:25 19 I do talk about inlets and outlets in different places,
02:50:28 20 but I don't remember exactly how I phrased it.

02:50:35 21 Q. We've looked at paragraphs 35 and 36 where
02:50:42 22 you're describing outlet ports, wells, and reservoirs;
02:50:46 23 correct?

02:50:46 24 A. Well, yeah, in 35 and 36, I do talk a little
02:50:49 25 bit about outlets.

02:50:52	1	Q. And you're not aware of opinions here or
02:50:56	2	elsewhere in your report where you describe how those
02:51:04	3	structures would be connected to channels; correct?
02:51:14	4	A. Well, at least at this location, at paragraphs
02:51:17	5	35 and 36, I don't really explicitly say how that
02:51:22	6	outlet -- how the -- whatever I called them, let's see
02:51:26	7	here -- outlet ports, wells, or reservoirs, there isn't
02:51:29	8	really language that explicitly connects them to the
02:51:34	9	channels in a specific way.
02:53:56	10	Q. All right. Dr. Anna, can you please take a
02:53:58	11	look at your report at paragraph 137.
02:54:10	12	A. Okay.
02:54:11	13	Q. And do you see that you're referring there to
02:54:16	14	again punching holes through PDMS and citing to
02:54:21	15	Exhibit 2033.
02:54:32	16	A. I don't see the specific number of the
02:54:34	17	reference. However -- oops, I've just lost the page.
02:54:38	18	Hold on a second.
02:54:50	19	Let's try that again. Can you tell me what
02:54:54	20	page that was on, on the PDF?
02:55:04	21	I'm having the same issue that I was having
02:55:07	22	before where now I can type in a page, but it doesn't do
02:55:10	23	anything. So I'm just looking at the first page and I
02:55:14	24	can't see the other pages. Sorry.
02:55:17	25	Q. Let me see if I can direct you to it. It's

02:55:20	1	actually going to be paragraph 68. I read the wrong
02:55:24	2	number. So let me take you to that Exhibit 5. And I'll
02:55:33	3	take you to PDF page 30, which will have this at the
02:55:46	4	end --
02:55:47	5	A. I'm still looking at just the first page.
02:55:50	6	All right. Now I'm seeing something else.
02:55:52	7	Which paragraph do you want me to look at?
02:55:55	8	Q. Paragraph 68. It should be at the bottom of
02:55:57	9	the page and it goes onto the next page.
02:56:03	10	A. Okay. Okay. I can't go to the next page, but
02:56:10	11	it says to create -- I see what it says there.
02:56:13	12	Q. I will move you to the next page. So now you
02:56:16	13	should be on page PDF page 31.
02:56:23	14	A. Uh-huh, okay. I've looked at that.
02:56:26	15	Q. And you cite there to paragraph -- to
02:56:31	16	Exhibit 2033.
02:56:33	17	A. Uh-huh. Yes, that's right.
02:56:35	18	Q. I've marked as Exhibit 12 Exhibit 2033.
02:56:48	19	(Exhibit 12 was marked for identification.)
02:56:49	20	BY MS. JAMESON:
02:56:49	21	Q. Can you see that?
02:56:50	22	A. Yes, I see it.
02:56:52	23	Q. Okay. And this is the document that you were
02:56:55	24	referring to in paragraph 68 of your report in the 086.
02:57:03	25	A. I believe so, yes.

02:57:04	1	Sorry, I didn't mean to talk over you. I
02:57:06	2	apologize.
02:57:08	3	Q. Okay.
02:57:10	4	A. Okay. What would you like me to look at?
02:57:12	5	Q. I would like you to take a look at Figure 1.
02:57:16	6	A. Okay.
02:57:17	7	Q. Take a look at Figure 1A.
02:57:20	8	A. Uh-huh. I'm looking at it.
02:57:22	9	Q. There are four holes in a PDMS substrate in
02:57:27	10	this figure; correct?
02:57:30	11	A. Well, that's how I would interpret that
02:57:33	12	picture. But, again, you know, I don't see a
02:57:36	13	specific -- it says pressure driven flow using a vacuum
02:57:39	14	at the outlet or a syringe pump at the inlet.
02:57:44	15	It doesn't really say what those are in the
02:57:46	16	caption. I could interpret it that way, but it doesn't
02:57:49	17	say what they are.
02:57:51	18	Q. That would be your interpretation though?
02:57:54	19	A. Yeah.
02:57:55	20	Q. Okay. And in that figure, the -- there are
02:58:04	21	gray lines connecting those different holes through the
02:58:08	22	PDMS; is that correct?
02:58:13	23	A. Sorry, I have to zoom in. I can't see that
02:58:16	24	very well.
02:58:18	25	I see those gray lines. It doesn't really say

02:58:22	1	what those are, again.
02:58:24	2	Q. Is your interpretation of that -- strike that.
02:58:30	3	Would your interpretation of that be that
02:58:32	4	those gray lines are channels connecting those different
02:58:36	5	holes?
02:58:39	6	A. Well, you know, I'd have to look closely at
02:58:43	7	what the reference defines it as, but generally speaking
02:58:47	8	I would interpret -- that's how I would interpret that.
02:58:57	9	Q. And in this case, what's being shown is that
02:59:00	10	the hole goes through the PDMS substrate from a top
02:59:08	11	surface down through the level of the channels; is that
02:59:11	12	correct?
02:59:18	13	A. Well, again, very little detail is given.
02:59:21	14	This is just a schematic so it really doesn't give that
02:59:24	15	much detail.
02:59:25	16	It appears that I could interpret those as
02:59:29	17	holes going through the PDMS, but I really don't know
02:59:34	18	for sure since it's just a schematic diagram and there's
02:59:39	19	not really any detail in the caption. I'd have to look
02:59:43	20	really through the main body of the text to see if they
02:59:46	21	describe it further. But that would be a reasonable way
02:59:49	22	to interpret it.
02:59:55	23	Q. Are those the type of holes that could be made
02:59:57	24	by a cork borer?
03:00:03	25	A. Well, I mean, a cork borer could make holes

03:00:06	1	like that. I don't know if these were -- well, this is
03:00:09	2	even just a schematic so it's not really -- doesn't
03:00:12	3	really tell me anything about how they were made.
03:02:45	4	MS. JAMESON: I think we've been going for a
03:02:48	5	while now. Do you want to take another break?
03:02:50	6	THE WITNESS: Sure.
03:02:52	7	THE VIDEOGRAPHER: We're going off the record
03:02:53	8	at 3:02 p.m.
03:02:56	9	(Recess taken at 3:02 p.m.)
03:18:06	10	(Proceedings resumed at 3:18 p.m.)
03:18:57	11	THE VIDEOGRAPHER: We're back on the record at
03:18:59	12	3:18 p.m.
03:19:05	13	BY MS. JAMESON:
03:19:06	14	Q. Dr. Anna, can you please take a look at your
03:19:09	15	declaration in the 087 IPR. It should be Exhibit 6.
03:19:18	16	A. Okay.
03:19:21	17	Q. Please take a look at paragraph 37 which is on
03:19:24	18	page 22. And I can take you to that page.
03:19:33	19	A. I think I got there. You said paragraph 37?
03:19:37	20	Q. Paragraph 37.
03:19:38	21	A. Okay. I'm there.
03:19:39	22	Q. Okay. Dr. Anna, it's your opinion that the
03:19:52	23	Thorsen description of microfluidic chips in Chapters 3
03:19:57	24	and 4 were not able to accommodate biological systems;
03:20:02	25	is that correct?

03:20:03	1	A. Well, I see in paragraph 37 that I've said
03:20:06	2	Thorsen explained that the microfluidic chips of
03:20:09	3	Chapters 3 and 4 were not able to accommodate
03:20:12	4	biochemical systems. So that's what I've said in my
03:20:19	5	declaration.
03:20:28	6	Q. And your opinion is based on the fact that
03:20:36	7	Dr. Thorsen, as you're saying here, encountered at least
03:20:42	8	three specific problems; is that correct?
03:20:46	9	A. In paragraph 37 of my declaration, what I talk
03:20:50	10	about is that Thorsen acknowledges the difficult dynamic
03:20:54	11	integration process between biochemical and
03:20:57	12	micromechanical systems, and he attributes those
03:21:02	13	difficulties to at least three specific problems. He
03:21:05	14	lays out quite a few problems.
03:21:12	15	Q. The only problems that you're addressing in
03:21:13	16	your declaration are the three specific problems that
03:21:18	17	you're referencing in paragraph 37; correct?
03:21:22	18	A. Well, I describe those, I describe three of
03:21:26	19	those specific problems.
03:21:34	20	Q. And those are the only problems that you're
03:21:38	21	offering opinions on in your declaration; correct?
03:21:43	22	A. Well, what I'm offering opinions on is that
03:21:46	23	Thorsen describes a difficult integration process and he
03:21:50	24	has problems with accommodating biochemical systems.
03:21:54	25	And then I use those three specific problems as examples

03:21:58 1 of problems that he's had.

03:22:00 2 Q. And those are the only specific problems that
03:22:02 3 you identify.

03:22:06 4 A. I've just said that he had quite a bit of
03:22:09 5 trouble accommodating biochemical systems and I've just
03:22:13 6 listed those as examples. It's not the only problems he
03:22:16 7 listed, and there are other problems described in his
03:22:20 8 reference.

03:22:27 9 Q. My question is, in your declaration, the only
03:22:33 10 problems you describe in Thorsen are the three problems
03:22:39 11 that you're referencing in paragraph 37; correct?

03:22:43 12 A. Well, I think that what I described in
03:22:45 13 paragraph 37 is that Thorsen experienced quite a bit of
03:22:50 14 difficulty, and I've chosen to expand on three of those
03:22:54 15 specific problems. I'm not saying those are the only
03:22:57 16 problems he experienced. I'm acknowledging that he had
03:23:01 17 a number of problems.

03:23:14 18 MS. JAMESON: I am going to mark Exhibit 1003
03:23:23 19 as Exhibit 13 in this deposition. And this is
03:23:35 20 Dr. Thorsen's thesis.

03:23:37 21 (Exhibit 13 was marked for identification.)

03:23:38 22 BY MS. JAMESON:

03:23:38 23 Q. Do you see that, Dr. Anna?

03:23:40 24 A. Yes, I do.

03:23:44 25 Q. Now, despite the challenges that Thorsen

03:23:49	1	faced, Dr. Thorsen did succeed in making a system that
03:23:53	2	would work with biological molecules; correct?
03:24:01	3	A. Are you referring to Chapter 4 or a specific
03:24:04	4	part of Thorsen's thesis?
03:24:08	5	Q. Sure. We can take a look at page 120.
03:24:13	6	A. Is that the page in the PDF?
03:24:18	7	Q. That will be PDF page 120.
03:24:27	8	A. And it's 101 in this document?
03:24:30	9	Q. Correct.
03:24:31	10	A. Okay. I'm there.
03:24:32	11	Q. And do you see there that Dr. Thorsen is
03:24:35	12	showing that there are droplets containing no cells that
03:24:40	13	are nonfluorescent and droplets containing cells that
03:24:45	14	have a fluorescent fluorescein product?
03:24:51	15	MR. BAKER: I'm sorry. Counsel, you're on
03:24:53	16	page 101?
03:24:55	17	THE WITNESS: It's page 120 of the PDF.
03:24:58	18	MR. BAKER: It says 101, though, at the top of
03:25:01	19	Thorsen?
03:25:02	20	MS. JAMESON: Correct.
03:25:03	21	MR. BAKER: So that's figure 4.5, are you
03:25:06	22	looking at?
03:25:07	23	MS. JAMESON: Figure 4.5.
03:25:08	24	MR. BAKER: Okay. Thank you.
03:25:13	25	Could you repeat your question?

03:25:17	1	MS. JAMESON: Sure.
03:25:17	2	Q. And, Dr. Anna, do you see there that
03:25:22	3	Dr. Thorsen is showing that there are droplets
03:25:24	4	containing no cells that are nonfluorescent and droplets
03:25:29	5	that are containing a fluorescent fluorescein product
03:25:32	6	when cells are present?
03:25:34	7	MR. BAKER: Objection to form and foundation.
03:25:35	8	THE WITNESS: I'm not quite sure the way
03:25:38	9	you've expressed that is the same way it's stated here.
03:25:41	10	In the caption it says, "Droplets containing
03:25:43	11	no cells are nonfluorescent while droplets containing
03:25:48	12	one or more enzyme-expressing cells have converted the
03:25:52	13	substrate into the fluorescent fluorescein product."
03:25:58	14	I don't know that that's exactly the same way
03:26:00	15	you said it.
03:26:01	16	BY MS. JAMESON:
03:26:02	17	Q. And so that means that the droplets containing
03:26:07	18	enzyme-expressing cells will be the fluorescent
03:26:12	19	droplets; correct?
03:26:20	20	A. Well, it says the -- sorry. Droplets
03:26:24	21	containing one or more enzyme-expressing cells have
03:26:28	22	converted the substrate into the fluorescent fluorescein
03:26:32	23	product.
03:26:33	24	It doesn't say that they are fluorescent.
03:26:36	25	Whether you see a fluorescent signal would probably

03:26:39	1	depend on how much fluorescent fluorescein that those
03:26:44	2	substrates have expressed or the enzymes have expressed.
03:26:50	3	Q. Dr. Anna, can you take a look at the figure
03:26:52	4	that's there?
03:26:52	5	A. Uh-huh.
03:26:53	6	Q. Do you see droplets that have detectable
03:26:56	7	fluorescents?
03:26:57	8	A. I see droplets that -- well, I see circles
03:27:00	9	that are bright which according to the caption are
03:27:04	10	droplets that are -- have -- contain fluorescent signal.
03:27:12	11	Q. And so according to the caption, those
03:27:15	12	droplets with fluorescent signal are the ones that
03:27:19	13	contain one or more enzyme-expressing cells.
03:27:30	14	A. Again, I'm not sure if it says it exactly the
03:27:32	15	way you've said it. I would assume that -- it says
03:27:37	16	droplets containing one or more enzyme-expressing cells
03:27:40	17	have converted the substrate into the fluorescent
03:27:44	18	fluorescein product.
03:27:45	19	So if I see bright, I can assume, according to
03:27:50	20	this caption, that there is -- there is fluorescein
03:27:54	21	product in it. It doesn't necessarily mean that when I
03:27:57	22	don't see it that there isn't fluorescein product in
03:28:01	23	there. So I can't recall exactly how you phrased your
03:28:05	24	language, but that's what it says here in the caption.
03:28:34	25	Q. And so this figure, according to the legend,

03:28:38 1 is showing that there are droplets containing
03:28:44 2 enzyme-expressing cells; correct?

03:28:53 3 A. I would assume that that's what the caption is
03:28:55 4 implying, that the droplets that we see with bright
03:28:59 5 contain one or more enzyme-expressing cells. It doesn't
03:29:03 6 really say that explicitly, but that's the implication
03:29:06 7 in the caption.

03:29:18 8 Q. And so Dr. Thorsen was able to make this
03:29:22 9 biochemical system work.

03:29:27 10 MR. BAKER: Objection to form. Foundation.

03:29:31 11 THE WITNESS: I don't know what you mean by
03:29:32 12 "make it work." All that we see here is droplets that
03:29:37 13 contain some fluorescence -- fluorescent fluorescein. I
03:29:46 14 don't know if that means that that system worked.
03:29:50 15 That's pretty broad.

03:29:51 16 BY MS. JAMESON:

03:29:54 17 Q. I mean this is showing that this biochemical
03:29:58 18 system was -- was operational in the system that
03:30:09 19 Dr. Thorsen constructed; correct?

03:30:12 20 MR. BAKER: Objection to form. Foundation.

03:30:14 21 THE WITNESS: I'm still not sure what you mean
03:30:16 22 by "operational." What I see is that he's showing
03:30:18 23 pictures of droplets that he's claiming contain one or
03:30:24 24 more enzyme-expressing cells. Does that mean that the
03:30:28 25 system was operational or that it worked? I don't know

03:30:31 1 what that means. I don't know what "operational" or
03:30:34 2 that "it worked" means in this context. So I can't -- I
03:30:38 3 can't say that based on this caption. All I can say is
03:30:41 4 that there are droplets shown here that are fluorescent.

03:30:45 5 BY MS. JAMESON:

03:30:45 6 Q. And so based on what you can see here, there
03:30:48 7 were some droplets that were fluorescent and some
03:30:53 8 droplets that were nonfluorescent; correct?

03:30:58 9 A. Well, I can see circles that presumably are
03:31:02 10 the droplets that are fluorescent. We don't really see
03:31:07 11 any circles that are not fluorescent, but there's some
03:31:10 12 dark parts of the image there that could contain
03:31:12 13 droplets that are not fluorescent. And that's
03:31:16 14 referenced in the caption, but actually I don't know
03:31:18 15 where those would be in the image.

03:31:29 16 Q. And what's described there in the caption is
03:31:31 17 that those droplets that are fluorescent contain
03:31:34 18 enzyme-expressing cells.

03:31:36 19 A. The caption says, "Droplets containing one or
03:31:39 20 more enzyme-expressing cells have converted the
03:31:43 21 substrate into the fluorescent fluorescein product."

03:32:21 22 Q. And, Dr. Anna, is it correct that you have no
03:32:25 23 understanding of the model biochemical screening assay
03:32:29 24 that Dr. Thorsen is describing in Chapter 4?

03:32:31 25 MR. BAKER: Objection to form and foundation.

03:32:37	1	THE WITNESS: I'm not really sure what you
03:32:38	2	mean by that.
03:32:48	3	BY MS. JAMESON:
03:32:49	4	Q. Do you understand what the biochemical
03:32:54	5	screening assay was that Dr. Thorsen described in
03:32:57	6	Chapter 4?
03:33:09	7	A. Well, I mean, I've read the Thorsen reference
03:33:11	8	and I understand that he's described a biochemical
03:33:16	9	assay. I'm not sure what you mean by do I understand
03:33:18	10	it.
03:33:20	11	Could I write a thesis on it? Probably not.
03:33:23	12	Can I understand it well enough to understand how he
03:33:25	13	implemented it in these -- in the system that he
03:33:28	14	describes in Chapter 4? Probably. But then again, we'd
03:33:34	15	have to have some questions there.
03:33:41	16	BY MS. JAMESON:
03:33:42	17	Q. Let's take a look back now at the previous
03:33:45	18	page, PDF page 119.
03:33:55	19	And on that page do you see Figure 4.4?
03:33:59	20	A. Yes.
03:34:00	21	Q. And what's shown in that figure is
03:34:05	22	encapsulated bacteria in droplets that are generated by
03:34:09	23	a microfluidic crossflow; correct?
03:34:12	24	A. That's what the caption says, yes.
03:34:14	25	Q. Okay. And that's your understanding of what

03:34:18	1	Dr. Thorsen is showing here?
03:34:21	2	A. Well, that's the caption -- what the caption
03:34:24	3	says. So that's what I understand it to be as well.
03:34:29	4	Q. And so Dr. Thorsen was able to encapsulate
03:34:33	5	bacteria in droplets; correct?
03:34:37	6	A. It appears that he was, according to the
03:34:40	7	captioned image.
03:34:46	8	Q. And then based on Figure 4.5, your
03:34:48	9	understanding is that some of those bacteria resulted in
03:34:57	10	droplets that were fluorescent.
03:35:04	11	A. Well, again, according to the caption, it
03:35:06	12	says, "Monodisperse droplets containing E. coli
03:35:11	13	expressing recombinant pNB esterase and fluorescein
03:35:13	14	diacetate substrate," et cetera, and we've read that
03:35:19	15	before in the other part of the caption. So I'm not
03:35:25	16	sure what you're asking me. Do I understand what he
03:35:27	17	says there in the caption?
03:35:35	18	Q. Based on your review of Thorsen, is your
03:35:37	19	understanding of what's being shown here that some of
03:35:40	20	the bacteria that were encapsulated within the droplets
03:35:45	21	are resulting in the droplets becoming fluorescent
03:35:50	22	whereas other bacteria did not?
03:35:56	23	A. Well, if we look at Figure 4.4, I just want to
03:36:01	24	remind myself of what it says in the main body of the
03:36:04	25	text for a moment here.

03:36:07	1	Q. Let me restate the question. Based on your
03:36:10	2	review of Thorsen, is your understanding of what's being
03:36:12	3	shown here that some of the bacteria that were
03:36:15	4	encapsulated within the droplets resulted in the
03:36:18	5	droplets becoming fluorescent whereas other droplets
03:36:21	6	contained no bacteria and were nonfluorescent?
03:36:30	7	A. Well, according to the caption in Figure 4.5,
03:36:32	8	Thorsen is showing an image that he says contains
03:36:38	9	monodisperse droplets containing E. coli, which is a
03:36:43	10	bacteria, that expresses recombinant pNB esterase and
03:36:43	11	fluorescein diacetate substrate, and then he says
03:36:48	12	droplets containing no cells are nonfluorescent and
03:36:52	13	droplets containing one or more enzyme-expressing cells
03:36:55	14	have converted the substrate into the fluorescent
03:36:59	15	fluorescein product.
03:37:29	16	And in fact, if you look at the paragraph just
03:37:31	17	before that, the top paragraph really describes a bunch
03:37:35	18	of problems that he had, and then he states that
03:37:38	19	Figure 4.5 is a few good examples of catalysis inside
03:37:45	20	the formed droplets. So that implies that he wasn't
03:37:48	21	able to get that to happen very robustly. But it
03:37:52	22	appears that it happened well enough that he could take
03:37:55	23	the image shown in Figure 4.5.
03:37:58	24	Q. And Dr. Thorsen did get a few good examples of
03:38:02	25	that; correct?

