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

- - - - -x
NEURENT MEDICAL INC. and :
NEURENT MEDICAL LTD., :
Petitioners, : IPR2024-00277
v. : Patent 11,241,271 B2
AERIN MEDICAL INC., :
Patent Owner.

- - - - -x

Deposition of Gregory Thomas Martin, Ph.D.
Boston, Massachusetts
September 24, 2024
9:03 a.m.

Job No.: 553700
Pages: 1 - 305
Reported By: Alan H. Brock, RDR, CRR

1 UNITED STATES PATENT AND TRADEMARK OFFICE
2 BEFORE THE PATENT TRIAL AND APPEAL BOARD
3 - - - - -x
4 NEURENT MEDICAL INC. and :
5 NEURENT MEDICAL LTD., :
6 Petitioners, : IPR2024-00278
7 v. : Patent 11,033,318 B2
8 AERIN MEDICAL INC., :
9 Patent Owner.
10 - - - - -x

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12 Deposition of Gregory Thomas Martin, Ph.D.
13 Boston, Massachusetts
14 September 24, 2024
15 9:03 a.m.

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2 BEFORE THE PATENT TRIAL AND APPEAL BOARD
3 - - - - -x
4 NEURENT MEDICAL INC. and :
5 NEURENT MEDICAL LTD., :
6 Petitioners, : IPR2024-00282
7 v. : Patent 11,766,286 B2
8 AERIN MEDICAL INC., :
9 Patent Owner.
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12 Deposition of Gregory Thomas Martin, Ph.D.
13 Boston, Massachusetts
14 September 24, 2024
15 9:03 a.m.

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1 UNITED STATES PATENT AND TRADEMARK OFFICE

2 BEFORE THE PATENT TRIAL AND APPEAL BOARD

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4 NEURENT MEDICAL INC. and :

5 NEURENT MEDICAL LTD., :

6 Petitioners, : IPR2024-00669

7 v. : Patent 11,679,077 B2

8 The Foundry, LLC, :

9 Patent Owner.

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12 Deposition of Gregory Thomas Martin, Ph.D.

13 Boston, Massachusetts

14 September 24, 2024

15 9:03 a.m.

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20 Job No.: 553700

21 Pages: 1 - 305

22 Reported By: Alan H. Brock, RDR, CRR

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C O N T E N T S

EXAMINATION OF GREGORY THOMAS MARTIN	PAGE
Mr. Gilford	10

E X H I B I T S

(Attached to transcript.)

MARTIN DEPOSITION EXHIBITS	PAGE
Exhibit 1 U.S. Patent No. 8,814,796	99
Exhibit 2 Handwritten drawing	283
Exhibit 2, Handwritten drawing modified	284
Exhibit 3 Handwritten drawing	287
Exhibit 4 Handwritten drawing	291
Premarked Exhibits:	
Neurent Exhibit 1001	268
Neurent Exhibit 1002	43
Neurent Exhibit 1010	164
Neurent Exhibit 1021	176
Neurent Exhibit 1033	221

1 September 24, 2024 9:03 a.m.

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

3 GREGORY THOMAS MARTIN,

4 being first duly sworn or affirmed to testify to the
5 truth, the whole truth, and nothing but the truth, was
6 examined and testified as follows:

7 MR. GILFORD: Let's go ahead and do
8 appearances. I'm Ben Gilford, of Greenberg Traurig
9 LLP, appearing on behalf of patent owners Aerin
10 Medical Inc. and The Foundry LLC, and I believe with
11 me on Zoom is Heath Briggs and Elana Araj -- Alan,
12 that name is E-l-a-n-a A-r-a-j -- also both from
13 Greenberg Traurig.

14 MR. NEMTZOW: And I am Alexander Nemtsov,
15 from the law firm Wilmer Cutler Pickering Hale and
16 Dorr, on behalf of petitioners Neurent Medical Inc.
17 and Neurent Medical Ltd. And with me here are Alexis
18 Cohen and Sarah Murphy.

19 MR. GILFORD: So just a couple of things,
20 counsel, to clarify before we get started, because I
21 know we're dealing with four IPRs here. So the first:
22 I wanted to confirm that Dr. Martin is here to testify

1 regarding declarations he submitted in four IPR
2 proceedings, so that's going to be IPR2024-00277,
3 IPR2024-00278, IPR2024-00282, and IPR2024-00669. It's
4 our understanding the transcript of Dr. Martin's
5 deposition will be submitted in all four of those
6 proceedings.

7 It's our understanding the parties have
8 agreed that if necessary Dr. Martin's deposition will
9 continue on tomorrow, which is September 25th, 2024.
10 It's our understanding the parties have agreed that
11 counsel for the parties may attend Dr. Martin's
12 deposition remotely or in person for both. And the
13 parties have agreed that Dr. Martin's cross-
14 examination on his three declarations in the 277, 278,
15 and 282 IPRs will be handled by a single questioner
16 but that Dr. Martin's cross-examination on his
17 declaration in the 669 IPR may be handled by a
18 different questioner if desired, but I'm not sure if
19 we're going to be doing that.

20 Do you have any issue with my
21 characterization of the parties' agreements?

22 MR. NEMTZOW: We reserve the right to

1 object, for example, to specific testimony that's not
2 relevant to particular proceedings, but we do not
3 object to the submission of the transcript in its
4 entirety in all four proceedings.

5 In terms of the questioning, yeah, it's
6 all right if a second questioner comes in just for the
7 separate proceeding.

8 EXAMINATION

9 BY MR. GILFORD:

10 Q. Dr. Martin, can you please state your full
11 name for the record.

12 A. Gregory Thomas Martin.

13 Q. Is there any reason why the testimony you
14 offer today would not be truthful?

15 A. No.

16 Q. The court reporter, as you know, is taking
17 down every word we say, so it's important that we
18 don't talk over each other. I'll ask a question.
19 Please let me finish, and then I'll let you answer and
20 I'll try my best not to jump on your answer and let
21 you give a whole answer.

22 Because the court reporter is taking down,

1 you know, everything we say, it's important that you
2 give verbal responses, so head nods, shrugs, stuff
3 like that, is not sufficient.

4 If you don't understand the question,
5 please ask for clarification. If you answer, I'll
6 assume that you're answering the question that was
7 posed.

8 And if you need a break, just ask for it.
9 The only request I have is if I have a question
10 pending, you go ahead and answer it, then we'll take a
11 break. Sound good?

12 A. Yes.

13 Q. Have you been deposed before?

14 A. Yes.

15 Q. Approximately how many times have you been
16 deposed before?

17 A. Maybe three or four.

18 Q. Have you testified at a trial or hearing
19 before?

20 A. Yes.

21 Q. Approximately how many times have you
22 testified at a trial or hearing before?

1 A. Twice.

2 Q. And do you recall whether those two times
3 were -- were they trials or hearings or one of each?
4 Do you recall?

5 A. Well, one was divorce court. The other was
6 patent court, Federal patent court.

7 Q. Like a U.S. District Court?

8 A. Yes.

9 Q. Do you recall which U.S. District Court?

10 A. Northern California.

11 Q. You said that was -- was that a trial that
12 you were testifying at or was it a hearing?

13 A. That was a trial.

14 Q. And do you recall when that trial was?

15 A. October 2011.

16 Q. And you said that was a patent case?

17 A. Yes.

18 Q. Do you recall who the parties were in that
19 case?

20 A. Conceptus versus Hologic.

21 Q. And I'm assuming you were testifying on
22 behalf of Hologic?

1 A. Correct.

2 Q. Do you recall whether you were testifying as
3 an expert witness or a fact witness?

4 A. Fact witness.

5 Q. Do you recall whether Hologic was the
6 plaintiff or the defendant in that case?

7 A. Hologic was the defendant.

8 Q. So they were being sued for patent
9 infringement by Conceptus; is that correct?

10 A. Correct.

11 Q. And can you just give me a very high-level
12 overview of kind of the subject matter of your
13 testimony in that case?

14 A. I don't recall it in its entirety. It was
15 quite a number of years ago. As a fact-based witness,
16 mostly I was attesting to things that had been -- were
17 part of discovery and just attesting to that they were
18 certain reports or they were certain emails.

19 Q. Like authenticating documents?

20 A. Yes, exactly. Thank you.

21 Q. So just to be very clear, for that case, no,
22 you didn't provide any testimony as an expert witness;

1 correct?

2 A. That is correct.

3 Q. Have you ever been a witness against Aerin
4 Medical Inc. before?

5 A. No.

6 Q. Have you ever been a witness against The
7 Foundry LLC before?

8 A. No.

9 Q. Have you ever had any interaction with Aerin
10 Medical Inc. before these IPRs?

11 A. No.

12 Q. Had you heard of Aerin Medical Inc. before
13 these IPRs?

14 A. No.

15 Q. Have you ever had any interaction with The
16 Foundry LLC before these IPRs?

17 A. No.

18 Q. Had you heard of The Foundry LLC before these
19 IPRs?

20 A. Yes.

21 Q. Do you recall approximately when you first
22 heard of The Foundry LLC?

1 A. I don't recall. More than ten years ago.

2 Q. And do you recall kind of the context of -- I
3 guess what was the context of how you first heard
4 about them?

5 MR. NEMTZOW: Objection, form.

6 A. I don't even recall.

7 Q. So I believe you said you thought it was
8 maybe about ten years ago that you had first heard of
9 The Foundry LLC.

10 A. Yes.

11 Q. Between ten years ago and, you know, when
12 these IPRs were initiated -- strike that.

13 I just want to ask this again. So you
14 have never had any interaction with The Foundry LLC
15 before; correct?

16 A. Correct.

17 Q. Outside of your work on these IPRs, have you
18 ever done any work for Neurent Medical Inc. or Neurent
19 Medical Limited?

20 A. No.

21 Q. Have you ever collaborated with or received
22 funding from Neurent Medical Inc. or Neurent Medical

1 Limited?

2 A. No.

3 Q. Have you ever previously provided testimony
4 or opinions on behalf of Neurent Medical Inc. or
5 Neurent Medical Limited?

6 A. No.

7 Q. Have you ever previously provided testimony
8 or opinions on behalf of an entity owned or controlled
9 by Neurent Medical Inc. or Neurent Medical Limited?

10 MR. NEMTZOW: Objection, form.

11 A. Well, let me just say, I don't know what all
12 entities they control. But to my best knowledge, no.

13 Q. Other than these IPR proceedings, have you
14 ever been an expert witness in a patent case?

15 A. Yes.

16 Q. Approximately how many times have you been an
17 expert witness in a patent case?

18 A. Maybe three. Three or four.

19 Q. So to your best recollection, you know, going
20 as far back in time as you can possibly remember, what
21 was the first patent case that you provided expert
22 testimony in?

1 A. In a couple -- in the first case I just
2 provided a report, and that would have been in the
3 '90s, with Sherwood, I believe, Medical. That was the
4 first time.

5 Q. And you said you provided a report on behalf
6 of Sherwood Medical sometime in the '90s. Is that
7 correct?

8 A. Yes.

9 Q. Do you recall whether that was a U.S.
10 District Court case?

11 A. I don't recall. I believe it was.

12 Q. Okay. And do you recall whether Sherwood
13 Medical was the plaintiff or the defendant in that
14 case?

15 A. They were the plaintiff.

16 Q. And were you providing expert testimony in
17 that case as a technical expert?

18 A. I believe so.

19 Q. Do you recall how many patents were at issue
20 in that case?

21 A. No, I do not.

22 Q. Again at a very high level -- I don't need

1 you to get into specifics. But at a very high level,
2 what was the general substance of your report in that
3 case?

4 A. Sherwood Medical at the time made a tympanic
5 membrane temperature measurement device. That device
6 had plastic slip covers that covered the hardware.
7 And in our tests we tested the impact of different
8 cover designs on the accuracy of the temperature
9 measurement.

10 Q. Do you recall whether you provided
11 infringement opinions in that report?

12 A. I did not.

13 Q. So if I understand you correctly, the general
14 substance of your report in that case had to do with
15 testing of these, I think you said, slip covers?

16 A. Correct.

17 Q. Do you -- again, if you don't know, you don't
18 know. But do you recall generally how your report was
19 used in the case?

20 MR. NEMTZOW: Objection, privilege. I'll
21 just caution the witness not to reveal the content of
22 any communications with attorneys.

1 A. I don't recall.

2 Q. So again, going forward in time from that
3 case -- sorry, let me back up a little bit.

4 So I believe you said Sherwood Medical was
5 the plaintiff in that case; right?

6 A. Yes.

7 Q. Do you recall who the defendant was?

8 A. I do not.

9 Q. Sorry. So going forward in time from that
10 case, what was the next case you provided expert
11 testimony in as a patent expert?

12 MR. NEMTZOW: Objection, form.

13 A. I believe that was -- after I left the
14 employment of Hologic, I was later hired back as an
15 expert in their case against Minerva Surgical.

16 Q. Was that an IPR?

17 A. It was first a District Court case, and that
18 was then put on hold during an IPR process.

19 Q. So I guess -- I think you had said -- oh,
20 okay.

21 So the other Hologic case we were talking
22 about was against --

1 A. Conceptus, when I was an employee.

2 Q. So this is a different case you were talking
3 about.

4 A. Correct.

5 Q. In the Hologic versus Minerva case, do you
6 recall -- let's talk about the District Court part of
7 it. Do you recall who the plaintiff was in the
8 District Court part of it?

9 A. It was Hologic.

10 Q. Got it. You said there was an IPR proceeding
11 as well?

12 A. Correct.

13 Q. I'm assuming in that part of the case, that
14 IPR aspect of the case, that Minerva was the
15 petitioner; correct?

16 A. Correct.

17 Q. Let's talk a little bit about the District
18 Court part of it.

19 So in the District Court part of that
20 case, the Hologic versus Minerva case, did you provide
21 an expert report in that case?

22 A. Yes.

1 Q. And did you provide any testimony at hearing
2 or trial in that case?

3 A. No.

4 Q. So is the extent of your involvement in the
5 District Court part of the Hologic versus Minerva case
6 providing an expert report?

7 A. Correct.

8 MR. NEMTZOW: Objection, form.

9 Q. Do you recall how many expert reports you
10 submitted in that case?

11 A. In the District Court case, I don't recall.
12 It was at least one, maybe two.

13 Q. Do you recall which District Court that case
14 was in?

15 A. I think it was Northern California.

16 Q. And do you recall approximately when that
17 case was filed?

18 A. I don't recall exactly. I mean, it's public
19 knowledge. You can look it up.

20 Q. Do you recall whether that case started while
21 you were still working at Hologic?

22 A. It did not. It started after, after I left

1 Hologic.

2 Q. So I know you said you recall providing at
3 least one report in that case; correct?

4 A. At least one for the District Court.

5 Q. Sorry, still talking about the District Court
6 case.

7 A. Yes.

8 Q. To the extent you can recall, at a very high
9 level, what was the general subject matter of the
10 report that you recall submitting in that District
11 Court case?

12 A. It involved the infringement on Hologic
13 patents covering an aspect of endometrial ablation
14 treatment and a safety check that was incorporated
15 into our product, that then Minerva Surgical
16 duplicated for their product.

17 Q. And did the case involve one patent or more
18 than one patent?

19 A. I don't recall.

20 Q. But just to kind of summarize: So in
21 general, the report you recall submitting in the
22 District Court case had to do with infringement

1 topics?

2 A. Yes.

3 Q. And you also submitted a declaration in the
4 Minerva versus Hologic IPR proceeding; right?

5 A. Correct.

6 Q. Do you recall how many declarations you
7 submitted in that proceeding?

8 A. I think one, but I'm not 100 percent sure.

9 Q. I think it was one, also.

10 A. Okay.

11 Q. And you were also deposed in that case;
12 right?

13 A. In the IPR? I don't think so.

14 Q. Do you recall being deposed for the District
15 Court case?

16 A. Yes.

17 No, I'm sorry, not for Hologic, no. I
18 don't think I was deposed for either.

19 Q. Okay. I think you were deposed in the IPR,
20 but at least for the District Court case -- let's just
21 focus on that. So do you recall being deposed in the
22 District Court case that we've been talking about?

1 MR. NEMTZOW: Objection, form, foundation.

2 A. I do not.

3 Q. Now, talking about the declaration you
4 submitted in the IPR for this Minerva versus Hologic
5 IPR: Again at a very high level, do you recall what
6 the subject matter of that declaration was?

7 A. Well, it involved -- it involved the same
8 technology -- right? -- that we were talking about,
9 the safety check. But beyond that, I don't recall the
10 particulars of the report.

11 Q. So again going forward, you know, in time
12 from the time period of this Hologic versus Minerva
13 case: What was the next patent case that you offered
14 expert testimony in?

15 A. I think the only other one -- the only other
16 cases didn't involve deposition or testifying. I
17 think the only other cases involved a report.

18 Q. Okay. So that's fine. So again, going
19 forward in time from this Hologic versus Minerva case,
20 what was the next case that you provided an expert
21 report in?

22 MR. NEMTZOW: Objection, form.

1 A. I believe it was -- I don't even remember the
2 name of -- I'm sorry, that was a product liability
3 case.

4 Q. Let me reask the question, just because we're
5 talking just about patent stuff.

6 A. Sure, sure.

7 Q. Going forward in time from this Hologic
8 versus Minerva case, what was the next patent case
9 that you provided a report or testimony or anything
10 like that in?

11 MR. NEMTZOW: Objection, form.

12 A. I think that was it. I think that was the
13 last one I did prior to this.

14 Q. Okay. So it sounds like, just to kind of
15 summarize, that we had the Sherwood Medical case,
16 where you provided, I believe you said, some opinions
17 about testing a slip device or slip cover; and you had
18 the Hologic versus Minerva proceedings, where you
19 provided reports. Does that summarize the extent of
20 your testimony for patent cases, that you recall?

21 MR. NEMTZOW: Objection, form.

22 A. As an expert witness, yes.

1 Q. I might have asked you this, but for the
2 Sherwood Medical case, do you recall being deposed in
3 that one?

4 A. I was not deposed for that one.

5 Q. Did you testify at trial or at hearing in
6 that case?

7 A. No, I did not.

8 Q. So now let's talk about nonpatent cases. I
9 think you mentioned product liability or something
10 like that.

11 A. Yes.

12 Q. So again for nonpatent cases, have you ever
13 served as an expert witness in a nonpatent case?

14 A. Yes.

15 Q. Approximately how many times have you served
16 as an expert witness in a nonpatent case?

17 A. I believe two.

18 Q. Was one of those cases the Conceptus versus
19 Hologic case?

20 A. No. That was a patent case.

21 Q. All right. So let's talk about the first of
22 those cases going back as far in time as you can

1 remember. What case was the first case you provided
2 expert witness testimony in in a nonpatent case?

3 A. It was a product liability case with a
4 Hologic product. It was after I had left Hologic as
5 an employee. For the plaintiffs.

6 I was defending a physician, part of the
7 team defending a physician, who was being sued by a
8 plaintiff patient. It would have been in 2017. Off
9 the top of my head, I don't recall the physician's
10 name. I don't recall the plaintiff's name, either.

11 Q. So I believe you said in that case you were
12 defending a physician who -- strike that.

13 So did that case involve a Hologic
14 product?

15 A. Yes.

16 Q. Which Hologic product did that case involve?

17 A. NovaSure.

18 Q. And did you provide an expert report in that
19 case?

20 A. Yes.

21 Q. Do you recall how many expert reports you
22 provided in that case?

1 A. I think two.

2 Q. Were you deposed in that case?

3 A. Yes.

4 Q. How many times were you deposed in that case?

5 A. I believe at least one.

6 Q. And I believe you said that case was from
7 approximately 2017; is that right?

8 A. Yes.

9 Q. Did you testify at trial or at hearing in
10 that case?

11 A. No.

12 Q. So I believe you said that you recall
13 submitting two reports in that case; is that right?

14 A. Possibly two. I don't recall exactly. Yes.

15 Q. Again at a very high level, what was the
16 general subject matter of the reports you can recall
17 submitting in that case?

18 A. So this was a case where a patient was
19 injured after having received a NovaSure endometrial
20 ablation, and the substance of my report was to first
21 analyze if the physician followed the device's
22 instructions for use and potentially -- and identify

1 potential causes for patient injury.

2 Q. And to be clear, the NovaSure product is an
3 endometrial ablation product; right?

4 A. Correct.

5 Q. So again going forward in time from this
6 product liability case we were just talking about,
7 what was the next case -- the next nonpatent case that
8 you provided expert witness testimony in?

9 A. There was one other case where I just filed a
10 report. It was -- I don't even remember now. It was
11 an endoscope sterilization product. So it was a
12 device that sterilizes reusable endoscopes in the
13 hospital. And the defendants were a group of
14 hospitals that had similar equipment, and the
15 plaintiff was a patient.

16 Q. And were you representing the plaintiff or
17 the defendants in that case?

18 MR. NEMTZOW: Objection, form.

19 A. I represented -- I worked with the
20 defendants.

21 Q. Did you submit any expert reports in that
22 case?

1 A. Yes, I submitted one.

2 Q. And were you deposed in that case?

3 A. No.

4 Q. Did you testify at trial or at hearing in
5 that case?

6 A. No.

7 Q. So for the report that you submitted in that
8 case, at a high level, what was the subject matter of
9 that report?

10 A. This was a case where the plaintiff thought
11 the people using the device were not properly trained,
12 because at first blush the record showed that they
13 were trained after the device -- after the
14 sterilization device was used with the endoscope in
15 their procedure.

16 And what I was able to find was that the
17 clock and the calendar on the sterilization device
18 were mis-set, and so it appeared that the training
19 records -- the training occurred after the
20 sterilization.

21 Q. Was this a medical-malpractice case?

22 A. Yeah, I believe so, yes.

1 Q. And, you know, we've been talking about
2 several cases that you provided expert witness
3 testimony in. Are there any other cases that we
4 haven't talked about where you provided expert witness
5 testimony or an expert witness report that we haven't
6 talked about?

7 MR. NEMTZOW: Objection, form.

8 A. None that I recall.

9 Q. To your knowledge, have your testimony or
10 opinions ever been excluded?

11 A. Not to my knowledge.

12 Q. Did you do anything to prepare for today's
13 deposition?

14 A. Yes.

15 Q. Did you speak with anybody to prepare for
16 today's deposition?

17 A. Yes.

18 Q. Who did you speak with?

19 A. Prior to today I spoke with Alex, Alexis,
20 Sarah, and Josh.

21 Q. Is Josh --

22 A. Stern. Josh Stern.

1 Q. So Alex, Alexis, and Sarah are all in this
2 room; correct?

3 A. Correct.

4 Q. Is Josh Stern an attorney for Neurent?

5 A. He's an attorney working at WilmerHale.

6 Q. Did you speak with anybody other than Alex,
7 Alexis, Sarah and Josh to prepare for today's
8 deposition?

9 A. No.

10 Q. Did you speak with all four of those
11 individuals at the same time?

12 A. On one occasion.

13 Q. I guess let's back up, then.

14 When did you speak with Alex, Alexis,
15 Sarah and Josh to prepare for today's deposition?

16 MR. NEMTZOW: Objection, form.

17 A. All four, yesterday; and then only three the
18 day before.

19 Q. So yesterday was September 23rd; correct?

20 A. Correct.

21 Q. And you said you spoke with three of those
22 individuals on September 22nd; is that right?

1 A. Correct.

2 Q. So let's talk about the -- let's talk about
3 September 22nd. So I believe you said you spoke with
4 three people on September 22nd. Is that right?

5 A. Correct.

6 Q. Do you recall which individuals you spoke
7 with on September 22nd?

8 A. So that's Sunday; right? The 22nd is Sunday?
9 So Alex, Alexis, and Sarah.

10 Q. And approximately how long did you speak with
11 Alex, Alexis, and Sarah on September 22nd?

12 A. About seven or eight hours.

13 Q. Were you speaking with Alex, Alexis, and
14 Sarah in person?

15 A. Yes.

16 Q. Where were you guys meeting?

17 A. In this building.

18 Q. You also said you spoke with Alex, Alexis,
19 Sarah, and Josh yesterday, September 23rd; right?

20 MR. NEMTZOW: Objection, form.

21 A. Correct, yes.

22 Q. Approximately how long did you speak with

1 Alex, Alexis, Sarah, and Josh yesterday?

2 MR. NEMTZOW: Objection, form.

3 A. Let's see. With Alex, Alexis, Sarah,
4 approximately six hours, with an additional hour or so
5 including Josh.

6 Q. Okay, I understand. So you weren't speaking
7 with all four of them at the same time.

8 A. For the entire time, yes.

9 Q. So approximately in -- let me back up.

10 So yesterday, September 23rd, is it fair
11 to say you spoke with Neurent's attorneys for
12 approximately seven hours?

13 A. Yes, seven or eight.

14 Q. Did you review any documents in preparation
15 for today's deposition?

16 MR. NEMTZOW: Objection, privilege. I'll
17 just caution the witness not to share the contents of
18 any communications with attorneys.

19 A. Yes.

20 Q. What kind of documents did you review to
21 prepare for today's deposition?

22 MR. NEMTZOW: Again, same objection. I'll

1 caution the witness not to share the contents of any
2 communications with attorneys or any documents
3 provided by attorneys.

4 A. I reviewed my written opinions and some of
5 the prior art and patents.

6 Q. Do you recall which prior art you reviewed in
7 preparation for today's deposition?

8 A. Yes. Let's see here. Some of it's listed
9 here.

10 Well, certainly the prior art, the Edwards
11 patent, '535; Baker; Edwards '886; Makower -- probably
12 a couple others, too.

13 '286 patent. Stern, of course. Patel,
14 the Patel patent. Maybe one more.

15 Oh, yeah, the translation for Fang. And I
16 think there was one more, prior art.

17 Liang was the other prior art I reviewed.

18 I think that....

19 Q. Do you recall reviewing the '318 patent in
20 preparation for today's deposition?

21 A. Yes.

22 Q. Do you recall reviewing the '286 patent in

1 preparation for today's deposition?

2 A. Yes.

3 Q. Do you recall reviewing the '271 patent in
4 preparation for today's deposition?

5 A. Yes.

6 Q. And do you recall reviewing the '077 patent
7 in preparation for today's deposition?

8 A. Yes.

9 Q. Did you review anything -- let me back up.

10 In preparing for today's deposition did
11 you review anything that's not listed in the materials
12 considered sections of your declarations?

13 MR. NEMTZOW: Objection, form and
14 privilege. I'll just caution the witness not to
15 reveal the contents of any communications with
16 attorneys or any documents provided by attorneys.

17 A. I don't think so.

18 Q. Have you spoken to anyone about today's
19 deposition other than Neurent's attorneys?

20 A. No.

21 Q. And, you know, thank you for bringing this to
22 my attention. I notice you have a few things in front

1 of you; is that right?

2 A. Yes.

3 Q. You don't need to go through everything. But
4 is the stuff in front of you, are all those materials
5 from these IPRs?

6 MR. NEMTZOW: Objection, form.

7 A. Yes. So it includes my declaration,
8 background, and a list of references, and a summary of
9 the grounds.

10 Q. When you say a summary of the grounds, is
11 that the summary that was attached to your
12 declaration, or is that a different summary?

13 MR. NEMTZOW: Objection, form.

14 A. I don't know. Let me see.

15 Q. I guess how about this: Can I see what's
16 been placed in front of you for today's deposition?

17 A. Sure.

18 MR. NEMTZOW: Objection.

19 Just for the record, I'll represent that
20 these are the declarations and associated appendices
21 in the four IPRs that are the subject of this
22 deposition that were submitted by Dr. Martin.

1 Q. And Dr. Martin, are these clean copies, to
2 your knowledge, or are there any notes in these?

3 A. I believe them to be clean copies. I
4 didn't -- I didn't make any notes.

5 Q. Have you spoken to anyone about these IPR
6 proceedings other than Neurent's attorneys?

7 A. No.

8 Q. Have you spoken to anyone about the subject
9 patents other than Neurent's attorneys?

10 A. No.

11 Q. Did you speak with anybody at Neurent about
12 today's deposition?

13 A. No.

14 Q. Have you ever spoken with anyone at Neurent?

15 A. No.

16 Q. Did you speak with anybody at Aerin Medical
17 Inc. about today's deposition?

18 A. No.

19 Q. Have you ever spoken with anyone at Aerin
20 Medical Inc.?

21 A. No.

22 Q. Did you speak with anybody at The Foundry LLC

1 about today's deposition?

2 A. No.

3 Q. Have you ever spoken with anybody at The
4 Foundry LLC?

5 A. No.

6 Q. Are you familiar with an individual named
7 John Delgaudio? For the court reporter, the last name
8 is D-e-l-g-a-u-d-i-o.

9 A. Yes.

10 Q. And how are you familiar with Dr. Delgaudio?

11 A. I met Dr. Delgaudio through this proceeding.
12 He's another expert witness.

13 Q. Did you know Dr. Delgaudio before these IPRs?

14 A. No.

15 Q. And you've previously spoken with
16 Dr. Delgaudio; correct?

17 A. Correct.

18 Q. How many times have you spoken with
19 Dr. Delgaudio?

20 A. I believe once.

21 Q. And you spoke with Dr. Delgaudio on January
22 10th, 2024; right?

1 A. I don't recall the exact date, but that
2 sounds about right.

3 Q. And other than that conversation with
4 Dr. Delgaudio on or about January 10th, 2024, have you
5 ever spoken with Dr. Delgaudio?

6 A. No, I don't think so.

7 Q. Now focusing on that conversation that you
8 had with Dr. Delgaudio on or about January 10th, 2024:
9 Do you recall whether you spoke with Dr. Delgaudio in
10 person?

11 A. I did not speak with him in person.

12 Q. Did you speak with him on Zoom?

13 A. I think it was, yes, Zoom.

14 Q. Or some other platform?

15 A. Some other, right.

16 Q. Did anybody else participate in that
17 conversation?

18 A. I don't think so.

19 Q. So it was just the two of you on that -- on
20 that -- sorry, it was just the two of you on that
21 conversation?

22 A. I think so.

1 MR. NEMTZOW: Objection.

2 A. I think so, but I don't remember exactly.

3 Q. Do you recall how long you spoke with
4 Dr. Delgaudio on or about January 10th, 2024?

5 A. It may have -- I don't recall. It -- I don't
6 recall.

7 Q. Do you recall whether it was more than an
8 hour?

9 A. It was not more than an hour.

10 Q. Do you recall whether it was more than half
11 an hour?

12 A. I don't recall. I don't know.

13 Q. Why did you speak with Dr. Delgaudio on or
14 about January 10th, 2024?

15 A. It was to see if he had questions about my
16 declaration.

17 Q. And did Dr. Delgaudio have any questions
18 about your declaration?

19 A. Just a couple. I don't recall what -- what
20 they were.

21 Q. Do you remember anything about what
22 Dr. Delgaudio asked you about your declaration?

1 A. No, I don't.

2 Q. Did you ask Dr. Delgaudio anything -- strike
3 that.

4 On this conversation you had with
5 Dr. Delgaudio on or about January 10th, 2024, did you
6 ask Dr. Delgaudio anything?

7 MR. NEMTZOW: Objection, form.

8 A. I don't recall, but I don't think so.

9 Q. Did you rely on your conversation with
10 Dr. Delgaudio in formulating any of your opinions in
11 these IPR proceedings?

12 MR. NEMTZOW: Objection, form.

13 A. No, I did not.

14 Q. To your knowledge, do you know whether
15 Dr. Delgaudio relied on your conversation with him in
16 formulating any of his opinions in these IPR
17 proceedings?

18 MR. NEMTZOW: Objection, form.

19 A. I don't know the answer to that.

20 Q. Let's go ahead and mark -- well, we don't
21 need to mark these, but I'm going to give you all four
22 of your declarations in these proceedings. I guess

1 for the sake of today's deposition, there will be some
2 things that I might ask you to like annotate in the
3 declarations, so to the extent we do that, can you use
4 the copies I give you to do that? And obviously, if
5 you want to refer to the ones you have just for
6 reference, I'm fine with that.

7 A. Okay.

8 MR. NEMTZOW: Objection, form.

9 Q. So I'm handing you what was previously marked
10 as Neurent Exhibit 1002 in IPR2024-00278. And I'll
11 represent to you that this is the declaration you
12 submitted in IPR2024-00278. This declaration relates
13 to U.S. Patent No. 11,033,318; correct?

14 A. Correct.

15 Q. And if I refer to that patent as the '318 or
16 the '318 patent during today's deposition, you'll
17 understanding what I'm referring to; right?

18 A. Yes.

19 Q. And I'm next going to hand you what I will
20 represent is your declaration in IPR2024-00277. And
21 this declaration relates to U.S. Patent No.
22 11,241,271; correct?

1 A. Correct.

2 Q. And if I refer to that patent as the '271 or
3 the two seven one patent during today's deposition,
4 you'll understand what I'm referring to; right?

5 A. Yes.

6 Q. I'm now going to hand you what has been
7 previously marked as Neurent Exhibit 1007, and I'll
8 represent to you that this is your declaration in case
9 IPR2024-00281. This declaration relates to U.S.
10 Patent No. 11,679,077, correct?

11 A. Correct.

12 Q. And if I refer to that patent as the '077
13 or -- yeah, if I refer to that patent as the '077
14 patent during today's deposition, you'll understand
15 what I'm referring to; correct?

16 A. Yes, correct.

17 Q. And lastly, I'm going to hand you what was
18 previously marked as Neurent Exhibit 1002, and I'll
19 represent to you that this is your declaration in case
20 IPR2024-00282. This declaration relates to U.S.
21 Patent No. 11,766,286; correct?

22 A. Correct.

1 Q. And if I refer to that patent as the '286 or
2 two eighty-six patent during today's deposition,
3 you'll understand what I'm referring to; right?

4 A. Yes.

5 Q. Have any of your opinions changed since you
6 drafted these four declarations?

7 A. No.

8 Q. Are there any errors in these declarations
9 that you'd like to correct?

10 A. Yes.

11 Q. What errors would you like to correct in
12 these declarations?

13 A. Each, with the exception of -- with the
14 exception of the opinion of the '318 declaration, all
15 these other opinions have a typo, where the word
16 "fiction" should really be "friction."

17 Q. Any other errors you'd like to correct?

18 A. No.

19 Q. So you said that error or that typo appears
20 in every one of your declarations except the '318
21 declaration?

22 A. Correct.

1 Q. I guess if you'd just pull up the, let's say
2 the '271 declaration.

3 A. Yes.

4 Q. Can you give me a sense of where in the '271
5 declaration that typo exists?

6 A. So Paragraph 29, second sentence,
7 "Specifically, as an alternating voltage is applied to
8 tissue, small ions in the tissue start to move, which
9 induces current flow and creates fiction that
10 generates heat in the tissue." That "fiction" should
11 be "friction."

12 Q. Got it. Does that typo appear anywhere else
13 in the '271 declaration?

14 A. No.

15 Q. And in the '286 and '077 declarations, does
16 that typo appear in a similar paragraph?

17 A. Correct.

18 Q. You have a bachelor of science degree in
19 mechanical engineering, a master of science in
20 mechanical engineering, and a doctor of philosophy
21 degree in mechanical engineering, all from MIT;
22 correct?

1 A. Correct.

2 Q. Do you have any other degrees, other than the
3 ones I've just mentioned?

4 A. No.

5 Q. Let's go ahead -- could you pull up your '318
6 patent declaration.

7 A. Yes.

8 Q. Can you flip to your CV? I think it's on
9 like Page 171.

10 A. Yes.

11 Q. Let me know when you're there.

12 A. I am there.

13 Q. You're currently the principal at Tremont
14 Consulting, LLC. That's T-r-e-m-o-n-t, Tremont. Is
15 that correct?

16 A. Correct.

17 Q. And have you worked on any nasal medical
18 devices at Tremont Consulting, LLC?

19 MR. NEMTZOW: Objection, form.

20 A. No.

21 Q. And you were a lecturer at Boston University
22 from 2013 to 2017 and from 2019 to 2020; correct?

1 A. Correct.

2 Q. Have you ever given a lecture on the nose?

3 MR. NEMTZOW: Objection, form.

4 A. No.

5 Q. Have you ever given a lecture on nasal
6 medical devices?

7 MR. NEMTZOW: Objection, form.

8 A. Not per se.

9 Q. What do you mean by "not per se"?

10 A. In the program that I ran at the master's
11 level, our students worked on various projects. I
12 believe in one year one of those groups of students
13 worked on a project that was related to the nose.

14 Q. Got it. And do you recall approximately what
15 year that project took place?

16 A. I don't -- 2016, 2017 maybe. I don't recall
17 exactly.

18 Q. Other than that project you just mentioned,
19 have you ever given a lecture on nasal medical
20 devices?

21 MR. NEMTZOW: Objection, form.

22 A. No.

1 Q. You worked at a company called Opsonix, Inc.
2 That's O-p-s-o-n-i-x, Opsonix Inc., from 2017 to 2018;
3 right?

4 A. Yes.

5 Q. And did you work on any nasal medical devices
6 at Opsonix?

7 A. No.

8 MR. NEMTZOW: Objection, form.

9 Q. And you worked at Hologic Inc. That's
10 H-o-l-o-g-i-c. You worked at Hologic Inc. from 2007
11 to 2011; correct?

12 A. Correct.

13 Q. And you were responsible for research and
14 development in the surgical products division for all
15 released and new products; correct?

16 A. Correct.

17 Q. Did Hologic have any other product divisions?

18 A. Yes.

19 Q. What other -- I guess what were the other
20 product divisions at Hologic?

21 A. There were three other divisions. There was
22 a diagnostics division, there was a bone densitometry

1 division, and there was a mammography division.

2 Q. Did you work only in the surgical products
3 division while at Hologic?

4 A. Correct.

5 MR. NEMTZOW: Objection, form.

6 A. Correct, yes.

7 Q. Did you work on any nasal medical devices at
8 Hologic?

9 MR. NEMTZOW: Objection, form.

10 A. No.

11 Q. Did you work on any medical devices while at
12 Hologic?

13 A. Yes.

14 Q. What kind of devices did you work on while at
15 Hologic?

16 A. I worked on an endometrial ablation device, a
17 device that ablates in the fallopian tubes, a plasma
18 surgical ablation device, a radiation source device, a
19 breast brachytherapy device, a brain tumor
20 brachytherapy device, a uterine sound device, a
21 urethral ablation device. I think that's about it.

22 Q. Would you say -- I guess approximately how

1 many different products would you say you worked on
2 while at Hologic?

3 MR. NEMTZOW: Objection, form.

4 A. I -- well, are you talking about devices or
5 products?

6 Q. Is there a difference?

7 A. Yes.

8 Q. What's the difference?

9 A. A product is something that is anticipated to
10 be commercially released. A device could be anything,
11 including prototype devices that haven't yet reached
12 commercialization.

13 Q. Okay. I guess approximately how many
14 different products did you work on while at Hologic?

15 A. So if we just confine ourselves to
16 FDA-approved released products, that would be three,
17 four, five; approximately five.

18 Q. Okay. And I guess approximately how many
19 different devices did you work on at Hologic?

20 MR. NEMTZOW: Objection, form.

21 A. Including devices that hadn't been released
22 to the market or received FDA approval, maybe a total

1 of ten.

2 Q. So looking at your CV, under the Hologic
3 section.

4 A. Yes.

5 Q. If you look at about three bullet points
6 down, do you see you wrote, "Expanded the research and
7 product development pipeline to include organic
8 innovation"? Do you see that?

9 A. Yes.

10 Q. What do you mean by that?

11 A. Well, inorganic innovation is when a large
12 company, like Hologic, buys a smaller company and
13 acquires their technology and their products. Organic
14 innovation typically refers to when we generate the
15 concepts from within the company, develop them
16 ourselves.

17 Q. And if you look in that next section below,
18 where it says "responsibilities," and look about six
19 bullet points down, do you see where you wrote,
20 "Formulated and implemented R&D and product
21 development strategy"?

22 A. Yes.

1 Q. What does that mean?

2 A. Well, "strategy" is a very broad word; right?
3 But in this case what I'm referring to is, you know --
4 the business would define an overall business
5 strategy, and I would have to develop a product
6 development strategy that met that, for time, budget,
7 product mix, product requirements.

8 Q. So when you say "develop a product
9 development strategy," what does that mean?

10 MR. NEMTZOW: Objection, form.

11 A. You could think of it as a plan; right? A
12 plan to develop products according to a budget,
13 according to a certain time, to meet certain business
14 requirements and clinical requirements.

15 Q. So is product development strategy the same
16 thing as developing the product itself?

17 MR. NEMTZOW: Objection, form.

18 A. No. The strategy is the first part, is the
19 planning phase.

20 Q. Okay. I know you mentioned a few -- I think
21 there was a few ablation devices that you mentioned
22 you worked oh at Hologic.

1 A. Yes.

2 Q. Do you recall saying something along those
3 lines?

4 A. Yes.

5 Q. Could you just run down -- sorry.

6 Can you give me what those ablation
7 devices were, again?

8 A. Sure.

9 MR. NEMTZOW: Objection, form.

10 A. So one device was a helium plasma coagulator.
11 This would be used during surgery to treat
12 endometriosis. The other device, this was ultimately
13 a released product, was called Adiana, and it ablated
14 the fallopian tubes to help occlude them for permanent
15 female contraception. And the other ablation device
16 was called NovaSure. This was a released product
17 approved by the FDA for endometrial ablation to treat
18 menorrhagia.

19 Q. You mentioned there was a helium plasma
20 coagulator. You mentioned Adiana. And you mentioned
21 NovaSure. Other than those three, were there any
22 other ablation devices you worked on while at Hologic?

1 MR. NEMTZOW: Objection, form.

2 A. No, that was it.

3 Q. The helium plasma coagulator, was that a
4 released product?

5 A. It was approved in the UK when we acquired
6 it. So we acquired the technology from a company in
7 the UK, where it was approved, and we spent a couple
8 years developing it here for the U.S. market, and then
9 we shut the project down.

10 Q. So if I understand you correctly, for this
11 helium plasma coagulator you mentioned, you acquired
12 that technology from a company in the United Kingdom;
13 is that right?

14 A. Correct.

15 MR. NEMTZOW: Objection, form.

16 Q. I guess what was the extent of your
17 involvement in working on this helium plasma
18 coagulator device?

19 A. Well, I hired the team that did the
20 day-to-day operation of the product development,
21 oversaw their work, and formulated the strategy to
22 meet the business needs.

1 Q. Did you have any other involvement with this
2 helium plasma coagulator device?

3 MR. NEMTZOW: Objection, form.

4 A. Just overall technical and project management
5 oversight.

6 Q. You mentioned also the NovaSure product is a
7 product you worked on while at Hologic; correct?

8 A. Correct.

9 Q. It's my understanding the NovaSure product
10 was first developed in 2002, approximately; right?

11 A. I think that may have been the date of
12 approval. I think the development would have started
13 a bit earlier, yes.

14 Q. In any case, the development of the NovaSure
15 product started years before you began working at
16 Hologic; correct?

17 MR. NEMTZOW: Objection, form.

18 A. Yes, the original product, yes.

19 Q. And I guess what was the extent of your
20 involvement with the NovaSure product?

21 MR. NEMTZOW: Objection, form.

22 A. I don't know about "involvement." What do

1 you mean by "involvement"?

2 Q. I think I had originally asked you if you
3 were -- if you worked on any ablation devices while at
4 Hologic, so obviously "worked on" is a pretty broad
5 word. So when you say you worked on the NovaSure
6 product, what was the extent of your involvement?

7 A. Okay. So for NovaSure, basically, you know,
8 hired the team to support the product from an
9 engineering perspective, and then oversaw their
10 development, oversaw the technology and the projects
11 they're working on; in addition, hired another team to
12 work on the next-generation NovaSure that we then
13 developed at Hologic.

14 Q. Was that the extent of your involvement with
15 NovaSure?

16 A. Yes, but also -- I mean, it was a bit more
17 broad than that. Again, making sure the product
18 development aligned with the strategies of the
19 business certainly for the current generation, the
20 generation of the product that we acquired from
21 Novacept. That product needed to be supported, and we
22 transferred the manufacturing from California to Costa

1 Rica. So the engineers that I hired worked on that
2 transition and supported any updates to that product.
3 Other engineers I hired to work on the product line
4 developed a new version of NovaSure, that was then
5 later released.

6 Q. So I think you said that Hologic acquired the
7 NovaSure technology from a company called Novacept.
8 Is that right?

9 A. Well, let me clarify. Cytyc acquired
10 Novacept, and then Hologic acquired Cytyc.

11 Q. And Cytyc is spelled C-y-t-y-c; correct?

12 A. Correct.

13 Q. So again, if my understanding is correct,
14 Cytyc acquired the NovaSure technology from Novacept
15 and then Hologic acquired Cytyc.

16 A. Correct.

17 Q. So since -- I guess, you know, if Hologic
18 acquired the NovaSure technology, what generally
19 was -- strike that.

20 I think you said something about while
21 working on the NovaSure product, that engineers were
22 working on the next generation of the product; is that

1 right?

2 A. Correct.

3 MR. NEMTZOW: Objection, form.

4 Q. What did you mean by that?

5 A. Well, we developed -- so after we acquired
6 the product, Cytac and/or Hologic, we wanted to
7 develop improvements to that product. So we developed
8 a next-generation product, what we then called Gen. 2.

9 Q. And how did Gen. 2 differ from presumably
10 Gen. 1?

11 A. It had a -- it was a difference in its
12 electrode array. It had a thinner sheath. We added
13 atraumatic tips to it. We changed the vacuum valve,
14 and overall made additional changes to make the
15 manufacturing more reliable.

16 Q. When you say that you changed the electrode
17 array, what do you mean by that?

18 MR. NEMTZOW: Objection, form.

19 A. So NovaSure has two -- has four electrodes,
20 and we call that the electrode array. They were
21 bipolar electrodes. And so we had to modify the
22 electrode array to work with the thinner sheath that

1 we produced.

2 Q. Were you modifying the arrangement of the
3 electrodes?

4 A. Not per se, no.

5 Q. You said NovaSure had four electrodes; is
6 that right?

7 A. Correct.

8 Q. What kind of electrodes were they?

9 MR. NEMTZOW: Objection, form.

10 A. The electrodes were fabricated from gold,
11 bonded to thread, that was then knitted into an
12 electrode.

13 Q. What do you mean by "knitted into an
14 electrode"?

15 A. We had knitting machines that would actually
16 knit the shape of an electrode.

17 Q. I guess when you say the shape of an
18 electrode, what does that mean?

19 A. So when the NovaSure device is deployed, it
20 looks like, if you will, almost like a fan. You can
21 think of it as a fan. And like a Spanish fan --
22 right? -- it could be folded up and then retracted

1 into a sheath, and that allows it to be atraumatically
2 inserted through the cervix into the uterus, where the
3 fan can essentially be deployed. And that fan you can
4 imagine is fabric, is essentially knitted fabric. The
5 fabric has goldplating on it.

6 And then the device was designed in such a
7 way it would draw a vacuum on the inside of the
8 uterus. The uterine walls would then collapse onto
9 the electrodes to make contact. And then the
10 electrodes would be energized. That's how the
11 ablation occurred.

12 Q. Were the electrodes -- I guess I'm still
13 having trouble visualizing what the electrodes would
14 look like, because I feel like I've seen a million
15 different types of electrodes. Were the electrodes
16 kind of like -- were they straight lines, or were they
17 dots or something else?

18 MR. NEMTZOW: Objection, form, foundation.

19 A. So the way -- you can imagine they were wired
20 in such a way that effectively they were four
21 electrodes total, two on one side of the fan, two on
22 the other side of the fan. And the sort of

1 macroscopic shape of the electrodes was -- I don't
2 know how you would describe it. It was sort of like,
3 you know, it had a right angle at the top and then
4 sort of a curve on the side. Like imagine the shape
5 of the electrode was effectively a triangle but with a
6 curved hypotenuse. And it was designed in that way to
7 conform to the shape of the inside of the uterus.

8 Q. Okay. Interesting. Going back to the helium
9 plasma coagulator device you were talking about: What
10 kind of ablative energy did that device use?

11 MR. NEMTZOW: Objection, form.

12 A. So it's essentially a radiofrequency energy,
13 and the way this plasma worked is, instead of running
14 it down a wire to an electrode with the electrode in
15 contact with the tissue, the electricity, the RF
16 energy, effectively created a plasma stream of helium.
17 So we could take an electrode tube, we would pump
18 helium down it, and then we would apply a voltage at a
19 certain frequency, where you could -- when you got
20 close to tissue, the plasma would jump electrically
21 from the helium to the tissue and cause ablation that
22 way.

1 Q. And that device, the helium plasma coagulator
2 device, was that device used or intended to be used
3 with the endometrium?

4 A. No. It was intended to be used to treat
5 endometriosis, which is a clinical condition where the
6 endometrium is found inside the peritoneal cavity,
7 instead of being found inside the uterus.

8 Q. The peritoneal cavity is where?

9 A. So where your intestines -- the cavity where
10 your intestines are held.

11 Q. I'm assuming that there's not supposed to be
12 endometrial tissue in the peritoneal cavity?

13 A. Correct, yes.

14 Q. You'd also mentioned the Adiana device;
15 correct?

16 A. Correct.

17 Q. And that was another released product that
18 you worked on at Hologic?

19 A. Correct.

20 Q. Was that device intended -- I believe you
21 said that device was intended to be used in the
22 fallopian tubes; is that right?

1 MR. NEMTZOW: Objection, form.

2 A. Correct.

3 Q. And what kind of ablative energy did the
4 Adiana device use?

5 MR. NEMTZOW: Objection, form.

6 A. So Adiana used a radiofrequency energy, in
7 two pairs of bipolar electrodes to ablate the
8 fallopian tubes.

9 Q. And did Hologic acquire the Adiana technology
10 from another company?

11 MR. NEMTZOW: Objection, form, foundation.

12 A. Yes, we acquired the technology originally
13 from Adiana, was the name of the company.

14 Q. Do you recall when Hologic acquired the
15 Adiana technology?

16 A. I believe it was February of 2007.

17 Q. Sorry, one more time with the helium plasma
18 coagulator device. Do you recall approximately when
19 Hologic acquired that technology?

20 A. It was about the same time, February, March,
21 2007.

22 Q. And do you recall when Hologic acquired the

1 NovaSure technology?

2 A. Well, Hologic -- I'm sorry, I misspoke.

3 The helium plasma technology and Adiana
4 were acquired by Cytyc. So Cytyc acquired Novacept,
5 Adiana, and the helium plasma technology all before
6 Hologic then acquired Cytyc. Hologic acquired Cytyc
7 in October of 2007.

8 Q. Okay, I understand. So other than the helium
9 plasma coagulator device, the Adiana product, and the
10 NovaSure product, did you work on any other products
11 or devices -- any other ablative technology products
12 or devices at Hologic?

13 MR. NEMTZOW: Objection, form.

14 A. There was one other device that we had in
15 development, yes.

16 Q. What was the device you had in development?

17 A. It was a device to ablate the urethra.

18 Q. And when did Hologic begin developing that
19 device?

20 MR. NEMTZOW: Objection, form, foundation.

21 A. That would have been approximately, I
22 believe, at the beginning -- at the end of 2010.

1 Q. And that device to ablate the urethra you
2 mentioned, did Hologic acquire that technology from
3 somewhere else?

4 A. It was actually -- we did a co-development
5 project with a startup company. So we didn't actually
6 acquire the technology during the time that I was
7 there, but we funded its development.

8 Q. Other than funding the development of this
9 device to ablate the urethra, did Hologic have any
10 other involvement with the development of that device?

11 MR. NEMTZOW: Objection, form.

12 A. Yes. We -- well, we identified the startup
13 company. We identified the team. We provided the
14 device specifications that they should develop to to
15 them. And we oversaw the technical development.

16 Q. Did you personally oversee the technical
17 development?

18 A. Yes.

19 Q. And what did that involve?

20 A. Periodic meetings with the company, reviewing
21 progress reports, reviewing data, understanding the
22 designs, trying to figure out how best to, you know,

1 improve the design and make the device manufacturable.

2 Q. And other than the stuff you've mentioned in
3 the past minute or so, did Hologic have any other
4 involvement with the development of this device to
5 ablate the urethra?

6 MR. NEMTZOW: Objection, form, foundation.

7 A. I think that about summarizes it.

8 Q. So I guess just one more time: Other than
9 the helium plasma coagulator device, the Adiana
10 project, the NovaSure product, and the device to
11 ablate the urethra, were you -- did you work on any
12 other ablative products while at Hologic?

13 MR. NEMTZOW: Objection, form.

14 A. No, that's it.

15 MR. NEMTZOW: We've been going for a
16 little over an hour. Would now make sense for a
17 break?

18 MR. GILFORD: This would be a good time.

19 (Recess taken.)

20 Q. Dr. Martin, you worked at -- please correct
21 my pronunciation if I get this right. You worked at
22 Cytoc Corporation in 2007; right?

1 A. Cytyc, yes.

2 Q. Do you recall which month in 2007 you began
3 working at Cytyc?

4 A. Yes, February.

5 Q. And Cytyc was acquired by Hologic sometime in
6 2007; right?

7 A. I believe it closed in October -- end of
8 October 2007, the deal.

9 Q. Is it your understanding that beginning in
10 October 2007 you became an employee of Hologic?

11 A. Yes.

12 Q. So prior to the acquisition by Hologic, did
13 you work on any medical devices at Cytyc?

14 A. Yes.

15 Q. Did you work on any devices -- did you work
16 on any ablative devices at Cytyc prior to the
17 acquisition by Hologic?

18 MR. NEMTZOW: Objection, form.

19 A. Yes.

20 Q. Were any of those devices different than the
21 ones you were discussing earlier, while you were
22 employed by Hologic?

1 A. No.

2 MR. NEMTZOW: Objection, form.

3 Q. You worked at a company called Hemedex,
4 H-e-m-e-d-e-x, Hemedex, Inc., from 2000 to 2007;
5 right?

6 A. Yes.

7 Q. Did you work on any nasal medical devices at
8 Hemedex?

9 MR. NEMTZOW: Objection, form.

10 A. No.

11 Q. And you worked at a company called Thermal
12 Technologies, Inc. from 1998 to 2000; right?

13 A. Yes.

14 Q. Did you work on any nasal medical devices at
15 Thermal Technologies?

16 MR. NEMTZOW: Objection, form.

17 A. No.

18 Q. You were at MIT from '95 to 1998; correct?

19 A. Correct.

20 Q. Did you work on any nasal medical devices at
21 MIT?

22 MR. NEMTZOW: Objection, form.

1 A. No.

2 Q. You're not a medical doctor; correct?

3 A. Correct.

4 Q. You never went to medical school; right?

5 A. Correct.

6 Q. You don't have any medical training; correct?

7 MR. NEMTZOW: Objection, form.

8 A. What do you mean by "medical training"?

9 Q. I guess formal medical training.

10 MR. NEMTZOW: Objection, form.

11 A. Correct.

12 Q. You don't have any medical training regarding
13 the nose; correct?

14 MR. NEMTZOW: Objection, form.

15 A. Correct.

16 Q. You don't have any medical training regarding
17 treating the nose; correct?

18 MR. NEMTZOW: Objection, form.

19 A. Correct.

20 Q. You don't have any medical training regarding
21 treating the nose with a medical device; correct?

22 MR. NEMTZOW: Objection, form.

1 A. Correct.

2 Q. You've never provided medical care to a
3 patient; right?

4 MR. NEMTZOW: Objection, form.

5 A. Correct.

6 Q. You've never examined a patient's nose;
7 correct?

8 MR. NEMTZOW: Objection, form.

9 A. Correct.

10 Q. You've never treated -- sorry, you've never
11 treated a patient's nose; correct?

12 MR. NEMTZOW: Objection, form.

13 A. Correct.

14 Q. Have you taken any courses on nasal
15 physiology?

16 A. No.

17 Q. Have you ever studied nasal physiology?

18 MR. NEMTZOW: Objection, form.

19 A. Just rudimentary.

20 Q. What do you mean by that?

21 A. Well, to help my students at Boston
22 University with the design of their device, I had to

1 familiarize myself with some aspects of nasal anatomy.

2 Q. And I think we talked about this, but are you
3 referring to the project that you were helping
4 students with?

5 A. Yes.

6 Q. And again, what time period was that in?

7 A. That was 2016, 2017.

8 Q. Other than that experience, have you ever
9 studied nasal physiology?

10 MR. NEMTZOW: Objection, form.

11 A. No.

12 Q. Have you ever taken any courses on nasal
13 diseases or disorders?

14 MR. NEMTZOW: Objection, form.

15 A. No.

16 Q. Have you ever studied nasal diseases or
17 disorders?

18 MR. NEMTZOW: Objection, form.

19 A. No.

20 Q. Have you taken any courses on nasal medical
21 treatments?

22 MR. NEMTZOW: Objection, form.

1 A. No.

2 Q. Have you ever studied nasal medical
3 treatments?

4 MR. NEMTZOW: Objection, form.

5 A. No.

6 Q. Is it fair to say that you've never used a
7 medical device that delivers energy to tissue in a
8 clinical setting?

9 MR. NEMTZOW: Objection, form.

10 A. That is correct.

11 Q. Is it fair to say that you've never used a
12 medical device that delivers energy to a patient's
13 nose in a clinical setting?