03:38:05 1 A. Along with all of the other problems that he
03:38:08 2 lists in that paragraph in between Figure 4.4 and 4.5.

03:38:13 3 Q. Dr. Thorsen did, in fact, accommodate
03:38:16 4 biochemical systems into his systems as shown in
03:38:20 5 Figures 4.4 and 4.5; correct?

03:38:23 6 MR. BAKER: Objection to form and foundation.

03:38:28 7 THE WITNESS: Well, I believe what I said in
03:38:30 8 my declaration is that he had difficulty, a significant
03:38:34 9 amount of difficulty, accommodating biochemical systems.
03:38:37 10 And he outlines a number of problems with that
03:38:39 11 integration and accommodation of biochemical systems
03:38:43 12 with microfluidic devices.

03:38:45 13 And these examples we're looking at here, he
03:38:49 14 goes into some detail about that. He describes those
03:38:52 15 problems and says he was able to get a few good images
03:38:56 16 but he had lots of difficulty.

03:38:57 17 BY MS. JAMESON:

03:38:59 18 Q. What's shown in Figures 4.4 and 4.5 are a few
03:39:03 19 good examples of Dr. Thorsen's ability to accommodate
03:39:08 20 biochemical systems into his microfluidic system;
03:39:11 21 correct?

03:39:13 22 MR. BAKER: Objection to form and foundation.

03:39:16 23 THE WITNESS: Well, he says these are a few
03:39:19 24 good examples of catalysis inside the formed droplets.
03:39:23 25 I wouldn't necessarily characterize that as being able

03:39:26 1 to accommodate the biochemical system. That implies
03:39:29 2 that, you know, things work robustly and repeatedly.

03:39:33 3 In this case, he clearly had a lot of
03:39:36 4 difficulty based on the text that's described here. I
03:39:38 5 wouldn't consider one picture to say that it worked.

03:39:41 6 BY MS. JAMESON:

03:39:44 7 Q. Dr. Thorsen certainly has more than one
03:39:46 8 picture here; correct?

03:39:48 9 A. He has one bright field image showing
03:39:51 10 encapsulated bacteria and a couple of images that he has
03:39:55 11 not discussed about anything about repeatability in
03:40:00 12 Figure 4.5 of fluorescent droplets.

03:40:03 13 There's no discussion -- there's lots of
03:40:06 14 discussion about all of the difficulty that he had
03:40:08 15 getting those images.

03:40:11 16 Q. He does say that he had a few good examples,
03:40:13 17 though, where this biochemical system operated to result
03:40:21 18 in fluorescents; correct?

03:40:23 19 A. He says a few good examples of catalysis
03:40:25 20 inside the formed droplets were still acquired. After a
03:40:30 21 couple sentences where he describes a whole bunch of
03:40:34 22 problems, he says the crossflow assay was unreliable and
03:40:38 23 lists a bunch of problems and says that the
03:40:41 24 troubleshooting of the difficulties will be discussed
03:40:43 25 later.

03:40:44 1 So he really emphasizes how difficult it was
03:40:49 2 to get those images.

03:40:50 3 Q. In the end, though, he did get those images;
03:40:54 4 correct?

03:40:54 5 A. Well, he got a few good examples.

03:41:01 6 Q. Those are a few good examples of where his
03:41:04 7 system was able to accommodate a biochemical system.

03:41:10 8 MR. BAKER: Objection to form. Foundation.

03:41:13 9 THE WITNESS: I don't necessarily agree with
03:41:15 10 that. You know, being able to accommodate a biochemical
03:41:19 11 system in -- well, I guess I don't even really know what
03:41:22 12 you mean by that.

03:41:23 13 What I've said in my declaration is that he
03:41:26 14 had a lot of difficulty making that accommodation. And
03:41:29 15 that's what Dr. Thorsen's text here describes is that he
03:41:33 16 had a lot of difficulty. Just being able to get a few
03:41:39 17 good images doesn't mean something worked or that others
03:41:43 18 could get it to work.

03:41:44 19 BY MS. JAMESON:

03:41:48 20 Q. This biochemical system worked in these
03:41:50 21 instances that are shown in Figure 4.5; correct?

03:41:55 22 MR. BAKER: Objection to form. Foundation.

03:41:58 23 THE WITNESS: Again, I don't know what we mean
03:42:00 24 by "it worked." He was able to encapsulate bacteria
03:42:04 25 into a few droplets. I see a picture here that has

03:42:08 1 maybe five droplets at most that have bacteria. And I,
03:42:13 2 you know, would be straining to understand which of
03:42:16 3 those contain the bacteria. And then I have another few
03:42:20 4 images with a handful of droplets that show
03:42:22 5 fluorescents.

03:42:26 6 So if you want to count just a small number of
03:42:29 7 images of a small number of droplets as accommodating a
03:42:33 8 biochemical system, I just don't think that I could
03:42:36 9 justify that as an expert in the field.

03:42:41 10 Thorsen lists many, many problems that he had,
03:42:43 11 and he was able to get just a few images and not really
03:42:46 12 characterize them beyond that. So I just don't think
03:42:49 13 that I would count that as accommodating a biochemical
03:42:52 14 system. He spends much more time talking about the
03:42:57 15 problems than he does about the successes.

03:43:00 16 BY MS. JAMESON:

03:43:10 17 Q. It's not uncommon, in your experience, to
03:43:12 18 encounter problems when you're working on a new research
03:43:15 19 project; correct?

03:43:20 20 A. Well, I mean, that's a really general
03:43:23 21 statement. It's certainly true that in new research
03:43:27 22 projects it's common to run into problems. But I don't
03:43:29 23 know, I mean, that's pretty general. Are we talking
03:43:33 24 about something specific? Or, I mean, that's just a
03:43:40 25 really broad statement.

03:44:18	1	Q. Dr. Thorsen was able to succeed in the
03:44:25	2	examples that are shown in Figure 4.5 in making a system
03:44:37	3	in which the enzyme-expressing cells were converting a
03:44:44	4	substrate into a fluorescent product and there were
03:44:48	5	droplets that contained no cells and were
03:44:51	6	nonfluorescent; correct?
03:44:56	7	A. Well, Dr. Thorsen shows four images in
03:45:00	8	Figure 4.5 that contain -- each contain a couple of
03:45:04	9	fluorescent droplets. And he states that those droplets
03:45:08	10	contain E. coli expressing the recombinant pNB esterase
03:45:11	11	and fluorescein substrate. And he says that droplets
03:45:20	12	containing no cells are nonfluorescent and droplets
03:45:21	13	containing one or more enzyme-expressing cells have
03:45:23	14	converted the substrate into the fluorescent fluorescein
03:45:26	15	product.
03:45:27	16	So it would imply that those images in
03:45:29	17	Figure 4.5 show that those -- that E. coli in those
03:45:36	18	droplets was expressing that fluorescent fluorescein
03:45:39	19	product.
03:45:41	20	Again, it doesn't say that the nonfluorescent
03:45:45	21	droplets didn't contain cells. He just says droplets
03:45:49	22	containing no cells are nonfluorescent. So we really
03:45:53	23	don't have a very full characterization of, you know,
03:45:55	24	which droplets contained cells and which droplets
03:45:59	25	containing cells were exuding fluorescence. We don't

03:46:03	1	have a full characterization of that.
03:46:06	2	So I don't know that I could characterize that
03:46:08	3	as success. I guess I'm not sure what you mean by that.
03:46:20	4	Q. Dr. Anna, can you take a look at your
03:46:26	5	declaration in the 087 IPR.
03:46:34	6	A. Okay.
03:46:35	7	Q. And take a look at paragraph 38.
03:46:48	8	A. Okay. I'm looking at that right now.
03:46:50	9	Q. Okay. The first specific problem that you
03:47:06	10	identify in your declaration in -- that you describe
03:47:14	11	Dr. Thorsen is encountering was in establishing flow
03:47:18	12	balance; is that correct?
03:47:21	13	A. Well, establishing flow balance is what this
03:47:24	14	quote is about that I quoted from Thorsen.
03:47:34	15	Q. Which was the biggest problem that Dr. Thorsen
03:47:37	16	encountered?
03:47:39	17	A. I mean, how would we characterize biggest or
03:47:42	18	not?
03:47:43	19	Q. It's the first one that you list. So I'm
03:47:45	20	wondering if there's a reason that you listed it first.
03:47:50	21	A. I don't know that I ascribed particular
03:47:53	22	priority. These are just three examples of problems
03:47:56	23	that he had.
03:48:19	24	Q. Dr. Thorsen described solving any problems
03:48:22	25	that he may have had with flow balancing; correct?

03:48:26	1	MR. BAKER: Objection to form and foundation.
03:48:41	2	THE WITNESS: Well, what I discussed here in
03:48:42	3	paragraph 38 is that Thorsen describes a very difficult
03:48:46	4	time doing -- establishing that flow balance. He says,
03:48:50	5	"Establishing the flow balance between the two streams
03:48:53	6	was a nontrivial process. A slight pressure imbalance
03:48:57	7	between the streams led to instantaneous
03:48:59	8	cross-contamination, as the contents of one aqueous
03:49:03	9	channel rapidly flowed up the channel of the other
03:49:05	10	aqueous input."
03:49:07	11	Thorsen also noted that "Micron-size bacterial
03:49:10	12	cells were difficult to see at the low cell
03:49:13	13	concentration used in the assay, making it extremely
03:49:14	14	difficult to balance the aqueous inputs at the crossflow
03:49:19	15	junction."
03:49:21	16	BY MS. JAMESON:
03:49:22	17	Q. Can you take a look at page 122 of Dr. -- of
03:49:27	18	the PDF of Dr. Thorsen's thesis. And that's going to be
03:49:32	19	Exhibit 13.
03:49:40	20	A. Okay. That's page 103 labeled on his page?
03:49:46	21	Q. It is page 103 as he labels them.
03:49:49	22	A. Okay.
03:49:53	23	Q. All right. Can you take a look toward the end
03:49:55	24	of the paragraph, there's a sentence that starts "The
03:49:59	25	red fluorescent beads."

03:50:04	1	A. Okay.
03:50:05	2	Q. And that sentence says, "The red fluorescent
03:50:09	3	beads were chosen to have minimal spectral overlap with
03:50:12	4	the fluorescein product generated in the assay."
03:50:15	5	And that's referring to his use of red
03:50:17	6	fluorescent beads in the system; correct?
03:50:21	7	A. I would assume so, based on this sentence. He
03:50:25	8	specifically says the words "red fluorescent beads." I
03:50:30	9	don't recall exactly the context, but we could look
03:50:33	10	back. Since he says "red fluorescent beads," I would
03:50:37	11	assume that.
03:50:38	12	Q. Sure. So you can take a look back at page 121
03:50:44	13	where that paragraph starts out by saying, "Micron-size
03:50:48	14	bacteria cells were difficult to see at the low cell
03:50:51	15	concentration used in this assay, making it extremely
03:50:54	16	difficult to balance the aqueous inputs at the crossflow
03:50:56	17	junction."
03:50:57	18	Do you see that?
03:50:58	19	A. Yes.
03:50:58	20	Q. He then goes on to say, "Several types of
03:51:00	21	beads were spiked into the cell solution as visual
03:51:03	22	aids."
03:51:04	23	Do you see that?
03:51:04	24	A. I see that.
03:51:05	25	Q. Okay. And one of those types of beads was the

03:51:08	1	red fluorescent beads; correct?
03:51:31	2	A. Well, later on he talks about 100 nanometer
03:51:34	3	red fluorescent microspheres were tested in the
03:51:38	4	crossflow devices using the same condition --
03:51:41	5	conditions. He talks about some conditions, that he
03:51:44	6	needed to see those. And then he said that the red
03:51:48	7	fluorescent beads were chosen to have minimal spectral
03:51:51	8	overlap with the fluorescein product generated in the
03:51:56	9	assay.
03:51:57	10	So I'm sorry. I don't remember your question.
03:52:01	11	Q. It was that one type of beads that Dr. Thorsen
03:52:05	12	was using for a visual aid was the red fluorescent
03:52:09	13	beads.
03:52:10	14	A. That's what it appears to be describing here.
03:52:14	15	Q. The next sentence thereafter the one you just
03:52:17	16	read says, "Flow balance at the junction was readily
03:52:20	17	accomplished (Figure 4.6)."
03:52:23	18	Do you see that?
03:52:23	19	A. I see that.
03:52:30	20	Q. And so Dr. Thorsen was able to solve any
03:52:34	21	problem that he may have encountered with flow
03:52:36	22	balancing; correct?
03:52:38	23	MR. BAKER: Objection to form and foundation.
03:52:43	24	THE WITNESS: I don't know that I could say
03:52:45	25	that that could be construed as solving the problem. He

03:52:49	1	found a workaround because he couldn't see the bacteria
03:52:54	2	which are the biochemical -- or the biological product.
03:52:59	3	He used a nonbiological agent to establish a workaround.
03:53:06	4	So does that mean he was able to solve it? I
03:53:10	5	guess that would depend a lot on the context in which he
03:53:14	6	needed to do flow balancing. It's not necessarily true
03:53:17	7	that adding these kinds of fluorescent beads is going to
03:53:21	8	be friendly to every biological application.
03:53:24	9	BY MS. JAMESON:
03:53:26	10	Q. You haven't offered in your declaration any
03:53:29	11	opinions on fluorescent beads being harmful to any
03:53:33	12	biological application; correct?
03:53:40	13	A. That is not what I was asked to opine on. I
03:53:42	14	don't believe that I discussed that.
03:53:46	15	Q. Dr. Thorsen does say that flow balancing was
03:53:50	16	readily accomplished using the red fluorescent beads;
03:53:55	17	correct?
03:53:56	18	A. Well, that is the assumption that I would make
03:53:58	19	based on these sentences in -- on page 103 of his thesis
03:54:04	20	where he describes the use of the red fluorescent
03:54:07	21	microspheres and testing them in the crossflow devices.
03:54:11	22	So it appears he's describing using red fluorescent
03:54:17	23	beads for the purpose of helping him establish the flow
03:54:23	24	balance.
03:54:29	25	Q. Let's also take a look at the paragraph that

03:54:31	1	starts underneath Figure 4.6.
03:54:35	2	Do you see that?
03:54:36	3	A. Yep.
03:54:37	4	Q. That paragraph starts, "Channel geometry
03:54:41	5	modifications were made at the crossflow junction to
03:54:43	6	increase backflow resistance between the two aqueous
03:54:47	7	streams."
03:54:48	8	Do you see that?
03:54:48	9	A. Uh-huh. Yes, I see that.
03:54:53	10	Q. He goes on to describe modifications that he
03:54:57	11	made to the microfluidic system; correct?
03:55:04	12	A. Well, he describes channel geometry
03:55:08	13	modifications to the crossflow junction which is a part
03:55:11	14	of the microfluidic system that he's referring to.
03:55:14	15	Q. And the last line on that -- on page 122
03:55:22	16	begins with the sentence that starts "Narrower aqueous
03:55:26	17	input channels in," and then continues on the next page
03:55:29	18	to say, "which the flow resistance was high, reduced the
03:55:34	19	backflow in the system and made it easier to balance the
03:55:37	20	aqueous streams at the junction."
03:55:39	21	Do you see that?
03:55:40	22	A. I see that.
03:55:41	23	Q. And so Dr. Thorsen made two modifications to
03:55:46	24	the system to address the problem of flow balancing;
03:55:50	25	correct?

03:55:56	1	A. Well, he made some modifications to the
03:56:00	2	geometry to increase the backflow resistance, and he
03:56:04	3	states that that made it easier to balance -- to balance
03:56:08	4	the aqueous streams.
03:56:11	5	Q. And Dr. Thorsen made modifications to the
03:56:16	6	microfluidic geometries and he also added the red
03:56:22	7	fluorescent beads, both to address flow balancing;
03:56:27	8	correct?
03:56:32	9	A. He appears to have used visualization of red
03:56:36	10	fluorescent beads to visualize where the aqueous streams
03:56:42	11	were, and he appears to have made channel geometry
03:56:46	12	modifications to increase backflow resistance, and then
03:56:51	13	which he says made it easier to balance the aqueous
03:56:54	14	streams. Aqueous streams.
03:56:57	15	So he is referring to those two things as
03:57:00	16	helping him establish the flow balancing.
03:57:04	17	Q. And after describing those two things to help
03:57:10	18	establish the flow balancing, there's no further
03:57:16	19	discussion in that section of continuing problems with
03:57:19	20	flow balancing; correct?
03:57:24	21	A. Well, I mean, the section -- section -- I
03:57:28	22	guess it would be 4.5.1 appears to end right there. So
03:57:32	23	he doesn't discuss anything further after that.
03:57:46	24	Q. And so you don't have any reason to doubt that
03:57:51	25	Dr. Thorsen was able to resolve any problems he may have

03:57:54	1	encountered with flow balancing?
03:57:58	2	MR. BAKER: Objection to form and foundation.
03:58:01	3	THE WITNESS: I'm not prepared to say that
03:58:03	4	Dr. Thorsen was able to solve any problems he may have
03:58:06	5	encountered. He describes a couple of ways he made that
03:58:09	6	easier for himself. That doesn't mean that it was a
03:58:14	7	complete solution to any problems he may have come
03:58:17	8	across.
03:58:24	9	BY MS. JAMESON:
03:58:36	10	Q. Okay. Let's take a look back at your
03:58:38	11	declaration in the 087 IPR, and let's take a look at
03:58:46	12	paragraphs 39 and 40.
03:58:52	13	A. Okay.
03:58:56	14	Q. We'll start with 39. And in paragraph 39 you
03:59:05	15	are stating that there was a second problem and that was
03:59:11	16	bacterial cell adhesion; is that correct?
03:59:27	17	A. Right. I say that -- I quote Thorsen where he
03:59:30	18	notes, but he describes it as the second major problem
03:59:33	19	with the assay. He says, "The second major problem with
03:59:37	20	the assay was bacterial cell adhesion to the walls of
03:59:41	21	the Sylgard 184 microchannels prior to encapsulation."
03:59:45	22	That Sylgard 184 is the same as PDMS. And he
03:59:52	23	goes on to describe more things about what happens
03:59:54	24	there.
04:00:07	25	Q. And in paragraph 40 of your declaration,

04:00:08	1	087 IPR, you describe what you identify as another
04:00:18	2	problem which was significant autohydrolysis. Do you
04:00:22	3	see that?
04:00:24	4	A. I see paragraph 40, and it does describe some
04:00:28	5	stuff about significant autohydrolysis.
04:00:34	6	Q. Now, neither of these -- neither cell adhesion
04:00:43	7	nor autohydrolysis prevented Dr. Thorsen from getting
04:00:47	8	the images that we were looking at in Figure 4.5;
04:00:51	9	correct?
04:01:01	10	A. I actually don't know. I don't know that we
04:01:03	11	can specifically connect these quotes about what he had
04:01:06	12	difficulty with and say that they prevented him from
04:01:11	13	getting those images.
04:01:12	14	What I do know is that he was only able to get
04:01:15	15	a few good images and that these problems got in the way
04:01:18	16	of getting more good images.
04:01:19	17	So I would -- I guess that I would say that
04:01:21	18	they did prevent him from getting -- he was able to get
04:01:24	19	a few but not a lot and not show that -- a significant
04:01:30	20	amount of reliability in the system.
04:01:33	21	Q. What you're pointing to here as problems of
04:01:37	22	cell adhesion and autohydrolysis, they didn't prevent
04:01:42	23	Dr. Thorsen from getting the images that were shown in
04:01:44	24	Figure 4.5; correct?
04:01:49	25	A. What he describes in Chapter 4, what Thorsen

04:01:52	1	describes in Chapter 4 in this section that we're
04:01:54	2	talking about is a significant amount of difficulty with
04:01:58	3	numerous problems, these three being some of them, where
04:02:03	4	he had a lot of difficulty getting the system to work.
04:02:09	5	I guess we still need to define what system working
04:02:13	6	means. But if we're referring specifically to
04:02:16	7	encapsulating bacteria and looking at whether or not
04:02:19	8	they're fluorescents, he describes a lot of difficulty
04:02:24	9	with that. And what he says is that he's only able to
04:02:26	10	get a few good images.
04:02:28	11	And so I would interpret that, as a person of
04:02:30	12	ordinary skill and as an expert in the field, as that he
04:02:33	13	had a lot of problems and that they were difficult to
04:02:35	14	overcome and that he managed to get a few images. And
04:02:41	15	then I would look at that and say, I don't know, that's
04:02:44	16	pretty unreliable to me.
04:02:57	17	Q. So my question was just regardless of whatever
04:03:04	18	cell adhesion or autohydrolysis had occurred,
04:03:07	19	Dr. Thorsen was still able to obtain the images in
04:03:11	20	Figure 4.5; correct?
04:03:15	21	A. The way I would read what Thorsen said is that
04:03:18	22	he was able to obtain those images despite this plethora
04:03:23	23	of problems that he ran into and -- or in spite of it he
04:03:28	24	had lots of problems. And so I would say that they did
04:03:31	25	get in his way. Otherwise he would have shown many more

04:03:34 1 images.

04:04:04 2 Q. And so you agree that Thorsen was able to
04:04:07 3 obtain the images in 4.5 despite what you're calling the
04:04:13 4 plethora of problems he ran into; correct?

04:04:19 5 A. Again, he shows images in 4.5 that he
04:04:22 6 describes to be droplets containing fluorescent material
04:04:27 7 expressed from these bacterial cells. And he describes
04:04:33 8 them after describing numerous problems and detailing
04:04:37 9 those problems, some of which I've outlined in my
04:04:40 10 declaration, and he says that he was able -- still able
04:04:43 11 to obtain a few good images.

04:04:47 12 So does that constitute success in
04:04:50 13 accommodating that biochemical system? I can't really
04:04:53 14 say that it does.

04:04:56 15 Q. So I wasn't asking about success. So please
04:05:00 16 try to answer my question and it really is just a
04:05:03 17 yes-or-no question.

04:05:07 18 You agree that Thorsen was able to obtain the
04:05:09 19 images in Figure 4.5 despite what you're calling the
04:05:16 20 plethora of problems he ran into?

04:05:18 21 MR. BAKER: Objection to form and foundation.

04:05:23 22 THE WITNESS: What I agree to is that Thorsen
04:05:25 23 describes numerous problems that he ran into in
04:05:29 24 implementing this system, and he shows a small number of
04:05:32 25 images in section 4.5 that he was able to obtain. Even

04:05:37	1	though he had all of those problems he was able to pick
04:05:41	2	out a couple, he was sort of lucky to get those images.
04:05:45	3	BY MS. JAMESON:
04:05:47	4	Q. Please try to answer the question that I'm
04:05:48	5	asking and please try to give me a yes-or-no answer.
04:05:53	6	You agree that Thorsen was able to obtain the
04:05:55	7	images in Figure 4.5 despite what you're calling the
04:05:59	8	plethora of problems he ran into.
04:06:02	9	A. I agree --
04:06:03	10	MR. BAKER: Sorry, Dr. Anna.
04:06:05	11	THE WITNESS: I'm sorry. I'm sorry.
04:06:06	12	MR. BAKER: No, that's okay.
04:06:07	13	Objection to form and foundation.
04:06:09	14	Go ahead.
04:06:10	15	THE WITNESS: Thanks.
04:06:13	16	Again, Figure 4.5 shows a few images of
04:06:17	17	droplets that contain fluorescent dye. I agree he was
04:06:22	18	able to obtain those images. I also agree that he had a
04:06:26	19	lot of difficulty obtaining those images.
04:06:41	20	BY MS. JAMESON:
04:06:41	21	Q. To the extent that there were remaining
04:06:44	22	problems related to bacterial cell adhesion and
04:06:47	23	autohydrolysis, would those problems have been solved by
04:06:52	24	the use of a fluorinated surfactant as disclosed in
04:06:57	25	Ismagilov?

04:06:59	1	MR. BAKER: Objection to form and foundation.
04:07:07	2	THE WITNESS: I really don't think I could say
04:07:09	3	that. Just sitting here, I think that's not -- first of
04:07:15	4	all, that's not something I was asked to opine on
04:07:18	5	specifically whether or not fluorescent -- I'm sorry.
04:07:20	6	What did you say, fluorinated oils?
04:07:24	7	BY MS. JAMESON:
04:07:25	8	Q. Fluorinated surfactants.
04:07:27	9	A. Fluorinated surfactants. I'm sorry. I wasn't
04:07:30	10	specifically asked to opine about whether or not that
04:07:34	11	would solve these problems. And it certainly isn't
04:07:37	12	clear that Thorsen tried to do that.
04:07:45	13	Q. So you have no basis to disagree with another
04:07:48	14	expert if that expert said that fluorinated surfactants
04:07:52	15	would solve these problems; correct?
04:07:54	16	MR. BAKER: Objection to form and foundation.
04:07:59	17	THE WITNESS: I don't recall any instance
04:08:01	18	where it's described that fluorinated surfactants solve
04:08:05	19	these particular problems that Thorsen faced. I don't
04:08:10	20	have any reason to believe that they would.
04:08:14	21	BY MS. JAMESON:
04:08:16	22	Q. But as you've said, you have not opined on
04:08:19	23	whether or not they would solve the problems in Thorsen;
04:08:23	24	correct?
04:08:23	25	A. Correct. I have not opined on the use of

04:08:27	1	fluorescent surfactants in these systems specifically.
04:08:36	2	Fluorinated surfactants. I'm sorry. I keep
04:08:38	3	using the wrong word.
04:09:20	4	Q. Dr. Anna, please go to your declaration in the
04:09:22	5	086 IPR.
04:09:28	6	A. Okay.
04:09:28	7	Q. That should be Exhibit 5.
04:09:30	8	A. Uh-huh.
04:09:35	9	Q. And take a look, please, at page 33 of the PDF
04:09:42	10	which will have paragraph 75 on it.
04:09:45	11	A. I'm still having that same difficulty. So I'm
04:09:48	12	going to need you to put that in front of me if you
04:09:50	13	don't mind.
04:09:52	14	Q. Sure.
04:09:54	15	Okay. Can you now see PDF page 33 which
04:10:01	16	should have paragraph 75 on it?
04:10:05	17	A. No. I see the page 20 -- sorry. I -- I don't
04:10:08	18	know what page it is in the PDF. It's marked page 26 at
04:10:13	19	the bottom center of the page. And it has 70, 71 -- 69,
04:10:18	20	70, and 71 on it.
04:10:19	21	Q. Let me try again.
04:10:22	22	A. Okay. So right. So now I'm looking at a
04:10:25	23	different page.
04:10:26	24	Which paragraph did you want me to look at?
04:10:28	25	Q. 75.

04:10:29	1	A. Okay.
04:10:32	2	Q. And you've offered the opinion that the term
04:10:35	3	"separation chamber" means a chamber sized to
04:10:39	4	accommodate multiple droplets in immiscible fluid in
04:10:43	5	separated form; correct?
04:10:44	6	A. That's what paragraph 75 says, yes.
04:11:04	7	Q. Your construction of separation chamber
04:11:07	8	includes substantially enclosed spaces; correct?
04:11:18	9	A. I don't think that's what I've said. I said
04:11:20	10	the claim term separation chamber means a chamber sized
04:11:24	11	to accommodate multiple droplets in an immiscible fluid
04:11:27	12	in separated form.
04:11:30	13	Q. My question is not what you're proposing as
04:11:36	14	the construction, but whether your proposed construction
04:11:41	15	is broad enough to include substantially enclosed
04:11:45	16	spaces?
04:11:48	17	A. Well, again, my construction simply says that
04:11:51	18	this -- there needs to be a chamber sized to accommodate
04:11:54	19	multiple droplets in an immiscible fluid in separated
04:11:57	20	form. The construction doesn't say anything about
04:12:00	21	enclosed or not enclosed.
04:12:02	22	Q. So your construction would cover either
04:12:06	23	enclosed or open structures?
04:12:11	24	A. As long as it's a chamber sized to accommodate
04:12:14	25	multiple droplets in an immiscible fluid in separated

04:12:18 1 form.

04:12:36 2 Q. And so your construction is requiring that the
04:12:40 3 size of the chamber be sufficient to separate the
04:12:45 4 plurality of droplets from the immiscible fluid in the
04:12:48 5 chamber?

04:12:53 6 A. To the extent that that's consistent with the
04:12:56 7 definition that I've written here that it's a chamber
04:12:59 8 sized to accommodate multiple droplets and in immiscible
04:13:03 9 fluid in separated form.

04:13:23 10 Q. So your construction is that the chamber needs
04:13:28 11 to be sized sufficient to contain the separated -- to
04:13:36 12 contain both the plurality of droplets and the
04:13:46 13 immiscible fluid in separated form.

04:13:52 14 A. Well, what I said is that a separation chamber
04:13:56 15 means that we have a chamber sized to accommodate
04:13:59 16 multiple droplets in an immiscible fluid in separated
04:14:04 17 form.

04:14:16 18 Q. And can chambers be open?

04:14:22 19 A. Well, again, what I've said is that a
04:14:24 20 separation chamber means a chamber sized to accommodate
04:14:27 21 multiple droplets in an immiscible fluid in separated
04:14:32 22 form.

04:14:36 23 Q. How does that answer my question?

04:14:42 24 A. What was your question again?

04:14:44 25 Q. Can chambers be open?

04:14:46	1	A. Can chambers be open? I haven't really
04:14:51	2	described a chamber one way or the other about whether
04:14:55	3	or not a chamber is open. Here I'm specifically talking
04:14:59	4	about separation chamber. And what I said is that it
04:15:03	5	needs to be a chamber sized to accommodate multiple
04:15:05	6	droplets in an immiscible fluid in separated form.
04:15:10	7	Q. And --
04:15:11	8	A. It's not specifically about whether it needs
04:15:13	9	to be enclosed or not.
04:15:17	10	Q. And can an open container be a chamber?
04:15:25	11	A. Again, I haven't really stated whether or not
04:15:27	12	a chamber needs to be open or enclosed. In order to be
04:15:31	13	a separation chamber, what I've said is that it has to
04:15:34	14	accommodate multiple droplets, it has to be sized to
04:15:37	15	accommodate multiple droplets in an immiscible fluid in
04:15:40	16	separated form. I haven't said anything about open or
04:15:43	17	enclosed.
04:16:03	18	Q. You've opined on the meaning of this term
04:16:05	19	"separation chamber," and in your opinion, can an open
04:16:10	20	container be a separation chamber?
04:16:15	21	A. Again, I've stated that this definition of a
04:16:20	22	separation chamber that I've now read several times, I
04:16:23	23	have not stated that it needs to be open or enclosed.
04:16:27	24	It simply needs to accommodate multiple droplets in an
04:16:31	25	immiscible fluid in separated form.

04:16:34 1 Q. So my question is does -- does the separation
04:16:44 2 chamber, as you're describing the meaning of the word,
04:16:48 3 include containers that could be open?

04:16:55 4 A. Again, I haven't said one way or the other
04:16:59 5 whether they're open or enclosed. What I've said is
04:17:02 6 that they need to have a certain size and in order to
04:17:06 7 accommodate these things that I've written in the
04:17:09 8 definition. And, again, as long as it meets that
04:17:13 9 definition, then we can consider it a separation
04:17:17 10 chamber.

04:17:46 11 Q. So the answer to my question is, yes, an open
04:17:50 12 container can be a separation chamber.

04:17:54 13 A. The answer to your question is if it's a
04:17:57 14 chamber that's sized to accommodate multiple droplets in
04:17:59 15 an immiscible fluid in separated form, then it can be
04:18:06 16 considered a separation chamber. Again, I haven't said
04:18:09 17 anything about open or closed.

04:18:11 18 Q. So an open container that is sized to
04:18:14 19 accommodate multiple droplets in an immiscible fluid in
04:18:20 20 separate form can be a separation chamber?

04:18:24 21 A. As long as it meets the definition of what
04:18:26 22 I've written about multiple droplets in an immiscible
04:18:29 23 fluid in separated form, then it can be considered a
04:18:34 24 separation chamber.

04:18:35 25 Q. Tell me if this is consistent with what you're

04:18:40	1	saying is a separation chamber. An open container that
04:18:44	2	is sized to accommodate multiple droplets in an
04:18:49	3	immiscible fluid in separated form. That's -- that can
04:18:54	4	be a separation chamber?
04:18:56	5	A. Well, it sounds like it meets the definition
04:18:58	6	that I've described that it needs to accommodate
04:19:01	7	multiple droplets in an immiscible fluid in separated
04:19:05	8	form.
04:19:10	9	Q. And if there is a substantially enclosed space
04:19:15	10	that is sized to accommodate multiple droplets in an
04:19:18	11	immiscible fluid in separated form, that could also be a
04:19:22	12	separation chamber; correct?
04:19:25	13	A. Again, it sounds like it meets the definition
04:19:28	14	that I've described of a chamber sized to accommodate
04:19:32	15	multiple droplets in an immiscible fluid in separated
04:19:35	16	form.
04:20:27	17	Q. All right. Dr. Anna, can you please now take
04:20:31	18	a look at paragraph 97 of your report. And I've
04:20:36	19	directed you to that page.
04:20:39	20	A. Okay. I see it.
04:20:48	21	Q. And is it your opinion that the term "droplet
04:20:51	22	receiving outlet" should be construed as a portion of
04:20:55	23	the separation chamber where droplets are collected?
04:21:00	24	A. That's what I stated in paragraph 97 of my
04:21:03	25	declaration.

04:21:09	1	Q. And your construction of the droplet receiving
04:21:13	2	outlet includes a droplet receiving outlet that would
04:21:20	3	collect substantially only droplets; correct?
04:21:31	4	A. I'm sorry. Do you mind repeating that?
04:21:35	5	Q. Sure.
04:21:38	6	Your construction of the droplet receiving
04:21:40	7	outlet includes a -- strike that.
04:21:52	8	Your construction of the droplet receiving
04:21:56	9	outlet includes an outlet where -- that collects the --
04:22:03	10	substantially only droplets?
04:22:09	11	A. You know, I think I said something about that,
04:22:11	12	but I can't remember exactly what. Is it okay if I look
04:22:14	13	at that portion of my declaration --
04:22:16	14	Q. Sure. Go ahead and look at your declaration.
04:22:19	15	A. -- to refresh my memory.
04:23:34	16	I don't see those exact words. I know I said
04:23:37	17	something about that. I apologize that I'm just getting
04:23:39	18	kind of tired right now so I can't quite put the
04:23:40	19	words -- remember exactly how I put them together.
04:23:46	20	Can you point me -- do you know where -- it
04:23:48	21	doesn't say that in my description of the claims
04:23:51	22	constructions right here.
04:24:06	23	Q. And so my question isn't whether your
04:24:10	24	construction says it, but it's -- it's whether your
04:24:15	25	construction excludes outlets that would collect

04:24:19	1	substantially only droplets.
04:24:26	2	A. Whether the construction excludes outlets
04:24:28	3	that -- I'm sorry. You want to know if a droplet -- if
04:24:31	4	in my opinion a droplet receiving outlet excludes
04:24:37	5	outlets that receive substantially only droplets?
04:24:41	6	Q. Correct.
04:25:11	7	A. I don't know that I could say that. I simply
04:25:13	8	would just say that the droplet receiving outlet, as
04:25:17	9	long as it's a portion of the separation chamber where
04:25:20	10	droplets are collected, as I've stated in paragraph 97,
04:25:24	11	if it contains substantially only droplets, I -- you
04:25:31	12	know, that's not explicitly defined right here. And as
04:25:34	13	I said, I can't quite remember exactly how I put that
04:25:39	14	together right at this moment sitting here.
04:25:51	15	Oh, here. I'm sorry. If we go to
04:25:53	16	paragraph 100, it says: The 837 specification -- I say
04:25:57	17	the 837 specification also explains that wherever
04:26:00	18	located the droplet receiving outlet is the place in the
04:26:05	19	separation chamber where droplets are collected.
04:26:06	20	And then I give a quote from this reference.
04:26:09	21	The chamber includes an outlet that is positioned to
04:26:13	22	receive substantially only the partitioned portions of
04:26:15	23	the sample which we can construe to mean the droplets.
04:26:22	24	So that's at least a part of my description
04:26:26	25	here.

04:26:27 1 Q. So is it fair to say your construction doesn't
04:26:32 2 require that the outlet collect substantially only
04:26:36 3 droplets, but it would include outlets where
04:26:43 4 substantially only droplets are collected?

04:26:53 5 MR. BAKER: Objection to form.

04:27:11 6 THE WITNESS: I don't quite -- so you put that
04:27:14 7 together in a certain way. I mean, basically what I've
04:27:19 8 said here is that, again, a droplet receiving outlet is
04:27:22 9 the portion of the separation chamber where the droplets
04:27:25 10 are collected. And there's a part where the
04:27:27 11 specification of the '837 patent describes it as an
04:27:31 12 outlet that's positioned to receive substantially only
04:27:34 13 partitioned portions of the sample. It's not
04:27:37 14 necessarily the only possibility. Again, I've just said
04:27:40 15 it's the place in the separation chamber where the
04:27:43 16 droplets are collected.

04:27:45 17 BY MS. JAMESON:

04:27:46 18 Q. So let me break it down and see if that helps.

04:27:50 19 So your construction doesn't require that the
04:27:57 20 droplet receiving outlets collect substantially only
04:28:02 21 droplets.

04:28:18 22 A. Well, I think again the '837 specification
04:28:22 23 discusses that, but I've just said in paragraph 97 that
04:28:27 24 we can construe the droplet receiving outlet as a
04:28:32 25 portion of the separation chamber where droplets are

04:28:35	1	collected.
04:28:37	2	Q. So I'm trying to understand your answer there.
04:28:44	3	And so when you're saying what should be the
04:28:49	4	construction of droplet receiving outlet, that doesn't
04:28:53	5	require that substantially only droplets be collected;
04:28:59	6	correct?
04:29:29	7	A. Well, again, I've said that in my opinion the
04:29:34	8	claim term "droplet receiving outlet" should be
04:29:37	9	construed just as a portion of the separation chamber
04:29:40	10	where droplets are collected.
04:29:42	11	And then again I've pointed out that the '837
04:29:46	12	specification in one place describes that as an outlet
04:29:52	13	that's positioned to receive substantially only the
04:29:55	14	partitioned portions of the sample. And so that would
04:29:59	15	be included in that definition.
04:30:06	16	Q. So collecting substantially only droplets is
04:30:10	17	included in your construction of droplet receiving
04:30:15	18	outlet, but it's not required.
04:30:24	19	A. Well, again, I think that I've just said that
04:30:27	20	the portion -- that the droplet receiving outlet is the
04:30:30	21	portion of the separation chamber where droplets are
04:30:33	22	collected. And then one example of that that the '837
04:30:38	23	specification describes is a place in the separation
04:30:43	24	chamber or an outlet that's positioned to receive
04:30:47	25	substantially only the partitioned portions of the

04:30:50 1 sample.

04:30:50 2 So I think I've said what you wanted me to
04:30:53 3 say. I've included -- that's included in that
04:30:55 4 definition that I've given.

04:31:02 5 Q. Thank you. And I understand that you're
04:31:04 6 saying that it's included. And I'm just trying to get
04:31:09 7 clarity on the fact that your construction doesn't say
04:31:13 8 that it's required that substantially only droplets are
04:31:17 9 collected at the droplet receiving outlet.

04:31:53 10 A. Again, I think I've been clear that the
04:31:55 11 definition that I've described in paragraph 97 that we
04:31:57 12 were looking at is that it should be construed as a
04:32:00 13 portion -- the droplet receiving outlet should be
04:32:03 14 construed as a portion of the separation chamber where
04:32:06 15 the droplets are collected. And one way that that's
04:32:08 16 described in the '837 specification is to talk about it
04:32:12 17 as -- that one embodiment as a chamber that includes an
04:32:17 18 outlet that's positioned to receive substantially only
04:32:20 19 partitioned portions of the sample.

04:32:30 20 Q. You said that. And I understand, but my
04:32:33 21 question is your construction of droplet receiving
04:32:37 22 outlet doesn't include the terms substantially only
04:32:40 23 droplets; correct?