14 MR. NEMTZOW: Objection, form.

15 A. Correct.

16 Q. And is it fair to say that you've never used
17 a medical device that delivers radiofrequency energy
18 to a patient's nose in a clinical setting?

19 MR. NEMTZOW: Objection, form.

20 A. Correct.

21 Q. Is it fair to say that you've never tested a
22 medical device that delivers energy to tissue?

1 MR. NEMTZOW: Objection, form.

2 A. No.

3 Q. I guess let me ask it this way: Have you
4 ever tested a medical device that delivers energy to
5 tissue?

6 A. Yes.

7 MR. NEMTZOW: Objection, form.

8 Q. When you say that you have tested a medical
9 device that delivers energy to tissue, what are you
10 referring to?

11 A. Well, I've worked on probably dozens of
12 different ablation devices that have been used
13 throughout the body in various tissues. All those
14 devices that I've worked on I have tested in tissue.

15 Q. Did you personally test them in tissue?

16 A. Yes.

17 Q. I guess let me ask it this way: Have you
18 ever done clinical testing or trials on a medical
19 device that delivers energy to tissue?

20 MR. NEMTZOW: Objection, form.

21 A. What do you mean by "done clinical trials"?

22 Q. Were you personally involved in clinical

1 testing or trials on a medical device that delivers
2 energy to tissue?

3 MR. NEMTZOW: Objection, form.

4 A. Yes.

5 Q. Okay. And just so that we're on the same
6 page, what is your understanding of the term "clinical
7 testing or trials"?

8 MR. NEMTZOW: Objection, form.

9 A. My understanding is a clinical trial -- well,
10 testing -- let's set that aside. Testing could be in
11 the laboratory, it could be in an animal model, or it
12 could be in a human. Right?

13 So for every ablation device that I have
14 been involved with I've tested it in the laboratory.
15 Many of them I have tested them in animal models. And
16 some of them I've tested in human clinical studies.
17 And by "tested," I was never holding the device, I was
18 never applying it. But in some cases I was involved
19 in writing the protocols and analyzing the data.

20 Q. So I guess, you know, going back to when I
21 asked you if you've tested a medical device that
22 delivers energy to tissue: Other than writing the

1 protocols and analyzing the data, did you have any
2 other involvement in testing a medical device that
3 delivers energy to tissue?

4 MR. NEMTZOW: Objection, form.

5 A. Yes.

6 Q. So I guess, what involvement did you have in
7 testing a medical device that delivers energy to
8 tissue other than writing the protocols and analyzing
9 the data?

10 A. In the case of many of the animal studies, I
11 was present at the animal studies, and I did actuate
12 the devices. In the case of the human studies, many
13 of them I was present during the study but I did
14 not -- not being a medical doctor, I was not actuating
15 the device.

16 Q. So other than being present during the tests,
17 in some cases actuating the device, writing the
18 protocols, and analyzing the data, to what extent have
19 you been involved in testing medical devices that
20 deliver energy to tissue?

21 MR. NEMTZOW: Objection, form.

22 A. Again, let me qualify: In the case of the

1 animal testing in tissue, you know, I was -- you know,
2 in many of those cases I was actuating the devices.
3 In the clinical cases, obviously I was not.

4 But that about sums up, I would say, my
5 experience.

6 Q. Is it fair to say you've never tested a
7 medical device that delivers energy to a patient's
8 nose?

9 MR. NEMTZOW: Objection, form.

10 A. Correct.

11 Q. And is it fair to say you've never tested a
12 medical device that delivers radiofrequency energy to
13 a patient's nose?

14 MR. NEMTZOW: Objection, form.

15 A. Correct.

16 Q. If you wouldn't mind picking back up the '318
17 declaration and flipping to Page 2. And I'm looking
18 right at the top of the page, first sentence of
19 Paragraph 5. Do you see where you wrote here, "I have
20 over two decades of experience designing and
21 developing medical devices, with a focus on
22 energy-based medical devices"? Do you see that?

1 A. Yes.

2 Q. What do you mean by "energy-based medical
3 devices"?

4 A. So by that I mean devices that give off some
5 form of energy to treat tissue. And I should maybe
6 qualify: Two decades is probably closer to three and
7 a half by now.

8 But let's just say more than two. That's
9 fine.

10 Q. And when you say "devices that give off some
11 form of energy to treat tissue," are you referring
12 specifically to ablative devices, or are you being
13 more general?

14 A. More general.

15 MR. NEMTZOW: Objection, form.

16 A. I'm being more general.

17 Q. Near the bottom of Paragraph 5 you mention
18 developing tissue ablation medical devices. Do you
19 see that? Like at the second-to-last sentence on the
20 bottom of Paragraph 5.

21 MR. NEMTZOW: Objection, form.

22 A. Yes.

1 Q. Now, I know we mentioned several ablative
2 devices and products that you worked on at Hologic.
3 Other than those devices that we've previously
4 discussed, what tissue ablation medical devices have
5 you developed?

6 MR. NEMTZOW: Objection, form.

7 A. I worked on the development of a cryogenic
8 catheter to ablate cardiac tissue, as a consultant for
9 a company called CryoCath.

10 During my master's thesis at MIT I worked
11 on a device to ablate the prostate to treat benign
12 prostatic hyperplasia. That device used microwave
13 energy.

14 As part of my dissertation at MIT I worked
15 on a high-power focused ultrasound device to ablate
16 tumor tissue to treat cancer.

17 Recently I worked on a device to ablate
18 parts of the ovary to treat polycystic ovarian
19 syndrome.

20 As part of my bachelor's thesis, I worked
21 on laser ablation of tissue.

22 Q. Anything else that you can recall?

1 A. I think that about summarizes it.

2 Q. I'm going to take those one at a time, and if
3 I -- at the end of the conversation I miss something,
4 just let me know.

5 Let's start with the cryogenic catheter
6 device that you worked on. You said you worked on
7 that device as part of CryoCath?

8 A. I was for a brief period of time, for a
9 couple of years, I was an independent consultant to a
10 company called CryoCath, that was later acquired by
11 Medtronic. I worked with them before they were
12 acquired by Medtronic. They were originally a
13 Boston-based company. I worked with the founders
14 while they were in Boston and then later, when they
15 moved the company to Montreal, to help them with the
16 design, development, and testing of their product.

17 Q. So if I understood you correctly, you were
18 working on this cryogenic catheter device as an
19 independent consultant to a company called CryoCath;
20 is that right?

21 MR. NEMTZOW: Objection, form.

22 A. Correct.

1 Q. And in approximately what time frame were you
2 working on this cryogenic catheter device?

3 A. I believe it was it was '96, '97.

4 Q. And you said that device was used to ablate
5 cardiac tissue?

6 A. Correct.

7 Q. And what kind of ablative energy did that
8 device use?

9 A. It used cold, cryogenic. It would freeze the
10 tissue to create an ablation process.

11 Q. This might be a dumb question, but how did it
12 freeze the tissue?

13 MR. NEMTZOW: Objection, form.

14 A. You can think of it as a catheter that would
15 get navigated to the inside of the chambers of the
16 heart. That catheter had a little goldplated customer
17 tip, and Freon would be pumped through -- well, a
18 Freon-like substance would be pumped through under
19 high pressure, sprayed onto that tip, and would cool
20 the tip down to about, oh, about minus 40 Celsius.
21 And so when in contact with the tissue, that would
22 create what's called a cryoablation process in the

1 tissue.

2 Q. So I guess in your line of work, when you use
3 cold to ablate tissue, do you -- it sounds like you
4 consider the use of cold as an ablative energy?

5 MR. NEMTZOW: Objection, form.

6 A. That's a terminology that was developed
7 before, you know -- before I got involved in the
8 field.

9 Q. I'm not trying to nitpick here -- or pick
10 nits, sorry. But isn't using cold kind of like
11 removing energy from the body, as opposed to applying
12 energy to the body?

13 A. Yes.

14 MR. NEMTZOW: Objection, form.

15 A. I think that's a fair way to think about it,
16 yes.

17 Q. But it's still considered ablation?

18 A. So, yes, by the field, yes. There is a
19 slight problem with the term "ablation"; right? To
20 someone who is a strict engineer, doesn't know
21 anything about the body, doesn't know anything about
22 biomedical engineering, ablation is the process of

1 removing material. So if you have snow on the top of
2 your car and you drive down the road, and the snow is
3 blowing off the top of your car like a few flakes at a
4 time, that to a traditional engineer is called, is
5 ablation. The snow is being ablated.

6 That term was later applied in various
7 forms in the field of medicine to mean you're killing
8 cells. You're killing cells and you're doing other
9 things, disrupting -- in general, disrupting the
10 tissue.

11 And then people have since applied that to
12 both cryogenic energy, where you're correct, you're
13 removing energy, and also heat, where you're placing
14 energy in the tissue.

15 Q. So I guess when you use the term "ablation"
16 or "ablative energy" or something like that, what do
17 you mean when you use it?

18 MR. NEMTZOW: Objection, form.

19 A. I mean -- I use the word in the way it has
20 been applied clinically, going probably 50 years
21 back -- right? -- where you are killing cells and
22 disrupting tissue.

1 Q. What's the difference between killing cells
2 and disrupting tissue?

3 MR. NEMTZOW: Objection, form.

4 A. So there are tissues in your body --
5 right? -- that consist of cells and other structures,
6 if you will -- collagen, for instance. Collagen
7 exists outside the cell in many cases. If you heat it
8 to ablate it, you can simultaneously kill the cell but
9 also disrupt the collagen. Collagen has a protein,
10 has a certain shape, form. Heat will denature that
11 protein, meaning its shape will unravel. And so
12 therefore collagen, which provides a structure, a lot
13 of structure in your tissue, will no longer be able to
14 provide that structure.

15 Q. So I guess when you say disrupting tissue,
16 are you referring to something different than killing
17 cells?

18 A. Yes, something in addition to killing cells.

19 Q. Okay, I think I understand.

20 Turning back to the cryogenic catheter
21 we've been talking about: I guess what was the extent
22 of your involvement in working on that device?

1 MR. NEMTZOW: Objection, form.

2 A. I helped them with some of their early
3 designs. I helped them design laboratory systems to
4 test those devices. I helped them design an animal
5 model to test the systems. And I did several animal
6 experiments with them.

7 Q. When you say you helped them with some of
8 their early designs, what do you mean by that?

9 A. Let's see, this is a long time ago. But just
10 general -- so part of my background is in
11 thermodynamics and heat transfer. The founders of the
12 company did not have that background. So most of my
13 consulting was helping them understand the thermal
14 physics of the designs and how they would impact their
15 ability to treat tissue.

16 Q. Let's talk a little bit about the -- there
17 was some device you mentioned about prostatic
18 hyperplasia?

19 MR. NEMTZOW: Objection, form.

20 A. Benign prostatic hyperplasia.

21 Q. You said you worked on that device as part of
22 your master's work at MIT?

1 A. Correct.

2 Q. And I believe you said that device used
3 microwave energy; is that right?

4 A. Correct.

5 Q. Is benign prosthetic hyperplasia, is that
6 just like an enlarged prostate?

7 A. Yes.

8 MR. NEMTZOW: Objection to form.

9 A. From a benign process, not a malignant
10 process. You can also have an enlarged prostate from
11 malignancy.

12 Q. So I guess the device you were working on,
13 was it intended specifically to treat the prostate?

14 A. Yes.

15 MR. NEMTZOW: Objection, form.

16 Q. And what was the extent of your involvement
17 in working on this device we've been talking about?

18 MR. NEMTZOW: Objection, form.

19 A. So the device was developed by an Israeli
20 company, which I now forget the name because it was
21 over 35 years ago. But we did a series of laboratory
22 tests on the device to characterize the microwave

1 field and then the thermal field. And then we did a
2 series of studies in an animal model.

3 Q. Did you have any other involvement in working
4 on that device?

5 MR. NEMTZOW: Objection, form.

6 A. No, that was it.

7 Q. And approximately what time frame were you
8 working on this device?

9 A. I think it started in '89 -- '89, '90. And
10 then we published the results of the analysis. I
11 believe they were published in IEEE Transactions on
12 Biomedical Engineering in '91.

13 Q. Was the device you were working on ever
14 released as a product?

15 A. It was, yes.

16 Q. Do you happen to know when the product was
17 released?

18 A. That I don't know. It would have been in the
19 early '90s.

20 Q. Do you happen to know which company was
21 responsible for releasing the device?

22 A. No, I don't.

1 Q. Sorry to go back to it, but the cryogenic
2 catheter device you were working on, was that product
3 ever released as -- or was that device ever released
4 as a product?

5 A. Yes.

6 Q. Do you recall when that product was released?

7 A. I don't recall. The product was released,
8 may have been the early 2000s. And the company was
9 subsequently bought by Medtronic, which continued to
10 market the product.

11 Q. Was the cryogenic catheter product originally
12 released by CryoCath?

13 A. Yes.

14 Q. So let's move ahead to the -- I think there
15 was something you mentioned about your MIT
16 dissertation. There was like a high-power ultrasound
17 device.

18 A. Yes.

19 Q. I guess, what tissue was that high-power
20 ultrasound device intended to treat?

21 A. I should qualify and say that there were
22 several high-power ultrasound devices that I was

1 involved in in various stages. All of them were
2 designed to treat tumors in various tissues. So we
3 had one device that was designed to treat large
4 abdominal tumors. We had another ultrasound -- and
5 this was a collaboration that MIT had with what at the
6 time -- well, with Dana Farber Cancer Institute and
7 what was called the Joint Center for Radiation
8 Therapy.

9 And so over the years we had developed
10 multiple devices using high-power ultrasound energy
11 primarily to treat tumors. So we had a device to
12 treat tumors in the female breast, a device to treat
13 tumors in the prostate, abdominal tumors. Yes, that
14 about sums it up.

15 Q. Were any of these high-power ultrasound
16 devices intended to treat tumors in the nose?

17 MR. NEMTZOW: Objection, form.

18 A. No.

19 Q. I'm assuming -- correct me if I'm wrong --
20 all these high-power ultrasound devices used
21 ultrasound energy as the ablative energy; is that
22 right?

1 A. Correct.

2 Q. In approximately what time frame were you
3 working on these high-power ultrasound devices?

4 A. That -- my involvement probably started in
5 '89 and continued throughout my graduate studies into
6 my time at MIT as a staff scientist. So it probably
7 would have ended around '99.

8 Q. And were any of these high-power ultrasound
9 devices ever released as a product?

10 MR. NEMTZOW: Objection, form.

11 A. No.

12 Q. I guess moving ahead -- I'm not sure if it's
13 ahead or back. But you mentioned something about your
14 bachelor's thesis dealing with laser ablation. Is
15 that right?

16 A. Yes.

17 Q. In approximately what time frame was your
18 bachelor's thesis?

19 A. 1988.

20 Q. You said '88 or '98?

21 A. '88.

22 Q. I guess at a high level, what was the laser

1 ablation device you were working on for your
2 bachelor's thesis?

3 MR. NEMTZOW: Objection, form.

4 A. So the thesis work itself was primarily a
5 little bit theoretical in nature. It was a simulation
6 that would compute the temperature distribution in
7 tissue being heated by a laser.

8 Q. And did you ever work on a physical product
9 as part of your -- or physical device or a product as
10 part of your bachelor's thesis?

11 MR. NEMTZOW: Objection, form.

12 A. Yes. And then some of that work also carried
13 over into my master's work.

14 Q. Okay, let's start with the theoretical stuff
15 you were talking about. For that work, were you
16 focusing on any particular area of the body or any
17 particular tissue?

18 MR. NEMTZOW: Objection, form.

19 A. No, the model and the simulation was general
20 for any tissue type -- any tissue that receives blood
21 flow.

22 Q. And going ahead to, you said there was

1 some -- I think you said there was some work you did
2 on a laser ablation device on like an actual device or
3 product; right?

4 A. Yes.

5 Q. Was this a -- was it a released product that
6 you were working on or a device that was still under
7 development?

8 MR. NEMTZOW: Objection, form.

9 A. It was a device that we were developing.

10 Q. Okay, when you say "that we were developing,"
11 who is "we" that you're referring to?

12 A. So some of this work was being done in
13 conjunction with what at the time was called the
14 Wellman laser lab at the Massachusetts General
15 Hospital. So at that time they had the lasers that we
16 used to run experiments. And then I was able to take
17 the simulations that I did as part of my bachelor's
18 thesis, in my master's thesis I was able to collect
19 data and then compare it to the simulation.

20 Q. So the laser ablation device that you were
21 working on, was it intended only to treat exterior
22 portions of the body?

1 MR. NEMTZOW: Objection, form.

2 A. Not necessarily. It was intended to treat
3 any tissue that had blood flow. And with laser
4 ablation, for body cavities, you could use fiber
5 optics to access body cavities.

6 Q. And this might be a dumb question, but I'm
7 assuming the ablative energy that this laser ablation
8 device used was laser energy?

9 A. Light.

10 Q. Right?

11 A. Light, yeah.

12 Q. And then I know you said something -- there
13 was like something recent that you worked on where you
14 were ablating parts of the ovary?

15 A. Yes.

16 Q. I guess give me an idea of what that work
17 was?

18 A. This was for a recent client as part of my
19 work at Tremont Consulting, and it was experimental
20 and theoretical analysis of the temperature
21 distributions from radiofrequency ablation and the
22 ablation volumes.

1 Q. And when you say "recent," like what time
2 frame are we talking about?

3 A. This engagement started probably a year and a
4 half ago, and it ended -- it would have ended back in
5 March.

6 Q. And what kind of ablative energy did this
7 device use?

8 MR. NEMTZOW: Objection, form.

9 A. Radiofrequency energy.

10 Q. And was the device you were working on ever
11 released as a product?

12 MR. NEMTZOW: Objection, form.

13 A. I believe it's currently in clinical trials
14 in the United States.

15 Q. Do you know which company is working on the
16 clinical trials of the product?

17 A. Yes.

18 Q. Which company?

19 A. May Health, two words, M-a-y H-e-a-l-t-h.

20 Q. And again, this device you were working on
21 was intended to ablate the ovaries; is that right?

22 A. Correct.

1 Q. Is there any other devices we haven't talked
2 about, any other tissue ablation medical devices we
3 haven't talked about, where you were involved in the
4 development of the product?

5 MR. NEMTZOW: Objection, form.

6 A. I think that about covers it.

7 Q. Have you ever personally designed a tissue
8 ablation medical device?

9 MR. NEMTZOW: Objection, form.

10 A. What do you mean by "personally"?

11 Q. Were you ever personally involved in the
12 design of a tissue ablation medical device?

13 A. Yes.

14 MR. NEMTZOW: Objection, form.

15 Q. Which devices would those be?

16 A. Well, as I covered, the CryoCath catheter,
17 the second and third generation of NovaSure, the laser
18 ablation devices that I mentioned.

19 Q. Anything else?

20 A. Some of the ultrasound devices that I
21 mentioned.

22 Q. Anything else?

1 A. I think we've covered it, yeah.

2 Q. So starting with the CryoCath device: Did
3 you design that device yourself?

4 MR. NEMTZOW: Objection, form.

5 A. Well, I'm not quite sure what you mean
6 "design yourself." You mean as the only person
7 working on the design?

8 Q. Or as part of a team.

9 A. As part of a team, yes.

10 Q. How many people were on that team?

11 A. Over the years, dozens.

12 Q. And were you part of the team -- strike that.

13 Were you part of the team that worked on
14 the initial design of that CryoCath product?

15 MR. NEMTZOW: Objection, form, foundation.

16 A. Yes.

17 Q. About how many years would you say you spent
18 designing the CryoCath product?

19 A. I probably worked with that team for about
20 two years.

21 Q. And you said you were involved with the
22 design of the second and third generations of the

1 NovaSure product; is that right?

2 A. Yes.

3 Q. Again, were you working as part of a team on
4 the design of those products?

5 A. Yes.

6 Q. And how many people were on that team?

7 A. For the second generation, well, maybe 40.

8 Q. And how about for the third generation?

9 A. Third generation? Well, third generation
10 wasn't released until after I -- it was developed
11 while I was at Hologic, but it wasn't released until
12 after I left. So I can't really say -- I don't know
13 how many people continued to work on it after I left
14 Hologic. But, say, like same order of magnitude: 30,
15 40, I would venture.

16 Q. And you mentioned you were part of -- you
17 were involved with the design of the laser ablation
18 devices; right?

19 A. Yes.

20 MR. NEMTZOW: Objection, form.

21 Q. Were you part of a team that designed those
22 laser ablation devices?

1 MR. NEMTZOW: Objection, form.

2 A. Yes.

3 Q. And how many people were on that team?

4 A. Those devices were never commercially
5 available. They remained prototypes. So it was me
6 and my thesis adviser.

7 Q. And you were also involved with the design of
8 an ultrasound device; is that right?

9 A. Correct, yes.

10 Q. And were you part of a team that was involved
11 with the design of that ultrasound device?

12 A. Yes.

13 Q. And how many people were on that team?

14 A. I would guess maybe in total, maybe 15, maybe
15 20.

16 Q. Would you mind picking back up the '318
17 declaration. I'm looking at Page 3, Paragraph 6, the
18 last sentence. Let me know when you're there.

19 A. I am here.

20 Q. Do you see towards the end of this paragraph
21 you mention U.S. Patent No. 8,814,796?

22 A. Yes.

1 Q. Why did you mention this patent in your
2 declaration?

3 A. Do you have a copy of this, this patent?

4 Q. Yes.

5 A. I just want to check something.

6 MR. GILFORD: Let's go ahead and mark
7 that. So let's go ahead and mark this Martin Exhibit
8 1.

9 (Exhibit 1 marked for identification.)

10 Q. I'll represent to you that this is U.S.
11 Patent 8,814,796. You've seen this patent before;
12 right?

13 A. Yes, yes.

14 Q. So going back to my question before: The
15 question was, why did you mention this patent in your
16 declaration?

17 A. Well, you know, I've worked with a lot of
18 ablation devices that work in a lot of different
19 tissues, and, you know, prosecuting a patent can be a
20 costly proposition; right? And not everyone invests
21 in it. But this was one of the few ablation devices
22 that I worked on which actually resulted in a patent.

1 Q. Okay. Interesting. Now, you're listed as
2 one of the inventors on this patent; right?

3 A. Yes.

4 Q. And you see this patent is assigned to
5 Hologic?

6 A. Correct.

7 Q. Did you assign this patent to Hologic?

8 A. Yes.

9 Q. Why did you assign this patent to Hologic?

10 A. My employment agreement required me to assign
11 all inventions made at Hologic to Hologic.

12 Q. Was the subject matter of this patent derived
13 from your work at Hologic?

14 A. Yes.

15 MR. NEMTZOW: Objection, form.

16 A. Yes.

17 Q. Did you receive any compensation for
18 assigning this patent to Hologic?

19 MR. NEMTZOW: Objection, form.

20 A. Yes. Yes, I think I did.

21 Q. Do you recall what that compensation was?

22 A. I don't. I think it was more than the

1 customary dollar, and maybe less than a thousand
2 dollars.

3 Q. You left Hologic sometime in 2011; is that
4 right?

5 A. Correct.

6 Q. Do you recall what month you left Hologic?

7 A. November.

8 Q. So looking back at the listing of inventors
9 up in the top left.

10 A. Yes.

11 Q. Do you see there's three other individuals
12 listed as inventors on this patent?

13 A. Yes.

14 Q. Do you know who these other three individuals
15 are?

16 A. Yes.

17 Q. Did you work with these individuals?

18 A. I worked with the first two, William
19 Churchill and Daniel Beaudet.

20 Q. Beaudet is B-e-a-u-d-e-t.

21 A. Correct.

22 Q. Did you work with Mr. Rioux, R-i-o-u-x?

1 A. No, he joined the company after I left.

2 Q. Did you supervise any of these three
3 individuals?

4 A. I supervised William Churchill and Daniel
5 Beaudet indirectly.

6 Q. What do you mean by supervised them
7 indirectly?

8 A. They reported to people who -- they reported
9 to someone who reported to me or they reported to
10 someone who reported to someone who reported to me.

11 Q. Do you have any understanding of why you're
12 the first-named inventor on this patent?

13 MR. NEMTZOW: Objection, form.

14 A. No.

15 Q. This patent was filed on January 10th, 2012.
16 Do you see that?

17 A. Yes.

18 Q. So it's fair to say this patent was filed
19 after you had left Hologic; correct?

20 A. Correct.

21 Q. Do you happen to know why this patent was
22 filed in 2012?

1 MR. NEMTZOW: Objection, form.

2 A. No.

3 Q. Do you have an understanding whether this
4 patent was intended to cover a product?

5 MR. NEMTZOW: Objection, form.

6 A. I believe it was.

7 Q. What product do you believe this patent was
8 intended to cover?

9 MR. NEMTZOW: Objection, form.

10 A. I believe it was intended to cover NovaSure.

11 Q. Do you happen to know which generation of
12 NovaSure this patent was intended to cover?

13 A. That I don't know the answer to.

14 Q. Go ahead and turn to Page 3 of this document,
15 and I'm looking at figure 2.

16 A. Yes.

17 Q. Do you see the plus and minus signs at the
18 top of this figure?

19 A. I do.

20 Q. Do you know what the plus and minus signs are
21 intended to represent?

22 A. I believe they're intended to represent the

1 polarity of the electrical energy.

2 Q. What do you mean by "the polarity of the
3 electrical energy"?

4 A. Well, in the simplest form: In direct
5 current, where you have a battery, you have a plus
6 terminal and you have a minus terminal, in the
7 simplest form. Radiofrequency energy -- right? --
8 you're basically alternating current, so your plus and
9 your minus are changing directions.

10 So I think this is just a simplification
11 of that concept, that the electrical charge is
12 opposite each other at a given point in time.

13 Q. Got it. And do you see the plus and minus
14 signs are above lines?

15 A. Yes.

16 Q. They kind of generally run vertically. Do
17 you see that?

18 A. Yes.

19 Q. Are those lines intended to represent
20 electrodes?

21 MR. NEMTZOW: Objection, form.

22 A. I don't know. I'd have to relook at this

1 patent.

2 Q. I guess if you look, for example, at column
3 6, and I'm looking at about line 34.

4 A. Yes.

5 Q. Do you see it says "electrodes 44"?

6 A. Yes.

7 Q. Now if you go back to figure 2, do you see
8 there's a couple of referenced numerals that say 44?

9 A. Yes.

10 MR. NEMTZOW: Objection, form.

11 Q. So having seen that, is it your understanding
12 that these vertical lines that are next to the plus
13 and minus signs are intended to represent electrodes?

14 MR. NEMTZOW: Objection, form.

15 A. Well, it says 44 is an electrode array. "The
16 energy source supplies energy to the electrode array
17 44."

18 Q. I guess it says both; right? In column 6 is
19 says electrodes 44 and electrode array 44?

20 MR. NEMTZOW: Objection, form.

21 A. Okay.

22 Q. Not superimportant, but I guess going back to

1 my original question, look at figure 2 of this patent:
2 Is it your understanding that the generally vertical
3 lines next to the plus and minus signs are intended to
4 represent electrodes?

5 MR. NEMTZOW: Objection, form.

6 A. That looks like what it says, yes.

7 Q. Now, did the NovaSure product have an
8 electrode arrangement similar to what's depicted in
9 figure 2 of this patent?

10 MR. NEMTZOW: Objection, form.

11 A. The products that we released had a different
12 configuration than this.

13 Q. How did the products that were released
14 differ in their electrode configuration compared to
15 what's shown in figure 2?

16 A. Well, this figure 2 implies that the
17 electrodes are lines, and the thickness of each line,
18 it's not quite clear what it would be, just looking at
19 this figure.

20 The actual NovaSure products, the
21 original, Gen. 2, and Gen. 3, the electrode arrays
22 were basically areas, not lines.

1 Q. I think we had talked about that before.

2 A. Yes. And that's how the released product, as
3 far as I know, remains today.

4 Q. How good's your drawing?

5 MR. NEMTZOW: Objection, form, relevance.

6 Q. If I give you a pen, can you draw like a
7 simplified diagram of what the NovaSure electrode
8 arrangement looks like kind of like next to this
9 figure on the exhibit I gave you?

10 MR. NEMTZOW: Objection, form, relevance.

11 A. Yes.

12 Q. Would you mind doing that.

13 A. It looks something like that.

14 Q. And then on the other side it would be the
15 same?

16 A. Yes.

17 MR. NEMTZOW: Objection, form, relevance.

18 A. And the polarity, like the polarity is -- so
19 everyone can see, it's positive, negative, and then
20 directly on the other side it's positive and negative.

21 So the other side has the same
22 configuration, has a similar configuration, but the

1 polarity is opposite.

2 Q. Would you mind just putting your initials
3 next to that drawing, and then I'll take my pen back.

4 MR. NEMTZOW: Objection, form, relevance.

5 Q. You can hold on to that. I guess looking at
6 figure 2 first, and then we'll talk about your drawing
7 of what the NovaSure product looks like. So starting
8 with figure 2: Do you have any understanding of why
9 the electrodes in this drawing are arranged the way
10 they are?

11 MR. NEMTZOW: Objection, form.

12 A. No.

13 Q. And then talking about the actual
14 configuration in the NovaSure product, do you have an
15 understanding of why the electrodes are arranged that
16 way in the NovaSure product?

17 A. Yes.

18 MR. NEMTZOW: Objection, form, relevance.

19 A. Yes.

20 Q. Why are the electrodes in the NovaSure
21 product arranged the way they are?

22 MR. NEMTZOW: Objection, form, relevance.

1 A. The original inventors did a lot of
2 experimental trial and error using pig livers that
3 they sourced from a butcher to identify experimentally
4 electrode configurations that gave them a uniform
5 depth of ablation throughout the uterus.

6 Q. What do you mean by "uniform depth of
7 ablation"?

8 A. They were trying to control the depth of
9 ablation --

10 So in endometrial ablation, to
11 successfully treat menorrhagia, you have to ablate not
12 just the endometrium, but you have to ablate into the
13 myometrium. And so they specifically designed this to
14 ablate approximately four to five millimeters into the
15 myometrium.

16 Q. So when you say "depth of ablation," you're
17 talking about how far into the tissue the ablative
18 energy goes?

19 MR. NEMTZOW: Objection, form.

20 A. The energy goes much further; right? But
21 ablation happens when the temperature reaches a
22 certain level for a certain amount of time. So you

1 can imagine -- what they were trying to do is get the
2 ablative front to achieve a certain depth, to cause
3 cellular destruction and tissue disruption.

4 Q. And then sorry if you explained this already,
5 but when you say uniform depth of ablation, what do
6 you mean specifically by the term "uniform"?

7 A. In general they would -- well, I should
8 qualify.

9 There were -- the original inventors of
10 the NovaSure were trying to control the depth of
11 ablation. It wasn't necessarily uniform throughout
12 the entire uterus.

13 So, for instance, at the points here,
14 which is close -- when this gets properly deployed,
15 it's close to the fallopian tubes. There the uterine
16 wall is thinner. So they didn't want to have a
17 thick -- a deeper ablation front there for fear of
18 involving organs that are outside the uterus --
19 namely, the bowel.

20 So, again, these electrodes were all
21 designed to, if you will, create an ablation depth of
22 a certain specification to maximize effectiveness and

1 safety.

2 Q. And is it fair to say that the electrode
3 configuration in the NovaSure product was designed
4 specifically for treating the uterus?

5 MR. NEMTZOW: Objection, form, relevance,
6 foundation.

7 A. Yes.

8 MR. GILFORD: I think I'm coming up on a
9 good spot for a break. Let me just double-check a
10 couple things.

11 Q. Again talking about the actual NovaSure
12 product: Did you have any input in the electrode
13 arrangement in that product?

14 MR. NEMTZOW: Objection, form, relevance.

15 A. In the Generation 2, yes, and the Generation
16 3, yes.

17 Q. So let's break that down a little bit. So in
18 both the Generation 2 and Generation 3 products you
19 had input in the electrode arrangement for those
20 products?

21 MR. NEMTZOW: Objection, form.

22 A. Well, let me qualify "arrangement" and just

1 say: It more relates to the size and the shape rather
2 than -- I mean, we were still -- in the subsequent
3 generations, 1, 2, and 3, we still used this
4 configuration as I drew, but the shape was slightly
5 modified.

6 Q. Okay. I understand. So generally in 1, 2,
7 and 3, similar arrangement, and you're just modifying
8 the shape and size?

9 A. Correct.

10 MR. NEMTZOW: Objection, form.

11 A. Yes.

12 Q. Did the shape differ dramatically from
13 Generations 1 to 2 to 3?

14 MR. NEMTZOW: Objection, form, relevance.

15 A. I believe -- well, the shape was changed --
16 When NovaSure was released, it was
17 indicated for uterine cavities of a certain size. And
18 so the company wanted to expand that indication to be
19 able to treat more patients. So that required a
20 change in the size and shape of the electrodes.

21 Q. Okay. Was the shape in Generations 2 and 3
22 generally similar to what you drew on the page there?

1 A. The shape, generally similar. The surface
2 area would be different.

3 MR. GILFORD: I'm at a pretty good spot to
4 take a break. Does like five minutes sound good?

5 THE WITNESS: That sounds good.

6 (Recess taken.)

7 Q. Let's go to Page 5 of your '318 declaration.
8 I'm looking at Paragraph 12.

9 A. Yes.

10 Q. And in Paragraph 12 you provide the legal
11 standard for anticipation; right?

12 A. Yes.

13 Q. Do you see in Paragraph 12 you wrote that "a
14 patent claim is anticipated and therefore unpatentable
15 if each element of that claim is present in a single
16 prior art reference"? Do you see that?

17 A. Yes.

18 Q. What do you mean by "is present in a single
19 prior art reference"?

20 MR. NEMTZOW: Objection, form.

21 A. Well, this is what I was -- I mean, I'm not a
22 lawyer, and this is what I was informed by counsel.

1 Q. So other than what counsel gave you, do you
2 have any understanding of what you meant by "is
3 present in a single prior art reference"?

4 MR. NEMTZOW: Objection, form.

5 A. I would just say it is apparent to someone
6 skilled in the art.

7 Q. And you're not asserting that any of the
8 prior art anticipates any of the claims or patents
9 that you provided opinions on; right?

10 A. No single element of prior art.

11 Q. What do you mean by that?

12 A. The obviousness claims are asserted by the
13 combination of prior art.

14 Q. Do you understand there's a difference
15 between obviousness and anticipation?

16 A. I have been informed by counsel, yes, of the
17 difference.

18 Q. And again, you're not asserting that any of
19 the prior art anticipates any of the claims or patents
20 that you've provided opinions on; right?

21 A. Correct.

22 Q. If you go to Page 7, and I'm looking at

1 Paragraph 18, right at the bottom.

2 A. Yes.

3 Q. Do you see where you write, "I also
4 understand that in considering obviousness, it is
5 important not to determine obviousness using the
6 benefit of hindsight," and it goes on. Do you see
7 that?

8 A. Yes.

9 Q. What is your practice for ensuring that
10 hindsight bias is not used in your analysis?

11 MR. NEMTZOW: Objection, form.

12 A. I think it's just common sense.

13 Q. What do you mean by that?

14 A. You just have to -- I mean, you just have to
15 use judgment -- right? -- as a person skilled in the
16 art, being able to evaluate the prior art and
17 understand, you know, how obvious it is or not.

18 Q. Is it your understanding that obviousness is
19 supposed to be evaluated from the perspective of a
20 person of ordinary skill in the art at the time of the
21 alleged invention of the claims?

22 MR. NEMTZOW: Objection, form.

1 A. Yes.

2 Q. And at least for the '318 patent, is it your
3 understanding that the alleged invention of the claims
4 was back in 2011?

5 MR. NEMTZOW: Objection, form, foundation.

6 A. I don't recall the exact priority date of the
7 '318 patent. Do you have a copy?

8 Q. Of the '318? You can also look at Paragraph
9 25 of your '318 declaration.

10 A. Yes.

11 Q. So it's your understanding that the alleged
12 invention of the '318 patent claims is on June 14th,
13 2011; right?

14 A. Yes.

15 MR. NEMTZOW: Objection, form, foundation.

16 A. Yes.

17 Q. And in analyzing the '318 patent, did you
18 apply June 14th, 2011 as the alleged date of invention
19 of the claims?

20 A. Yes.

21 Q. So going back to what we were talking about
22 in Paragraph 18, of trying to prevent hindsight bias:

1 Do you have any --

2 I guess what was your practice of making
3 sure that you're evaluating the claims from the
4 perspective of one of skill in the art in 2011 as
5 opposed to today?

6 A. Fair enough, yes.

7 MR. NEMTZOW: Objection, form.

8 A. Well, I think from what we just recently
9 discussed you'll see that most of my experience using
10 ablation devices happened before 2011.

11 Q. So I guess in evaluating the prior art, were
12 you specifically relying on your experience with
13 ablation devices that took place before 2011?

14 A. Yes.

15 Q. Okay. If you go to Page 10 of your '318
16 declaration, and I'm looking at Paragraph 27. This
17 paragraph provides your definition of a person of
18 ordinary skill in the art for the '318 patent; right?

19 A. Yes.

20 Q. And your definition of a person of ordinary
21 skill in the art is the same for the '217, '286, and
22 '077 patents. Is that true?

1 A. I'd have to look and reconfirm.

2 Q. Sure.

3 A. I mean, the descriptions are similar.

4 Q. Any differences in the definitions -- are
5 there any differences in the definitions between those
6 four declarations that you're aware of?

7 A. No, they appear to be similar.

8 Q. If I refer to a person of ordinary skill in
9 the art as a POSITA, you'll know what I'm talking
10 about; right?

11 A. Yes.

12 Q. Now, looking again at Paragraph 27 of the
13 '318 declaration: Do you see where you state that
14 relevant times include 2011 to 2019?

15 A. Yes.

16 Q. And again, you understand that the claimed
17 priority date for the '318 patent is June 14th, 2011;
18 right?

19 A. Yes.

20 Q. And I think you agreed earlier that it is
21 your understanding that prior art must be analyzed
22 from the perspective of a POSITA at the time of the

1 alleged invention; right?

2 A. Yes.

3 Q. So why do you believe that the time period
4 after June 14th, 2011 is relevant here?

5 MR. NEMTZOW: Objection, form.

6 A. I don't know, did I say that?

7 Q. You say "at relevant times (2011-2019)." Do
8 you see that?

9 A. Uh-huh.

10 Q. So going back to my question. It was, why do
11 you believe that the time period after June 14th, 2011
12 is relevant here?

13 A. I don't know.

14 Q. I guess in analyzing the '318 patent did you
15 assume that the time period after June 14th, 2011 was
16 relevant?

17 A. No, I don't think I did.

18 Q. Going back to Paragraph 27 of your '318
19 patent declaration: Do you see that you state that a
20 POSITA would have had "at least three years of
21 experience in the clinical use, design, development,
22 and/or testing of medical devices, including medical

1 devices that deliver energy to tissue"? Do you see
2 that?

3 A. Yes.

4 Q. In your opinion, why do you think that a
5 doctor of medicine degree or a bachelor of science in
6 engineering on its own would be insufficient to
7 qualify somebody as a POSITA?

8 MR. NEMTZOW: Objection, form.

9 A. Well, I think a POSITA would have to have
10 some practical experience, not just theoretical,
11 academic knowledge.

12 Q. I guess why do you think that it's important
13 for a POSITA to have some practical knowledge and not
14 just theoretical or academic knowledge?

15 A. Well, it's a person of ordinary skill in the
16 art, and someone who has academic knowledge I would
17 say can still be skilled, but I don't think it's
18 ordinary.

19 Q. So again, in Paragraph 27, you say that a
20 POSITA could have a doctor of medicine or a bachelor
21 of science degree in engineering. I guess, why is
22 your definition of a POSITA split between those two

1 things? Aren't they very different degrees?

2 MR. NEMTZOW: Objection, form.

3 A. Yes, they are different degrees.

4 Q. So why do you think either of those degrees
5 would qualify somebody as a person of ordinary skill
6 in the art?

7 MR. NEMTZOW: Objection, form.

8 A. Well, I think for this invention they would
9 both have to have a fundamental understanding -- or
10 for this field, they would have to have a fundamental
11 understanding of the devices, how they operate, how
12 they're intended to operate.

13 Q. And do you think somebody who's a doctor of
14 medicine would have a fundamental understanding of how
15 the device of the '318 patent would operate?

16 MR. NEMTZOW: Objection, form.

17 A. Well, I think -- it's a minimum
18 qualification -- right? -- along with some years'
19 experience.

20 Q. I guess why does -- let's just say somebody
21 had the practical experience but no formal education.
22 Why would that not qualify them as a person of

1 ordinary skill in the art?

2 MR. NEMTZOW: Objection, form, relevance.

3 A. Without the formal education, you wouldn't
4 get the practical experience. If you don't have an
5 M.D., no one is going to let you practice clinical
6 medicine.

7 Q. Do you think a practice of clinical medicine
8 is a necessary qualification for a person of ordinary
9 skill in the art in this field?

10 MR. NEMTZOW: Objection, form.

11 A. No, you could have a bachelor -- as I said,
12 you could have a bachelor of science in engineering,
13 or a related discipline, as well.

14 Q. Do you believe that any engineering degree is
15 sufficient for the purposes of defining a POSITA here?

16 A. Well, I think -- I think, for instance, let's
17 say, a degree in civil engineering; right? I think if
18 you have a degree in civil engineering but then you
19 went into medical device development after three years
20 of practical experience, then, yes, you might qualify.

21 Q. What about if you had a computer science
22 degree?

1 A. That could work.

2 Q. When you say "or a related discipline" in
3 Paragraph 27, what do you mean by that?

4 A. Well, I would say sometimes engineering isn't
5 so strictly defined. There are some institutions that
6 don't confer degrees in engineering but you've
7 effectively studied one aspect of engineering, so for
8 a long time Harvard. Harvard now has an engineering
9 program, but for many years they didn't. You studied
10 engineering in their applied mathematics --
11 effectively studied engineering within an applied
12 mathematics program, as one possibility.

13 Q. And when you write in Paragraph 27 the phrase
14 "clinical use," what do you mean by that?

15 A. Treating patients.

16 Q. And going further down in Paragraph 27, where
17 you write "medical devices that deliver energy to
18 tissue," what do you mean by that?

19 A. Well, exactly what it says: any medical
20 device that transfers energy from the device to
21 tissue.

22 Q. Is it any -- I guess in defining a POSITA

1 here, are you saying that three years of experience
2 with any medical device that delivers any energy to
3 any tissue is sufficient?

4 A. Yes.

5 Q. Why do you say that?

6 A. Well, I think that experience helps give you
7 a fundamental understanding of the thermodynamics of
8 tissue.

9 Q. Well, I guess let's talk a little bit about
10 the '318, '286, and '271 patents. Now, the claims of
11 those patents are specific to a medical device that's
12 used in the nose; is that right?

13 MR. NEMTZOW: Objection, form.

14 A. Yes.

15 Q. And those three patents, the claims of those
16 three patents are specific to medical devices that
17 deliver radiofrequency energy to the nose; right?

18 MR. NEMTZOW: Objection, form.

19 A. Wait, which patents are you talking about
20 now?

21 Q. The '318, '286, and '271.

22 A. Yes.

1 Q. And again going back to what you said about
2 how you believe the three years or more of experience
3 with any medical device that delivers energy -- any
4 energy to any tissue, that you think that would be
5 sufficient for defining a POSITA: Why do you think
6 experience with medical devices that deliver some
7 other energy than radiofrequency energy and deliver
8 energy to some other tissue other than the nose, why
9 do you think that would be relevant to the '318, '286,
10 and '271 patents?

11 MR. NEMTZOW: Objection, form.

12 A. So you've really got two questions there.
13 Let's break it down.

14 What's the relevance for RF energy? So
15 there it's a case of, when you have RF energy, it's
16 just a matter of understanding, you know, where's the
17 power go, how is it converted into a thermal energy,
18 temperature, and what's its impact on the tissue. And
19 I think that's relevant for each of the energy
20 modalities.

21 And the second part of your question was
22 regarding -- oh, the nose.

1 Q. Yeah, any tissue other than the nose and why
2 is that relevant.

3 A. To an engineer, tissue is tissue; right? It
4 has electrical properties. It has thermal properties.
5 It maybe has blood flow, and geometry and anatomy.
6 And it's those things, more than whether it's the nose
7 or uterus or an ovary -- it's those factors that
8 determine how the energy gets converted into
9 temperature and how that subsequently causes ablation.

10 Q. Do different tissues have different
11 electrical properties?

12 A. Yes.

13 Q. Does the uterus have different electrical
14 properties than the nose?

15 MR. NEMTZOW: Objection, form.

16 A. Yes.

17 Q. Do different tissues have different thermal
18 properties?

19 A. Yes.

20 MR. NEMTZOW: Objection, form.

21 Q. And does the uterus have different thermal
22 properties than the nose?

1 MR. NEMTZOW: Objection, form.

2 A. Yes.

3 Q. I guess at a high level, what types of energy
4 can medical devices deliver to tissue?

5 MR. NEMTZOW: Objection, form.

6 Q. I'll give you an example. Obviously there's
7 radiofrequency energy; right?

8 MR. NEMTZOW: Objection, form.

9 A. Yes.

10 Q. So besides radiofrequency energy, at a high
11 level what types of energy can medical devices deliver
12 to tissue?

13 MR. NEMTZOW: Objection, form.

14 A. So are you trying to deliver energy to cause
15 heat -- a temperature rise, to then cause ablation, or
16 are we just talking energy in general?

17 Q. Well, I guess let's start specifically how
18 you used "deliver energy to tissue" in your definition
19 of a POSITA. So when you say "deliver energy to
20 tissue" in your definition of a POSITA, are you
21 talking about delivering energy to cause a temperature
22 rise to then cause ablation, or are you just talking

1 energy in general?

2 A. I'm talking energy in general, as it says.

3 Q. Gotcha. So in your definition of a POSITA
4 here in Paragraph 27 of the '318 patent, when you say
5 "deliver energy to tissue," you're talking about
6 differing energy in general; correct?

7 A. In general, yes.

8 Q. So going back to my question: I had said --
9 the question was what types of energy can medical
10 devices deliver to tissue. I gave you radiofrequency
11 as one example.

12 So to clarify the question, it was: What
13 general types of energy can medical devices deliver to
14 tissue?

15 MR. NEMTZOW: Objection, form.

16 A. So laser will deliver light. Ultrasound will
17 deliver ultrasound energy. Radiofrequency delivers
18 radiofrequency energy. Magnetic conduction, like an
19 MRI, delivers MRI energy. If you want to expand it
20 even further, a radiotherapy device is delivering
21 radiotherapy energy.

22 Q. What about thermal energy?

1 A. So actually, yes, that's a good example,
2 where you're conducting, where you have, let's say, a
3 balloon that you heat up the fluid inside and you
4 press it against the surface.

5 Q. What about electrical energy?

6 A. So electrical energy, yes, if you're
7 considering beyond radiofrequency -- radiofrequency is
8 one form of electrical energy. You could have, let's
9 say, instead of alternating current, you could have
10 direct current energy, yes.

11 Q. What about mechanical energy?

12 A. Mechanical energy would be another good
13 example.

14 Q. And all those types of energies we've
15 discussed, in your opinion, those would -- those would
16 be -- those would fall within the gamut of types of
17 energies that could be delivered to tissue that would
18 satisfy your definition of a POSITA?

19 A. Yes.

20 Q. Why do you think a medical device -- let me
21 back up a little bit.

22 Let me ask you: What general types of

1 tissue can medical devices deliver energy to?

2 A. I think just about every tissue.

3 Q. So I guess in the scope of your definition of
4 a POSITA, would a medical device that delivers energy
5 to the prostate fall within the scope of your
6 definition?

7 MR. NEMTZOW: Objection, form.

8 A. Yes.

9 Q. And would a medical device that delivers
10 energy to the uterus fall within the scope of that
11 definition?

12 MR. NEMTZOW: Objection, form.

13 A. Yes.

14 Q. I guess in general, within the scope of your
15 definition of a POSITA, would a medical device that
16 delivers energy to any tissue of the body fall within
17 the scope of that definition?

18 MR. NEMTZOW: Objection, form.

19 A. Yes.

20 Q. Is it fair to say that an ultrasound machine
21 is a medical device that delivers energy to tissue?

22 MR. NEMTZOW: Objection, form.

1 A. Yes.

2 Q. Why would experience with ultrasound machines
3 be relevant to the four patents that you provided
4 opinions on?

5 MR. NEMTZOW: Objection, form.

6 A. Well, let's distinguish between, let's say,
7 diagnostic ultrasound and the high-power ultrasound
8 that I've worked on in the past.

9 Q. Sure. Let's talk about the diagnostic one
10 you would find in an ob/gyn clinic.

11 A. Sure. In that case you have to understand
12 what the distribution of energy is in the tissue and
13 what its impact on tissue is.

14 For instance, in the case of diagnostic
15 ultrasound, the FDA puts limits on how intense that
16 ultrasound energy can be, because they don't want to
17 heat the tissue up. So you have to understand the
18 potential thermal impacts of diagnostic ultrasound.

19 In the case of high-power ultrasound, you
20 want to heat up the tissue. So you still have to have
21 that same understanding, how it's going to be
22 deposited in the tissue, where it's going to be

1 deposited, what are the sound properties -- right? --
2 of the tissue, because it's the vibration of the
3 tissue that then ultimately through friction gets
4 converted into heat. That's one modality.

5 Q. So when you're designing a medical device
6 that delivers radiofrequency energy to tissue, do you
7 need to be familiar with the sound properties of the
8 tissue?

9 MR. NEMTZOW: Objection, form.

10 A. You have to be cognizant of the properties of
11 tissue, of how the energy is converted from the form
12 that you're placing it in to how it gets to thermal
13 energy. So it's analogous to ultrasound.

14 In any of these energy modalities, you
15 have to know how the energy -- each one, you have to
16 know how the energy's converted from the energy you're
17 delivering to how it gets converted to thermal energy.

18 Q. Do different types of energy get converted to
19 thermal energy in different ways?

20 MR. NEMTZOW: Objection, form.

21 A. Yes.

22 Q. So is it fair to say that ultrasound energy

1 is converted into thermal energy differently than
2 radiofrequency energy is converted into thermal
3 energy?

4 MR. NEMTZOW: Objection, form.

5 A. They both involve friction; right?
6 Ultimately you're causing friction in the tissue. In
7 the case of ultrasound energy, it's the friction of
8 the vibration of the tissue. In the case of RF
9 energy, it's the friction of the small molecules --
10 the sodium and the potassium -- that are oscillating
11 back and forth in the tissue.

12 Q. But again, my question was: Is it fair to
13 say that ultrasound energy is converted into thermal
14 energy differently than radiofrequency energy is
15 converted into thermal information?

16 MR. NEMTZOW: Objection, form.

17 A. So fundamentally they're both friction;
18 right? They both rely on some form of friction.

19 Q. Is that the case for all of these different
20 energy types we've talked about -- you know, light,
21 sound, radiofrequency, magnetic, electrical,
22 mechanical, et cetera?

1 MR. NEMTZOW: Objection, form.

2 A. Electrical, yes. Mechanical, yes. Light,
3 no.

4 Q. What about magnetic?

5 MR. NEMTZOW: Objection, form.

6 A. Magnetic I'm not sure about.

7 Q. Are the tissue properties of the nose
8 different than the tissue properties of other parts of
9 the body?

10 MR. NEMTZOW: Objection, form.

11 A. Tissue thermal properties, tissue electrical
12 properties, yes.

13 Q. So just to clarify: The thermal and
14 electrical tissue properties of the nose are different
15 than the thermal and electrical tissue properties of
16 other parts of the body? Is that correct?

17 MR. NEMTZOW: Objection, form.

18 A. Yes.

19 Q. Is a heating pad a medical device that
20 delivers energy to tissue?

21 A. I'm sorry, I need to go back to your previous
22 question and qualify.

1 Q. Sure.

2 A. If we define the nose as such -- obviously
3 the skin on the nose has the same properties as the
4 skin everywhere else; right? And similarly, any bony
5 structures within the nose will have similar
6 electrical and thermal properties to bones elsewhere.

7 Q. Okay. That's a fair qualifier.

8 My question is, are the tissue properties
9 of the interior of the nose different than the tissue
10 properties of the uterus?

11 A. Yes.

12 Q. Are the tissue properties of the nose
13 different than the tissue properties of the urethra?

14 MR. NEMTZOW: Objection, form.

15 A. Yes.

16 Q. Are the tissue properties of the nose
17 different than the tissue properties of the prostate?

18 MR. NEMTZOW: Objection, form.

19 A. Yes.

20 Q. Are the tissue properties of the nose
21 different than the tissue properties of the heart?

22 MR. NEMTZOW: Objection, form.

1 A. Yes.

2 Q. Is a heating pad a medical device that
3 delivers energy to the tissue?

4 MR. NEMTZOW: Objection, form.

5 A. It could be.

6 Q. Why would experience with heating pads be
7 relevant to the four patents you opined on?

8 MR. NEMTZOW: Objection, form.

9 A. So a heating pad, you have the same
10 constraints of safety and effectiveness. In the
11 heating pad, you want to heat but you don't want to
12 heat too much. So you have to understand how it
13 works, how the energy is generated, how it's coupled
14 to the tissue, and then where it goes.

15 Q. It's fair to say that with the heating pad
16 you don't want to ablate tissue; correct?

17 MR. NEMTZOW: Objection, form.

18 A. Exactly. And so therefore you have to know
19 what the temperature rise is going to be at that
20 interface. To know that, you have to know the power
21 of your heating pad, and you still have to know the
22 tissue thermal properties.

1 Q. Is that why with you think that experience
2 with a heating pad would be relevant to these patents?

3 A. Yes.

4 Q. Any other reasons?

5 A. Well, there's a difference between designing
6 a heating pad and using a heating pad. A heating pad
7 sounds like a simple device. But if it's a medical
8 device, it has to conform -- it has to get FDA
9 clearance some way or another, and so it has to be
10 tested to be safe. The principles involved in doing
11 that are the same principles fundamentally with
12 analyzing any other device that's heating tissue.

13 Q. Well, you know those -- what are they
14 called -- like cryoguns or the massager things you can
15 use on your back? Do you know what I'm talking about?

16 A. I don't think I've seen one before.

17 Q. Anyway, there are these devices that you can
18 use to massage your back, like a massage gun or
19 something like that. Would that be a medical device
20 that delivers energy to tissue?

21 MR. NEMTZOW: Objection, form, foundation,
22 relevance.

1 A. I think for the purpose of this discussion I
2 would define medical device as something that is
3 cleared, approved by the FDA or some other competent
4 authority.

5 Q. Okay.

6 A. Or intended to be eventually approved or
7 cleared by the FDA.

8 Q. So, you know, in the hospital sometimes
9 there's like these -- well, you know, like a blood
10 pressure cuff that you wrap around and it inflates?
11 Is that a medical device that delivers energy to
12 tissue?

13 MR. NEMTZOW: Objection, form, relevance.

14 A. It is a medical device.

15 Q. That delivers energy to tissue? It delivers
16 mechanical energy to tissue when it inflates?

17 MR. NEMTZOW: Objection, form.

18 A. Perhaps. I think you could say so, yes.

19 Q. Why would experience designing a blood
20 pressure cuff be relevant to the four patents you
21 opined on?

22 MR. NEMTZOW: Objection, form.

1 A. Again, you have similar constraints for the
2 development of the device. You have to know how the
3 device interfaces with the tissue, how it's
4 transmitting its energy, how it's not going to harm
5 the tissue.

6 Q. A blood pressure cuff doesn't heat tissue,
7 does it -- or it's not designed to?

8 A. Well, if you keep blowing it up, it will
9 eventually.

10 Q. Okay. Now I'm looking back at Paragraph 27
11 of your '318 declaration, and I'm looking at the last
12 sentence on Page 10. Do you see where you wrote, "A
13 higher level of education may compensate for less work
14 experience," and it kind of goes on?

15 A. Yes.

16 Q. When you say "a higher level of education,"
17 what would a higher level of education be than
18 receiving a doctor of medicine?

19 MR. NEMTZOW: Objection, form.

20 A. Well, a lot of physicians undergo fellowship
21 training -- postdoctoral training, fellowship
22 training. It doesn't necessarily say a degree.