04:32:45 24 A. I've given you what my definition describes
04:32:47 25 here, at least in paragraph 97 that says: In my opinion

04:32:52	1	the claim term droplet receiving outlet should be
04:32:55	2	construed as a portion of the separation -- as a, quote,
04:32:59	3	portion of the separation chamber where droplets are
04:33:02	4	collected, end quote, which is consistent with the
04:33:05	5	intrinsic record.
04:33:08	6	That's the full thing about paragraph 97. And
04:33:10	7	so that quote does not contain what you're asking about
04:33:13	8	specifically. But again that's cited elsewhere in the
04:33:18	9	'837 specification as one embodiment of that.
04:33:23	10	Q. And so an embodiment where substantially only
04:33:28	11	droplets are collected is just one embodiment; correct?
04:33:34	12	A. Well, that's the way that the '837
04:33:37	13	specification describes it in that embodiment, is that
04:33:41	14	it's positioned to receive substantially only the
04:33:44	15	partitioned portions of the sample.
04:33:46	16	But, again, in my paragraph 97 of my
04:33:49	17	declaration I've talked about it as a portion of the
04:33:51	18	separation chamber where droplets are collected.
04:33:56	19	Q. And so your construction is not limited to
04:34:03	20	outlets that collect substantially only droplets;
04:34:09	21	correct?
04:34:12	22	A. Again, I think that my construction says a
04:34:15	23	particular thing. It says it's a portion of the
04:34:18	24	separation chamber where the droplets are collected.
04:34:21	25	And then a specific embodiment described in the '837

04:34:26	1	specification talks about it as an outlet that's
04:34:28	2	positioned to receive substantially only the partitioned
04:34:32	3	portions of the sample.
04:34:41	4	Q. As you applied the definition of "droplet
04:34:44	5	receiving outlet" in your analysis in these IPRs, did
04:34:49	6	you understand that the droplet receiving outlet
04:34:52	7	requires receiving substantially only droplets?
04:34:56	8	A. What I understood is that -- and as I said
04:34:59	9	here, I construed it to be a portion of the separation
04:35:01	10	chamber where the droplets are collected. That
04:35:05	11	particular quote does not contain information about
04:35:08	12	exactly how much droplet and how much other material is
04:35:12	13	there, but it's a portion of the separation chamber
04:35:15	14	where the droplets are collected.
04:35:18	15	Q. And so your opinion on the construction of
04:35:23	16	droplet receiving outlet is that it does not require
04:35:30	17	that the outlet receives substantially only droplets?
04:35:35	18	A. Well, as I've said, that's a place -- that's a
04:35:38	19	particular phrase that's used in the '837 specification.
04:35:45	20	Q. And I understand that you've said that, and I
04:35:50	21	think that what you're saying is that it is -- that
04:35:58	22	embodiments where substantially only droplets are
04:36:02	23	collected are included in the droplet receiving outlet
04:36:07	24	definition that you've provided, but the definition that
04:36:11	25	you provided isn't limited only to those embodiments;

04:36:16	1	correct?
04:36:18	2	A. Well, I think, again, I've just -- I've said
04:36:21	3	this a number of times now. The definition that I've
04:36:24	4	stated in paragraph 97 is that the droplet receiving
04:36:28	5	outlet is the portion of the separation chamber where
04:36:31	6	droplets are collected. And then a specific embodiment
04:36:35	7	is described in the '837 patent.
04:36:38	8	I'm not sure how much more clear I can be.
04:36:40	9	The '837 specification describes it in that particular
04:36:44	10	way, and paragraph 97 does not.
04:36:53	11	Q. So please try to answer my question "yes" or
04:36:57	12	"no."
04:36:59	13	Does your construction of droplet receiving
04:37:02	14	outlet require that substantially only droplets be
04:37:10	15	collected?
04:37:17	16	A. My opinion is that the droplet receiving
04:37:19	17	outlet should be construed as the portion of the
04:37:22	18	separation chamber where droplets are collected. That
04:37:26	19	is what I have said as the -- in paragraph 97.
04:37:35	20	So as long as it meets that definition, then
04:37:38	21	we can count it as the droplet receiving outlet. And
04:37:42	22	one way that that can happen is through the
04:37:44	23	specification in the '837 that specifically describes
04:37:48	24	this outlet that's positioned to receive substantially
04:37:51	25	only the partitioned portions of the sample.

04:37:57 1 Q. And I think I know -- and I think based on
04:38:28 2 what you've just said, I think I understand what your
04:38:31 3 answer is going to be, but can you please try to give me
04:38:37 4 a yes-or-no answer.

04:38:40 5 Does your construction of droplet receiving
04:38:43 6 outlet require that substantially only droplets be
04:38:46 7 collected?

04:38:50 8 A. I feel like I've answered this already. In
04:38:53 9 paragraph 97, I give a definition of the droplet
04:38:56 10 receiving outlet which says a portion of the separation
04:39:00 11 chamber where droplets are collected, and it doesn't
04:39:03 12 include that part that you're saying. That's described
04:39:08 13 in the '837 specification, and I call it out as a quote
04:39:12 14 that's given in the '837 specifications in a
04:39:15 15 particular -- specification in a particular embodiment.

04:39:21 16 So I think I'm answering your question that
04:39:23 17 since it doesn't say that specifically in the
04:39:25 18 construction that I put in paragraph 97, then as long as
04:39:30 19 it meets the definition given in paragraph 97, then we
04:39:34 20 would construe it as a droplet -- I would construe it as
04:39:37 21 a droplet receiving outlet.

04:39:47 22 Q. So that's, no, your construction does not
04:39:49 23 require that the droplet receiving outlet receive
04:39:52 24 substantially only droplets.

04:39:55 25 A. Again, I give this definition, and the

04:39:58	1	definition is what I use to make the assessment of
04:40:03	2	whether -- in my analysis of these quotes. So I'm not
04:40:06	3	sure how much more clear you need me to be.
04:40:09	4	I've said that my definition of a droplet
04:40:10	5	receiving outlet is a portion of the separation chamber
04:40:13	6	where droplets are collected. So if that's satisfied,
04:40:16	7	then I would construe it as a droplet receiving outlet.
04:40:39	8	MR. BAKER: Samantha, we've been going for a
04:40:41	9	while. Is now a good time for a break? I mean, if
04:40:44	10	you're going to wrap up this line of questioning, we can
04:40:47	11	keep going with this but --
04:40:48	12	MS. JAMESON: Yeah, I'll wrap up this line of
04:40:50	13	questioning, and then we can take a break.
04:40:53	14	MR. BAKER: Is that okay with you, Dr. Anna?
04:40:54	15	Are you --
04:40:58	16	THE WITNESS: Yeah, that's fine.
04:40:59	17	MR. BAKER: Okay.
04:40:59	18	BY MS. JAMESON:
04:41:01	19	Q. Dr. Anna, the words of your construction in
04:41:05	20	paragraph 97 don't contain a requirement that
04:41:09	21	substantially only droplets be collected at the droplet
04:41:14	22	receiving outlet; correct?
04:41:17	23	A. Again, I think I've answered this. It says in
04:41:20	24	paragraph 97 that I construe a droplet receiving outlet
04:41:25	25	to be a portion of the separation chamber where droplets

04:41:28	1	are collected. And then I talk about a specific
04:41:30	2	instance of that in the '837 specification which is an
04:41:34	3	outlet configured to receive substantially only
04:41:38	4	droplets.
04:41:41	5	So I think I've said -- I think I've said that
04:41:45	6	in the paragraph 97 as long as that definition a portion
04:41:49	7	of the separation chamber where droplets are collected,
04:41:53	8	then I would construe it as a droplet receiving outlet.
04:42:28	9	MS. JAMESON: All right. Let's go ahead and
04:42:29	10	take a break.
04:42:32	11	THE VIDEOGRAPHER: We're going off the record
04:42:34	12	at 4:42 p.m.
04:42:36	13	(Recess taken at 4:42 p.m.)
04:55:23	14	(Proceedings resumed at 4:55 p.m.)
04:55:23	15	THE VIDEOGRAPHER: We are back on the record
04:55:24	16	at 4:55 p.m.
04:55:28	17	BY MS. JAMESON:
04:55:28	18	Q. Dr. Anna, please take a look at paragraph 109
04:55:33	19	of your declaration in IPR 086.
04:55:39	20	A. Okay. I see it in front of me.
04:55:41	21	Q. Okay. Is it your opinion that the term
04:55:49	22	"coupled" should be construed as operably linked?
04:55:54	23	A. That's what I wrote in paragraph 109, yes.
04:55:57	24	Q. And that construction includes when two things
04:56:03	25	are fastened or joined; correct?

04:56:12	1	A. Well, I don't recall using that exact wording,
04:56:15	2	but "operably linked" could include various
04:56:18	3	configurations.
04:56:20	4	Q. And it does include configurations -- the
04:56:26	5	configurations of being fastened or joined?
04:56:31	6	A. I suppose it could include fastened or joined
04:56:35	7	as long as the -- as long as it was also operably
04:56:39	8	linked.
04:56:43	9	Q. A physical connection would meet your
04:56:46	10	definition of operably linked; correct?
04:56:52	11	A. I don't know that. I guess I'd need some
04:56:54	12	information about the context. Again, as long as it's
04:57:00	13	operably linked, then I would say that it can be
04:57:03	14	construed as coupled.
04:57:10	15	Q. If two things are physically fastened to each
04:57:14	16	other, are they operably linked?
04:57:17	17	A. I don't know. You'd have to give me some more
04:57:19	18	information about the context.
04:57:29	19	Q. So you don't know whether the term "coupled"
04:57:34	20	includes physical connections?
04:57:40	21	A. I don't know what context you're talking
04:57:42	22	about. What I've said is that if they're operably
04:57:46	23	linked, then they're coupled. So as long as they're
04:57:49	24	operably linked, then it could include those things.
04:58:09	25	Q. What would you need to know to determine

04:58:11	1	whether two structures are operably linked?
04:58:29	2	A. So if the structures are operably linked,
04:58:33	3	then -- so I would need to know -- I mean, you know, I
04:58:38	4	need to know whether they still operate in the manner
04:58:41	5	intended, which is essentially what I mean by operably
04:58:46	6	linked.
04:58:47	7	So it's not sufficient to say that
04:58:49	8	something -- two things are fastened or joined together.
04:58:52	9	I don't remember the exact terminology you used. It
04:58:57	10	needs again for them to be operably linked, which means
04:59:01	11	that they operate as intended when linked together.
04:59:43	12	Q. Would you say that two things are linked if
04:59:47	13	they are fastened or joined together?
04:59:58	14	A. I guess I don't know for sure. I mean, that
05:00:04	15	seems like a reasonable connection to me, but -- but,
05:00:09	16	again, you haven't really given me any details about a
05:00:14	17	specific situation.
05:00:17	18	Q. So you wouldn't know from just the term
05:00:20	19	"coupled" whether it would cover fastening or joining?
05:00:32	20	A. Well, again, because I've stated this
05:00:35	21	definition of coupled being construed as operably
05:00:39	22	linked, then that's what I would need to have happen in
05:00:42	23	order for something to be coupled. It's not enough to
05:00:45	24	just say fastened or joined, as you've said. I believe
05:00:50	25	those are the words you used. It needs to be operably

05:00:53	1	linked.
05:01:26	2	Q. Take a look in your declaration at
05:01:29	3	paragraph 110.
05:01:33	4	A. Okay.
05:01:34	5	Q. And do you see where it describes dependent
05:01:40	6	claim 8 and it says that claim 8 describes something
05:01:48	7	where there is an outlet sealably coupled to the vessel.
05:02:01	8	Do you see that?
05:02:01	9	A. I see that.
05:02:13	10	Q. And in that type of fastening or joining, you
05:02:16	11	would say that that is an operable linkage; correct?
05:02:26	12	A. Well, what I see in paragraph 110 is a
05:02:29	13	description of claim 8 that describes the outlet being
05:02:37	14	sealably coupled to the vessel. And also there's a part
05:02:41	15	about claim 7 and I would consider those to be coupled
05:02:44	16	if they're operably linked. So that's one place where
05:02:50	17	that term "coupled" is used, and I'm specifically saying
05:02:53	18	here that I construe it to mean operably linked.
05:02:59	19	Q. So if there is a physical seal to a vessel,
05:03:06	20	that's an example of an operable linkage?
05:03:12	21	A. Well, claim 8 just says it's sealably coupled,
05:03:17	22	and I've construed "coupled" to mean operably linked.
05:03:38	23	Q. So my question is separate from paragraph 110
05:03:43	24	and what you're describing there, if there is a physical
05:03:48	25	seal between a vessel and an outlet, is that an operable

05:03:55	1	linkage?
05:03:56	2	A. I don't know. You haven't given me any other
05:03:59	3	details about it. So I could not tell just by saying
05:04:02	4	that there's a physical seal whether or not it's
05:04:05	5	operably linked and therefore whether or not it's
05:04:09	6	coupled. All I know is that there's a physical seal of
05:04:13	7	some sort. You haven't told me any details about it.
05:04:16	8	Q. What additional details do you need?
05:04:18	9	A. Well, I don't even know what things are
05:04:20	10	physically sealed. And I don't know what -- anything
05:04:24	11	about the geometry. I'm not even sure if you're talking
05:04:27	12	about microfluidic devices. There's -- I mean, there's
05:04:31	13	zero detail in what you've said.
05:04:44	14	Q. So knowing that there is a physical seal
05:05:10	15	between an outlet and a vessel, that isn't enough to
05:05:15	16	know whether or not it's operably linked?
05:05:19	17	A. A physical seal between an outlet and a
05:05:22	18	vessel. I guess I don't really know. I mean, again, we
05:05:28	19	need some more details. I would need some more details
05:05:31	20	about what you mean by the seal and what that -- what
05:05:35	21	that specifically looks like to know whether or not it's
05:05:38	22	operably linked.
05:05:43	23	Even in claim 8 it just says it's sealable
05:05:47	24	coupled, and then we're talking about the word "coupled"
05:05:51	25	whether or not that is operably linked. So, you know,

05:05:54	1	the seal part of it doesn't necessarily imply operably
05:05:58	2	linked or not.
05:06:05	3	Q. So you don't know for claim 8 whether the
05:06:07	4	vessel is operably linked to the outlet?
05:06:11	5	A. Well, I've construed the definition of the
05:06:13	6	word "coupled" to be operably linked. So claim 8 says
05:06:21	7	sealably coupled. And since I've defined the term
05:06:25	8	"coupled" as operably linked, then I am construing that
05:06:28	9	to be what claim 8 means.
05:06:53	10	Q. So if the outlet of a separation chamber is
05:06:57	11	fastened to a vessel, is that an operable link?
05:07:10	12	A. I don't know because I don't know what you
05:07:13	13	mean by "fastened." I don't know how it's fastened,
05:07:16	14	where it's fastened, what that fastening looks like. I
05:07:21	15	don't know what it has to do with the coupling between
05:07:23	16	those two things.
05:07:54	17	Q. So if there is an attachment between the
05:08:00	18	outlet of a separation chamber and a vessel, is that
05:08:07	19	going to be an operable link?
05:08:12	20	A. Same answer. I don't know what that
05:08:14	21	attachment looks like so I can't say what that
05:08:18	22	attachment has to do with the coupling between the two.
05:08:24	23	Q. So you can't say whether physical linkages
05:08:28	24	between the outlet of a separation chamber and a vessel
05:08:34	25	are covered by your description of an operable linkage?

05:08:52	1	A. Without more detail about a specific physical
05:08:56	2	situation, it is not clear. It's not possible to say
05:09:00	3	whether or not a physical linkage is the same as being
05:09:04	4	operably linked.
05:09:07	5	Q. What information do you need to determine
05:09:10	6	whether a physical linkage is an -- is operably linked?
05:09:15	7	A. Well, I need to understand what two things are
05:09:20	8	being linked physically, how they're being physically
05:09:23	9	linked, what their geometries are, what their physical
05:09:29	10	linkage geometry is, what the nature of the linkage is,
05:09:32	11	probably a few other things. I don't have enough
05:09:36	12	information to know what you even mean by physical
05:09:39	13	linkage.
05:09:56	14	Q. And so I said in my question that the two
05:10:02	15	things being physically linked are an outlet of a
05:10:06	16	separation chamber and a vessel. Based on that, can you
05:10:14	17	answer my question about whether it would be possible to
05:10:20	18	determine whether a physical linkage is an operable
05:10:24	19	linkage?
05:10:25	20	A. I still don't think that's enough information
05:10:27	21	to determine whether that physical linkage is operably
05:10:34	22	linked because I still don't know what the outlet looks
05:10:37	23	like, what the vessel looks like, and what the specific
05:10:41	24	physical linkage is between the two and what the
05:10:43	25	geometry of that is. So I still don't really know any

05:10:47	1	of the information that I asked for other than what the
05:10:49	2	names of the two items are.
05:11:11	3	Q. So for the terms "outlet" and "vessel," you
05:11:16	4	can't tell from those terms what the geometry of those
05:11:22	5	would be; correct?
05:11:25	6	A. Right. There's no description of a geometry
05:11:28	7	of an outlet or a vessel so far.
05:12:11	8	Q. Can you give me an example of a physical link
05:12:15	9	between an outlet and a vessel that would be an operable
05:12:20	10	linkage?
05:12:24	11	A. Again, this is a wide open question. I don't
05:12:26	12	know what the outlet looks like. I don't know what the
05:12:28	13	vessel looks like. I mean, I need a place to start.
05:12:34	14	That's too open of a question.
05:12:38	15	Q. So you can't -- you don't have enough
05:12:44	16	information about what an outlet is and what a vessel is
05:12:55	17	to be able to know what a physical linkage would be
05:13:02	18	between them that would be an operable linkage?
05:13:08	19	A. Well, first of all, I don't know what an
05:13:10	20	outlet looks like. I mean, it just says it's an outlet.
05:13:12	21	It doesn't give me any information about what it
05:13:15	22	actually looks like, how it's configured, what its
05:13:18	23	geometry is.
05:13:20	24	Similar to the vessel. A vessel is just a
05:13:22	25	word that describes -- you know, it's just a vessel. It

05:13:25	1	doesn't tell me anything about what it looks like.
05:13:28	2	So if I don't know what those two things look
05:13:30	3	like, then I'm not sure how I can come up with a
05:13:33	4	physical linkage or know anything about whether or not
05:13:37	5	that particular physical linkage is going to have
05:13:39	6	anything to do with the coupling between them.
05:14:44	7	Q. Dr. Anna, can you please turn in your
05:14:46	8	declaration in the 086 petition to what's going to be
05:14:54	9	page 70 of the PDF.
05:15:02	10	A. I can't do it online. I can look at it on my
05:15:05	11	physical declaration if you want.
05:15:07	12	Q. You're welcome to view either. I should have
05:15:10	13	moved you now to page 70 in the online version.
05:15:17	14	A. 70. Which paragraph do you want me to look
05:15:19	15	at?
05:15:20	16	Q. You can look at -- start with paragraph 177.
05:15:25	17	And these are your opinions on secondary considerations
05:15:31	18	in support of a finding of nonobviousness.
05:15:34	19	A. I still can't see that in the online version.
05:15:38	20	Q. Okay. Can you tell me what page you're on on
05:15:42	21	the online version?
05:15:44	22	A. The page I'm looking has paragraph -- it
05:15:45	23	says -- it's labeled page 42, might be page 47 in the
05:15:49	24	PDF.
05:15:50	25	Q. All right. Let me try again.

05:15:52	1	A. Now I can see -- sorry, now I can see
05:15:55	2	Section 3, several secondary considerations support a
05:15:59	3	finding of nonobviousness.
05:16:01	4	Is that what you want me to look at?
05:16:03	5	Q. That is what I want you to look at.
05:16:05	6	A. Okay.
05:16:18	7	Q. And your opinions on secondary considerations
05:16:21	8	go from paragraph 177 through paragraph 195; correct?
05:16:32	9	A. Well, again I can't scroll here. Clearly they
05:16:36	10	start at 177, and I'll just take a look in here to make
05:16:39	11	sure that that end number...
05:16:42	12	Q. Sure.
05:16:47	13	A. Right. So in my declaration, the Section 3
05:16:50	14	starts at 177 and goes through 195.
05:17:05	15	Q. And in this section where you're describing
05:17:09	16	secondary considerations, you have not provided in your
05:17:12	17	declaration an analysis of the features of Bio-Rad's
05:17:22	18	ddPCR product; correct?
05:17:23	19	MR. BAKER: Objection to form and foundation.
05:17:38	20	THE WITNESS: Can you repeat your question? I
05:17:42	21	have not provided what? Sorry, I missed the details.
05:17:44	22	BY MS. JAMESON:
05:17:45	23	Q. You have not provided in your declaration an
05:17:47	24	analysis of the features of Bio-Rad's ddPCR's product.
05:17:54	25	A. Well, I've talked about the ddPCR product. I

05:17:57	1	don't know what you mean by an analysis of the features.
05:18:04	2	Q. So let's talk about the QX200 and the QX100.
05:18:14	3	You understand that those are Bio-Rad products that
05:18:15	4	perform droplet digital PCR?
05:18:19	5	A. I do understand that.
05:18:21	6	Q. And I'll refer to those as the ddPCR products.
05:18:26	7	A. Okay.
05:18:27	8	Q. Okay.
05:18:31	9	A. And just to be clear, those are two products
05:18:35	10	that fall into the ddPCR platform, but they're also
05:18:40	11	other things besides those products. But if we just
05:18:43	12	want to use shorthand, then I understand.
05:18:46	13	Q. What other products are you including?
05:18:49	14	A. I'm just saying that here I've stated the
05:18:52	15	patent owner's ddPCR platform including the QX100 and
05:18:58	16	QX200 and the AutoDG droplet generator. There may be
05:19:01	17	others too. I didn't really list them. At least not in
05:19:03	18	paragraph 179.
05:19:04	19	So I just wanted just to be clear that the
05:19:06	20	ddPCR is a platform and there are multiple products
05:19:11	21	under that.
05:19:11	22	So you're just saying -- I'm just making sure
05:19:14	23	I'm clear that you're using QX100 and QX200
05:19:18	24	interchangeably with ddPCR, but ddPCR may actually
05:19:23	25	include other things.