1 Q. So I guess what do you mean by "a higher
2 level of education" in this paragraph?

3 A. Well, in the case of the career track of
4 medicine, many physicians will go from an M.D. degree
5 to what's called a fellowship, where they're still
6 quasi in training, but they have their degree, and
7 they see patients. Another track is they may just go
8 into research and do what's called postdoctoral
9 research. Those are considered training programs.
10 And so I would call them educational.

11 Q. So when you write "a higher level of
12 education" here in your declaration in Paragraph 27,
13 are you specifically referring to a postdoc or a
14 fellowship?

15 MR. NEMTZOW: Objection, form.

16 A. Not specifically. I think there are other
17 ways of educating yourself academically beyond that.

18 Q. Well, I guess that's what I'm trying to
19 figure out. So what exactly do you mean by "a higher
20 level of education"?

21 MR. NEMTZOW: Objection, form.

22 A. Higher level for an M.D. or for a Ph.D. or

1 for a bachelor's or -- I'm not quite sure what you're
2 talking about.

3 Q. I want to know what you meant. So when you
4 said "a higher level of education," were you comparing
5 that to the bachelor of science degree in engineering
6 or the doctor of medicine degree or both?

7 MR. NEMTZOW: Objection, form.

8 A. The sentence as written applies to both.

9 Q. So let's start with the doctor of medicine.
10 When you say "a higher level of education" than the
11 doctor of medicine, what did you mean by that?

12 MR. NEMTZOW: Objection, form.

13 A. Could be a fellowship, could be postdoctoral
14 research. It could be some other former of
15 educational enhancement.

16 Q. And when you said "a higher level of
17 education" in the bachelor of science degree in
18 engineering, what did you mean by that?

19 A. It could be a master's degree. It could be a
20 doctoral degree. It could be postdoctoral.

21 Q. Would an additional degree in liberal arts
22 qualify as a higher level of education?

1 MR. NEMTZOW: Objection, form.

2 A. I don't think so, no.

3 Q. If somebody had a bachelor of science in
4 engineering, several liberal arts degrees, but no work
5 experience, would that qualify them as a POSITA?

6 MR. NEMTZOW: Objection, form.

7 A. I think the key word here is "higher," higher
8 than what was previously there. I don't think one
9 would consider a degree in literature to be higher;
10 right? A Ph.D. in literature would be higher than --

11 Q. Let's take that example. I'll reask it with
12 your example.

13 So if somebody had a bachelor of science
14 in engineering, a Ph.D. in literature, but no
15 practical work experience, would that qualify them as
16 a POSITA?

17 MR. NEMTZOW: Objection, form.

18 A. I don't think so.

19 Q. Why not?

20 A. I think the "higher" is relative to where
21 they were before -- higher than --

22 It's not just level; right? It also

1 includes the subject, subject matter.

2 Q. Okay. So I guess if somebody had a bachelor
3 of science degree in civil engineering and then a
4 Ph.D. in civil engineering but no practical work
5 experience, would that qualify them as a POSITA?

6 MR. NEMTZOW: Objection, form.

7 A. Well, it says -- the sentence says "a higher
8 level of education may compensate for less work
9 experience." It doesn't say it compensates for no
10 work experience.

11 Q. I'll give you one more example. I don't want
12 to belabor the point. Let's say somebody had a
13 bachelor of science degree in civil engineering, a
14 Ph.D. in civil engineering, and one year's worth of
15 work experience on diagnostic ultrasound machines.
16 Would that qualify them as a POSITA?

17 MR. NEMTZOW: Objection, form.

18 A. Maybe.

19 Q. Why do you say maybe?

20 A. Well, it depends on their experience and what
21 they learned during that one year.

22 Q. Okay. So in that case the higher level of

1 education doesn't really qualify them as a POSITA. It
2 really comes down to their work experience? Is that
3 what you're saying?

4 MR. NEMTZOW: Objection, form.

5 A. I think it's a combination. I mean, the
6 sentence as structured doesn't actually propose a
7 formula -- right? -- to really determine that.

8 Q. How is one supposed to determine who
9 qualifies as a POSITA under what you've proposed?

10 MR. NEMTZOW: Objection, form.

11 A. Well, I think we go back to the simple
12 sentence in the beginning; right? Let's just say --
13 and since it's me who's writing this report, that I'm
14 putting myself in the POSITA; right? I was at one
15 point in time someone with a bachelor of science and
16 three years' experience or a bachelor of science and
17 then some additional education and work experience.

18 Q. Is it fair to say that you do not have three
19 years of experience in the clinical use, design,
20 development, and/or testing of medical devices that
21 deliver energy to the nose?

22 MR. NEMTZOW: Objection, form.

1 A. To the nose, correct.

2 MR. GILFORD: How are we doing on time? I
3 think we've been going for less than an hour.

4 MS. COHEN: We've been going for like a
5 half hour.

6 MR. NEMTZOW: Maybe we go for another 20
7 minutes, half an hour, and then break for lunch?

8 MR. GILFORD: Sounds good to me.

9 Q. Let's go to Page 11 now of your '318
10 declaration, and I'm looking at Paragraph 29, the
11 first sentence. Do you see where you wrote,
12 "Radiofrequency ablation utilizes high frequency
13 alternating electrical voltage or current -- generally
14 between 300 kilohertz to 700 kilohertz -- to modify
15 tissue"?

16 A. Yes.

17 Q. And just to back up a second: When you write
18 "RF" in your report, you're referring to the term
19 "radiofrequency." Right?

20 A. Correct.

21 Q. When you write in your report "to modify
22 tissue," what do you mean by that?

1 A. Well, so RF ablation modifies tissue by
2 elevating the temperature. And it's not just the
3 temperature; right? The temperature has to be
4 elevated for a certain amount of time. And that
5 primarily works to denature proteins. So the
6 denaturing of the proteins can directly kill cells,
7 and it can directly modify other molecules that are
8 outside the cell.

9 Q. What do you mean by "directly modify other
10 molecules that are outside the cell"?

11 A. So, for instance, you have collagen, that's
12 outside of your cells. So if I heat a zone, I may
13 kill the cells, but I may also -- the collagen that's
14 outside those cells will also become denatured, like
15 the protein inside the cell.

16 In some tissues that collagen forms a
17 mechanical structure; right? And so the
18 denaturization of that collagen will break down -- the
19 structure of that tissue will be broken down.

20 Q. When you say "to modify tissue," are you
21 specifically talking about denaturing proteins?

22 MR. NEMTZOW: Objection, form.

1 A. The process of thermal ablation is a bit more
2 complex than that. So depending on what time and
3 temperature you achieve, you may have other effects.

4 Q. Such as what?

5 A. There are -- one example are cells that are
6 initially damaged by the heat energy that survive the
7 initial heating but then later go on to die through a
8 process called apoptosis. That's the programmed cell
9 death, where the cell basically says it can't continue
10 on, and it kind of commits like a suicide.

11 Q. What types of tissue modifications can occur
12 during a radiofrequency ablation?

13 A. Again, that depends on the time and
14 temperature that you're exposing it to. So, for
15 instance, you know, really high temperature, you can
16 char tissue. You can actually carbonize the tissue.
17 That's at the high end.

18 At the low end you have in some cases this
19 apoptosis effect that can occur in some cases minutes,
20 hours, even days after the tissue has cooled back to
21 normal.

22 Q. What are some other examples? You mentioned

1 carbonization. You mentioned apoptosis. What are
2 some other examples of types of tissue modifications
3 that can occur during radiofrequency ablation?

4 A. We have protein denaturization, and that
5 affects a lot of different things -- break down cells,
6 cell membranes, loss of cellular function.

7 Q. Anything else you can think of?

8 A. I mean, there's a lot of chemical processes
9 that go on. Cells that are trying to stay alive
10 during a heating cycle will create what are called
11 heat shock proteins, which, you know, are used for a
12 lot of things. But it's basically the cell trying to
13 protect itself.

14 Q. Have you ever heard of something called
15 electroporation?

16 A. Yes.

17 MR. NEMTZOW: Objection, form.

18 Q. Is electroporation a tissue modification?

19 MR. NEMTZOW: Objection, form, relevance.

20 A. I would call it a cellular modification.

21 Q. Would you call it a tissue modification?

22 MR. NEMTZOW: Objection, form, relevance.

1 A. No.

2 Q. What do you mean by cellular modification?

3 A. As I mentioned before, tissue consists of
4 what's inside the cell and what's outside the cell.
5 And what's outside the cell are these other things,
6 like collagens and other molecules.

7 Electroporation is a specific process that
8 happens to the cell membrane. So if there's no cell
9 membrane, there's no impact from electroporation.

10 Q. Turning back to Paragraph 29 of your report
11 here. I'm looking at the second-to-last sentence. Do
12 you see where you wrote, "The increase in temperature
13 damages portions of tissue and/or kills tissue cells,
14 creating lesions"? Do you see that?

15 A. Yes.

16 Q. What types of tissue damage can occur during
17 radiofrequency ablation?

18 A. Well, there's, as I mentioned, there's --
19 basically you can kill cells, and you can disrupt
20 what's outside the cells. I mean, there are other
21 effects you can have. Depending on like if you're
22 boiling -- let's say there's a region where you can

1 boil the water off. Now you're removing water content
2 from the tissue.

3 Q. And what's the difference between damaging
4 tissue and killing tissue cells?

5 A. Well, kind of as I explained before where the
6 tissue is not just the cell. It includes the
7 macromolecules that are around it. So if you're
8 damaging the tissue, you're damaging both the cells
9 and the molecules that are surrounding it.

10 Q. Would you mind flipping to the next page of
11 your declaration, and I'm looking at -- in Paragraph
12 30, kind of near the top of the page.

13 A. Uh-huh.

14 Q. Do you see there's a sentence there that
15 says, "Since their introduction decades ago, and long
16 before the '318 patent's claimed priority date, many
17 radiofrequency ablation devices have been used as
18 medical devices, for example, to destroy a blockage,
19 treat tissue, or shrink tissue." Do you see that?

20 A. Yes.

21 Q. What is the difference between destroying
22 tissue, treating tissue, and shrinking tissue?

1 MR. NEMTZOW: Objection, form, foundation.

2 A. Well, one of the things we haven't really
3 touched upon yet is what happens to the tissue after
4 your temperature process has completed; right?
5 Because, you know, you're killing cells, you're
6 disrupting tissue. But, you know, assuming the
7 patient survives, there's a biological response, where
8 the body is trying to repair itself.

9 And so, you know, if -- and so if you do
10 this in an advantageous way, that becomes your sort of
11 "treatment." And specifically what it is depends on
12 where you're applying the energy, how you're applying
13 the energy, and what goal you're trying to achieve.

14 Q. I guess what's the difference between
15 destroying tissue and treating tissue?

16 MR. NEMTZOW: Objection, form.

17 A. Well, I interpret -- well, they're not
18 necessarily diametrically opposed; right? In the case
19 of destroying tissue, where you're killing cells and
20 you're disrupting the macromolecules -- let's call
21 that destroying tissue -- the biological response --
22 So that can also treat your tissue,

1 depending on what you're trying to achieve. The
2 biological response that subsequently happens can also
3 be part of the treatment as well.

4 Q. Is the biological response the shrinking of
5 the tissue?

6 A. That could be one. And that's a good
7 example. So the ultrasound device that I mentioned to
8 you before to treat the urethra that I worked on at
9 Hologic, that device was designed to shrink the
10 urethra.

11 Q. I guess when you say "treat tissue using
12 radiofrequency ablation," what generally do you mean
13 by that?

14 MR. NEMTZOW: Objection, form.

15 A. Well, I think it would have to be defined
16 clinically; right? It's what is your clinical
17 objective, and can it be achieved applying a specific
18 RF ablation process.

19 Q. I guess continuing in Paragraph 30, that
20 we've been talking about: There's several references
21 mentioned here. There's a Baker reference.

22 A. Uh-huh.

1 Q. There's a Goble reference, G-o-b-l-e.
2 There's a Coste reference, C-o-s-t-e; and then a Hovda
3 reference, H-o-v-d-a; and a Hytonen reference; that's
4 H-y-t-o-n-e-n. Do you see all those mentioned in
5 there?

6 A. Yes.

7 MR. NEMTZOW: Objection, form.

8 Q. None of those references that I just
9 mentioned are listed in your asserted invalidity
10 grounds; correct?

11 MR. NEMTZOW: Objection.

12 Q. If you need to look, you can flip to Page 25
13 to 26, if you need to cross-reference.

14 A. Thank you, I will do that.

15 MR. NEMTZOW: I'll just object to the form
16 of the question.

17 A. Yes, I see that.

18 Q. So I'll ask it one more time, just so the
19 record's clear: Those five references I just
20 mentioned, none of those are listed in your asserted
21 invalidity grounds for the '318 patent; right?

22 A. That is correct.

1 Q. And isn't it true that none of those
2 references are listed in your asserted invalidity
3 grounds for the other three patents you opined on?
4 Right?

5 A. I'd have to look to refresh my memory.

6 Q. I'll just represent that to you.

7 A. Okay, okay.

8 Q. But anyways, let's focus specifically on the
9 '318 declaration.

10 A. Okay.

11 Q. So these five references I mentioned --
12 Baker, Goble, Coste, Hovda, and Hytonen -- are you
13 applying any of these references in your asserted
14 invalidity grounds?

15 MR. NEMTZOW: Objection, form.

16 A. I don't think they --

17 Baker maybe. I'm not quite sure about the
18 other ones. I'd have to look.

19 Q. Are you applying Baker in your asserted
20 invalidity grounds?

21 MR. NEMTZOW: Objection, form.

22 A. I'd have to look to see. I don't recall

1 exactly.

2 Q. Feel free to look, and take your time.

3 A. Yeah, I believe that's correct.

4 Q. Just so the record's clear, the question was:
5 Are you applying Baker in your asserted invalidity
6 grounds?

7 MR. NEMTZOW: Objection, form.

8 A. No, I don't think so.

9 Q. Just to be very, very clear: Your testimony
10 today is you are not applying Baker in your asserted
11 invalidity grounds?

12 MR. NEMTZOW: Objection, form.

13 A. Yes, I think that's correct.

14 Q. Okay, thank you.

15 Going back to this Paragraph 30 of your
16 '318 declaration: Is there something missing from the
17 references in your asserted invalidity grounds that
18 caused you to cite these references here in your
19 declaration?

20 MR. NEMTZOW: Objection, form.

21 A. No, I don't think so.

22 Q. Go ahead and flip to Page 16 of your '318

1 declaration.

2 A. Okay.

3 Q. And I'm looking at Paragraph 38.

4 A. Yes.

5 Q. And I'm just kind of going from the top,
6 beginning sentence here. Do you see in Paragraph 38
7 you write that "In a bipolar configuration, current
8 flows from an active electrode through the tissue
9 contacted by the active electrode, to a return
10 electrode located near the active electrode"? Do you
11 see that?

12 A. Yes.

13 MR. NEMTZOW: Objection, form.

14 A. Yes.

15 Q. So I guess once the current flows from the
16 active electrode to the return electrode, where does
17 the current go next?

18 MR. NEMTZOW: Objection, form.

19 A. Well, there would be electrical contacts --
20 right? -- to each of these electrodes. It would flow
21 from one contact into the electrode, through the
22 tissue, and the circuit would be completed and flow

1 out of the electrode into the other contact.

2 Q. And then where does it go from there?

3 A. Well, all of these radiofrequency devices
4 have a radiofrequency generator, which is supplying
5 energy, maybe monitoring some aspect of the energy
6 delivery, interfacing with the user.

7 Q. So I guess for a bipolar electrode, is it
8 fair to say that the current goes -- is output from
9 the generator, flows to the electrode, flows through
10 the tissue to the other electrode, and then returns to
11 the generator?

12 MR. NEMTZOW: Objection, form.

13 A. For -- yeah, for one bipolar pair, yes.

14 Q. I guess, you know, you say here that the
15 return and the active electrodes need to be located
16 near each other. Do you see that?

17 A. Yes.

18 Q. So how close do the active and return
19 electrodes need to be for a bipolar configuration?

20 MR. NEMTZOW: Objection, form.

21 A. I would say it depends on the clinical
22 application.

1 Q. What do you mean by that?

2 A. Well, in the case of NovaSure, for instance
3 -- right? -- I mean, effectively, those electrodes,
4 you could think of them as being maybe a centimeter
5 apart; right? There are a lot -- in our device,
6 Adiana, that I mentioned, I mean, those electrodes
7 were like a millimeter apart.

8 So, I mean, it's kind of up to the
9 designer, what they're trying to achieve, as to how
10 far the electrodes should be.

11 Q. I guess the reason I ask is, you know, my
12 understanding of how a monopolar configuration works
13 is somewhat similar to bipolar. I'll give you my
14 understanding. You can tell me if my understanding's
15 wrong.

16 My understanding is for a monopolar
17 configuration the current comes out of the
18 radiofrequency generator, goes to the electrode, flows
19 through the tissue to the, I guess you'd call it maybe
20 the reference electrode, and then flows back to the
21 generator.

22 A. "Ground pad" would be typically the typical

1 terminology.

2 Q. And the ground pad, it is an electrode;
3 right?

4 A. Yes.

5 Q. So it sounds similar to bipolar, but it seems
6 like the difference between bipolar and monopolar is a
7 matter of distance between the two electrodes?

8 MR. NEMTZOW: Objection, form.

9 A. I think that's one way to look at it. But
10 the other important way to look at it is: Typically
11 with bipolar your electrodes are of the same size;
12 right? With monopolar your ground pad is big and your
13 monopolar is smaller. And the reason why you want
14 that is, you don't want to heat up -- like where the
15 ground pad is, you don't want to heat that area up.

16 Bipolar, even if they're not exactly the
17 same size, your intention is to heat up the area
18 that's close to both of those electrodes.

19 Q. I guess if you put the ground pad close
20 enough to the active electrode, would those two
21 electrodes essentially become bipolar?

22 MR. NEMTZOW: Objection, form.

1 A. I mean, I don't think anyone in clinical
2 practice would say that, would say, "If I took a
3 ground pad here and I'm electrocauterizing here, all
4 of a sudden I've got a monopolar." A clinician would
5 still consider that to be monopolar.

6 Q. Why do you say that?

7 A. Just understanding how the terminology is
8 used and understood, what generally practitioners
9 expect from the operation of their devices.

10 Q. How close do the active and return electrodes
11 need to be for treating rhinitis?

12 MR. NEMTZOW: Objection, form.

13 A. That I don't know.

14 Q. Do you know what rhinitis is?

15 A. Yes.

16 Q. What is your understanding of what rhinitis
17 is?

18 A. It's a condition where the nose continues to
19 produce mucus.

20 Q. How close do the active and return electrodes
21 need to be for treating postnasal drip?

22 MR. NEMTZOW: Objection, form.

1 A. That I don't know.

2 Q. Do you know how close the active and return
3 electrodes need to be for treating chronic cough?

4 MR. NEMTZOW: Objection, form.

5 A. That I don't know.

6 Q. Have you reviewed the prosecution history of
7 the '318 patent?

8 A. No, I don't think I have.

9 Q. Are you familiar with what the term
10 "prosecution history" means?

11 A. Please define it for me so I can answer
12 truthfully.

13 Q. The proceedings that happened in the Patent
14 Office that led to the applicant getting a patent.

15 A. No, I didn't review that.

16 Q. So just so the record's clear: It's your
17 understanding you did not review the prosecution
18 history of the '318 patent?

19 A. Correct.

20 MR. NEMTZOW: Objection, form.

21 Q. Do you know whether you reviewed the
22 prosecution history of the '271 patent?

1 MR. NEMTZOW: Objection, form.

2 A. I did not.

3 Q. Do you know whether you reviewed the
4 prosecution history of the '286 patent?

5 MR. NEMTZOW: Objection, form.

6 A. I did not.

7 Q. Did you review the prosecution history of the
8 '077 patent?

9 MR. NEMTZOW: Objection, form.

10 A. No.

11 Q. Did you review any prosecution histories in
12 connection with your -- the declarations you provided
13 in these IPR proceedings?

14 MR. NEMTZOW: Objection, form.

15 A. No.

16 Q. I'm going to try to wrap up soon here so we
17 can go to lunch.

18 A. Fine.

19 MR. NEMTZOW: It's been 56 minutes or so
20 on the record.

21 MR. GILFORD: I think I can ask a couple
22 more questions in four minutes.

1 THE WITNESS: I'm okay with that.

2 Q. Would you mind flipping to Page 25 of your
3 declaration.

4 A. Okay.

5 Q. I'm looking at Paragraph 53. Do you see
6 where you wrote in the first sentence there, "For the
7 purposes of this declaration, I will give the claim
8 terms their plain and ordinary meaning, including as
9 understood in the field of the '318 patent, and as
10 understood by a person of ordinary skill in the art"?
11 Do you see that?

12 A. Yes.

13 Q. Is it fair to say that in analyzing the '318
14 patent you gave each of the claim terms their plain
15 and ordinary meaning?

16 MR. NEMTZOW: Objection, form.

17 A. Yes.

18 Q. In analyzing the '271, '286, and '077
19 patents, did you also give each of those claim terms
20 in those patents their plain and ordinary meaning?

21 MR. NEMTZOW: Objection, form.

22 A. Yes.

1 MR. GILFORD: I'm at a good spot to break.

2 (Lunch recess taken.)

3 Q. I'm going to go ahead and give you what has
4 previously been marked as Neurent Exhibit 1010.

5 MR. NEMTZOW: Can I just ask what
6 proceeding it's marked in?

7 MR. GILFORD: I want to say the '318, but
8 I can double-check. Possibly it was marked as 1010 in
9 more than one, but I'll just double-check.

10 Definitely in the '318.

11 MR. NEMTZOW: And I think it should be in
12 the '286 and the '271, but I can confirm. Just for
13 the record.

14 Yes.

15 MR. GILFORD: I think it was in the '077,
16 too.

17 MR. NEMTZOW: It might be a different
18 number.

19 MR. GILFORD: It was 1008 in the '077.

20 MR. NEMTZOW: Okay, great.

21 Q. You've seen this document before; right?

22 A. Yes.

1 Q. And this is, I believe you call it, the
2 Edwards '535 reference; right?

3 A. Yes.

4 Q. Can you go ahead and turn to column 8 of this
5 document. Let me know when you're there.

6 A. I'm on 8, yes.

7 Q. And I'm looking at about line 28. Do you see
8 in column 8 at about line 28 there's a sentence that
9 starts "An example" and it goes on? Do you see that?
10 "An example of a suitable surface"?

11 A. Yes.

12 Q. Would you mind reading that sentence aloud
13 for me.

14 A. "An example of a suitable surface for
15 disposition on the membrane is described in
16 application serial number" blah-blah-blah, "thin layer
17 ablation apparatus, filed October 6, 1994, which is
18 incorporated by reference."

19 Q. And that's Serial No. 08-319373; right?

20 A. Correct, yes.

21 Q. Now, in the sentence you just read aloud, the
22 word "electrode" does not appear anywhere in that

1 sentence; right?

2 MR. NEMTZOW: Objection, form.

3 A. Yes, correct.

4 Q. Have you reviewed Application Serial No.
5 08-319373?

6 A. I'm not sure. Do you have a copy?

7 Q. I don't have a copy of that application.

8 A. I'm trying to see who the inventors are. I
9 can't say.

10 Q. I guess just to double-check, if you go to
11 the materials cited list in your --

12 A. You mean in the context of my opinion have I
13 reviewed it?

14 Q. Well, let's start with ever.

15 A. Ever? I don't know.

16 Q. And then I guess in the context of your
17 opinions, if you go to Appendix B, for example, of the
18 '318 declaration.

19 A. Yes.

20 Q. So that's starting on Page 176.

21 A. Yes.

22 Q. Where, if at all, is Application Serial No.

1 08-319373 listed in your materials considered?

2 MR. NEMTZOW: Objection, form.

3 A. It's not listed here.

4 Q. I guess to confirm: To your knowledge, have
5 you ever reviewed Application Serial No. 08-319373?

6 MR. NEMTZOW: Objection, form.

7 A. Not in the context of my opinion here.

8 Q. Well, what do you mean by not in the context
9 of your opinion here?

10 A. I can't -- without additional information, I
11 can't tell you truthfully if I've ever read that or
12 looked at that patent application or not without
13 additional information.

14 Q. Which information would you need?

15 A. Inventors, assignee.

16 Q. Sure. My understanding is that Baker is one
17 of the inventors on that application.

18 A. Okay.

19 Q. Does that help you out?

20 A. I may have looked at it.

21 Q. Okay. Can you say for sure whether you did
22 or didn't?

1 A. I cannot.

2 Q. Let me ask you this: So if you look at
3 Exhibit -- I'm looking at the materials-considered
4 list.

5 A. Yes.

6 Q. And I'm looking at Exhibit 1011. And you
7 mention a Baker patent there.

8 A. Yes.

9 Q. Any idea of whether that patent is the same
10 thing as Application Serial No. 08-319373?

11 MR. NEMTZOW: Objection, form.

12 A. I don't know.

13 Q. Well, did you review this Baker patent that
14 you list as Exhibit 1011 in your '318 declaration?

15 A. Yes.

16 Q. Do you have any idea whether Application
17 Serial No. 08-319373 is the same thing as this Baker
18 patent listed in your declaration?

19 MR. NEMTZOW: Objection, form.

20 A. I don't know.

21 Q. Let's go ahead and turn back to the Edwards
22 exhibit that we've been looking at, and I'm looking

1 again in column 8.

2 A. Okay, yes.

3 Q. So column 8. Now I'm going to go look up
4 kind of like lines 5 to 7. I'm looking at the last
5 sentence of that paragraph, at the top of column 8.
6 Do you see where it says, "In one embodiment the
7 expandable member is an expandable porous membrane"?

8 MR. NEMTZOW: Objection, form.

9 A. Last sentence, "In one embodiment, the
10 expandable member is an expandable porous membrane."
11 Yes, I see that.

12 Q. Are you aware that other than the sentence
13 that I had you read aloud, this is the only time the
14 word "membrane" appears in Edwards '535?

15 MR. NEMTZOW: Objection, form.

16 A. I was not aware of that.

17 Q. I will represent to you that to my knowledge
18 the only other time the term "membrane" is mentioned
19 in Edwards '535 other than the sentence I had you read
20 aloud is this sentence here in lines 5 to 7 of column
21 8.

22 MR. NEMTZOW: Objection, form, foundation,

1 relevance.

2 Q. So going back to the sentence I had you read
3 aloud: Is it fair to say that in that sentence the
4 term "membrane" is referring to an expandable porous
5 membrane?

6 MR. NEMTZOW: Objection, form.

7 A. I don't know. Well, the sentence you had me
8 read, again, is, "In another embodiment a
9 plurality" --

10 Q. I had you read aloud starting from "an
11 example."

12 A. Okay, thank you. "An example of a suitable
13 surface for disposition on the membrane is described
14 in this application." Yes. So what's the question
15 again?

16 Q. So in that sentence is it fair to say, when
17 that sentence refers to the membrane, that it is
18 referring to the expandable porous membrane which is
19 referred to earlier in column 8 at lines 5 to 7?

20 MR. NEMTZOW: Objection, form.

21 A. I don't know if that's the case.

22 Q. Do you have an understanding of what the term

1 "the membrane" is referring to in the sentence I had
2 you read aloud?

3 A. Well, I'd have to look back a little bit
4 through the application.

5 Q. When you say "the application," do you
6 mean --

7 A. I'm sorry, this patent.

8 Do you know where it's defined in the
9 specifications here?

10 Q. Well, again, you know, I'm representing this
11 to you, but my understanding is the only other time
12 the term "membrane" is mentioned is in column 8, lines
13 5 to 7.

14 A. Okay.

15 Q. So I'll go back to my original question,
16 which was: In this sentence I had you read aloud,
17 that begins with the phrase "an example," it's fair to
18 say that when that sentence mentions the membrane,
19 that it is referring to the expandable porous
20 membrane? Is that fair to say?

21 MR. NEMTZOW: Objection, form.

22 A. Well, "membrane" to me sounds generic.

1 "Expandable porous membrane" sounds more specific.
2 Right? So I can't attest that they're referring to
3 exactly the same thing in that example.

4 Q. Okay. Well, I'll just point out, in the
5 sentence I had you read aloud, it says "the membrane."
6 Right?

7 MR. NEMTZOW: Objection, form.

8 A. Okay, yes.

9 Q. And then earlier in column 8 it says "an
10 expandable porous membrane." Correct?

11 MR. NEMTZOW: Objection, form.

12 A. Okay, yes.

13 Q. So isn't it fair to say that where it says
14 "an expandable porous membrane" in column 8, lines 5
15 to 7, it's providing the antecedent basis for "the
16 membrane" later in column 8? Isn't that fair to say?

17 MR. NEMTZOW: Objection, form.

18 A. You know, I don't know if that's the case.
19 I'd have to look through -- I'd have to look through
20 the rest of the specification to determine if that's
21 the case.

22 I don't know. I don't know if that's the

1 case. It may be, it may not be, based on my current
2 understanding.

3 Q. Fair enough. So in the sentence I had you
4 read aloud, where it says, "An example of a suitable
5 surface" and it goes on: Now, are you aware that the
6 Baker -- this Application Serial No. 08-319373, are
7 you aware that that application refers to a porous
8 exterior surface?

9 MR. NEMTZOW: Objection, form, foundation.

10 A. No.

11 Q. You're not aware that -- so to be clear, you
12 are unaware that Application Serial No. 08-319373
13 refers to a porous exterior surface? Is that fair to
14 say?

15 MR. NEMTZOW: Objection, form, foundation.

16 A. Again, I don't recall this, so I can't attest
17 to what's in there or not.

18 Q. So it's fair to say that you are unsure What
19 this term "a suitable surface" is referring to in
20 Application Serial No. 08-319373; correct?

21 MR. NEMTZOW: Objection, form, foundation.

22 A. Correct.

1 Q. And just one more thing about this: So at
2 the end of that sentence I had you read aloud, where
3 it says "is incorporated by reference" -- do you see
4 that? And I'm talking about the sentence that's like
5 lines 28 to 31, just so we're on the same page.

6 So you do see where it says "is
7 incorporated by reference" there; right?

8 A. Yes.

9 Q. So Edwards '535 does not say that this
10 Application Serial No. 08-319373 is incorporated by
11 reference in its entirety; right?

12 MR. NEMTZOW: Objection, form, foundation.

13 A. Yes.

14 Q. It's fair to say that Edwards '535 is only
15 incorporating by reference Application Serial No.
16 08-319373's description of a surface. Isn't that fair
17 to say?

18 MR. NEMTZOW: Objection, form, foundation.

19 A. I don't know.

20 Q. In your invalidity analysis did you use any
21 teachings from Application Serial No. 08-319373?

22 MR. NEMTZOW: Objection, form, foundation.

1 A. No, I don't think so.

2 Q. Let's go back to your '318 declaration. I'm
3 going to go to Page 32. And on Page 32 you have an
4 annotated version of figure 5H of the Makower
5 reference; right?

6 A. Correct, yes.

7 Q. And for the court reporter, "Makower" is
8 M-a-k-o-w-e-r.

9 Do you know whether Makower's figure 5H is
10 depicting a device in the nasal passageway?

11 MR. NEMTZOW: Objection, form.

12 A. Well, my report says it here; right? It
13 says, "Makower teaches that the strut members 214 may
14 be expanded to contact the nasal cavity tissue."

15 Q. And just -- could you point me to where you
16 are pointing to?

17 A. So Page 32, the sentence right before the
18 figure.

19 Q. Oh, okay. So is it your understanding that
20 figure 5H of Makower is depicting a device that's
21 contacting nasal cavity tissue?

22 A. Yes.

1 Q. Do you know where in the nasal cavity this
2 device in figure 5H of Makower is positioned?

3 A. I'd have to refer back to the patent to
4 answer that question.

5 Q. When you say "the patent," what are you
6 referring to?

7 A. The Makower patent.

8 Q. Let me go grab that for you. So I'm handing
9 you what was previously marked as Neurent Exhibit
10 1021. And this is the Makower patent that we're
11 talking about; right?

12 A. Yes. Yes, it is.

13 Q. Okay.

14 MR. NEMTZOW: Just for the record, this is
15 1021 in the '318 proceeding?

16 MR. GILFORD: Are you representing that or
17 asking?

18 MR. NEMTZOW: I'm asking.

19 I can represent that.

20 MR. GILFORD: Yeah, it's 1021 in the '318.
21 I'm guessing it's the same in the '271 and '286, and I
22 can't remember if this was in the '077.

1 MR. NEMTZOW: I don't know the number in
2 the '077, but it is 1021 in the '271 and the '286.

3 MR. GILFORD: I think it was --

4 MR. NEMTZOW: 1005 in the '077.

5 MR. GILFORD: Yep, okay, got it.

6 MR. NEMTZOW: Apologies.

7 MR. GILFORD: No, you're good.

8 Q. So if we go back to what the question was:
9 The question was, do you know where in the nasal
10 cavity this device in figure 5H of Makower is
11 positioned?

12 A. So Makower on Page 17, Paragraph 0187,
13 describes figure 5H. If you look at the last sentence
14 of that column, it says, "In operation the device 028
15 is advanced into a passageway such as a nostril, nasal
16 cavity, meatus, ostium, interior of a sinus, et
17 cetera."

18 Q. So is it your understanding that the device
19 of Makower figure 5H is contacting the nasal cavity
20 tissue in one of those locations you just mentioned
21 from paragraph 187 of Makower?

22 MR. NEMTZOW: Objection, form.

1 A. At least. I think the "et cetera" that he
2 ends that sentence with leaves it somewhat open.

3 Q. What do you mean?

4 A. Well, I would presume it's somewhere within
5 the nasal pharyngeal cavity.

6 Q. Going back to this annotated figure in the
7 '318 declaration: Do you see that your annotated
8 figure has four green circles, which you've identified
9 as electrodes?

10 A. Yes.

11 Q. Is it your understanding that these four
12 electrodes are ring electrodes?

13 MR. NEMTZOW: Objection, form.

14 A. No, I don't think so. Just give me one
15 minute to consult the declaration here.

16 I do not -- well, let me just consult
17 again the figure.

18 So by "ring electrodes" I do not believe
19 they're rings that circle like through the plane of
20 the tissue. They're not rings like this.

21 Q. I'm not following you.

22 A. You asked if those electrodes are ring

1 electrodes; right? I don't know if at the microscopic
2 scale they are rings. But the macroscopic scale, in
3 the plane of the drawing, they're not ring electrodes.

4 Q. Do you know what kind of electrodes those are
5 supposed to be depicting?

6 MR. NEMTZOW: Objection, form, foundation.

7 A. Makower doesn't specify, but he does say the
8 electrodes may be bipolar, monopolar, or facilitated
9 by any other suitable form of energy, such as gas
10 plasma arc.

11 Q. From looking at figure 5H, can you tell what
12 type of electrodes those are?

13 MR. NEMTZOW: Objection, form.

14 A. Again, I think the description from Makower
15 is about all we have.

16 Q. So based off of the figure itself and the
17 description, can you tell what kind of electrodes
18 those are?

19 MR. NEMTZOW: Objection, form.

20 A. What do you mean by "kind" of electrode?
21 Shape, size, material?

22 Q. Well, I'd asked you about ring electrodes

1 originally. Are you familiar with the term "ring
2 electrode"?

3 A. Yes.

4 Q. What do you understand a ring electrode to
5 be?

6 MR. NEMTZOW: Objection, form.

7 A. So ring electrodes are normally encountered
8 in the case -- let's just say a catheter, to simplify
9 it, where the electrode is applied around the
10 circumference of the catheter, kind of perpendicular
11 to the major axis to the catheter.

12 Q. Okay. That's also what I thought a ring
13 electrode is. So I guess going back to the drawing:
14 Are those four electrodes that you've circled in
15 green, are those ring electrodes?

16 MR. NEMTZOW: Objection, form, foundation,
17 relevance.

18 A. I don't think so, because Makower describes
19 an instance where the strut can be collapsed to be
20 inserted. If they were rigid rings, for instance,
21 they wouldn't permit that operation.

22 Q. Okay. Why do you say that?

1 A. Well, if you had a rigid ring -- so Makower
2 has designed this to be collapsed, inserted through
3 the nostril, and then expanded; right? If they were
4 rigid ring electrodes like you would find in an
5 electrophysiology catheter, it couldn't take that
6 shape change.

7 Q. I'm still not following. Why can't -- what
8 do you mean by that?

9 A. The way Makower operates this device
10 according to the patent description, patent
11 application, the device goes from one shape to a final
12 shape, and the final shape, as implied by figure H ,
13 would be impeded if there were ring electrodes there.

14 Q. That's the part I'm still struggling to
15 understand, is why would the final shape be impeded if
16 those were ring electrodes?

17 MR. NEMTZOW: Objection, form.

18 A. You couldn't expand -- you couldn't expand
19 the device if they were rings; right? The ring would
20 hold its shape.

21 If I take my ring -- right? -- there's no
22 way I can get this ring up my nose, no matter what

1 orientation it's in. If there's such a ring on this
2 expanded device, it's not going to fulfill the
3 described operation of this device.

4 Q. Okay. Well, let me ask you this: So is 5H
5 depicting the device in its expanded state?

6 A. Well, I think that's what's implied.

7 I mean Makower says -- right? -- that the
8 strut members may be fixed configuration, in other
9 cases strut members may be collapsible and expandable.

10 So if -- so the question is, if this is in
11 fact the collapsed state, it implies that it could
12 also be expanded beyond this state. If that's the
13 case, then ring electrodes still wouldn't work, if
14 it's to be expanded.

15 Q. Well, going back to my question: So I'm
16 talking specifically about figure 5H. Do you know
17 whether what's depicted in figure 5H is showing the
18 collapsed state or the expanded state of the device
19 that's described?

20 MR. NEMTZOW: Objection, form.

21 A. This figure description in the patent
22 application is a little vague on that point. But as a

1 designer, you would not design -- you would design the
2 device to be as minimally collapsible as possible. So
3 looking at this, the drawing implies that this is the
4 expanded state.

5 Q. Okay. And can you tell from the drawing
6 whether the version of the device depicted here is
7 a -- I think you said there was a fixed version or
8 there's a version where it can be collapsible and
9 expandable?

10 MR. NEMTZOW: Objection, form.

11 A. That's what Makower describes.

12 Q. So do you know if figure 5H, is this
13 depicting the fixed version of the device or the
14 version that can be collapsible and expandable?

15 A. It could be both; right? There could be a
16 version that's expandable like this. There could be a
17 version that's fixed like this.

18 Q. Is it fair to say you can't tell one way or
19 the other from this figure which version it is?

20 MR. NEMTZOW: Objection, form.

21 A. Not to 100 percent. But again, I think the
22 way the drawing is drawn, it implies that this is the

1 expanded state of a collapsible device.

2 Q. Does Makower provide a figure that shows the
3 device of figure 5H in a collapsed state?

4 MR. NEMTZOW: Objection, form.

5 A. Not this particular design. But if you look
6 at 5G1 and 5G2, you see how a device that can be
7 collapsed and expanded is depicted from a drawing
8 perspective.

9 Q. Sure, but the devices depicted in 5G1 and 5G2
10 are different than the device depicted in 5H; correct?

11 MR. NEMTZOW: Objection, form.

12 A. Correct. It is a different device. But if
13 you look at the style of drawing -- and if I had to
14 pick, is 5H an expanded device or is it a collapsed
15 configuration of the device, I would guess it's the
16 expanded version of the device, just like shown in
17 figure 5G, which is the expanded version of figure
18 5G1.

19 Q. So just to be very clear, are there any
20 drawings in Makower that show the specific device of
21 figure 5H in the collapsed state?

22 MR. NEMTZOW: Objection, form.

1 A. No, I don't think so.

2 Q. Is there any, like, written description in
3 Makower that describes what the device of figure 5H
4 looks like in the collapsed state?

5 MR. NEMTZOW: Objection, form, foundation.

6 A. No, I don't find that description in Makower.

7 Q. So going back to the annotated figure you
8 have on Page 32 of the '318 declaration: I'd asked
9 you a little bit earlier whether you have an
10 understanding of what type of electrodes those four
11 electrodes are. Do you have an understanding of what
12 type of electrode those four electrodes are in figure
13 5H of Makower?

14 MR. NEMTZOW: Objection, form.

15 A. Well, the most we know is what Makower
16 says -- right? -- which is the electrodes may be
17 bipolar, monopolar, or facilitated by any other
18 suitable form of energy.

19 Q. So other than the fact that those electrodes
20 may be bipolar, monopolar, or facilitated by any other
21 suitable form of energy, do you have any understanding
22 of what type of electrodes the electrodes in figure 5H

1 of Makower are?

2 MR. NEMTZOW: Objection, form.

3 A. Well, I think, you know, someone skilled in
4 the art would look at those and say --

5 So Makower leaves a lot open to
6 interpretation; right? And so I think that's where
7 someone skilled in the art would come in and say,
8 "Okay, if I were to make that device, where would I
9 put the electrodes, how would I place them, what metal
10 would I make them out of, how would I wire them?"

11 Q. Okay, I mean, that's fair, to use what
12 someone of ordinary skill in the art would know. So
13 even considering that, do you have an understanding of
14 what type of electrodes the four electrodes depicted
15 in figure 5H of Makower are?

16 MR. NEMTZOW: Objection, form.

17 A. By "type" are you asking what the material
18 is, what the thickness is, what are the dimensions,
19 what are the surface conditions?

20 Q. You know, I don't need to know about the
21 thickness. This might be a good question for you to
22 kind of explain what are different types of

1 electrodes. Like, we've talked a little bit about a
2 ring electrode. Generally in radiofrequency ablation
3 technology, what are the general types of electrodes
4 that can be used for those purposes?

5 MR. NEMTZOW: Objection, form, foundation,
6 relevance.

7 A. Well, a ring electrode is, of course, very
8 common, because they're easy to manufacture. But all
9 other kinds of electrodes are common as well. You can
10 make them out of like little spots that are adhered or
11 melted into the substrate material. Anything that
12 conducts electricity from a materials perspective is a
13 candidate to be an RF electrode.

14 But for a material selection, someone
15 skilled in the art would select a material type that
16 is inherently biocompatible, so nickel, stainless,
17 nitinol, gold, gold plated on any number of metals.

18 Q. I guess what you just said kind of -- maybe
19 when I was asking about a ring electrode, maybe that
20 wasn't the right word. You know, obviously the device
21 that's intended to be depicted in figure 5H is
22 supposed to have some kind of three-dimensional

1 geometry; right?

2 A. Yes.

3 Q. So I guess, you know, when I was saying ring
4 electrodes, what I really meant was some sort of
5 electrode that goes all the way around the
6 circumference of these struts.

7 So I guess, to your understanding, is what
8 is depicted in figure 5H of Makower, are those
9 electrodes that are supposed to go all the way around
10 the circumference of these struts 214?

11 MR. NEMTZOW: Objection, form, foundation,
12 relevance.

13 A. I think if that's what Makower intended,
14 that's what would have been described. You know, the
15 ring electrodes are very common on catheters, because,
16 you know, they're easy to -- well, not easy. But
17 there are methods out there to make them and to apply
18 them. You wouldn't normally put a ring electrode on a
19 device like if, if there are struts. It would be
20 difficult to do. So that's not how I interpret what
21 Makower is describing here.

22 Q. So I guess what do you think these electrodes

1 are supposed to be describing?

2 A. I think as seen here it's very plain: There
3 are four electrodes, disposed across the struts. I
4 don't think it's any more complicated than that.

5 Q. Is figure 5H of Makower showing four
6 electrodes that are on the outer surface of the
7 struts?

8 MR. NEMTZOW: Objection, form.

9 A. Well, it's a little vague; right? But if
10 they weren't contacting the tissue, it wouldn't
11 generate an RF ablation; right? And so it has to be
12 contacting the tissue, and that would in this drawing
13 most likely be on the outer surface of the strut.

14 Q. Okay. And then are the four electrodes
15 shown here only on the surface of the strut that is, I
16 guess, facing the reader?

17 MR. NEMTZOW: Objection, form.

18 A. Well, there's two sides; right? So you've
19 got two electrodes that way, two electrodes this way.
20 You know, we don't know what else is involved. Are
21 there other struts that come out of the plane that
22 also have electrodes?

1 Q. I guess just focusing on the two struts that
2 are shown here: Is it your understanding that -- that
3 each of the electrodes that we can see in this figure
4 wrap all the way around the strut?

5 MR. NEMTZOW: Objection, form.

6 A. I think it's vague. I think it's not clear.
7 You could. That would be one way to do it. Another
8 way would just be to have it on the outer surface. I
9 think both are possible.

10 Q. Claim 1 of the '318 patent recites a handle
11 and a shaft; correct?

12 MR. NEMTZOW: Objection, form.

13 A. Yes.

14 Q. And claim 1 of the '286 patent also recites a
15 handle and a shaft; right?

16 MR. NEMTZOW: Objection, form.

17 A. I believe so. I don't have it in front of me
18 right now.

19 Q. What do you understand the term "handle" to
20 mean in the context of the '318 and '286 patents?

21 A. Well, I mean, a handle can be something that
22 is shaped -- right? -- to conform to your hand that

1 you can apply. But a handle could be anything that
2 effectively acts as a handle that you could grab.

3 Q. Could a catheter be a handle?

4 A. Possibly; the proximal end.

5 Q. If it was the part of the catheter that you
6 grabbed, would that make it a handle?

7 MR. NEMTZOW: Objection, form.

8 A. Effectively, yeah.

9 Q. What do you understand the term "shaft" to
10 mean in the context of the '318 and '286 patents?

11 MR. NEMTZOW: Objection, form.

12 A. Well, in general, I think "shaft" refers to
13 sort of, you know, an elongated construction of the
14 device.

15 Q. What do you mean by that?

16 MR. NEMTZOW: Objection, form.

17 A. So we're talking about the '318 patent;
18 right?

19 Q. '318 and '286, yeah.

20 A. Okay. And we're talking about a specific
21 claim; right? Are we?

22 Q. Claim 1 recites handle and shaft.

1 A. Claim 1.

2 Q. Of both ends.

3 A. Okay. So that I addressed on Page 36 of my
4 declaration.

5 I'm sorry, what was your question again?

6 Q. The question was: What do you understand the
7 term "shaft" to mean in the context of the '318 and
8 '286 patents?

9 MR. NEMTZOW: Objection, form.

10 A. A "shaft" could mean many things. I believe
11 in this context it means something that connects the
12 distal end to the proximal end of the device.

13 Q. I guess in any case, the handle is the part
14 the user grabs onto; right?

15 MR. NEMTZOW: Objection, form.

16 A. I think that's fair to say, yes.

17 Q. And it's fair to say the shaft is not the
18 part the user grabs onto; right?

19 MR. NEMTZOW: Objection, form.

20 A. Well, not necessarily; right? I mean, if you
21 designed a device and you designed it with a handle
22 and, you know -- I mean, the physician's going to grab

1 the device wherever they find it to be convenient. So
2 I don't think that's anything that's going to prevent
3 them from grabbing the shaft, or effectively using the
4 shaft as a handle.

5 Q. So if the physician grabs onto the shaft,
6 would that make the shaft the handle in that case?

7 MR. NEMTZOW: Objection, form.

8 A. You might be able to say that.

9 Q. Let's go to Page 27 of your '318 patent
10 declaration, and I'm looking at the annotated figure
11 you've got towards the bottom.

12 A. Yes.

13 Q. This is an annotated version of Edwards
14 '535's device; right?

15 A. Yes.

16 Q. Do you know whether Edwards '535's device is
17 movable within the nose?

18 MR. NEMTZOW: Objection, form.

19 A. You mean after it's been deployed or before
20 it's been deployed?

21 Q. Either.

22 A. So I would have to say yes.

1 Q. How would the user move the device within the
2 nose?

3 A. Well, they would have to manipulate it
4 somehow.

5 Q. And how would they manipulate it?

6 MR. NEMTZOW: Objection, form.

7 A. In the case of Edwards -- I mean, I don't
8 think Edwards goes into that much detail.

9 Q. Would the user use the catheter 124 to
10 manipulate the device?

11 MR. NEMTZOW: Objection, form, foundation.

12 A. Or the device might have a handle that's just
13 not shown here.

14 Q. Okay. To your knowledge, does Edwards ever
15 describe a handle that's not shown?

16 MR. NEMTZOW: Objection, form, foundation.

17 A. So I don't believe Edwards has a handle in
18 any of his drawings shown. But if you look at 124,
19 and if you look at how 124 is terminated, from a
20 drawing perspective, that implies there's more stuff;
21 right? Anyone who draws that in a shaft says "There's
22 something else there. I'm not going to draw the

1 detail. That will be explained later."

2 Q. So it's possible the user could grab onto the
3 catheter 124 to manipulate the device within the nose;
4 right?

5 MR. NEMTZOW: Objection, form.

6 A. Could grab there or could grab onto whatever
7 else is implied but not specifically depicted in this
8 figure.

9 Q. So assuming the user grabs onto the catheter
10 124, wouldn't that make Edwards's catheter 124 a
11 handle?

12 MR. NEMTZOW: Objection, form, foundation.

13 A. You know, I don't know. Again, I think
14 there's a lot of stuff. Like I said, there's stuff
15 that's implied by the way 124 -- the drawing of 124 is
16 terminated. There's more stuff that's down the end
17 there; and Edwards does not specifically describe, I
18 don't believe, that stuff. But a person skilled in
19 the art might presume it's maybe more shaft, maybe a
20 handle, maybe other stuff.

21 Q. If we assume that the user grabs onto the
22 catheter 124 to manipulate the device, wouldn't that

1 make catheter 124 a handle?

2 MR. NEMTZOW: Objection, form.

3 A. From an operational perspective, perhaps.

4 Q. What do you mean, "perhaps"?

5 A. Well, I think "handle" in this way is a
6 descriptive term; right? It's not a prescriptive
7 term. If I'm using something as a handle, you could
8 call it a handle.

9 Q. And in your declarations for the '318 and
10 '286 patents, you propose combining Edwards '535's
11 device with Stern's handle; right?

12 MR. NEMTZOW: Objection, form.

13 A. Well, let's see, where are we talking about
14 here?

15 Q. If you turn to like Page 38, for instance. I
16 believe in this paragraph, 79, and probably in others,
17 you do opine about combining Edwards '535's device
18 with Stern's handle; right?

19 MR. NEMTZOW: Objection, form.

20 A. Yes.

21 Q. Well, you know, considering that Edwards '535
22 already has catheter 124 that can be used as a handle,

1 wouldn't it be unnecessary to incorporate Stern's
2 handle into Edwards' '535 device?

3 MR. NEMTZOW: Objection, form, foundation.

4 A. Well, from a design perspective -- the
5 question is, if you go back to that figure of Edwards,
6 the 124, you can argue -- I mean, there's something
7 else that Edwards left off of that figure that he
8 didn't go into the detail of and left it up to a
9 person skilled in the art to figure out, based on the
10 needs of the device.

11 Q. And that unshown stuff could be more catheter
12 124; right?

13 MR. NEMTZOW: Objection, form.

14 A. Could be more stuff and it could be a handle.

15 Q. Could be, but it doesn't describe that or
16 show that in Edwards; right?

17 MR. NEMTZOW: Objection, form.

18 A. And that's where a person skilled in the art
19 would look elsewhere for guidance. Stern provides
20 some of that guidance.

21 Q. Well, if you assume that Edwards's catheter
22 124 just continues and there's no handle or there's

1 no, I guess, separate thing that you're calling a
2 handle, then in that case the catheter 124 would be
3 the handle; right?

4 MR. NEMTZOW: Objection, form.

5 A. I think that's one interpretation of the
6 drawing. Since we don't know, I think it's equally
7 possible there is a handle at the end of it. Most
8 medical devices that are inserted into body cavities
9 have some form of handle. The NovaSure device that I
10 worked on, for instance, had a handle. The Adiana
11 ablation device that I worked on previously had a
12 handle.

13 Q. So wouldn't it make sense to not just use
14 catheter 124 as the handle?

15 MR. NEMTZOW: Objection, form.

16 A. From a design perspective, it comes down to
17 satisfying typical user surgeon preferences. Most
18 surgeons like to have something tactile in their hand
19 to work with. A handle provides something more
20 convenient than a catheter, which may be thinner and
21 more difficult to manipulate.

22 Q. Where do you discuss surgeon preferences in

1 your declaration?

2 MR. NEMTZOW: Objection, form.

3 A. That was not covered in my declaration. I
4 was speaking as a person skilled in the art, who's
5 designed medical devices in my career for surgeons.

6 Q. Let's go to Page 44 of your '318 declaration.
7 And I'm looking at Paragraph 89, the first sentence.
8 Do you see where it says, "As shown in Figure 3C,
9 Edwards '535 shows an expandable member 132 and energy
10 delivery device 134," and then it goes on? Do you see
11 that?

12 A. Yes.

13 Q. So if you go back one page, to Page 43, and
14 on Page 43 this is showing an annotated version of
15 figure 3C of Edwards '535; right?

16 A. Yes.

17 Q. So where does figure 3C show an energy
18 delivery device 134?

19 MR. NEMTZOW: Objection, form.

20 A. I don't see it. I don't see the reference
21 here. It may be in the original application.

22 It's not in that figure. 134, though, is

1 referred to in other figures of Edwards.

2 Q. Is it your opinion that Edwards '535's
3 expandable member 132 is the claimed treatment
4 element?

5 MR. NEMTZOW: Objection, form.

6 A. The expandable member and the energy delivery
7 device comprise the treatment member, yes -- treatment
8 element, I'm sorry.

9 Q. So are you saying that the expandable member
10 132 together with the energy delivery device 134 are
11 the claimed treatment element?

12 A. That's what -- yes, the first sentence of
13 Paragraph 89 of my declaration.

14 Q. Okay. Now, if you go back to Page 43, and
15 you have some claim language reproduced here. Do you
16 see that the claim says that the treatment element is
17 configured to change from a first configuration to a
18 second configuration?

19 A. Yes.

20 Q. Where in your declaration do you opine that
21 the energy delivery device 134 changes from a first
22 configuration to a second configuration?

1 MR. NEMTZOW: Objection, form, foundation.

2 A. So that's first addressed in Paragraph 89 of
3 my declaration.

4 Q. Can you point me to something a little more
5 specific?

6 A. So Paragraph 89, if you continue to read the
7 first sentence, it says "the expandable member 132 is
8 expanded (configured to change from a first
9 configuration to a second configuration)."

10 Q. I do see that. My question was where you
11 opine that energy delivery device 134 is configured to
12 change from a first configuration to a second
13 configuration.

14 MR. NEMTZOW: Objection, form, foundation.

15 A. Well, 134 is the energy delivery device. 132
16 is the expandable member. Right?

17 So it's the expandable member that's
18 changing shape, and the energy delivery device goes
19 for the ride.

20 Q. I understand. I guess what I'm trying to get
21 at is: Why in paragraph 89, at the top, why did you
22 define the treatment element as both the expandable

1 member 132 and the energy delivery device 134?

2 MR. NEMTZOW: Objection, form.

3 Q. I will say, it seems like elsewhere you kind
4 of change it up and define the treatment element as
5 just the expandable member 132.

6 MR. NEMTZOW: Objection, form, foundation,
7 relevance.

8 A. Okay, can you identify where that occurred?

9 Q. Sure. I guess, for example, you know, you
10 were talking about 89. You say, you know, the
11 expandable member 132 is expanded. In 91 you say
12 "therefore causes the expandable member 132 to change
13 from a first configuration to a second configuration."

14 And then, I think, really when you get to
15 94, you know, this might be really what we should talk
16 about. So it's fair to say that claim 1 of the '318
17 patent cites "an array of multiple pairs of bipolar
18 radiofrequency electrodes disposed along the treatment
19 surface of the treatment element." Right?

20 A. Yes.

21 Q. And then when you look in 94, Paragraph 94,
22 it says you have "a plurality of bipolar energy

1 delivery devices (i.e., an array of multiple pairs of
2 bipolar radiofrequency electrodes), on the surface of
3 expandable member 132," and then in parens "disposed
4 along the treatment surface of the treatment element,"
5 closed parens.

6 A. Right.

7 Q. So my understanding is you're saying that
8 the -- what is it? -- the energy delivery members 134
9 are the electrodes?

10 MR. NEMTZOW: Objection, form, foundation,
11 relevance.

12 Q. And those are disposed on the surface of
13 expandable member 132.

14 MR. NEMTZOW: Objection, same objection.

15 A. And together it's called the treatment
16 element, yes, from 89, from Paragraph 89.

17 Q. I see that. So I guess where I'm getting a
18 little confused is that the claim says "an array of
19 multiple pairs of bipolar radiofrequency electrodes
20 disposed along the treatment surface of the treatment
21 element." Do you see that?