05:19:24	1	Q. Thank you for that clarification. And when
05:19:26	2	we're talking about ddPCR, let's talk about the ddPCR
05:19:31	3	platform that you're referring to.
05:19:34	4	A. Okay.
05:19:35	5	Q. Those products that you mentioned.
05:19:40	6	All right. And for the ddPCR products, you
05:19:45	7	haven't provided an analysis of the different features
05:19:52	8	that those products have; correct?
05:19:56	9	MR. BAKER: Objection to form. Foundation.
05:20:00	10	THE WITNESS: Again, I'm not sure what you
05:20:02	11	mean about an analysis of the different features of
05:20:05	12	those products. I've certainly discussed the ddPCR
05:20:09	13	platform in the context of this patent that we're
05:20:12	14	discussing here.
05:20:14	15	BY MS. JAMESON:
05:20:15	16	Q. There are multiple features in the ddPCR
05:20:20	17	products; correct?
05:20:23	18	A. Well, since the products usually have multiple
05:20:27	19	features, certainly there probably are.
05:20:33	20	Q. And you haven't analyzed each of the features
05:20:41	21	of those ddPCR products; correct?
05:20:45	22	MR. BAKER: Objection to form and foundation.
05:20:48	23	BY MS. JAMESON:
05:20:48	24	Q. In your declaration.
05:20:53	25	A. Well, again, that's still a pretty broad

05:20:56	1	statement. I've discussed the ddPCR platform in the
05:21:00	2	context of the patent that we're considering here, the
05:21:05	3	'837 patent. At least we're looking at my 86
05:21:08	4	declaration so that's about the '837 patent.
05:21:10	5	So I discussed those products or that platform
05:21:14	6	in the context of this patent. I don't know what you
05:21:18	7	mean by, you know, analysis of the features. I didn't
05:21:22	8	reproduce the manual for these products here, but
05:21:26	9	certainly I discuss it in the relevant context.
05:21:30	10	Q. You haven't provided in your declaration an
05:21:35	11	analysis that explains which features are, for example,
05:21:42	12	relevant to customers and which are not; correct?
05:21:50	13	MR. BAKER: Objection to form and foundation.
05:22:24	14	THE WITNESS: So, again, perhaps I'm
05:22:26	15	forgetting the exact wording of your question, but again
05:22:29	16	I've described the ddPCR platform and I've described
05:22:34	17	some things about the features that are relevant to the
05:22:37	18	patent at issue.
05:22:40	19	So in terms of analysis of the features, you
05:22:43	20	know, I've certainly discussed some things, and we could
05:22:46	21	get into specifics about those features. I don't know
05:22:48	22	if that's what you would like to do. But I've certainly
05:22:53	23	discussed the products and I've certainly discussed some
05:22:58	24	of the features.
	25	/ / /

05:22:59	1	BY MS. JAMESON:
05:23:03	2	Q. You haven't done any analysis of whether the
05:23:10	3	number of colors supported by the QX200 drives its
05:23:15	4	success; correct?
05:23:23	5	MR. BAKER: Objection to form and foundation.
05:23:41	6	THE WITNESS: Again, I've described the ddPCR
05:23:45	7	platform and the features that are relevant to this
05:23:50	8	patent. I don't think I've specifically mentioned the
05:23:57	9	color, but I've certainly discussed the features that
05:24:00	10	are relevant in this context.
05:24:05	11	BY MS. JAMESON:
05:24:06	12	Q. Do you know how many colors the QX200 platform
05:24:10	13	supports?
05:24:17	14	A. Well, I wasn't asked to opine about colors.
05:24:20	15	Again, I was asked to opine about this patent, the '837
05:24:24	16	patent, and the relevance of the products, ddPCR, in the
05:24:30	17	ddPCR platform within the context of this patent.
05:24:37	18	So as I'm sitting here today, I can't tell you
05:24:40	19	how many colors there are.
05:24:42	20	Q. And you haven't analyzed whether the number of
05:24:49	21	samples that can be run on the QX200 in parallel drives
05:24:56	22	its success?
05:25:00	23	MR. BAKER: Objection. Form and foundation.
05:25:28	24	THE WITNESS: So, again, as I've said, I've
05:25:31	25	discussed the ddPCR platform in the context of features

05:25:37	1	that are relevant to this patent, in the '837 patent in
05:25:41	2	particular in the 86 declaration. And, yeah, I mean,
05:25:50	3	that's what I've discussed is the relevance of the ddPCR
05:25:54	4	platform to this particular patent that we're
05:25:56	5	discussing. I have not been asked to opine about other
05:26:00	6	aspects of it.
05:26:02	7	BY MS. JAMESON:
05:26:28	8	Q. And so the answer is, no, you haven't analyzed
05:26:32	9	whether the number of samples that can be run on the
05:26:35	10	QX200 in parallel drives its success?
05:26:39	11	MR. BAKER: Objection to form and foundation.
05:26:45	12	THE WITNESS: Again, in this section in these
05:26:47	13	paragraphs that we were describing, I discuss the ddPCR
05:26:52	14	platform and specifically in the context of the '837
05:26:57	15	patent. I've not been asked to analyze the other
05:27:02	16	features of the ddPCR platform. I have been asked to
05:27:07	17	consider the ddPCR platform in the context of this
05:27:12	18	patent that we're describing.
05:27:13	19	BY MS. JAMESON:
05:27:13	20	Q. So the only features that you considered were
05:27:15	21	the ones that you considered relevant to performing the
05:27:19	22	'837 patent in your analysis; correct?
05:27:23	23	A. Well, I considered, you know, the product as a
05:27:28	24	whole and the success of the product, and I considered
05:27:31	25	the relevance of this patent to the success of that

05:27:33	1	product.
05:27:37	2	Q. And you have not looked at any other features
05:27:44	3	other than the ones that you consider relevant to the
05:27:48	4	patent; correct?
05:27:51	5	MR. BAKER: Objection.
05:27:59	6	THE WITNESS: Again, in my declaration, what
05:28:00	7	I've described is the aspects of the ddPCR platform and
05:28:09	8	the products therein as they pertain to the patent at
05:28:15	9	issue.
05:28:23	10	BY MS. JAMESON:
05:28:24	11	Q. Do you know how many samples run in parallel
05:28:27	12	on the QX200 platform?
05:28:32	13	A. Off the top of my head, no, I don't know the
05:28:35	14	number of samples that run in parallel on the QX200
05:28:39	15	platform.
05:28:39	16	Q. How about on the AutoDG droplet generator?
05:28:47	17	A. Off the top of my head, I don't know that
05:28:49	18	number either. And, again, that was not something that
05:28:52	19	I was asked to opine about specifically.
05:28:56	20	Q. And you don't know whether the number of
05:28:58	21	samples that can be run in parallel matters to
05:29:02	22	customers; correct?
05:29:09	23	A. Again, I wasn't asked to opine about whether
05:29:12	24	or not the number of samples that can be run in parallel
05:29:15	25	matters to customers. What I was asked to opine about

05:29:19 1 is whether these secondary considerations, which include
05:29:22 2 long-felt need, commercial success, praise, and
05:29:25 3 acquiescence in licensing, as I've listed in paragraph
05:29:29 4 177 here, support a finding of nonobviousness in the
05:29:34 5 '837 claims.

05:29:38 6 And there are plenty of features that are
05:29:40 7 relevant to the '837 claims that support those, as I've
05:29:43 8 described in these paragraphs 177 through 195.

05:29:47 9 Q. And how did you decide which features you were
05:29:50 10 going to learn about and which features you weren't
05:29:54 11 going to learn about?

05:29:56 12 A. Well, I didn't say that I didn't learn about
05:29:59 13 any of the other features. I just said that I described
05:30:02 14 in my declaration the features that were most relevant
05:30:05 15 to the patent at issue and these products.

05:30:21 16 Q. You haven't considered whether the cost per
05:30:25 17 run drives the success of the ddPCR products; correct?

05:30:32 18 MR. BAKER: Objection to form.

05:30:39 19 THE WITNESS: Again, what I have considered is
05:30:42 20 whether or not these secondary considerations support a
05:30:46 21 finding of nonobviousness in the '837 claims themselves
05:30:50 22 with respect to the ddPCR platform.

05:30:56 23 There were other features, but the particular
05:30:58 24 features that are relevant to this patent are the ones
05:31:01 25 that I chose to describe in my declaration.

05:31:07	1	BY MS. JAMESON:
05:31:08	2	Q. Do you know what the cost per run is for the
05:31:14	3	ddPCR products?
05:31:16	4	A. Off the top of my head, I don't know what the
05:31:17	5	cost per run is. That's not something I have in my head
05:31:21	6	right now.
05:31:26	7	Q. Let's also --
05:31:28	8	A. And also I just want to be clear that that was
05:31:30	9	something that I was not asked to opine about.
05:31:33	10	Q. Were you asked not to opine about cost per
05:31:38	11	run?
05:31:41	12	A. I was not specifically asked to opine about
05:31:43	13	it.
05:31:47	14	Q. Did you only opine on features that you were
05:31:50	15	specifically asked to opine about?
05:31:54	16	A. I opined about features that I felt were
05:31:56	17	relevant to the connection between the patent at issue,
05:31:59	18	in this case the '837 patent, and the platform, the
05:32:05	19	ddPCR platform and the products therein.
05:32:21	20	Q. And so you haven't opined about any of the
05:32:23	21	features that you did not think were relevant to the
05:32:26	22	connection between the '837 patent and the ddPCR
05:32:31	23	platform; correct?
05:32:35	24	A. Well, again, what I've been -- what I tried to
05:32:39	25	do in my declaration was to support the -- or to discuss

05:32:46	1	how this secondary considerations of long-felt need,
05:32:49	2	commercial success, praise, and acquiescence in
05:32:51	3	licensing, as I've listed in paragraph 177, pertain to a
05:32:56	4	finding of nonobviousness of the '837 claims.
05:33:00	5	So I describe things in my declaration that
05:33:02	6	were relevant to those questions pertaining to the '837
05:33:07	7	patent in particular in this declaration.
05:33:10	8	Q. And my question was that you have not opined
05:33:15	9	about any of the features that you did not think were
05:33:18	10	relevant to the connection between the '837 patent and
05:33:20	11	the ddPCR platform; correct?
05:33:27	12	A. Well, I would say it differently. I have
05:33:29	13	opined about the ones I felt were relevant to that
05:33:31	14	connection between the secondary considerations and the
05:33:34	15	'837 patent.
05:33:38	16	Q. And you have not opined about the others?
05:33:49	17	A. I suppose that's an implication there, but
05:33:52	18	really what I've done is I've opined about the ones that
05:33:55	19	I felt were relevant to that connection.
05:34:02	20	Q. That implicates that you have not opined about
05:34:05	21	the features that you did not feel were relevant to the
05:34:08	22	connection between the '837 patent and the ddPCR
05:34:12	23	platform?
05:34:14	24	A. Well, again, what I've said is that I've
05:34:17	25	opined about the features that I felt were relevant to

05:34:19 1 this particular connection between the patent at issue
05:34:22 2 and the secondary considerations that I've listed
05:34:25 3 before.

05:34:35 4 Q. You have not described in your report any
05:34:37 5 analysis of whether any other features of the ddPCR
05:34:43 6 products drive their success; correct?

05:34:53 7 MR. BAKER: Objection to form.

05:34:58 8 THE WITNESS: So, again, I just go back to
05:34:59 9 what I said before. In this section of my declaration
05:35:02 10 between paragraphs 177 and paragraph 195, I've been -- I
05:35:09 11 was specifically considering how the ddPCR platform and
05:35:15 12 the products therein had several secondary
05:35:19 13 considerations that had to do with the finding of
05:35:22 14 nonobviousness of the '837 claim, and that's what this
05:35:25 15 section describes.

05:35:41 16 BY MS. JAMESON:

05:35:41 17 Q. So that's not an answer to my question. My
05:35:44 18 question was: You have not described in your report any
05:35:48 19 analysis of whether any other features of the ddPCR
05:35:57 20 products drive their success; correct?

05:35:59 21 MR. BAKER: Objection, form.

05:36:00 22 THE WITNESS: Again I was not asked to do a
05:36:01 23 full analysis of all the features of the ddPCR platform
05:36:04 24 and what specifically drives their success. That wasn't
05:36:07 25 the question that I was asked. I was asked to consider

05:36:09 1 the patent in question, the '837 patent. And in
05:36:13 2 particular in this section of the patent, I'm opining
05:36:16 3 about whether or not secondary considerations support a
05:36:20 4 finding of nonobviousness, and so I analyzed features
05:36:24 5 that were pertinent to that.

05:36:31 6 BY MS. JAMESON:

05:36:31 7 Q. You have not described in your declaration any
05:36:33 8 analysis of whether other features of the ddPCR products
05:36:38 9 led to awards or praise that are cited in your
05:36:42 10 declaration; correct?

05:36:45 11 MR. BAKER: Objection to form.

05:36:50 12 THE WITNESS: Again, what I was asked to opine
05:36:52 13 about was not a general consideration of all the things
05:36:54 14 that might have led to different awards. What I was
05:36:58 15 specifically asked to consider was the patent at issue,
05:37:00 16 in this case the '837 patent, and whether or not the
05:37:05 17 secondary considerations support a finding of
05:37:08 18 nonobviousness.

05:37:10 19 And so in that case, what I was examining were
05:37:14 20 whether or not the features of the '837 patent helped
05:37:19 21 support those secondary -- or had to do with those
05:37:23 22 secondary considerations and helped support that
05:37:25 23 finding.

05:37:25 24 So I was not asked to consider and I could not
05:37:29 25 do for you today a full analysis of all of the features

05:37:32	1	and all of the different things that drove success.
05:37:35	2	That's not the question. The question is whether or not
05:37:37	3	these features of the '837 patent led to those secondary
05:37:42	4	considerations.
05:37:43	5	BY MS. JAMESON:
05:37:55	6	Q. And you have not described in your declaration
05:37:57	7	any analysis of whether other features of the ddPCR
05:38:00	8	products led to them needing a long-felt need that you
05:38:07	9	cite in your declaration; correct?
05:38:14	10	A. Again, I wasn't asked to opine about all the
05:38:17	11	different features of the ddPCR and all the different
05:38:19	12	possible things that contributed to the success of the
05:38:24	13	ddPCR products, their platform and products that are
05:38:29	14	included in that platform.
05:38:32	15	I was asked to discuss whether or not there
05:38:35	16	are secondary considerations specifically pertaining to
05:38:37	17	the '837 patent and whether or not those secondary
05:38:40	18	considerations with respect to the '837 patent support a
05:38:44	19	finding of nonobviousness.
05:38:46	20	And my paragraphs 177 through 195 discuss that
05:38:51	21	and state my opinion that those secondary considerations
05:38:55	22	in light of the '837 patent do in fact support that
05:38:59	23	finding of nonobviousness.
05:39:06	24	Q. Are you familiar with Bio-Rad's ddSEQ
05:39:11	25	products?

05:39:13 1 A. I'm familiar with it in the sense that I know
05:39:15 2 about it. I don't know what you mean by familiar. I
05:39:26 3 mean, I've also mentioned it here.

05:39:41 4 Q. And you have not described in your report any
05:39:43 5 analysis of whether features unrelated to the '837
05:39:50 6 patent drive this -- any success of the ddPCR -- or
05:39:54 7 the -- excuse me -- the ddSEQ products?

05:40:03 8 A. Again, I wasn't asked to opine about all the
05:40:06 9 different ways that the different products that Bio-Rad
05:40:09 10 has led to their success. I didn't -- I was not asked
05:40:17 11 to opine about that, and I did not analyze that.

05:40:20 12 What I did do is I opined about how the
05:40:25 13 secondary considerations that I've listed lead to a
05:40:29 14 finding of nonobviousness specifically in light of the
05:40:32 15 '837 patent at issue.

05:40:35 16 Q. Do you consider yourself an expert on the
05:40:37 17 features of the ddSEQ product and the reasons for its
05:40:41 18 success?

05:40:46 19 A. No, I would not consider myself an expert on
05:40:49 20 that. I would consider myself to understand it well
05:40:51 21 enough to be able to opine about the things I was asked
05:40:55 22 to opine about.

05:41:06 23 Q. And you have not described in your report any
05:41:09 24 analysis of whether features unrelated to the '837
05:41:14 25 patent drive -- strike that.

05:41:39	1	You have not described in your declaration any
05:41:41	2	analysis of whether any features other than those
05:41:44	3	related to the '837 patents led to any awards or praise
05:41:51	4	for the ddSEQ product; correct?
05:42:07	5	A. So you're asking -- I'm sorry. I think I lost
05:42:11	6	track of the details of your question.
05:42:13	7	Did I opine about whether or not the features
05:42:16	8	relevant to the '837 patent -- I'm sorry. I just need
05:42:21	9	you to repeat it. I apologize.
05:42:23	10	Q. You haven't opined in your declaration about
05:42:26	11	any of the features other than those that you consider
05:42:32	12	relevant to the '837 patent and whether they led to any
05:42:41	13	awards or praise for the ddSEQ products?
05:42:46	14	A. Again, I feel like I've answered this. I've
05:42:49	15	described that I wasn't asked to opine about all the
05:42:52	16	different features of the ddPCR products or all of
05:43:00	17	Bio-Rad's products and all the features that led to
05:43:03	18	their success or that drive their success.
05:43:06	19	What I was asked to opine about was relevant
05:43:09	20	to whether or not the secondary considerations that I've
05:43:12	21	listed and the features of the ddPCR products that lead
05:43:17	22	to those secondary -- or that helped with those
05:43:20	23	secondary considerations support a finding of
05:43:23	24	nonobviousness.
05:43:24	25	So I didn't engage in a detailed analysis of

05:43:26	1	all the features of these products and all the different
05:43:29	2	ways that each of the features might have led to awards
05:43:33	3	or to success of the products.
05:43:37	4	What I did was I analyzed the features that
05:43:40	5	pertained to the '837 patent and these findings of
05:43:43	6	secondary considerations -- these secondary
05:43:46	7	considerations that lead to a finding of nonobviousness.
05:44:01	8	Q. Did you consider the same features that were
05:44:05	9	relevant to the '837 patent relevant to the '722 patent?
05:44:11	10	A. Well, I would have to -- again, I don't have
05:44:15	11	all the text memorized. I'd have to go back and go and
05:44:21	12	compare the two in detail. There's obviously quite a
05:44:23	13	few paragraphs here. I don't know if they're identical
05:44:27	14	or not.
05:44:28	15	Q. What I want to know is we've been talking
05:44:30	16	about the features that were relevant to the '837
05:44:32	17	patent. And I want to know whether in the context of
05:44:35	18	the '722 patent you had considered any features other
05:44:42	19	than those you thought were relevant to the '722 patent
05:44:47	20	related to any of the secondary considerations that
05:44:50	21	we've been discussing.
05:44:52	22	A. Again, I could go back and look at my specific
05:44:55	23	declaration to compare the two. I don't remember the
05:44:57	24	exhaustive list of features that I considered for the
05:45:00	25	'837 versus '722. It's possible there were differences,

05:45:04	1	but right now I don't remember if those paragraphs are
05:45:07	2	identical off the top of my head.
05:45:09	3	Q. But when you were doing the secondary
05:45:11	4	considerations analysis for the '722 patent for the
05:45:16	5	products that we've been describing -- or discussing,
05:45:20	6	you also didn't consider in that analysis any features
05:45:25	7	other than those you considered relevant to the '722
05:45:27	8	patent; correct?
05:45:29	9	A. Again, similarly for the '722 patent as the
05:45:32	10	'837 patent, I wasn't asked to opine about all the
05:45:36	11	different features that might have led to the success of
05:45:39	12	these products and all the different features that might
05:45:41	13	have driven success or led to awards.
05:45:44	14	What I was asked to opine about specifically
05:45:46	15	were the features that had to do with either the '837
05:45:50	16	patent or the -- the '722 patent, depending on which
05:45:55	17	declaration you're looking at, and how -- sorry -- and
05:45:58	18	how those secondary considerations that I've listed
05:46:03	19	support a finding of nonobviousness. So, you know, I
05:46:08	20	would have considered the things that were relevant to
05:46:11	21	that particular question in each of those declarations.
05:46:13	22	And, again, I would need to look back to see
05:46:16	23	exactly what language I used, but I would have
05:46:19	24	considered the features I felt were relevant there to
05:46:22	25	support those findings and not a full analysis of all of

05:46:25	1	the different features.
05:46:56	2	Q. You have not described in your declarations
05:46:59	3	any analysis of whether the features unrelated to the
05:47:03	4	'837 or '722 patents met any long-felt need that you
05:47:09	5	identify.
05:47:15	6	A. I'm sorry. It must be getting late because
05:47:18	7	I'm having trouble parsing your question. Can you say
05:47:21	8	it again, please?
05:47:23	9	Q. Sure.
05:47:23	10	You have not described in your declaration any
05:47:26	11	analysis of whether the features unrelated to the '837
05:47:29	12	or '722 patents of the ddSEQ products met any long-felt
05:47:35	13	need.
05:47:36	14	A. Well, again, I think I just have to kind of
05:47:39	15	repeat what I've been saying. I was asked to talk about
05:47:42	16	specifically in light of the '837 and the '722 patents
05:47:47	17	whether or not those secondary considerations, which
05:47:50	18	include long-felt need, would have supported -- would
05:47:54	19	have been -- would have supported a finding of
05:47:56	20	nonobviousness in light of the success of these patents.
05:47:59	21	I didn't do a full analysis, again, of all the
05:48:02	22	different features and which ones drive success more and
05:48:06	23	which ones led to awards more. I simply looked at
05:48:10	24	whether or not the '837 patent or the '722 patent had
05:48:16	25	features that supported those secondary considerations.