22 A. Yes.

1 Q. So isn't it true that, according to the
2 claims, the electrodes are different than the
3 treatment element?

4 MR. NEMTZOW: Objection, form.

5 A. I don't necessarily read it that same way.

6 Q. Explain that.

7 A. Well, there's a treatment surface that's on
8 the treatment element. We've got electrodes along it.
9 I don't see what the issue is.

10 Q. Well, aren't the electrodes different than
11 the treatment element?

12 A. Yes.

13 MR. NEMTZOW: Objection, form.

14 A. Well, as defined in 89; right? We have the
15 energy delivery device and we have the expandable
16 member; right?

17 Q. That's what you said in 89, yeah.

18 A. In this case the energy delivery device -- in
19 Edwards -- I'm not quite sure if Edwards just defines
20 that as electrodes.

21 But anyway, here's the thing, is: There's
22 the energy delivery device. It's not just electrodes;

1 right? If you look at Edwards, Edwards broadly
2 defines it. It could be a laser fiber, microwave,
3 ultrasound.

4 Q. Can you point me to where you're looking?

5 A. So Edwards, column 5, about line 36.

6 Q. I'm with you. And can you point me to what
7 specifically you're looking at?

8 A. Well, I'm just saying, you called the energy
9 delivery device electrodes, and I'm suggesting that
10 Edwards defines "energy delivery device" as something
11 not just electrodes but other methods of energy
12 transmission. It could be electrodes, but it could be
13 these other things as well.

14 Q. Right. But I mean, these patents are
15 directed to the radiofrequency electrodes; right?

16 MR. NEMTZOW: Objection, form.

17 A. I mean, Edwards here sounds general in that
18 regard; right? He says, "According to this method,
19 the ablative energy may be any form of energy capable
20 of causing ablation of the tissue."

21 Q. I mean, I'm not trying to trick you, but for
22 the purposes of your analysis of the claims, you're

1 not saying that the energy delivery devices are
2 ultrasound components; right?

3 MR. NEMTZOW: Objection, form.

4 A. Well, I mean, they could be; right?
5 According to Edwards, it could be.

6 Q. I'm with you. I'm with you. But again, I'm
7 not trying to trick you, because the patents are
8 directed to radiofrequency; right? So when you're
9 talking about applying Edwards to the claim, you're
10 saying in that instance we're talking about
11 radiofrequency electrodes; right?

12 A. Yes, yes.

13 MR. NEMTZOW: Objection, form, foundation,
14 relevance.

15 A. And my point is that the energy delivery
16 device may consist of more than just specifically the
17 electrodes. That's all. Maybe the wires, maybe the
18 sensors, you know.

19 Q. I think I'm with you. I think we can wrap up
20 this particular aspect of the conversation if we just
21 go again to Page 46 of the '318 declaration. And
22 again, just the way the claim's written, do you agree

1 that the electrodes which are disposed along the
2 treatment surface of the treatment element are
3 different than the treatment element itself?

4 MR. NEMTZOW: Objection, form.

5 A. Well, I don't agree, and here's why: because
6 I can say to you that your tires are placed underneath
7 your car. It doesn't mean the tires are not part of
8 the car.

9 Q. Okay. I mean, let me ask you this: In your
10 analysis did you treat the electrodes as part of the
11 treatment element?

12 MR. NEMTZOW: Objection, form.

13 A. I mean, I assumed it to be the case,
14 consistent with what was written in 89. Yes.

15 Q. So in your analysis you treated the
16 electrodes as the same thing as the treatment element?

17 MR. NEMTZOW: Objection, form.

18 A. I treated the energy delivery device --
19 right? -- as part of the treatment element.

20 Q. Okay. I understand the position you're
21 taking.

22 Looking again at this Page 46 of your

1 declaration: Do you see that claim 1 of the '318
2 patent recites "an array of multiple pairs of bipolar
3 radiofrequency electrodes"?

4 A. Yes.

5 Q. What do you understand the term "array" to
6 mean in the context of the '318 patent?

7 MR. NEMTZOW: Objection, form.

8 A. I don't think "array" is specifically defined
9 in that patent. But I look at it as being any -- an
10 arrangement; right? It's a particular type of
11 arrangement.

12 Q. What do you mean by "a particular type of
13 arrangement"?

14 A. They could be, you know, in a line, they
15 could be on a diagonal, they could be in a circle, in
16 any kind of shape that is, you know, describable.

17 Q. Is a random arrangement an array?

18 MR. NEMTZOW: Objection, form.

19 A. I think that's a good example of something
20 that's not an array.

21 Q. Is any other arrangement that is not randomly
22 an array?

1 MR. NEMTZOW: Objection, form.

2 A. You might be able to say so, yes.

3 Q. Can a single row of electrodes be considered
4 an array in the context of the '318 patent?

5 MR. NEMTZOW: Objection, form.

6 A. I think so, yes.

7 Q. Let's go flip to Page 48 of the '318
8 declaration.

9 MR. NEMTZOW: Would it make sense to do a
10 break in a little bit?

11 MR. GILFORD: Thanks for asking. Now is
12 fine, if you want.

13 (Recess taken.)

14 Q. So Dr. Martin, would you mind turning to Page
15 48 of the '318 declaration.

16 A. 48, yes.

17 Q. I'm looking at the top of the page at the
18 annotated figure.

19 A. Yes.

20 Q. This is an annotated version of figure 6 of
21 Edwards '535; right?

22 A. Yes.

1 Q. Did you create this figure?

2 A. Edwards I believe created it, and it was
3 annotated by some members of the legal team.

4 Q. So in this figure there are four green
5 rectangles. Do you see that?

6 A. Yes.

7 Q. And you labeled those four green rectangles
8 as multiple bipolar electrodes; right?

9 A. Yes.

10 Q. You also highlighted a portion of this figure
11 in blue; correct?

12 A. Yes.

13 Q. And you labeled that blue portion as the
14 expandable member; right?

15 A. Yes, correct.

16 Q. Is it your understanding that the expandable
17 member shown in this figure is configured to expand?

18 A. Yes.

19 Q. Does this figure show the expandable member
20 in the expanded state or the unexpanded state?

21 MR. NEMTZOW: Objection, form.

22 A. I think it's -- I assumed it was in the

1 expanded state.

2 Q. That it's in the expanded state?

3 A. Correct.

4 Q. Okay, interesting. If you look towards the
5 top and bottom of the blue highlighted part, do you
6 see there's two arrows -- like there's arrows on each
7 end, and they're just kind of one on the top and one
8 on the bottom? Do you see that?

9 A. Yes.

10 Q. And then there's kind of like a dashed line
11 going around?

12 A. Yes.

13 Q. So, again, I don't want to put words into
14 your mouth, but when I looked at this figure, I
15 assumed this was actually the unexpanded state, based
16 off of that. Do you see what I'm talking about?

17 MR. NEMTZOW: Objection, form, foundation,
18 relevance.

19 A. I do see the dotted line you're mentioning.
20 Is it labeled?

21 Q. I don't think so.

22 A. Okay. I accept that that's an

1 interpretation. I don't think it changes my analysis,
2 but....

3 Q. No, I understand. So, I mean, you know,
4 again, just based off of what I've pointed to you with
5 the dashed line and that kind of stuff --

6 A. Yeah.

7 Q. -- having considered that, do you think that
8 this figure shows Edwards '535's device in the
9 expanded state or the unexpanded state?

10 MR. NEMTZOW: Objection, form.

11 A. Again, I think it could be either; right? I
12 mean, it could be unexpanded, it could be partially
13 expanded, or it may be, when it goes to the dotted
14 line, it would be expanded -- fully expanded.

15 Q. Okay. Now, the four electrodes that you
16 highlighted in this figure, those are ring electrodes;
17 right?

18 A. Yes.

19 Q. You might have answered this already, but
20 what do you understand a ring electrode to be?

21 MR. NEMTZOW: Objection, form.

22 A. So most ring electrodes that I've encountered

1 are basically -- they're created from -- if you
2 think -- imagine a metal tube that's just simply
3 serially cut, and those create rings and you can put
4 them on catheters or other devices.

5 Q. So to your understanding, are ring electrodes
6 expandable?

7 A. If they're made out of metal, then usually
8 no.

9 Q. Do you know whether these ring electrodes
10 shown in Edwards '535 are expandable?

11 A. Edwards isn't completely clear on that point.
12 My assumption is that the rings themselves would not
13 expand.

14 Q. Do you know whether the ring electrodes
15 depicted in figure 6 of Edwards '535 are inside the
16 expandable member?

17 MR. NEMTZOW: Objection, form.

18 A. I mean, it's an interesting question; right?
19 Because we are mentioning the third dimension; right?
20 In this 2D drawing there is an implication that at
21 least in this plane, in the plane of the page, the
22 expandable member encompasses the ring electrodes.

1 What we don't know is in the plane perpendicular to
2 the page where they are relative to each other, the
3 ring electrodes versus the expanded member.

4 Q. So at least in the plane of the page, it
5 appears from this figure that the ring electrodes are
6 inside the expandable member. Is that your
7 understanding?

8 A. Yes.

9 MR. NEMTZOW: Objection, form.

10 A. Yes.

11 Q. Well, you know, we talked a little bit about
12 whether the figure shows the expandable member as
13 expanded or unexpanded. Let's just assume that it
14 shows the expandable member unexpanded.

15 A. Okay.

16 Q. So with that assumption, how would this
17 device work?

18 MR. NEMTZOW: Objection, form.

19 A. I think -- what does Edwards say about it?
20 So, I mean, Edwards says, you know, in one embodiment
21 illustrated in figure 6 the energy delivery device
22 includes one or more ring electrodes, as you

1 mentioned, disposed on the surface of the expandable
2 member, as illustrated.

3 Q. Sure, but the way it's depicted, how would
4 those electrodes deliver energy to the tissue?

5 A. Well, to deliver RF energy, they would have
6 to contact the tissue directly. And so therefore,
7 what I mentioned before is, we don't know what's in
8 the plane of the -- perpendicular to the paper. To
9 actually operate RF energy, they would have to make
10 tissue contact in that plane.

11 Q. It sounds like you agree, though, that if
12 these electrodes are not contacting the tissue, then
13 this device wouldn't work, in the sense it wouldn't
14 deliver RF energy to tissue; right?

15 MR. NEMTZOW: Objection, form.

16 A. Correct. It might deliver RF energy to
17 whatever is inside the expandable member or to the
18 expandable member itself. But the frequencies that
19 are typically used in applying RF energy requires
20 contact with the tissue to transmit that energy.

21 Q. Okay?

22 A. So that's why I'm assuming that in the plane

1 perpendicular there's some mechanism by way the
2 electrodes can contact the tissue.

3 Q. You're assuming that, but it's not shown or
4 discussed in Edwards '535; correct?

5 MR. NEMTZOW: Objection, form.

6 A. Correct.

7 Q. Now let's change it up a little bit and
8 assume that this figure 6 shows the expandable member
9 in the unexpanded state and that the expanded state is
10 what's shown with the dashed lines.

11 A. Okay.

12 Q. Now, I think you said earlier that, at least
13 the way this figure's drawn, the electrodes are inside
14 the expandable member; right?

15 MR. NEMTZOW: Objection, form.

16 A. Yeah, if I take at face value only the
17 two-dimensional drawing here, yes, I think that's what
18 you would conclude.

19 Q. And then obviously if the expandable member
20 were to expand to where the dashed line is, the
21 electrodes would still be inside the expandable
22 member; right?

1 MR. NEMTZOW: Objection, form.

2 A. Yes, if we only focused on the
3 two-dimensional drawing here.

4 Q. Okay. And again, if the electrodes are not
5 contacting the tissue, they essentially don't work for
6 the purposes of radiofrequency ablation; correct?

7 MR. NEMTZOW: Objection, form.

8 A. If the electrodes don't contact the tissue,
9 they don't deliver radiofrequency energy to the
10 tissue.

11 Q. Okay, I understand.

12 Let's change it up even a little bit more.
13 Let's assume that figure 6 shows the expandable member
14 in the unexpanded state, and let's assume that these
15 radiofrequency electrodes are wrapped around the
16 outside of the expandable member. So with that
17 assumption, now, what would happen if then you
18 inflated or expanded the expandable member?

19 MR. NEMTZOW: Objection, form.

20 A. Well, I'm sorry, could you repeat the
21 question?

22 Q. I guess let me break it down a little bit.

1 So again, the two assumptions I want you to make are,
2 one, figure 6 shows the expandable member in the
3 unexpanded state; and Assumption 2 I want you to make
4 is that these ring electrodes are around the outside
5 of the expandable member. Are you with me on that?

6 A. Yes, yes.

7 Q. So now, if you were to expand the expandable
8 member, you agree that the ring electrodes would not
9 expand; correct?

10 MR. NEMTZOW: Objection, form.

11 A. Yes, if the ring electrodes were made of a
12 metal, or anything rigid, correct, they would not
13 expand with the expandable member.

14 Q. So essentially, there would be, what, lumps
15 in the expandable member where the ring electrodes
16 are?

17 MR. NEMTZOW: Objection, form.

18 A. I kind of envision this as, if you expanded
19 it, the ring electrodes would stay at the same
20 circumference. The rest of the member would somehow
21 expand; not quite clear how that would look in the
22 end. But sure.

1 Q. Would it ever make sense to make a device
2 like that?

3 MR. NEMTZOW: Objection, form.

4 A. I mean, you're speaking hypothetically. I
5 don't know. I mean, the one thing to think about
6 is -- that we don't know is, does expansion in one
7 direction cause it to -- cause the ring electrodes to
8 move in the other dimension; right? And again, that's
9 not really covered in Edwards.

10 Q. Either way, if you expanded the expandable
11 member and it kind of had lumps in it where the ring
12 electrodes are, those ring electrodes aren't going to
13 be touching the tissue; right?

14 MR. NEMTZOW: Objection, form.

15 A. In the case where the device is symmetric,
16 yes, that's true. But if it's not necessarily
17 symmetric, that may not be the case. You might be
18 pushing the ring electrodes sort of one way or the
19 other or up or down. Edwards doesn't necessarily
20 cover that, but it would be possible.

21 Q. Okay. Would you mind flipping to Page 59 of
22 your '318 declaration.

1 A. Okay.

2 Q. And I'm looking at Paragraph 113, the last
3 sentence. Do you see where you wrote, "For example, I
4 recently worked on designing Adiana and NovaSure, two
5 radiofrequency ablation devices that use pairs of
6 bipolar electrodes"?

7 A. Correct.

8 Q. Remind me again when you worked on designing
9 those two devices.

10 A. So Adiana would have been starting in --
11 well, both of them would have been starting in 2007.

12 Q. And ending in approximately when?

13 A. When I left Hologic, at the end of 2011.

14 Q. Okay. So is it your understanding that your
15 work in 2011 is recent?

16 A. I think that's a matter of perspective.

17 Q. What's your perspective?

18 A. I mean, you know, I have a career that spans
19 35 years in ablation devices. So ten years is a
20 little more recent than not.

21 Q. All right. So I guess to be clear, though,
22 when you say you recently worked on designing Adiana

1 and NovaSure, you're referring to your work spanning
2 approximately 2007 to 2011; right?

3 A. Yes, that's accurate.

4 Q. In your declaration for the '318 patent you
5 propose combining Edwards '535 with Stern; right?

6 A. Yes.

7 Q. Are you proposing to use the schematic of
8 Stern's figure 15 in the Edwards '535 device?

9 MR. NEMTZOW: Objection, form.

10 A. Let me look at that. Stern's figure 15. Do
11 you have a copy?

12 Q. Of Stern? Yeah. So I'm handing you what was
13 previously marked as Neurent Exhibit 1033. And this
14 is the Stern reference; right?

15 MR. NEMTZOW: For the record, I think this
16 was from the '271, '318, and '286 IPRs, as Exhibit
17 1033.

18 A. Your question was regarding which figure?

19 Q. Figure 15 of Stern. And the question was:
20 Are you proposing to use the schematic of Stern's
21 figure 15 in Edwards' '535 device?

22 MR. NEMTZOW: Objection, form.

1 A. I mean, it's one possibility; right? I mean,
2 Stern teaches us a way to control pairs of bipolar
3 electrodes.

4 Q. Okay. Well, exactly how are you combining
5 Edwards '535 and Stern for the -- let's say for the
6 '318 patent?

7 MR. NEMTZOW: Objection, form.

8 A. Well, if you look in Paragraph 125, Edwards
9 doesn't provide details on how -- does not provide
10 details on how to pair and wire bipolar electrodes.
11 So we can look to Stern, figure 15, to see how to do
12 that.

13 Q. Okay. So I guess that leads me back to my
14 original question: So you're relying on Stern, figure
15 15, for how to wire Edwards '535's electrodes? Is
16 that accurate?

17 MR. NEMTZOW: Objection, form, relevance.

18 A. I mean, it's one possibility -- that combined
19 with, you know, the knowledge of someone skilled in
20 the art.

21 Q. I guess is there something from figure 15
22 that you're not using in Edwards '535?

1 MR. NEMTZOW: Objection, form, relevance.

2 A. I mean, I'm not quite sure I understand the
3 question.

4 Q. I mean, you know, I'm just trying -- for
5 example, you pointed to Paragraph 125, and you've got
6 these schematics that you're pointing to, like the
7 figure 15 schematic, right above it. Do you see that?

8 A. Yes.

9 Q. So, I mean, again, I'm not trying to trick
10 you. I'm just trying to understand what exactly the
11 combination of the two references is?

12 A. Like I said, Edwards doesn't show you how to
13 wire up pairs of bipolar electrodes. Stern does.

14 Q. Right. And it shows you that in figure 15?

15 A. That's one way to do it, yes.

16 Q. What's another way to do it that you're
17 proposing to combine Edwards '535 with?

18 MR. NEMTZOW: Objection, form, relevance.

19 A. I mean, Stern has other figures as well you
20 could take from how to wire up. It's not just figure
21 15, but there are other figures that show you
22 different other configurations -- figure 5, for

1 instance. Figure 5's a little more complicated.

2 Q. Figure 5's a monopolar configuration, isn't
3 it?

4 MR. NEMTZOW: Objection, form.

5 A. It depends. You could configure it in other
6 ways as well.

7 Q. What's depicted in figure 5 of Stern is a
8 monopolar configuration; correct?

9 MR. NEMTZOW: Objection, form.

10 A. Well, he describes figure 5 as a schematic
11 representation of power control for a multisegment
12 element shown in figure 4.

13 So figure 4 is a bipolar -- is a bipolar
14 configuration.

15 Q. Why do you say that?

16 A. Well, you have multiple electrodes on an
17 array.

18 Q. Can you do me a favor and turn to Page 110 of
19 your declaration.

20 A. Yes.

21 Q. I'm looking at the top. You say, "As I have
22 shown before, Stern's figure 5 teaches a monopolar

1 configuration"?

2 A. Yes, yes.

3 Q. So if I understand you correctly, you agree
4 that Stern's figure 5 teaches a monopolar
5 configuration; right?

6 MR. NEMTZOW: Objection, form.

7 A. Yes, and it's also applicable to bipolar --
8 not all the elements. So if you focus on the RF power
9 element, aspects of that are still applicable to
10 bipolar.

11 Q. Are you proposing to combine Stern's figure 5
12 and Stern's figure 15?

13 MR. NEMTZOW: Objection, form.

14 A. You could. You could combine them in some
15 fashion, especially if you incorporated sensors
16 including temperature control.

17 Q. I want to be very clear: In your analysis
18 for the '318 patent, did you propose combining Stern's
19 figure 5 and Stern's figure 18 -- sorry, Stern's
20 figure 15?

21 A. Well, let's see.

22 So I don't think I expressly suggested a

1 wiring diagram that combined them both.

2 Q. Are you saying you implicitly suggested that?
3 Because you said "expressly suggested." So what do
4 you mean by that?

5 MR. NEMTZOW: Objection, form.

6 A. So if you look in Paragraph 175.

7 Q. Okay.

8 A. There are aspects of Stern, like Stern
9 discloses a signal generator and an RF generator.

10 Well, it may all be doable with Stern's
11 figure 15. I mean, that provides some measure of
12 controlling the bipolar electrodes. Figure 15 is
13 leaving a lot off. Some of that is in the figure 5.

14 Q. What do you mean by "figure 15 is leaving a
15 lot off"?

16 A. So you look at figure 15, '228. So that's
17 just implying -- the squiggle in the circle implies
18 the voltage source that's giving an RF voltage.
19 There's a lot more that goes into generating an RF
20 signal than what was depicted there. That's a
21 placeholder for the rest of the RF generator that's
22 not in this figure. There are elements of the rest of

1 the RF generator that are included in other parts of
2 Stern.

3 Q. Is figure 15 leaving anything else off?

4 MR. NEMTZOW: Objection, form.

5 A. Well, yes.

6 Q. What?

7 A. But things that a person skilled in the art
8 would have to fill in.

9 Q. Such as what?

10 A. So, for instance, all of these switches;
11 right? Those are effectively relays. What type of
12 relay do you use? Are they relays that are sufficient
13 to carry the current required to deliver the RF
14 energy?

15 Q. Anything else that --

16 A. Details like that.

17 Well, I have to say, I'm not an electrical
18 engineer by training, and so beyond a general
19 description, I cannot design for you a circuit that
20 will generate RF energy.

21 Q. Okay. Now, again, we were talking about
22 Stern figure 5 and Stern figure 15. I want to be very

1 clear: I'm talking about your '318 declaration, and I
2 would like you to point me to where in the '318 patent
3 declaration you propose combining Stern figure 5 with
4 Stern figure 15.

5 MR. NEMTZOW: Objection, form, foundation.

6 A. So Paragraph 209.

7 Q. I'm with you.

8 A. So "Stern also teaches that the monopolar
9 embodiment of Figure 5 can be combined with the
10 bipolar configuration of Figure 15. While describing
11 Figure 5's 'unipolar power delivery," Stern teaches
12 that 'improved control can be achieved if a bipolar
13 operation is utilized.'"

14 Q. Just to be clear, this paragraph appears as
15 part of your analysis of claim 13; right?

16 A. Yes.

17 Q. Going back to your claim 1 analysis; I think
18 we were on....

19 Again, we're talking about the combination
20 of Edwards '535 with Stern. So to be clear, in your
21 claim 1 analysis for the '318 patent, you are
22 proposing to combine Edwards '535 with the schematic

1 shown in figure 15; right?

2 MR. NEMTZOW: Objection, form.

3 A. In claim 1, yes.

4 Q. And in your declaration for -- I guess for
5 the '318 patent you also have a combination of Makower
6 and Stern; right?

7 A. Let's see.

8 Q. It's further along.

9 A. Correct. Yeah, Group 4 and Group 5.

10 Q. So in your '318 patent declaration for your
11 analysis of claim 1 for the Makower-Stern combination,
12 for that combination you're also proposing to use the
13 schematic of Stern's figure 15 and Makower's device;
14 right?

15 MR. NEMTZOW: Objection, form, relevance.

16 A. I believe so.

17 Q. In your declaration for the '286 patent you
18 propose combining Edwards '535 with Stern and Makower
19 with Stern; right?

20 MR. NEMTZOW: Objection, form.

21 A. You're talking about which one?

22 Q. The '286.

1 A. '286. Which paragraph was this?

2 Q. I wasn't pointing to a particular paragraph.
3 I mean, if you want to look at the grounds to refresh
4 your recollection to answer this question, that's
5 fine. The question was: In your declaration for the
6 '286 patent you're proposing combining Edwards '535
7 with Stern and Makower with Stern; correct?

8 MR. NEMTZOW: Objection, form.

9 A. Makower, Stern, Edwards; Makower, Stern,
10 Edwards and Edwards; Makower, Stern, Edwards, Liang;
11 and then Makower, Stern, Edwards, Liang, and the other
12 Edwards.

13 Q. So the answer is yes, for the '286 patent
14 you're proposing combining Edwards '535 with Stern and
15 also proposing combining Makower with Stern; correct?

16 MR. NEMTZOW: Objection, form.

17 Q. I understand there's other --

18 A. Not alone.

19 Q. I understand, yes.

20 For those combinations, Edwards '535 with
21 Stern and Makower with Stern, for your claim 1
22 analysis for the '286 patent you're proposing to use

1 the schematic of Stern's figure 15 in Edwards '535's
2 and Makower's devices; correct?

3 MR. NEMTZOW: Objection, form, foundation,
4 relevance.

5 A. I believe so. Is there a specific paragraph
6 in the declaration, in the '286 declaration, you want
7 to address?

8 Q. I think it was more general than a specific
9 question. I mean, do you need to be pointed to a
10 specific paragraph to answer that question?

11 A. If you have it offhand, I think it would
12 expedite the process.

13 Q. I don't know, Page 68, for example -- and
14 kind of going on, I guess.

15 MR. NEMTZOW: Objection, form.

16 Q. But I'll repeat the question: For the
17 combinations of Edwards '535 with Stern and Makower
18 with Stern for the '286 patent claim 1 analysis,
19 you're proposing to use the schematic of Stern's
20 figure 15 in Edwards '535's and Makower's devices;
21 correct?

22 MR. NEMTZOW: Objection, form, relevance.

1 A. Yes, correct.

2 Q. And then for the '271 patent you propose
3 combining Edwards '535 with Stern; right?

4 MR. NEMTZOW: Objection, form, relevance.

5 A. So '271 combines Edwards '535, Kong, and
6 Stern; and Edwards, Liang, and Stern; and Edwards,
7 Liang, Stern, and Edwards.

8 Q. So, in other words, the '271 patent you're
9 combining Edwards '535 with Stern and potentially
10 other references.

11 A. Yes.

12 MR. NEMTZOW: Objection, form.

13 Q. So for the combination of Edwards '535 with
14 Stern for, you know, your analysis in claim 1 of the
15 '271 patent, you're proposing to use the schematic of
16 Stern's figure 15 and Edwards '535's device; correct?

17 MR. NEMTZOW: Objection, form, relevance.

18 A. Yes.

19 Q. I know we've been jumping around a little
20 bit. Can you go ahead and pick the '318 declaration
21 back up, and I'm looking at Page 95.

22 A. Okay.

1 Q. The first sentence in Paragraph 178. Do you
2 see there it says, "Stern teaches applying RF energy
3 in a range of frequencies including a 460-kilohertz
4 wave across multiple channels"? Do you see that?

5 A. Yes.

6 Q. Is it your opinion that Stern discloses the
7 claimed 460-kilohertz sinusoid wave?

8 A. Well, it says "wave" here in the report.
9 Does it say "sinusoid" in the patent?

10 Q. To answer your question, on Page 93, it gives
11 the claim language.

12 A. Okay. In the claim; right? Okay.

13 Q. So that's what the claim says, is a
14 460-kilohertz sinusoid wave.

15 A. Okay.

16 Q. And my question to you was: Is it your
17 opinion that Stern teaches or discloses the claimed
18 460-kilohertz sinusoid wave?

19 MR. NEMTZOW: Objection, form.

20 A. I mean, according to my declaration, he does.
21 I can go back and review his patent. But, I mean, to
22 someone skilled in the art, 460 kilohertz is probably

1 the most common frequency at which RF energy is
2 applied.

3 Q. I understand your position. So let's just
4 talk about your opinion that Stern discloses or
5 teaches the claimed 460-kilohertz sinusoid wave.

6 It's fair to say that Stern doesn't
7 disclose exactly 460 kilohertz, does it?

8 MR. NEMTZOW: Objection, form.

9 A. Well, I'd have to review the patent to fully
10 answer that.

11 Q. Maybe to help you out, if you look at
12 Paragraph 178 of your declaration.

13 A. So "Stern teaches applying RF energy in a
14 range of frequencies including a 460 kilohertz wave
15 across multiple channels."

16 Q. I don't think -- I don't want to put words in
17 your mouth, but I don't think you're saying in this
18 sentence that Stern teaches the including the claim of
19 460 kilohertz. I think you say Stern teaches at least
20 250 megahertz and less than 100 megahertz?

21 MR. NEMTZOW: Objection, form.

22 Q. If you want to double-check your own work,

1 feel free to pick up Stern. I think I gave you a
2 copy.