05:48:21	1	And, again, as you can see from these
05:48:24	2	paragraphs, I did -- I did state the opinion that I felt
05:48:29	3	that those -- that finding of nonobviousness was
05:48:32	4	supported by the secondary considerations, including
05:48:35	5	long-felt need.
05:48:41	6	Q. You have not offered in your declarations any
05:48:45	7	analysis of whether features unrelated to the '837 or
05:48:52	8	'722 patents for 10x's products led to their commercial
05:48:58	9	success; correct?
05:49:26	10	A. So once again I apologize. My brain is
05:49:29	11	working a bit slower right now. I do talk about 10x's
05:49:33	12	products a little bit here. I don't -- I lost track of
05:49:37	13	your specific question.
05:49:38	14	Q. You have not described in your declaration any
05:49:40	15	analysis of whether the features of 10x's products
05:49:44	16	unrelated to the '837 or '722 patents led to the success
05:49:48	17	of 10x's products.
05:49:51	18	A. And, again, I would just repeat what I said
05:49:53	19	before that what I have been asked to opine about is
05:49:57	20	specifically about the secondary considerations in light
05:50:00	21	of the '837 and '722 patents. And some of those
05:50:06	22	secondary considerations include the commercial success
05:50:10	23	of both 10x and Bio-Rad's products.
05:50:13	24	But I, again, was not asked to do a detailed
05:50:16	25	product analysis for either one of those two companies

05:50:20	1	where I would have been able to discuss the relative --
05:50:27	2	the relevance -- the relative relevance, I guess, of the
05:50:31	3	different features toward the success and the awards and
05:50:34	4	so forth of each one of those products.
05:50:37	5	What I was asked to do was to think about and
05:50:39	6	opine about secondary considerations in light of these
05:50:42	7	two patents and this set of products.
05:50:47	8	Q. You have not described in your declaration any
05:50:50	9	analysis of whether the features of 10x's products
05:50:53	10	unrelated to the '837 and '722 patents led to praise for
05:50:57	11	10x's products; correct?
05:51:00	12	A. Once again, I was not asked to opine about all
05:51:03	13	the different features of all of these products, 10x or
05:51:08	14	Bio-Rad, for that matter.
05:51:09	15	What I was asked to opine about was whether or
05:51:12	16	not these secondary considerations were relevant to the
05:51:15	17	'837 and '722 patents and whether or not those secondary
05:51:20	18	considerations support a finding of nonobviousness.
05:51:29	19	Q. You have not described in your declaration any
05:51:31	20	analysis of whether the features of 10x's products
05:51:35	21	unrelated to the '837 or '722 patents led to 10x's
05:51:40	22	products satisfying a long-felt need; correct?
05:51:45	23	A. Once again, I wasn't asked to opine about all
05:51:48	24	the different features of all the different 10x and
05:51:52	25	Bio-Rad products.

05:51:53	1	What I was asked to think about and opine
05:51:56	2	about was whether or not the secondary considerations
05:51:59	3	that I've listed were pertinent to the '837 and '722
05:52:04	4	patents. And the features that were relevant to those
05:52:08	5	considerations are the ones that I opined about in my
05:52:11	6	declaration.
05:52:14	7	Q. You have not described in your declaration any
05:52:16	8	analysis of whether other RainDance patents unrelated to
05:52:20	9	the '837 or '722 patents led to Bio-Rad's acquisition of
05:52:27	10	RainDance; correct?
05:52:32	11	A. Once again, I was not asked to opine about all
05:52:35	12	the details of the acquisition of RainDance and
05:52:40	13	RainDance's products by Bio-Rad.
05:52:42	14	I was asked to specifically think about
05:52:45	15	whether or not the secondary considerations that I've
05:52:48	16	listed as relevant to the '837 and '722 patents support
05:52:53	17	a finding of nonobviousness. And so I described things
05:52:57	18	in my declaration that were pertinent to that.
05:53:02	19	Q. And you don't know how many other patents
05:53:05	20	Bio-Rad acquired when it acquired RainDance?
05:53:18	21	A. How many patents Bio-Rad acquired when it
05:53:21	22	acquired RainDance?
05:53:28	23	I don't believe I know that number. No. I
05:53:35	24	mean, you know, I say that here, for example, in
05:53:40	25	paragraph 178 I say that I understand the patent owner

05:53:44	1	acquired RainDance and all of its intellectual property
05:53:46	2	including the '837 patent. And that's in this
05:53:50	3	declaration so I'm presuming that I said something
05:53:52	4	similar about the '722 patent. But I don't recall off
05:53:57	5	the top of my head if I was even told how many patents
05:54:00	6	that would be. I may have been, but I don't recall that
05:54:03	7	number right now.
05:54:04	8	Q. And you don't know whether Bio-Rad also
05:54:05	9	acquired other business assets of RainDance when it
05:54:08	10	acquired RainDance; correct?
05:54:10	11	A. Again, I wasn't really asked to opine about
05:54:12	12	the acquisition of RainDance by Bio-Rad. So I don't
05:54:15	13	have access to all of those details. That was not what
05:54:18	14	I was asked to opine about.
05:54:24	15	Q. You have nevertheless offered opinions on the
05:54:28	16	patent owner acquiring RainDance; correct?
05:54:34	17	A. Well, for example, in my declaration, in the
05:54:38	18	86 declaration in paragraph 178, I state that I
05:54:42	19	understand that the patent owner acquired RainDance
05:54:44	20	Technologies and all of its intellectual property
05:54:46	21	including the '837 patent. And then I talk about how
05:54:50	22	this demonstrates the value that's been placed on the
05:54:53	23	protected features of the '837 patent.
05:54:56	24	So, again, I describe that as it pertains to
05:55:00	25	the '837 patent in this declaration and those secondary

05:55:05 1 considerations of commercial success and all the other
05:55:09 2 things that I've listed and whether they support a
05:55:11 3 finding of nonobviousness.

05:55:14 4 Q. But you don't have the details of what other
05:55:21 5 assets were acquired in that acquisition; correct?

05:55:32 6 A. I'm sure there are quite a number of details
05:55:35 7 pertaining to an acquisition of two companies like this.
05:55:38 8 And that wasn't what I was asked to opine about.

05:55:41 9 So what I've described here is the part that
05:55:44 10 in my opinion is relevant to those finding -- that
05:55:49 11 finding of nonobviousness in light of the secondary
05:55:52 12 considerations relevant to the patents '837 and '722.

05:55:56 13 Q. Were you provided information regarding
05:55:59 14 whether RainDance's patents were the primary value of
05:56:04 15 the acquisition of RainDance?

05:56:12 16 MR. BAKER: Objection to form.

05:56:14 17 THE WITNESS: Again, I wasn't asked to opine
05:56:16 18 about the entire acquisition of RainDance by Bio-Rad.
05:56:22 19 What I was asked to opine about is the secondary
05:56:26 20 considerations including long-felt need, commercial
05:56:29 21 success, praise and acquiescence and licensing, and
05:56:35 22 whether or not those support a finding of
05:56:38 23 nonobviousness.

05:56:38 24 And so to the extent that that acquisition
05:56:41 25 pertained to those secondary considerations, that's what

05:56:44	1	I opined about in my declaration.
05:56:48	2	BY MS. JAMESON:
05:56:49	3	Q. Do you know whether the patents were a major
05:56:53	4	part of the value of the RainDance acquisition?
05:56:57	5	MR. BAKER: Objection to form.
05:57:02	6	THE WITNESS: Again, that wasn't what I was
05:57:03	7	asked to opine about.
05:57:06	8	What I did opine about was the fact that this
05:57:08	9	acquisition, as I've stated in paragraph 178, that in my
05:57:13	10	opinion this acquisition of RainDance and all of its
05:57:17	11	intellectual property demonstrates the value that has
05:57:20	12	been placed on the protected features of the '837
05:57:23	13	patent. That's what I've stated in this declaration.
05:57:25	14	And that was what I was asked to analyze and opine
05:57:28	15	about.
05:57:29	16	BY MS. JAMESON:
05:57:29	17	Q. My question was whether you know if the
05:57:32	18	patents were a major part of the value of the RainDance
05:57:35	19	acquisition?
05:57:36	20	A. Again --
05:57:37	21	MR. BAKER: Objection --
05:57:38	22	THE WITNESS: Sorry.
05:57:38	23	MR. BAKER: Objection to form.
05:57:40	24	THE WITNESS: Thanks.
05:57:41	25	Again, to be clear, I wasn't asked to opine

05:57:44	1	about that. I don't know the answer to that and I
05:57:47	2	wasn't asked to opine about it.
05:58:01	3	BY MS. JAMESON:
05:58:01	4	Q. So you did no analysis of what the value of
05:58:04	5	RainDance to Bio-Rad was?
05:58:05	6	A. Again, I wasn't asked to do a value analysis.
05:58:09	7	I was asked to opine specifically in light of the '837
05:58:12	8	patent and the '722 patents and these secondary
05:58:16	9	considerations that are listed here.
05:58:40	10	Q. And you don't know how much Bio-Rad valued the
05:58:44	11	RainDance products or the research and development of
05:58:47	12	RainDance; is that correct?
05:58:56	13	A. Again, I wasn't asked to opine about the
05:58:58	14	valuation of RainDance by Bio-Rad.
05:59:02	15	I was asked to opine about the findings of
05:59:05	16	nonobviousness in light of secondary considerations.
05:59:10	17	And, again, in paragraph 178 here, I describe
05:59:13	18	the overall acquisition and that in my opinion it
05:59:20	19	demonstrates the value that's been placed on the
05:59:23	20	protected features of the '837 patent. I wasn't asked
05:59:26	21	to opine about the relative value in light of the entire
05:59:30	22	acquisition.
06:00:01	23	Q. And so you don't know what the value of the
06:00:03	24	'837 and '722 patents are relative to the value of the
06:00:10	25	RainDance acquisition; correct?

06:00:19	1	A. Again, to be clear, I wasn't asked to comment
06:00:22	2	or opine about valuation.
06:00:24	3	I was asked to opine about features that were
06:00:27	4	relevant to the '837 and '722 patents.
06:00:35	5	Q. Do you know whether Bio-Rad's ddSEQ product is
06:00:38	6	commercially successful?
06:00:47	7	A. I was, again, not really asked to analyze
06:00:49	8	that. I don't actually know how you would define
06:00:52	9	commercial success or how you're defining it -- defining
06:00:59	10	it in this question.
06:01:00	11	I apologize for stumbling over my words.
06:01:05	12	And again that wasn't something I was asked to
06:01:07	13	opine about.
06:01:08	14	Q. You weren't asked to opine about commercial
06:01:10	15	success?
06:01:12	16	A. No. I'm sorry. I was asked to opine about
06:01:16	17	whether or not commercial success was relevant to the
06:01:21	18	finding of -- to the secondary considerations and the
06:01:23	19	finding of nonobviousness of this '837 and '722 patent.
06:01:28	20	I don't believe that's the question you asked
06:01:29	21	me. I can't remember now. I apologize.
06:01:31	22	Do I know whether ddSEQ -- is that what you
06:01:34	23	asked me? Is ddSEQ commercially successful?
06:01:38	24	Q. That was a previous question, yes.
06:01:40	25	A. Oh, I'm sorry. What was the question that you

06:01:42	1	just asked me then?
06:01:44	2	Q. We can move on to that question.
06:01:48	3	Do you know whether ddSEQ was commercially
06:01:51	4	successful?
06:02:18	5	A. Again, I don't know exactly how you want to
06:02:21	6	define commercial success. I have, for example, some
06:02:23	7	things over here in paragraph 187 in this whole section
06:02:28	8	about commercial success where I state in my opinion
06:02:31	9	patent owner's products that embody the '837 patent have
06:02:35	10	also been a commercial success.
06:02:39	11	I -- you know, I'm not sure if I broke it down
06:02:42	12	to ddSEQ versus QX200 or QX100. But in general I state
06:02:48	13	the opinion that I stand by that the patent owner's
06:02:52	14	products have been, in general, commercial success.
06:02:55	15	Q. Do you have any basis in your declaration --
06:03:01	16	strike that.
06:03:02	17	How did you determine that Bio-Rad's products
06:03:05	18	were a commercial success?
06:03:51	19	A. Well, for example, if we just look at
06:03:53	20	paragraph 187 as an example, what I've described in this
06:03:58	21	paragraph is first stated again the opinion that the
06:04:03	22	patent owner's products have been a commercial success,
06:04:06	23	and I've also stated the opinion that the inventions
06:04:11	24	disclosed in the '837 patent contribute to this success.
06:04:14	25	And paragraph 187 describe -- describes some ways that I

06:04:20 1 came about that opinion.

06:04:22 2 And then if you see toward the end of
06:04:24 3 paragraph 187, I talk about the developments
06:04:28 4 representing a significant improvement on the prior art
06:04:31 5 that greatly advanced the capability of PCR and NGS and
06:04:36 6 I talk -- I reference some different websites about
06:04:40 7 awards and recognition and various scientists and
06:04:48 8 readers choice awards that were pertaining specifically
06:04:53 9 to those products or to the patent owner's products in
06:04:58 10 general.

06:05:07 11 Q. Did you look at any sales information? Is
06:05:09 12 there any sales information listed here on patent
06:05:12 13 owner's products?

06:05:19 14 A. Well, again, I wasn't asked to opine about
06:05:22 15 sales information specifically.

06:05:24 16 I was asked to opine about whether or not
06:05:27 17 commercial success was part of the secondary
06:05:29 18 considerations that can lead to a finding of
06:05:33 19 nonobviousness of the '837 and '722 patents.

06:05:38 20 Q. And you don't think that to do that you need
06:05:41 21 to know how successful the products have been in the
06:05:46 22 market?

06:05:47 23 MR. BAKER: Objection to form.

06:05:50 24 THE WITNESS: Well, again, the question isn't
06:05:52 25 about how successful they've been in the market. The

06:05:57	1	question is whether they've been a commercial success
06:06:00	2	and whether or not the '837 and '722 patents contributed
06:06:04	3	to that success. And that's what I was asked to opine
06:06:09	4	about.
06:06:10	5	And I opined about my opinion that the '837
06:06:13	6	and '722 patents did contribute to the commercial
06:06:16	7	success of those products.
06:06:18	8	I was not asked to think about or opine about
06:06:22	9	the relative commercial success compared to other
06:06:24	10	products or specifically how commercially successful
06:06:29	11	they were.
06:06:30	12	I was just asked to opine about whether or not
06:06:32	13	they were commercially successful. And I would say that
06:06:35	14	since they're products that exist in the market, that
06:06:38	15	they were commercially successful in that sense. And I
06:06:41	16	opined about the fact that that contributed to the
06:06:45	17	secondary considerations that support a finding of
06:06:48	18	nonobviousness of the '837 and '722 patents.
06:06:51	19	BY MS. JAMESON:
06:06:53	20	Q. The standard that you set for commercial
06:06:55	21	success here was that they're products that exist in the
06:06:58	22	market?
06:06:59	23	A. Well, that's certainly one consideration. And
06:07:01	24	there's also a listing here of various awards for those
06:07:06	25	products. And so those things all support the idea of

06:07:10 1 commercial success.

06:07:11 2 Q. And so it's your opinion that awards are
06:07:15 3 sufficient to show commercial success?

06:07:19 4 A. Well, again, I wasn't asked to opine about
06:07:21 5 relatively how commercially successful things are.

06:07:26 6 I was asked to opine about whether the
06:07:28 7 secondary consideration of commercial success in general
06:07:31 8 contributed to that finding of nonobviousness.

06:07:35 9 And we have products from the patent owner
06:07:38 10 that won numerous awards and were present in the
06:07:42 11 marketplace. And we also have petitioner's products
06:07:45 12 that also similarly were present in the marketplace and
06:07:50 13 generated revenue, et cetera, et cetera.

06:07:52 14 So I wasn't really asked to make a -- form an
06:07:56 15 opinion about which ones were more successful or less
06:07:59 16 successful. I was simply asked whether or not
06:08:02 17 commercial success contributed to the secondary
06:08:04 18 considerations that supported the finding of
06:08:09 19 nonobviousness of the '837 and '722 patents.

06:08:14 20 MR. BAKER: Samantha, we've been going for a
06:08:16 21 while. Is now a good time for a break?

06:08:18 22 MS. JAMESON: Let me finish up this line of
06:08:20 23 questions, and then we'll take a break.

06:08:28 24 MR. BAKER: Dr. Anna, is that okay with you?

06:08:31 25 THE WITNESS: Yeah, that's fine.

06:08:41 1 BY MS. JAMESON:

06:08:42 2 Q. So, Dr. Anna, do you know whether Bio-Rad's
06:08:49 3 ddSEQ product is commercially successful?

06:08:58 4 A. Again, I wasn't asked to opine specifically
06:09:01 5 about the commercial success of the ddSEQ patent. I did
06:09:06 6 discuss the commercial success of Bio-Rad's products in
06:09:10 7 general and how they pertain to the '837 patent and the
06:09:15 8 secondary considerations that we've been discussing for
06:09:17 9 a while now. But I didn't specifically answer the
06:09:22 10 question of whether the ddSEQ patent -- or sorry --
06:09:24 11 ddSEQ product is a commercial success. And it really
06:09:30 12 wasn't relevant to my question necessarily. I was
06:09:35 13 considering in general the products of the patent owner.

06:09:42 14 Q. And you haven't offered any opinion in your
06:09:45 15 report on why any products that are not commercially
06:09:48 16 successful would also not have been caused by practicing
06:09:54 17 a patent?

06:10:00 18 MR. BAKER: Object to the form.

06:10:05 19 THE WITNESS: Again, what I was asked to opine
06:10:07 20 about is whether or not the secondary considerations
06:10:11 21 that I've listed in paragraph 177, which are -- include
06:10:16 22 long-felt need, commercial success, praise and
06:10:19 23 acquiescence and licensing, support a finding of
06:10:23 24 nonobviousness of the '837 -- in the '837 claims and
06:10:27 25 also the '722 claims.

06:10:30 1 In order to do that, I considered commercial
06:10:34 2 success of a wide range of products. And I was not
06:10:36 3 asked to opine on the relative commercial success of
06:10:41 4 that list of products.

06:10:46 5 BY MS. JAMESON:

06:10:47 6 Q. And you also didn't opine on the relevance of
06:10:49 7 any lack of commercial success for practicing products;
06:10:52 8 correct?

06:10:58 9 A. Again, I wasn't asked to do a full analysis of
06:11:01 10 all of the success or nonsuccess of these products.

06:11:05 11 What I was asked to opine about is whether or
06:11:07 12 not these products have achieved commercial success and
06:11:12 13 whether or not that commercial success supports a
06:11:15 14 finding of nonobviousness of the '837 and the '722
06:11:19 15 claims.

06:11:20 16 And as I've stated in -- throughout these
06:11:24 17 paragraphs, I do -- I did reach the opinion that those
06:11:28 18 secondary considerations in general do support a finding
06:11:32 19 of nonobviousness of the claims within these patents.
06:11:37 20 And in particular, for example, I state that some of
06:11:41 21 these things demonstrate the value of the features
06:11:46 22 discussed in the '837 patent.

06:11:53 23 Again, I was not asked to opine about the
06:11:55 24 relative commercial success of a lot of different
06:11:57 25 products. I was just asked to discuss whether

06:12:00	1	commercial success led to these -- or contributed to
06:12:05	2	these secondary considerations.
06:12:08	3	Q. Were you informed that the ddSEQ product was
06:12:11	4	found to infringe 10x's patents?
06:12:16	5	MR. BAKER: Objection to form and foundation.
06:12:24	6	THE WITNESS: I know that there have been
06:12:27	7	several different cases going back and forth between
06:12:29	8	these companies. I may have been informed of the
06:12:33	9	results of some of them, but I don't recall specifically
06:12:35	10	that question.
06:12:37	11	BY MS. JAMESON:
06:12:38	12	Q. You didn't offer any opinions on whether any
06:12:40	13	commercial success was due to the patents in these IPRs
06:12:44	14	as opposed to 10x's patents?
06:12:49	15	A. Again, what I was asked to opine about was
06:12:52	16	whether or not these secondary considerations
06:12:54	17	contributed to a finding -- could support a finding of
06:12:58	18	nonobviousness within these claims -- within these
06:13:01	19	patents that are at issue today. So that's what I was
06:13:06	20	asked to opine about.
06:13:10	21	Q. And you didn't opine in your declaration on
06:13:14	22	whether other patents acquired from RainDance
06:13:21	23	contributed to any commercial success of Bio-Rad's
06:13:26	24	products; correct?
06:13:31	25	A. I think I've answered that question before.

06:13:33	1	What I said and what I'll repeat is that I was asked to
06:13:36	2	opine about whether or not commercial success
06:13:45	3	contributed to a finding of nonobviousness as one --
06:13:49	4	whether commercial success as one secondary
06:13:54	5	consideration contributed to a finding of nonobviousness
06:13:57	6	specifically of the '837 claims.
06:13:59	7	I wasn't asked to opine about whether or not
06:14:02	8	that was true for other patents. I simply was asked to
06:14:06	9	opine about whether or not commercial success was one of
06:14:09	10	the secondary considerations that could contribute and
06:14:13	11	support a finding of nonobviousness of the '837 claims.
06:14:16	12	And that is what I did.
06:14:21	13	Q. And so I'm going to ask you a couple questions
06:14:24	14	which I think should be just yes-or-no questions, and
06:14:27	15	then we'll take a break.
06:14:29	16	You didn't offer any opinions on whether any
06:14:33	17	commercial success was attributed to any 10x patents;
06:14:38	18	correct?
06:14:39	19	A. Again, I wasn't asked to opine about other
06:14:42	20	patents.
06:14:42	21	I was asked to opine about the '837 and the
06:14:45	22	'722 specifically and whether or not these secondary
06:14:49	23	considerations of long-felt need, commercial success,
06:14:53	24	praise, and acquiescence and licensing would support a
06:14:57	25	finding of nonobviousness of the '837 claims.

06:15:00 1 I wasn't asked the question that you asked me
06:15:02 2 just now about other 10x patents.

06:15:07 3 Q. And you haven't opined in your declaration on
06:15:12 4 whether any commercial success was attributable to any
06:15:18 5 patents that 10x may have licensed from other parties;
06:15:22 6 correct?

06:15:25 7 A. Again, I was not asked to opine about all the
06:15:29 8 different factors that may have led to the commercial
06:15:33 9 success of a product or products.

06:15:38 10 I was asked to consider whether or not
06:15:40 11 features of those products were pertinent to the '837
06:15:46 12 patent and the '722 patent and whether or not they --
06:15:55 13 whether or not the secondary considerations of -- that
06:15:59 14 I've listed here would support a finding of
06:16:01 15 nonobviousness of these patents.

06:16:04 16 I was not asked to opine about how other
06:16:07 17 patents contributed or didn't contribute to success.

06:16:12 18 Q. And you have not offered an opinion in your
06:16:15 19 declaration for 10x's products as to whether other
06:16:21 20 patents that Bio-Rad has accused 10x of infringing
06:16:27 21 contributed to 10x's commercial success; correct?

06:16:37 22 A. Again, I really wasn't asked to opine about
06:16:40 23 all the different patents that are -- that are contested
06:16:45 24 between Bio-Rad and 10x. I was asked specifically about
06:16:48 25 the '837 and the '722 patent.

06:16:51	1	And I was asked to consider how those might
06:16:55	2	have been -- how the secondary considerations of -- that
06:17:00	3	I've listed here, including commercial success, might
06:17:04	4	have fed into or supported a finding of nonobviousness
06:17:09	5	of the claims within the patents that I've been asked to
06:17:12	6	consider here.
06:17:12	7	I was not asked to opine about all the
06:17:15	8	different patents that are contested between these two
06:17:18	9	companies.
06:17:19	10	Q. And you have made no attempt in your
06:17:21	11	declaration to apportion the patents that 10x's products
06:17:25	12	do or do not use?
06:17:40	13	A. Once again, that wasn't what I was asked to
06:17:42	14	consider. I wasn't asked to consider how a variety of
06:17:47	15	different patents contribute to commercial success of a
06:17:51	16	given product.
06:17:52	17	I was simply asked to opine about whether or
06:17:55	18	not the '837 patent and the '722 patent contributed to
06:18:00	19	commercial success and whether or not that commercial
06:18:03	20	success was one secondary consideration that could
06:18:08	21	support a finding of nonobviousness of the '837 and '722
06:18:12	22	patents.
06:18:15	23	MS. JAMESON: Let's take a break.
06:18:16	24	THE VIDEOGRAPHER: We're going off the record
06:18:17	25	at 6:18 p.m.

06:18:21	1	(Recess taken at 6:18 p.m.)
06:32:21	2	(Proceedings resumed at 6:32 p.m.)
06:32:23	3	THE VIDEOGRAPHER: We are back on the record
06:32:24	4	at 6:32 p.m.
06:32:26	5	BY MS. JAMESON:
06:32:26	6	Q. Dr. Anna, can you please take a look at your
06:32:28	7	declaration in the 087 IPR.
06:32:36	8	A. Okay.
06:32:36	9	Q. And that should be Exhibit 6.
06:32:39	10	A. Yeah.
06:32:39	11	Q. Okay. Can you please take a look at
06:32:41	12	paragraph 75. It should be on page 34 of the PDF.
06:32:56	13	A. Yeah, I'm at paragraph 175 -- or 75. Sorry.
06:33:00	14	Q. And you've offered the opinion that the term
06:33:02	15	"sample" means a fluid containing molecules, cells,
06:33:06	16	small molecules, organic or inorganic, or particles;
06:33:12	17	correct?
06:33:12	18	A. Yes, that's what paragraph 75 says.
06:33:16	19	Q. Can you please take a look at paragraph 76.
06:33:22	20	A. Okay.
06:33:23	21	Q. Do you see where you quote the '837 patent,
06:33:26	22	and the quote that you have there is: Sample (i.e., a
06:33:34	23	fluid containing a sample such as molecules, cells,
06:33:38	24	small molecules (organic or inorganic) or particles).
06:33:45	25	Do you see that?

06:33:46 1 A. I do see that.

06:33:48 2 Q. And it's your opinion that this language in
06:33:53 3 the specification is a definition of the word "sample";
06:33:57 4 correct?

06:34:01 5 A. It is my opinion that this is the meaning that
06:34:05 6 the inventor has given to the term "sample" in the '837
06:34:09 7 patent.

06:34:10 8 Q. And you've said that this is the inventor's
06:34:16 9 express definition, in paragraph 76; correct?

06:34:22 10 A. Yes, that is what I have said in paragraph 76.
06:34:25 11 I've said that the -- specifically the inventor's
06:34:28 12 express definition fully supports the construction that
06:34:33 13 I wrote in paragraph 75.

06:34:39 14 Q. And what you're referring to there is the use
06:34:42 15 of "i.e." in the parenthetical is making that an express
06:34:49 16 definition?

06:34:54 17 A. Well, I suppose so. The inventor states
06:34:58 18 sample, i.e., which I think means "in other words," a
06:35:03 19 fluid containing a sample such as molecules, cells,
06:35:07 20 small molecules, organic or inorganic small particles.
06:35:13 21 And so I construe that to mean that that is -- I
06:35:15 22 construe that as the inventor giving the term "sample"
06:35:20 23 that meaning.

06:35:41 24 Q. Dr. Anna, you're aware that that's not an
06:35:43 25 accurate quote of the specification; correct?

06:35:48	1	MR. BAKER: Objection to form and foundation.
06:35:58	2	THE WITNESS: I guess I would have to go and
06:35:59	3	look at the reference that I've cited to determine that,
06:36:03	4	whether or not that's accurate.
06:36:07	5	BY MS. JAMESON:
06:36:08	6	Q. And so we'll mark the '837 patent as
06:36:12	7	Exhibit 14.
06:36:18	8	(Exhibit 14 was marked for identification.)
06:36:19	9	BY MS. JAMESON:
06:36:20	10	Q. And this -- Exhibit 14 is patent 9,562,837,
06:36:26	11	which is Exhibit 1001.
06:36:32	12	And if you go to PDF page 75, you should see
06:36:43	13	column 26.
06:36:49	14	A. Okay.
06:36:50	15	Q. Do you see there in column 26 where before the
06:36:59	16	parenthetical it says "a solution of a sample"?
06:37:15	17	A. I'm sorry. I'm getting tired. My glasses are
06:37:18	18	not working properly.
06:37:20	19	Okay. So on line 40 of column 26, it says
06:37:25	20	sample -- oh, I'm sorry. I see what you mean. Before
06:37:27	21	that. It says -- well, the full sentence says, "The
06:37:30	22	inlet module generally comprises a junction between the
06:37:35	23	sample inlet channel and the main channel such that a
06:37:38	24	solution of a sample, i.e.," in parentheses, "(a fluid
06:37:44	25	containing a sample such as molecules, cells, small

06:37:49 1 molecules (organic or inorganic) or particles) is
06:37:53 2 introduced to the main channel and forms a plurality of
06:37:56 3 droplets."

06:37:58 4 So that's what it says. And I'm -- and I'm
06:38:02 5 not sure what you're stating is inaccurate.

06:38:05 6 Q. Now, when that sentence says "solution of a
06:38:09 7 sample," that's what's actually being described in that
06:38:13 8 parenthetical; correct?

06:38:14 9 MR. BAKER: Objection to form and foundation.

06:38:22 10 THE WITNESS: Well, I certainly see the words
06:38:24 11 you're pointing to, a solution of a sample. I don't
06:38:31 12 necessarily agree that the inventor in this patent is
06:38:38 13 referring to a solution of a sample versus a sample. I
06:38:44 14 construed it to be referring to sample.

06:38:47 15 BY MS. JAMESON:

06:38:47 16 Q. Let's see. So right before the parenthetical
06:38:49 17 it says "solution of a sample," and then inside the
06:38:53 18 parenthetical it says "fluid containing a sample";
06:38:58 19 correct?

06:39:00 20 A. Well, I certainly see that that's part of the
06:39:02 21 sentence, but that parenthetical comes right after
06:39:05 22 "sample." And so I suppose it could refer to either
06:39:11 23 one. I've construed it to refer to "sample." I'm not
06:39:16 24 sure that that changes any conclusions that I've made
06:39:18 25 however. Certainly the -- it still is consistent with

06:39:23 1 the fact that the inventor has given meaning to the term
06:39:29 2 "sample" through this parenthetical.

06:39:35 3 Q. Now looking at this parenthetical and
06:39:37 4 "solution of a sample," "solution" lines up with the
06:39:42 5 word "fluid" in the parenthetical; correct?

06:39:45 6 MR. BAKER: Objection to form.

06:39:50 7 THE WITNESS: If you mean "solution" comes a
06:39:52 8 couple words before "sample," just like "fluid" comes a
06:39:57 9 couple words before "sample" in the parenthetical; is
06:40:00 10 that what you mean by lining up?

06:40:02 11 BY MS. JAMESON:

06:40:05 12 Q. Yeah. Looking at the parallel structure of
06:40:07 13 what comes before to what's within the parenthetical.

06:40:12 14 A. I guess if we're considering that to be
06:40:14 15 parallel structure, then we could say that. But also we
06:40:18 16 could read the parenthetical to come directly after the
06:40:21 17 word "sample."

06:40:24 18 Q. So you think that the inventor described
06:40:26 19 "sample" with the word "sample" in the parenthetical?

06:40:33 20 A. Well, that's how I've construed it. But also
06:40:36 21 it's not clear to me that that would change anything
06:40:39 22 about my opinions. The inventor has given meaning to
06:40:42 23 the term "sample" in this parenthetical regardless of
06:40:45 24 whether I read it as a solution of a sample being a
06:40:49 25 fluid containing a sample such as molecules, or if I

06:40:52	1	read it as a sample being a fluid containing a sample.
06:40:56	2	I'm not sure exactly what you're getting at.
06:40:58	3	Either way the inventor has given meaning to the word
06:41:03	4	"sample" through this parenthetical.
06:41:07	5	Q. So your opinion is that the best reading of
06:41:10	6	this is that the definition is of "sample" and that
06:41:16	7	definition defines "sample" with the word "sample"?
06:41:19	8	MR. BAKER: Objection to form.
06:41:23	9	THE WITNESS: All I'm saying is that the
06:41:24	10	inventor gives meaning to the term "sample" through that
06:41:27	11	parenthetical, and the parenthetical specifically says
06:41:30	12	"(a fluid containing a sample such as molecules, cells,
06:41:35	13	small molecules (organic or inorganic) or particles.)"
06:41:45	14	BY MS. JAMESON:
06:41:45	15	Q. Let's look at what follows "sample." So
06:41:48	16	inside the parenthetical, it says "(...sample such as
06:41:50	17	molecules...small molecules (organic or inorganic) or
06:41:54	18	particles)."
06:41:55	19	Do you see that?
06:41:56	20	A. I see that. And also it includes the term
06:41:58	21	"cell" in that list -- "cells" in that list.
06:42:02	22	Q. I didn't mean to leave that out.
06:42:10	23	The language "such as" is not definitional
06:42:15	24	language, is it?
06:42:18	25	MR. BAKER: Objection, form.

06:42:39	1	THE WITNESS: Again, as I read it, the
06:42:41	2	inventor has stated "sample" with a parenthetical
06:42:44	3	immediately after it, and then he uses "i.e." to mean in
06:42:49	4	other words, "a fluid containing a sample such as
06:42:52	5	molecules, cells, small molecules (organic or inorganic)
06:42:57	6	or particles," which again gives meaning to the term
06:43:02	7	"sample" in this patent.
06:43:07	8	BY MS. JAMESON:
06:43:07	9	Q. There's nothing that defines "sample" as
06:43:13	10	molecules, cell, small molecules (organic or inorganic)
06:43:18	11	or particles; correct?
06:43:27	12	A. Again, the inventor is expressly describing a
06:43:31	13	sample. He states the solution -- or he states the
06:43:36	14	sentence that starts with "the inlet module" and goes
06:43:40	15	through to the word "sample," and then immediately after
06:43:44	16	"sample" he says, in other words a fluid containing a
06:43:47	17	sample such as molecules, cells, small molecules,
06:43:50	18	organic or inorganic, or particles, which I construe to
06:43:55	19	give meaning to the term "sample."
06:44:03	20	Q. The language of your construction is
06:44:06	21	molecules, cells, small molecules, organic or inorganic,
06:44:11	22	or particles; correct?
06:44:14	23	A. I'm sorry. Can you say that again?
06:44:16	24	The language of my construction -- the
06:44:18	25	language of my construction is that section in quotes

06:44:23	1	starting with "sample" and going to the end of the
06:44:27	2	parenthetical.
06:44:33	3	Q. And the language in that parenthetical
06:44:40	4	connecting, as you're reading it, "sample" to the
06:44:43	5	descriptions that follow, molecules, cells, small
06:44:46	6	molecules, organic or inorganic, or particles, is the
06:44:50	7	language "such as"; correct?
06:44:56	8	A. Well, again, I don't think that's what the
06:44:58	9	construction says. Let me just look back at this.
06:45:05	10	I've stated in paragraph 75: "In my opinion,
06:45:07	11	the claim term "sample" means fluid containing
06:45:11	12	molecules, cells, sample -- small molecules, organic or
06:45:16	13	inorganic, or particles, which is consistent with that
06:45:19	14	parenthetical.
06:45:21	15	Q. The "such as" language is not definitional;
06:45:25	16	correct?
06:45:26	17	MR. BAKER: Objection to form.
06:45:33	18	THE WITNESS: I'm not certain what you mean by
06:45:35	19	that. What I am saying is that the inventor is giving
06:45:40	20	meaning to the term "sample" in the '837 patent where
06:45:44	21	this parenthetical is describing what a sample is.
06:45:49	22	BY MS. JAMESON:
06:46:02	23	Q. Well, what you said in your declaration is
06:46:04	24	that the -- there is an express definition from the
06:46:10	25	inventor; correct?

06:46:17	1	A. What I've said is in paragraph 76, the
06:46:23	2	intrinsic -- in my opinion the intrinsic evidence,
06:46:26	3	specifically the inventor's express definition, fully
06:46:30	4	supports this construction that I gave in paragraph 75.
06:46:32	5	And again in the '837 patent -- what I say is in the
06:46:39	6	'837 patent, the inventor gives the term "sample" the
06:46:43	7	meaning, quote, "sample, in other words, a fluid
06:46:46	8	containing a sample such as molecules, cells, small
06:46:50	9	molecules, organic or inorganic, or particles."
06:46:55	10	Q. And in your construction, you're leaving out
06:46:57	11	the part of the specification that repeats the word
06:47:01	12	"sample" in what you're saying is a definition of
06:47:03	13	"sample" and includes the language "such as"; correct?
06:47:08	14	MR. BAKER: Objection to form.
06:47:10	15	Objection to form.
06:47:14	16	THE WITNESS: Again, what I'm saying here is
06:47:16	17	that the construction "sample" means fluid containing
06:47:20	18	molecules, cells, small molecules, organic or inorganic,
06:47:24	19	or particles, which is consistent with the inventor's
06:47:29	20	statement of -- in that parenthetical of a "sample, in
06:47:34	21	other words, a fluid containing a sample such as
06:47:36	22	molecules, cells, small molecules, organic or inorganic,
06:47:41	23	or particles."
06:47:45	24	BY MS. JAMESON:
06:47:45	25	Q. And that "such as" language is not

06:47:47	1	definitional language; correct?
06:47:51	2	MR. BAKER: Objection to form.
06:47:57	3	THE WITNESS: Again, I've simply stated the
06:48:02	4	claim term "sample" means a fluid containing molecules,
06:48:06	5	cells, small molecules, organic or inorganic, or
06:48:11	6	particles. In paragraph 75, that is what I've stated as
06:48:14	7	my opinion of the construction of the word "sample"
06:48:17	8	based on a statement that the inventor made here that a
06:48:22	9	sample, in parentheses, in other words, is a fluid
06:48:28	10	containing sample such as molecules --
06:48:31	11	(Zoom audio distortion; clarification by the
06:48:31	12	Certified Stenographer.)
06:48:38	13	THE WITNESS: So as I was saying, the
06:48:41	14	parenthetical says "a fluid containing a sample such as
06:48:43	15	molecules, cells, small molecules, organic or inorganic,
06:48:45	16	or particles," which is consistent with the
06:48:49	17	construction -- or the meaning that the inventor gave to
06:48:51	18	the term "sample" is consistent with the construction
06:48:54	19	that I've stated in paragraph 75.
06:48:57	20	MS. JAMESON: Move to strike.
06:48:58	21	Q. Please answer my question.
06:49:01	22	The language "such as" is not definitional
06:49:05	23	language; correct?
06:49:06	24	MR. BAKER: Objection to form.
06:49:11	25	THE WITNESS: Again, I don't know if -- what

06:49:14 1 you mean by that. I've just simply taken meaning that
06:49:17 2 the inventor has given to the word "sample" through this
06:49:22 3 statement that I've read now multiple times to come up
06:49:27 4 with a construction that I've stated in paragraph 75 of
06:49:30 5 what a sample is.

06:49:33 6 MS. JAMESON: Move to strike.

06:49:35 7 Q. Please answer my question.

06:49:37 8 Now, you have used the words in your
06:49:40 9 declaration saying that there's an inventor's express
06:49:44 10 definition. Please tell me whether you think the
06:49:47 11 language "such as" is definitional language.

06:49:50 12 MR. BAKER: Objection to form.

06:49:54 13 THE WITNESS: Again, what I've stated is that
06:49:56 14 the inventor has made a definition of the "sample"
06:49:59 15 through this statement that we've read now multiple
06:50:02 16 times. And the construction of the term "sample" that
06:50:05 17 I've stated in paragraph 75 as listed there is
06:50:13 18 consistent -- or is support -- as I said in paragraph
06:50:18 19 77 -- 76, the intrinsic evidence, specifically this
06:50:24 20 inventor's express definition, fully supports the
06:50:27 21 construction that I've given in paragraph 75.

06:50:31 22 MS. JAMESON: Move to strike.

06:50:33 23 Q. And I want an answer to my question.

06:50:38 24 Please tell me whether you think the language
06:50:40 25 "such as" is definitional language.

06:50:43	1	MR. BAKER: Counsel.
06:50:45	2	THE WITNESS: Again.
06:50:45	3	MR. BAKER: Counsel, we need to take it down a
06:50:47	4	notch. Okay.
06:50:49	5	Objection to form.
06:50:50	6	Go ahead. Dr. Anna, you can answer.
06:50:56	7	THE WITNESS: Okay. Thank you.
06:50:57	8	I believe what I've stated is clear. In
06:51:00	9	paragraph 76 where I stated that the inventor's express
06:51:03	10	definition fully supports the construction that I've
06:51:06	11	stated in paragraph 75.
06:51:11	12	MS. JAMESON: I'm going to say, counsel, you
06:51:13	13	know full well I'm not getting an answer to my question.
06:51:16	14	I'm going to move to strike again. I'm going to ask it
06:51:18	15	again.
06:51:19	16	Q. Please answer my question.
06:51:22	17	My question is whether you think the language
06:51:27	18	"such as" is definitional. It's a yes-or-no question.
06:51:33	19	A. Well, again, I was asked to opine about
06:51:36	20	definition of the word "sample" and the construction of
06:51:39	21	the word "sample."
06:51:41	22	I was not asked -- I'm not a lawyer, and so
06:51:43	23	you seem to be using legal language about whether "such
06:51:47	24	as" is definitional. And what I'm saying is that I
06:51:50	25	looked at the patent and saw that the inventor gave an

06:51:53	1	express definition of the term "sample" through that
06:51:56	2	parenthetical, as we've discussed a number of times now.
06:52:00	3	And then the construction that I've given that is listed
06:52:05	4	again in paragraph 75 is fully supported by the
06:52:10	5	inventor's express definition.
06:52:16	6	Q. So you're saying "such as" is not definitional
06:52:19	7	language.
06:52:20	8	MR. BAKER: Objection to form.
06:52:23	9	THE WITNESS: Again, you seem to be using
06:52:26	10	legal language. I don't know exactly what you mean by
06:52:29	11	that.
06:52:29	12	What I have done is arrived at a definition of
06:52:34	13	"sample" that is fully supported by the meaning that the
06:52:39	14	inventor gave to "sample" in -- as in the quote that
06:52:43	15	I've given in that parenthetical in paragraph 76.
06:52:53	16	MS. JAMESON: I'll move to strike again.
06:52:56	17	BY MS. JAMESON:
06:52:56	18	Q. Dr. Anna, you used the words "express
06:53:00	19	definition"; correct?
06:53:02	20	A. In paragraph 76, I do describe the inventor's
06:53:06	21	express definition.
06:53:09	22	Q. Okay. So using whatever meaning of the words
06:53:16	23	that you're applying there, please tell me whether "such
06:53:20	24	as" is definitional language.
06:53:24	25	MR. BAKER: Objection to form.

06:53:30 1 THE WITNESS: Again, what I have said is that
06:53:32 2 the inventor gave the term "sample" meaning through the
06:53:37 3 parenthetical that's listed there. And then I have
06:53:41 4 stated an opinion about the claim term "sample" that's
06:53:45 5 listed again in paragraph 75.

06:53:50 6 So I'm not sure how I can be more clear about
06:53:53 7 my answer.

06:53:54 8 I have not opined specifically about the term
06:53:58 9 "such as." I have opined about a definition of the term
06:54:02 10 "sample" that's given in paragraph 75 and then comes
06:54:08 11 from or is supported by, rather, the inventor's express
06:54:14 12 definition, which is given through that parenthetical
06:54:18 13 that I've described again in paragraph 76.

06:54:23 14 BY MS. JAMESON:

06:54:23 15 Q. When you define a term for your students in
06:54:25 16 lectures, do you use the term "such as" to lead into a
06:54:29 17 definition of a term?

06:54:35 18 A. I couldn't tell you the answer to that. I --
06:54:36 19 yeah, I couldn't tell you the answer to that. I'd have
06:54:43 20 to think back and speculate about exact language that I
06:54:46 21 used when I was defining a term.

06:55:10 22 Q. When you are teaching your classes, do you use
06:55:12 23 the term "such as" to denote a nonlimiting list of
06:55:17 24 examples?

06:55:26 25 A. I -- you know, you're asking me to state

06:55:30	1	whether or not I used certain words in the past in
06:55:33	2	teaching class. I'm sure I've used the term "such as."
06:55:38	3	I'm sure I've used it to help understand a definition.
06:55:40	4	Whether or not I've used it to describe a limiting or
06:55:46	5	nonlimiting list, I couldn't tell you the answer to
06:55:49	6	that.
06:55:49	7	I probably have used it in various ways, and I
06:55:52	8	just don't know the answer to what you're saying because
06:55:54	9	that would require me to remember exact words that I've
06:55:59	10	stated when teaching lectures.
06:56:11	11	Q. Do you know one way or the other whether "such
06:56:15	12	as" is definitional?
06:56:26	13	A. Again, your terminology is not something I'm
06:56:30	14	familiar with. I don't know what it means for something
06:56:33	15	to be definitional.
06:56:36	16	I'm sure I've used the term "such as" in
06:56:39	17	describing various terms to my students. I could not
06:56:44	18	tell you specifically. I don't know what you mean by
06:56:48	19	the term "definitional."
06:56:51	20	Q. And so you don't know what that term "express
06:56:53	21	definition" meant in your declaration?
06:56:57	22	MR. BAKER: Objection to form.
06:57:00	23	THE WITNESS: Sorry.
06:57:01	24	What I've said here is that the inventor gave
06:57:04	25	an express definition by giving the term meaning, the

06:57:08	1	term "sample" meaning, through the text that the
06:57:10	2	inventor was writing, which included that parenthetical.
06:57:17	3	BY MS. JAMESON:
06:57:20	4	Q. That's still not answering my question.
06:57:24	5	Do you -- you have an opinion in your
06:57:29	6	declaration regarding the meaning of "sample such as"?
06:57:42	7	MR. BAKER: Objection to form.
06:57:48	8	THE WITNESS: Again, I have not specifically
06:57:49	9	opined about the phrase "sample such as."
06:57:52	10	What I have done is looked at the inventor's
06:57:57	11	description of the word "sample," and here in paragraph
06:58:03	12	76 I've described the inventor's express definition and
06:58:08	13	how that fully supports the construction of the word
06:58:10	14	"sample" that I've used in paragraph 75.
06:58:14	15	Again, the quote that I've given here from the
06:58:17	16	inventor is -- the full quote is "sample" with the
06:58:21	17	parenthetical, "(i.e., a fluid containing a sample such
06:58:25	18	as molecules, cells, small molecules (organic or
06:58:30	19	inorganic) or particles.)"
06:58:32	20	And I used that full statement to determine --
06:58:38	21	to help support the construction of the term "sample,"
06:58:44	22	which is how the inventor has given the term "sample"
06:58:47	23	meaning.
06:58:52	24	BY MS. JAMESON:
06:58:52	25	Q. Did you decide to include this quote in your

06:58:56	1	declaration of "sample" -- starting "sample (i.e.,) and
06:59:06	2	excluding the language "solution of a"?
06:59:29	3	MR. BAKER: Objection to form.
06:59:30	4	THE WITNESS: Again, in my reading of the
06:59:33	5	patent, that parenthetical comes directly after the word
06:59:37	6	"sample" and it gives meaning to the word "sample"
06:59:40	7	according to the inventor. And that is what I used to
06:59:45	8	help support the construction that I gave in
06:59:48	9	paragraph 75.
06:59:49	10	BY MS. JAMESON:
06:59:50	11	Q. Did you decide to start the quote at "sample"
06:59:53	12	and to omit "a solution of a"?
06:59:59	13	MR. BAKER: Objection to form.
07:00:03	14	THE WITNESS: Again, the parenthetical comes
07:00:05	15	directly after the word "sample," as I've listed it
07:00:09	16	here. And I used that to understand how the inventor
07:00:13	17	gave meaning to the word "sample" and then to construct
07:00:20	18	the definition that I've used for "sample" given in
07:00:24	19	paragraph 75.
07:00:29	20	MS. JAMESON: Move to strike.
07:00:30	21	Q. My question is whether you were the one who
07:00:32	22	decided to start the quote at "sample" and to omit
07:00:35	23	"solution of a"?
07:00:41	24	MR. BAKER: Objection.
07:00:42	25	THE WITNESS: Again --

07:00:43	1	MR. BAKER: Objection to form.
07:00:44	2	THE WITNESS: Sorry.
07:00:46	3	Again, I believe I've stated before that the
07:00:50	4	opinions in my declaration are mine. And I have used
07:00:56	5	that statement from the inventor that gives meaning to
07:01:01	6	the term "sample" that we've read multiple times before
07:01:04	7	to help support the construction that's given in
07:01:07	8	paragraph 75.
07:01:09	9	BY MS. JAMESON:
07:01:10	10	Q. Did you decide to truncate the quote to
07:01:13	11	exclude "a solution of a"?
07:01:17	12	MR. BAKER: Objection to form.
07:01:20	13	THE WITNESS: Again, I have used that
07:01:22	14	parenthetical to help give meaning to the term "sample."
07:01:27	15	That is what the inventor used to help give meaning to
07:01:30	16	the term "sample."
07:01:34	17	MS. JAMESON: I'm going to move to strike
07:01:35	18	again.
07:01:36	19	Q. I just want an answer to my question.
07:01:38	20	Did you decide to truncate the quote to
07:01:41	21	exclude "a solution of a"?
07:01:45	22	MR. BAKER: Objection to form.
07:01:50	23	THE WITNESS: Again, I presented in
07:01:54	24	paragraph 75 the construction that I've given for the
07:01:58	25	term "sample." And that is helped and supported by the

07:02:05	1	inventor's definition that's given through that
07:02:08	2	statement in the parenthetical.
07:02:15	3	BY MS. JAMESON:
07:02:15	4	Q. Dr. Anna, please, you are not answering my
07:02:17	5	questions. Please listen to my question and answer my
07:02:21	6	question.
07:02:23	7	Did you decide to truncate the quote to
07:02:26	8	exclude "a solution of a"?
07:02:31	9	MR. BAKER: Objection to form.
07:02:34	10	THE WITNESS: Again, I just want to reiterate
07:02:37	11	what I have done here which is to determine what the
07:02:40	12	inventor meant by the term "sample," which is contained
07:02:45	13	in that parenthetical that we've read numerous times now
07:02:52	14	that comes directly after the term "sample."
07:03:17	15	BY MS. JAMESON:
07:03:17	16	Q. Do you know that months ago there was briefing
07:03:23	17	filed in a District Court case related to these patents
07:03:27	18	that included the same omission from this quotation in
07:03:35	19	Bio-Rad's briefing?
07:03:37	20	MR. BAKER: Objection to form.
07:03:41	21	THE WITNESS: I'm sorry. I'm not aware
07:03:43	22	specifically of what you're referring to. If you'd like
07:03:46	23	to look at specific language, I'm happy to do that. I
07:03:49	24	don't know exactly what you're referring to.
	25	/ / /

07:03:52	1	BY MS. JAMESON:
07:03:52	2	Q. Do you recall submitting a claim construction
07:03:55	3	declaration related to these patents in District Court?
07:04:08	4	A. Again, yeah, if -- I don't know which case
07:04:14	5	you're referring to. Are you talking about District
07:04:16	6	Court, not including this case is what you're talking
07:04:20	7	about?
07:04:22	8	Q. These are the IPRs and there's a District
07:04:25	9	Court case related to the same patents. And so I'm
07:04:28	10	referring to the District Court case related to these
07:04:31	11	same patents that are in these IPRs.
07:04:34	12	A. Uh-huh. So I believe that I am aware of
07:04:39	13	briefing -- some briefings that were filed. I don't
07:04:41	14	know if I'm aware of the specific one that you're
07:04:44	15	referring to or not.
07:04:46	16	Q. Do you recall submitting a claim construction
07:04:47	17	declaration in that District Court proceeding?
07:04:53	18	A. We probably did, but honestly I don't really
07:04:56	19	remember off the top of my head exactly which briefings
07:04:59	20	were filed and which ones I'm aware of for that case.
07:05:04	21	That is not the case that I'm thinking about right now.
07:05:06	22	I'm aware of the case. I'm aware of briefings that were
07:05:10	23	filed specifically about claim construction. Probably I
07:05:14	24	just don't remember exactly that specifics right now.
07:05:27	25	Q. Were you aware of the fact that 10x had

07:05:30 1 already pointed out to Bio-Rad that this quotation that
07:05:34 2 you've included in your declaration was not an accurate
07:05:40 3 representation of what was in the specification?

07:05:52 4 A. Again, I don't have all the text in these
07:05:55 5 different briefings memorized. I don't recall that
07:05:58 6 specific statement off the top of my head right now.

07:06:01 7 Q. You weren't informed of that?

07:06:06 8 A. I'm not saying that. I'm just saying that I
07:06:08 9 don't recall that at the moment.

07:06:24 10 Q. Dr. Anna, are you aware of the fact that the
07:06:28 11 Ismagilov reference discloses a fluorinated oil?

07:06:35 12 A. I believe that there's some description of
07:06:37 13 fluorinated oils in Ismagilov.

07:06:42 14 Q. Are you also aware of the fact that Ismagilov
07:06:45 15 discloses an oil that contains a fluorinated polymer
07:06:53 16 surfactant?

07:06:54 17 MR. BAKER: Objection to the form and
07:06:55 18 foundation.

07:07:00 19 THE WITNESS: Again, I believe that the
07:07:02 20 Ismagilov reference describes those things that you're
07:07:06 21 stating. I don't recall the specific quotes or exactly
07:07:09 22 where that is in that particular reference, but I
07:07:13 23 believe there's some discussion of those things.

07:07:19 24 BY MS. JAMESON:

07:07:19 25 Q. And your understanding is that a fluorinated

07:07:28	1	surfactant would start out in the oil phase and when
07:07:33	2	droplets are formed, the surfactant molecules begin to
07:07:36	3	accumulate at the interface between the droplet and the
07:07:39	4	oil; is that correct?
07:07:41	5	MR. BAKER: Objection to form. Foundation.
07:07:42	6	Outside the scope. Relevance.
07:07:51	7	THE WITNESS: So, again, I wasn't really asked
07:07:52	8	to opine specifically about fluorinated surfactants or
07:07:56	9	fluorinated oils in the context of these patents.
07:08:04	10	So I don't know if you're referring to a
07:08:05	11	specific passage or situation that's described in
07:08:12	12	Ismagilov when you described that particular chain of
07:08:14	13	events. It wasn't really what I was asked to opine
07:08:18	14	about here.
07:08:34	15	BY MS. JAMESON:
07:08:34	16	Q. Are you aware of the fact that 10x's petitions
07:08:39	17	rely on the fluorinated compounds in Ismagilov?
07:08:48	18	MR. BAKER: Objection to form and foundation.
07:08:50	19	THE WITNESS: I'm sorry. Can you restate the
07:08:52	20	question? I missed the beginning details.
07:08:55	21	BY MS. JAMESON:
07:08:55	22	Q. Sure. Are you aware of the fact that 10x's
07:08:58	23	petition in these IPRs relied on the fluorinated
07:09:01	24	compounds in Ismagilov?
07:09:04	25	MR. BAKER: Same objections.

07:09:10	1	THE WITNESS: I don't know exactly where
07:09:11	2	you're obtaining the information that the 10x petition
07:09:16	3	relied on the fluorinated compounds. I'm happy to look
07:09:20	4	at specific texts that points to that. Again, I just
07:09:23	5	want to be clear that I wasn't asked to opine
07:09:25	6	specifically about fluorinated surfactants or
07:09:28	7	fluorinated oils.
07:09:50	8	BY MS. JAMESON:
07:09:50	9	Q. So is it the case that you -- you just don't
07:09:56	10	know how the fluorinated oils and fluorinated
07:09:58	11	surfactants work in Ismagilov?
07:10:02	12	MR. BAKER: Objection to form and foundation.
07:10:05	13	THE WITNESS: I don't think that I've said
07:10:06	14	anything about whether or not I understand how they
07:10:08	15	work. I simply wasn't asked to opine about them in this
07:10:11	16	case.
07:10:21	17	BY MS. JAMESON:
07:10:22	18	Q. So you viewed the disclosures related to
07:10:27	19	fluorinated compounds in Ismagilov is outside of the
07:10:31	20	scope of what you were offering opinions on?
07:10:33	21	MR. BAKER: Objection to the form and
07:10:35	22	foundation.
07:10:39	23	THE WITNESS: Again, there's quite a --
07:10:40	24	there's some discussion of these compounds within
07:10:43	25	Ismagilov. Can you point me to a specific one where

07:10:47	1	you're trying to -- that you're trying to ask me about?
07:10:50	2	BY MS. JAMESON:
07:10:50	3	Q. I'm trying to ask about your statement where
07:10:53	4	you said that you simply weren't asked to opine about
07:10:59	5	these compounds, and I'm trying to understand your
07:11:01	6	testimony.
07:11:05	7	A. Correct. I wasn't asked to opine specifically
07:11:07	8	about fluorinated surfactants and fluorinated oils. I
07:11:10	9	do recognize that there were discussions of those in
07:11:14	10	Ismagilov, but that's not specifically what was relevant
07:11:18	11	in this case for these patents.
07:11:29	12	Q. So you're not offering in your declarations
07:11:32	13	opinions about the fluorinated surfactants and
07:11:36	14	fluorinated oils in Ismagilov; correct?
07:11:40	15	MR. BAKER: Objection to form and foundation.
07:11:48	16	THE WITNESS: Again, I'm aware there were
07:11:55	17	discussions of the fluorinated surfactants and
07:11:57	18	fluorinated oils in Ismagilov. I wasn't specifically
07:12:00	19	asked to opine about the workings of the fluorinated
07:12:03	20	oils and the fluorinated surfactants as relevant to the
07:12:07	21	'837 patent and the '722 patent.
07:12:18	22	BY MS. JAMESON:
07:12:19	23	Q. Dr. Anna, how long did you spend preparing for
07:12:22	24	your deposition today?
07:12:23	25	A. Do you want me to add up hours? What are you

07:12:25	1	looking for? I've spent quite a bit of time preparing.
07:12:29	2	Q. Why don't you tell me your estimate for how
07:12:31	3	many hours you've spent.
07:12:33	4	A. Well, I'd need a second to think through it
07:12:36	5	and add it up.
07:12:39	6	Q. Why don't you do that now.
07:12:42	7	A. Sure.
07:12:42	8	(Brief pause.)
07:12:51	9	THE WITNESS: Well, I mean, I've spent a
07:12:53	10	number of hours reading the materials in question, and
07:12:57	11	I've spent a number of hours talking with Jim and John
07:13:04	12	regarding deposition preparation.
07:13:10	13	I probably can't put an exact number on it
07:13:12	14	right at the moment, but it's probably in the
07:13:15	15	neighborhood of -- let me think about it. You know, I
07:13:24	16	don't know, it's just an approximation, but probably in
07:13:30	17	the neighborhood of 16 or so hours over the last couple
07:13:34	18	of weeks.
07:13:35	19	I don't know that that's really as precise as
07:13:37	20	I've made it sound, but the number of hours both reading
07:13:42	21	and discusses with both Jim and John.
07:13:44	22	BY MS. JAMESON:
07:13:45	23	Q. How many discussions did you have with Jim and
07:13:49	24	John?
07:13:54	25	A. Well, you know, if I go to my calendar and

07:13:56 1 count, over the last couple of weeks it was several. I
07:14:02 2 don't know exactly. It was probably a handful, four or
07:14:05 3 five, something like that. I don't have an exact number
07:14:09 4 right now.

07:14:10 5 Q. How long did you spend preparing your
07:14:12 6 declarations in these IPRs?

07:14:15 7 A. I don't know the exact number of hours off the
07:14:18 8 top of my head. It was probably at least that many,
07:14:21 9 maybe more.

07:14:23 10 Q. 16 hours is what you're referring to there?

07:14:26 11 A. Well, I said 16 as an approximation, of
07:14:29 12 course. And the declaration, I'm sure, was in that
07:14:34 13 neighborhood, if not more. I don't have the exact count
07:14:38 14 at my disposal right now.

07:14:40 15 Q. You think it was in the range of -- or around
07:14:43 16 16 hours that you spent preparing your declarations?

07:14:48 17 A. It was probably easily 16 hours or so. That's
07:14:52 18 just an approximation.

07:14:57 19 Q. Have you had any conversations with your
07:15:01 20 counsel during the breaks during this deposition today?

07:15:05 21 A. Not about the substance of the deposition. We
07:15:07 22 talked about kids going back to school online and the
07:15:10 23 weather, things like that.

07:16:14 24 MS. JAMESON: All right. I don't have further
07:16:15 25 questions at this time.

07:16:19	1	MR. BAKER: Why don't we take a short break
07:16:21	2	and we will be right back.
07:16:25	3	MS. JAMESON: All right.
07:16:25	4	THE VIDEOGRAPHER: We're going off the record
07:16:26	5	at 7:16 p.m.
07:16:29	6	(Recess taken at 7:16 p.m.)
07:27:34	7	(Proceedings resumed at 7:27 p.m.)
07:27:35	8	THE VIDEOGRAPHER: We are back on the record
07:27:36	9	at 7:27 p.m.
07:27:38	10	MR. BAKER: We don't have any questions.
	11	THE VIDEOGRAPHER: Okay. So let me close the
	12	deposition off by saying we're off the video record at
	13	7:27 p.m. ending media number 7 of 7 in the deposition
	14	of Dr. Shelley Anna.
	15	(Proceedings adjourned at 7:27 p.m.)
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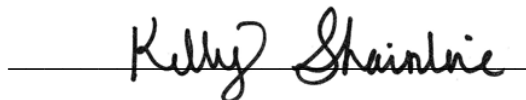
CERTIFICATE OF REPORTER

I, KELLY L. SHAINLINE, a Certified Shorthand Reporter, hereby certify that the witness in the foregoing deposition was by me duly sworn to tell the truth, the whole truth and nothing but the truth in the within-entitled cause;

That said deposition was taken down in shorthand by me, a disinterested person, at the time and place therein stated, and that the testimony of the said witness was thereafter reduced to typewriting, by computer, under my direction and supervision;

I further certify that I am not of counsel or attorney for either or any of the parties to the said deposition, nor in any way interested in the event of this cause, and that I am not related to any of the parties thereto.

DATED: October 27, 2020



Kelly L. Shainline, CSR No. 13476, RPR