3 A. Fair enough. But I read 460 kilohertz as
4 being between 260 kilohertz and 100 megahertz.

5 Q. Understood. So the question was: Stern
6 doesn't disclose exactly 460 kilohertz; correct?

7 MR. NEMTZOW: Objection, form.

8 Q. In other words, Stern discloses a range but
9 doesn't disclose exactly that number; correct?

10 MR. NEMTZOW: Objection, form.

11 A. He includes a range -- Stern includes a range
12 that incorporates 460 kilohertz.

13 Q. Right. So I think we can agree that Stern
14 discloses a range; right?

15 A. Yes.

16 Q. And we can agree that 460 kilohertz is inside
17 of that range; correct?

18 A. Yes.

19 Q. But if you look at Stern, you're not going to
20 find that exact number of 460 kilohertz in Stern;
21 right?

22 MR. NEMTZOW: Objection, form.

1 A. Without reading the patent application, I'll
2 take your word for it.

3 Q. Okay. So again looking at your Paragraph 178
4 of your '318 declaration: You say that Stern teaches
5 a range of frequencies between 250 kilohertz and 100
6 megahertz. Right?

7 A. Yes.

8 Q. 100 megahertz is 100,000 kilohertz; is that
9 correct?

10 A. Yes.

11 Q. So it's fair to say Stern teaches a pretty
12 massive range of frequencies; right?

13 A. It is a wide range, yes.

14 Q. Are you aware that the disclosure of a broad
15 range does not teach a specific value within that
16 range?

17 MR. NEMTZOW: Objection, form.

18 A. If this is a legal term, I'll accept your
19 statement.

20 Q. Can you go ahead and flip to Page 97 for me.
21 I'm looking towards the bottom of Paragraph 180. And
22 you write -- it's kind of in the middle of a sentence.

1 But you wrote, "I believe Edwards '535 disclosure of
2 megahertz range energy may be a typo." Do you see
3 that?

4 A. Yes.

5 Q. What's your basis for that statement?

6 A. Well, having worked in the field of
7 radiofrequency ablation for several decades, I've
8 never seen a commercial device operate in a megahertz
9 range. And the reason is, it's just more expensive to
10 build the hardware to do so, and the effects on the
11 tissue are -- you don't get as much depth of
12 penetration for a megahertz range RF ablation.

13 Q. Have you ever spoken with the inventors of
14 the Edwards '535 patent?

15 A. No.

16 Q. And as we discussed a few minutes earlier,
17 Stern discloses megahertz range energy, doesn't it?

18 A. But to a lower level.

19 Q. What do you mean by that?

20 A. Well, Edwards discloses -- I'm sorry. Stern
21 disclosed up to -- what was it? -- 10 megahertz;
22 right?

1 Q. I think it was 100 megahertz.

2 A. I'm sorry, 100 megahertz, yes.

3 Q. Do you want me to reask the question?

4 A. Yes, please.

5 Q. So my question was: Stern discloses
6 megahertz range energy; correct?

7 A. To megahertz, yes, that's correct -- up to
8 the megahertz range, yes.

9 Q. So isn't it fair to say that Edwards '535's
10 disclosure of megahertz range energy is consistent
11 with Stern's disclosure of megahertz range energy?

12 MR. NEMTZOW: Objection, form.

13 A. Let's see. Let me just look at Edwards for a
14 moment.

15 Yeah, so Edwards says -- so column 5, line
16 46. "When the energy is RF radiation, the energy
17 preferably has a frequency between 300 megahertz and
18 about 700 megahertz." There is no RF ablation device
19 that I know of that operates at 300 megahertz. Stern
20 discloses up to 100 megahertz. So there's not overlap
21 between the two of them.

22 So yes, I contend that Edwards has a typo.

1 Q. If you go back to Page 46 of the '318
2 declaration. I'm looking at the claim language you
3 have reproduced here.

4 Claim 1 of the '318 patent recites the
5 term "multiple pairs of bipolar radiofrequency
6 electrodes." Correct?

7 A. Yes.

8 Q. Claim 1 of the '286 patent also recites the
9 same term; correct?

10 A. Yes.

11 Q. What do you understand the term "bipolar
12 radiofrequency electrodes" to mean in the context of
13 the '318 and '286 patents?

14 MR. NEMTZOW: Objection, form.

15 A. Well, if you look at, on the Paragraph 99,
16 what's reproduced as figure 17, that's a bipolar
17 electrode pair.

18 Now, multiple would be more than one set
19 of those -- if you had, let's say, multiple figure
20 17's.

21 Q. I guess just focusing on the term "bipolar
22 radiofrequency electrodes," what do you understand

1 that term to mean in the context of the '318 and '286
2 patents?

3 MR. NEMTZOW: Objection, form.

4 A. I'm sorry, I'm not following -- I'm not
5 following your question. Is there something
6 specifically in the declaration that you have a
7 question about?

8 Q. No, more generally. Just in a general sense,
9 what do you understand that term to mean in the
10 context of these two patents?

11 A. "Bipolar," "electrodes," or "pairs"?

12 Q. Sorry, not pairs. I'll ask it one more time
13 so we're on the same page.

14 What do you understand the term "bipolar
15 radiofrequency electrodes" to mean in the context of
16 the '318 and '286 patent?

17 MR. NEMTZOW: Objection, form.

18 A. Well, a pair of bipolar electrodes are as
19 seen in figure 17 here. Right? It's where you've got
20 two electrodes. They have opposite polarity. Current
21 flows from one to the other -- in the simplest sense.

22 Q. That's fair. So in the simplest sense, the

1 term "bipolar radiofrequency electrodes" means two
2 electrodes that have opposite polarity where current
3 flows from one to the other? Is that fair to say?

4 MR. NEMTZOW: Objection, form.

5 A. I'd say that's a description, not necessarily
6 a definition.

7 Q. Can you provide a definition?

8 A. No, because I believe there's such a
9 variability seen in the implementation of bipolar
10 electrodes.

11 Q. Do bipolar electrodes always operate in
12 pairs?

13 MR. NEMTZOW: Objection, form, relevance.

14 A. It would be possible to operate a bipolar
15 array --

16 Well, yes. I mean, there's not
17 necessarily -- you could have a configuration where a
18 set of electrodes are always the anode and then one
19 electrode's always the cathode, or opposite. But you
20 could turn them all on at the same time, and so in
21 this case they're all operating, or you could address
22 them one by one -- kind of like what Stern has in his

1 figure, where he shows how to switch them all on or
2 off or however combination you desire.

3 Q. I follow you. I think my question was like a
4 little more simplistic. It was basically: Do you
5 always have to have two or more electrodes to have a
6 bipolar electrode pair, or could you -- let me
7 rephrase it.

8 Can you have a bipolar radiofrequency
9 electrode if there's just one electrode?

10 MR. NEMTZOW: Objection, form.

11 A. I think then that is monopolar. You always
12 need another electrode. To get current to flow --
13 right? -- in any configuration, you need more than one
14 electrode. And as it's used -- right? -- when -- as I
15 explained before about the difference between bipolar
16 and monopolar, when you have a grounding pad at a
17 distance, that's called monopolar, and when you have
18 electrodes that are of, you know -- in closer
19 proximity of similar size and shape, that's called
20 bipolar.

21 Q. So for bipolar electrodes, you always have to
22 have essentially two or more electrodes working in

1 conjunction with each other?

2 A. Yes.

3 MR. NEMTZOW: Objection, form.

4 Q. Are bipolar electrodes always -- do they
5 always use radiofrequency?

6 MR. NEMTZOW: Objection, form, and
7 relevance.

8 Q. I guess the way I'd ask it is: If I said --
9 if the claim said "bipolar electrodes" instead of
10 "bipolar radiofrequency electrodes," would it mean the
11 same thing or would it mean something else?

12 MR. NEMTZOW: Objection, form.

13 A. If you have two electrodes, you could run any
14 frequency through them; right? If you're defining
15 them as bipolar RF electrodes, you're implying that
16 it's one of the frequency ranges, whichever one we
17 agree on, would run through those electrodes.

18 Q. I guess so you could have bipolar electrodes
19 that don't run on radiofrequency?

20 A. Sure. You could have a DC, a direct current.
21 I mean, no one does that any more, but you could do
22 it.

1 Q. So again, now asking about the term "pairs"
2 of bipolar radiofrequency electrodes: What do you
3 understand that term to mean in the context of the
4 '318 and '286 patents?

5 MR. NEMTZOW: Objection, form.

6 A. So I would say you'd have to have at least
7 three individual electrodes to do a multiple --
8 multiple pairs of bipolar electrodes.

9 Q. Sorry. My question wasn't about the
10 "multiple" part. So if you take "multiple" out and
11 you just have pairs of bipolar radiofrequency
12 electrodes, what does that mean in the context of the
13 '318 and '286 patents?

14 A. Well, I guess to say "multiple pairs" is
15 redundant. If you say "pairs," it's already plural.
16 So that would mean if you have multiple pairs, that
17 would be four electrodes.

18 Q. "Multiple pairs" implied there has to be at
19 least four electrodes?

20 A. You could define it as maybe three, depending
21 on how you operate it.

22 Q. So in other words to have multiple pairs, it

1 sounds like you agree you need at least three
2 electrodes?

3 MR. NEMTZOW: Objection, form.

4 A. Yeah.

5 Q. I get your point about the multiple pairs
6 versus pairs is redundant, so I guess I'll change this
7 up a little bit.

8 What do you understand the term "pair of
9 bipolar radiofrequency frequency electrodes" to mean?

10 MR. NEMTZOW: Objection, form.

11 A. Well, figure 17 -- right -- "bipolar
12 electrode pair." That's what I understand it to mean.

13 Q. So it sounds like the term "pair of bipolar
14 radiofrequency frequency electrodes" essentially has
15 the same meaning as the term "bipolar radiofrequency
16 electrodes"?

17 MR. NEMTZOW: Objection, form.

18 A. Run it by me again.

19 Q. If I said the term "pair of bipolar
20 radiofrequency electrodes," that would essentially
21 mean the same thing as just the term "bipolar
22 radiofrequency electrodes"?

1 MR. NEMTZOW: Objection, form.

2 A. Well, I don't know. "Pair" implies the
3 connectivity between them; right? If I had two
4 bipolar electrodes but I put them at the same
5 polarity, you know, they're not going to do anything.

6 Q. Okay, interesting point. So do you agree
7 that a pair of bipolar radiofrequency electrodes has
8 to have opposite polarity?

9 MR. NEMTZOW: Objection, form.

10 A. For current to flow, yeah.

11 Q. Well, if two electrodes have the same
12 polarity, would those two electrodes be a pair of
13 bipolar radiofrequency electrodes?

14 MR. NEMTZOW: Objection, form.

15 A. Well, no radiofrequency energy is going to
16 flow between them in that case, if they're so
17 electrified.

18 Q. And if there's no radiofrequency energy
19 flowing between them, in that case they're not a pair
20 of bipolar radiofrequency electrodes?

21 MR. NEMTZOW: Objection, form.

22 A. I mean, there, are they capable of it or you

1 just don't have them electrified? If you look at
2 Stern, like depending on how you turn Stern's switches
3 on or off -- right? -- you could make a bipolar
4 electrode pair, the same polarity, opposite polarity,
5 the same high, the same low.

6 Q. I understand what you're saying. So I guess
7 let's take the example where it's not a matter of
8 capability. So you just have two electrodes that, you
9 know, they both are the same polarity, and you can't
10 switch the polarities. Do you know what I'm saying?
11 So in that case are those two electrodes a pair of
12 bipolar electrodes?

13 MR. NEMTZOW: Objection, form.

14 A. I think that sounds more like a philosophical
15 question; right?

16 Q. It might be.

17 A. It's like what's the sound of one hand
18 clapping.

19 Q. I don't mean it to be, but I'm also not the
20 expert. So if it's a dumb question, it's a dumb
21 question.

22 A. I mean, I would say yes, it is.

1 Q. A dumb question or --

2 A. No, no. No, that is, you know, a bipolar
3 electrode pair.

4 Q. It would be?

5 A. Yeah.

6 Q. Even though they're both the same polarity?

7 A. That's how they are at the moment. If
8 they're wired to separate circuits, they happen to
9 have the same polarity, I don't know, I think that's
10 more a philosophical question.

11 Q. We might just chalk that up as a dumb
12 question and move on.

13 MR. NEMTZOW: Would now be a good time for
14 a break?

15 MR. GILFORD: Sure. That's fine. Let's
16 break now.

17 (Recess taken.)

18 Q. So Dr. Martin, are you aware that claim 1 of
19 the '271 patent recites the term "bipolar electrode
20 pairs"?

21 A. Claim 1 of the '271 patent. Let's see.
22 Yes.

1 Q. Is it your understanding that the term
2 "bipolar electrode pairs" means the same thing as the
3 term "pairs of bipolar radiofrequency electrodes,"
4 which is recited in claim 1 of the '318 patent?

5 MR. NEMTZOW: Objection, form, relevance.

6 A. Well, I have to look at that. So '271 versus
7 '318?

8 Q. Yep. So '271 is "bipolar electrode pairs,"
9 and '318 is "pairs of bipolar radiofrequency
10 electrodes."

11 A. And which claim is it in '318?

12 Q. Claim 1.

13 A. Okay, I see them.

14 So you're asking me if it's the same in
15 the different patents?

16 Q. No, because obviously they're different
17 terms. I was asking does the term "bipolar electrode
18 pairs" mean the same thing as the term "pairs of
19 bipolar radiofrequency electrodes"?

20 MR. NEMTZOW: Objection, form, relevance.

21 A. So you're asking about radiofrequency as a
22 limitation on the claim '318?

1 Q. Nope. I'm just asking if those two terms, to
2 your understanding, mean the same thing.

3 A. The term -- what terms now are we comparing?

4 Q. "Bipolar electrode pairs" versus "pairs of
5 bipolar radiofrequency electrodes."

6 MR. NEMTZOW: Objection, form.

7 A. But they're in different patents; right?

8 Q. Yes.

9 A. So I didn't offer an opinion on comparing
10 those two patents.

11 Q. I understand that you did not compare those
12 two terms. I'm just asking you as part of this
13 deposition whether you understand those two terms to
14 mean the same thing or different things.

15 MR. NEMTZOW: Objection, form, relevance.

16 A. I think you could argue -- I don't know what
17 limitation "radiofrequency" would put on. But you
18 could argue that if you don't have "radiofrequency" as
19 a limitation, it would permit direct-current bipolar
20 ablation.

21 Q. Well, I guess let's break it down a little
22 bit. So is a bipolar electrode pair the same thing as

1 pairs of bipolar electrodes?

2 MR. NEMTZOW: Objection, form, relevance.

3 A. Well, the way you stated it, a pair of
4 bipolar electrodes --

5 Q. I took out "radiofrequency."

6 A. -- is two electrodes; right? At least;
7 right? Two rows of bipolar electrode pairs --

8 Q. Drop the two rows part. Let's take a step
9 back.

10 So does the term "bipolar electrode pairs"
11 mean the same thing as the term "pairs of bipolar
12 radiofrequency electrodes"?

13 MR. NEMTZOW: Objection, form, relevance.

14 A. I mean, it seems -- other than the
15 "radiofrequency" part; right? Otherwise they seem
16 similar.

17 Q. So basically, a pair of -- pairs of --

18 Pairs of bipolar radiofrequency
19 electrodes, the claim requires that those bipolar
20 electrodes are radiofrequency electrodes; correct?

21 MR. NEMTZOW: Objection, form.

22 A. I'm sorry, which patent now are we talking

1 about?

2 Q. '318 and '286, the ones that recite pairs of
3 bipolar radiofrequency electrodes.

4 MR. NEMTZOW: Objection, form, foundation.

5 A. '318 and '271?

6 Q. The two patents that recite the term "pairs
7 of bipolar radiofrequency electrodes" are the '318 and
8 the '286.

9 A. '286.

10 Q. The '271 recites "bipolar electrode pairs."

11 A. Okay. That's why I'm confused. So this is
12 '286, this claim.

13 Q. '286, claim 1, would have "pairs of bipolar
14 radiofrequency electrodes."

15 MR. NEMTZOW: Objection, form.

16 A. So we've got '286 has "multiple pairs of
17 bipolar radiofrequency electrodes." '318 has "an
18 array of multiple pairs of bipolar radiofrequency
19 electrodes."

20 Q. Correct. So the term "pairs of bipolar
21 radiofrequency electrodes" appears both in the '286
22 and '318 patents; right?

1 A. Yes, yes.

2 Q. So I'm asking you to compare that term,
3 "pairs of bipolar radiofrequency electrodes," to the
4 term "bipolar electrode pairs," which is in the '271
5 patent.

6 MR. NEMTZOW: Objection, form, relevance.

7 A. Now I'm with you.

8 Q. I know, it's a lot of tricky terms. Do you
9 want me to just reask the question?

10 A. "Bipolar electrode pairs" are different than
11 "pairs of bipolar radiofrequency electrodes." I don't
12 know if I see the distinction, but....

13 Q. Just so the record is clear, I'll ask the
14 question one more time and then you can respond.

15 So the question was: Is it your
16 understanding that the term "bipolar electrode pairs"
17 means the same thing as the term "pairs of bipolar
18 radiofrequency electrodes"?

19 MR. NEMTZOW: Objection, form, relevance.

20 A. Yes, I would say those are substantially
21 equivalent.

22 Q. So going to Page 50 of the '318 declaration.

1 I'm looking at Paragraph 101, second-to-last sentence.
2 Do you see where you wrote, "Stern teaches examples in
3 which electrodes can be paired by closing particular
4 subsets of switches"?

5 A. Yes.

6 Q. What do you mean by that?

7 A. So it's the whole idea of making them
8 opposite polarity.

9 Q. And you do that by closing certain switches?

10 A. Yes.

11 Q. So if I understand you correctly, it's your
12 opinion that certain electrodes in Stern's figure 15
13 can become paired by closing particular switches. Is
14 that accurate?

15 A. Correct, yes.

16 Q. So in Stern's figure 15 the electrode pair is
17 formed only when certain switches are closed; is that
18 correct?

19 MR. NEMTZOW: Objection, form.

20 A. Well, in my mind, the "pair" implies that
21 they have opposite polarity; right? That current is
22 flowing between them.

1 Q. And until you close the switches, that
2 doesn't happen; right?

3 A. Correct, yeah.

4 Q. So if the -- if no switches are closed in
5 Stern's figure 15, then there's no pairs in Stern's
6 figure 15; correct?

7 MR. NEMTZOW: Objection, form.

8 A. I mean, you might be able to argue that. I
9 mean, I think it depends on the device; right?

10 Q. Well, let's be specific to what Stern figure
11 15 shows.

12 A. Sure, okay.

13 Q. So in Stern's figure 15, the electrode pairs
14 are only formed when certain switches are closed;
15 right?

16 MR. NEMTZOW: Objection, form.

17 A. I mean, again, I think it depends; right?
18 Because, for instance, if I have two electrode pairs
19 that are far apart --

20 Well, I mean, the question is, are you
21 defining your pair of electrodes mechanically or
22 electrically?

1 Q. Are you asking me?

2 A. Yeah. I mean, you can think of pairs as,
3 like, these electrodes are paired because they're
4 placed close to each other. You can think of these
5 electrodes are paired because they're at opposite
6 polarity and current's flowing through them.

7 Q. Well, I guess let's use it in the way the
8 '318 patent uses it. So, again, the term in claim 1
9 of the '318 is "an array of multiple pairs of bipolar
10 radiofrequency electrodes." So again, I'll reask the
11 question I had originally asked: In Stern's figure
12 15, an electrode pair is formed only when certain
13 switches are closed; right?

14 MR. NEMTZOW: Objection, form.

15 A. Well, how does Stern deal with this?

16 Q. I mean, the way you wrote it in your
17 declaration -- I'll repeat what I'd asked you before.
18 So it says, "Stern teaches examples in which
19 electrodes can be paired by closing particular subsets
20 of switches." Right? That's what you said in
21 Paragraph 101?

22 A. Yes, correct.

1 Q. And I'm assume you took that from somewhere
2 in Stern; right?

3 A. Right, right, yep.

4 Yes, okay.

5 Q. So again, the question was: In Stern's
6 figure 15, an electrode pair is formed only when
7 certain switches are closed; correct?

8 MR. NEMTZOW: Objection, form.

9 A. Well, I don't know about the term "only."

10 I mean, I think what's not clear to me,
11 again, is the way -- does "paired" refer to the
12 electrical connection or the mechanical placement?

13 Q. Well, again, you know, use "pair" in the same
14 way it's used in the claim. So however the claim's
15 using it is how my question should be interpreted.

16 MR. NEMTZOW: Objection, form.

17 A. Well, just looking at the claim, I mean, it
18 looks like it's defining it more based on placement.
19 It doesn't say based on the electrical connections.

20 Q. Is that how you're interpreting the term
21 "multiple pairs of bipolar radiofrequency electrodes,"
22 as having to do with placement as opposed to

1 electrical connections?

2 A. In this case I would say yes, because it
3 doesn't talk about -- well, the claim -- he doesn't
4 talk about how they are wired per se, but it talks
5 about how they're placed, along the treatment surface.

6 Q. Doesn't the claim kind of talk about how
7 they're wired, like when it gets into the output
8 channels and stuff like that?

9 MR. NEMTZOW: Objection, form.

10 Q. The next limitation is "multiple
11 radiofrequency output channels connected with multiple
12 pairs of bipolar radiofrequency electrodes," and it
13 goes on.

14 A. I don't know. I don't know. I don't know if
15 it matters.

16 Q. Well, I guess if we go back to Paragraph 101
17 of your report: If you're using the terminology you
18 are using, and I guess that Stern's using -- so you
19 have the sentence here that says, "Stern teaches
20 examples in which electrodes can be paired by closing
21 particular subsets of switches." Right?

22 A. Uh-huh.

1 Q. And then the next sentence is, "For instance,
2 'if switch 248 and switch 238 are closed there will be
3 bipolar operation between the electrodes 220 and
4 222.'" Correct?

5 A. Correct.

6 Q. So those two sentences seem to be implying
7 that if switch 248 and switch 238 are open, then
8 electrodes 220 and 222 are not paired. Correct?

9 MR. NEMTZOW: Objection, form.

10 A. Well, I think they can be paired by closing
11 the switches. I don't know if that means that they're
12 not paired by opening the switches.

13 Q. Did you consider whether opening the switches
14 means that those two electrodes are not paired, in
15 your analysis?

16 MR. NEMTZOW: Objection, form.

17 A. Well, I mean, I think the important thing is
18 that they can be paired; right?

19 Q. I understand that they can be paired when you
20 close the switches. Year in agreement on that.

21 A. I think if they can be paired, they're paired
22 electrodes. Opening the switch doesn't unpair them.

1 Q. Why do you say that?

2 A. Well, because we're talking about -- let's
3 say we have an embodiment where we've actually
4 implemented this; right? And so -- and you give it to
5 a physician to operate. I mean, you're not going to
6 say those electrodes are paired, now they're not
7 paired, now they're paired, now they're not paired. I
8 mean, that's not how --

9 You would say that they are paired
10 electrodes. You can pair them now. You can energize
11 them now.

12 Q. Let me ask you this: So all four of these
13 electrodes as shown in figure 15 can be monopolar
14 electrodes; right?

15 MR. NEMTZOW: Objection, form.

16 Q. And when I say "four electrodes," I mean 220,
17 222, 224, 226.

18 MR. NEMTZOW: Objection, form.

19 A. We discussed this already, the difference
20 between bipolar and monopolar. So you're saying if
21 you took one of those contacts and then made it
22 something like a grounding pad, then you could operate

1 it in monopolar?

2 Q. Not quite what I'm getting at. So my
3 understanding is, if this figure, figure 15 of Stern,
4 that the reference numeral 230 is pointing to the
5 grounding pad.

6 A. Yes.

7 Q. Is that a correct understanding of this
8 figure?

9 A. Yes.

10 Q. And then you could make any of those four
11 electrodes -- 220, 222, 224, 226 -- monopolar
12 electrodes, again depending on which switches you
13 close; right?

14 A. Correct. If you closed switch 232 and one of
15 the other switches, as you mentioned, 248, 246, you
16 would create a monopolar, yes, system.

17 Q. You have the actual Stern patent in front of
18 you; right?

19 A. I do, yes.

20 Q. Would you mind picking that up for me and
21 flipping to figure 15. I just want to talk about the
22 unannotated figure of Stern a little bit. Let me know

1 when you're there.

2 Just so we're on the same page, we're
3 looking at the Stern patent, figure 15, unannotated.
4 Correct?

5 A. Figure?

6 Q. Figure 15 of Stern. Correct?

7 A. Oh, unannotated with our annotations.

8 Q. We were looking at Page 50 of your
9 declaration, which had annotations. I want to just
10 look at the unannotated version.

11 So in Stern's figure 15, all of the
12 switches shown there are opened; correct?

13 A. Correct.

14 Q. What are the electrode pairs in this figure?

15 MR. NEMTZOW: Objection, form.

16 A. By implication -- right? -- a pair would be
17 formed with 220 and 224 and another pair, 222 and 226.

18 Q. What do you mean, a pair would be formed?

19 A. Well, I think the drawing implies something;
20 right? The way those electrodes are drawn in
21 proximity, it implies that by default they are a pair.

22 Q. Okay. So you just said your understanding is

1 220 and 224 are a pair and then 222 and 226 are a
2 pair?

3 A. That's how I interpret this figure 15, yes.

4 Q. So looking back at Page 50 of your
5 declaration for the '318 patent -- do you have that in
6 front of you, Page 50 of the '318 declaration?

7 A. Yes.

8 Q. Why did you circle 220 and 222 as a pair?

9 MR. NEMTZOW: Objection, form.

10 A. Well, Stern himself states that the switch --
11 basically says that "an apparatus for both bipolar and
12 monopolar application of RF energy with the choice of
13 either bipolar or monopolar being made to control the
14 switches. Furthermore not only are the modes
15 selectable by controlling the switches but also within
16 bipolar mode, for instance, switches allow for the
17 selective application of RF energy to various
18 combinations of electrodes."

19 So getting back to the definition before,
20 where I said you could define -- you could possibly
21 define a pair mechanically by where the electrodes are
22 physically placed, and you could also define it

1 electrically -- right? -- by what's positive and
2 what's negative.

3 So I would say to answer your question,
4 you could similarly define a pair mechanically, 220,
5 224. The drawing implies they're in close proximity.
6 You could probably also define it electrically, 220 --
7 as implied by 220 and 222.

8 Q. In your declaration it looks like you were
9 using the electrical definition of "pair." Correct?

10 MR. NEMTZOW: Objection, form.

11 A. I would agree with that. I don't think
12 that's the only interpretation, but it's an
13 interpretation.

14 Q. But the one you applied in your declaration
15 was the electrical version; correct?

16 A. Yes.

17 MR. NEMTZOW: Objection, form.

18 Q. All right. So we had mentioned earlier that
19 all four of these electrodes -- 220, 222, 224, 226 --
20 could be made -- they could be monopolar electrodes,
21 depending on what switches are closed; correct?

22 MR. NEMTZOW: Objection, form.

1 A. Correct.

2 Q. And depending on what switches are closed,
3 all four of those electrodes could be the positive;
4 correct?

5 MR. NEMTZOW: Objection, form.

6 Q. They could be a positive electrode?

7 MR. NEMTZOW: Objection, form.

8 A. Yes.

9 Q. And depending on what switches are closed,
10 all four of those electrodes could also be a negative
11 electrode; correct?

12 MR. NEMTZOW: Objection, form.

13 A. Correct.

14 Q. So it's fair to say that until certain
15 switches are closed, you don't know whether any of
16 those four electrodes are bipolar or monopolar or
17 positive or negative; correct?

18 MR. NEMTZOW: Objection, form.

19 A. Correct, yes.

20 Q. And using the, I guess what you're calling
21 the electrical definition of "electrode pair,"
22 "bipolar electrode pair," isn't it fair to say that

1 any two or more of those switches, they're not paired
2 until you close certain switches; right?

3 MR. NEMTZOW: Objection, form.

4 A. Well, they have the potential to be paired;
5 right? If you've actually implemented this device --
6 right? -- in Stern, they could be paired at any time.

7 Q. They could be paired, but they're not
8 actually paired until you close certain switches;
9 correct?

10 A. They're not electrically paired, yes.

11 Q. Okay. So that the record is clear, any two
12 or more of those switches shown in Stern figure 15 are
13 not electrically paired until you close certain
14 switches. Is that fair to say?

15 MR. NEMTZOW: Objection, form.

16 A. Sure, yeah.

17 Q. The answer is yes?

18 A. Yes.

19 Q. I'm going to switch gears a little bit to a
20 different declaration. I think we're still pretty
21 good on time for the 5:30 end. Would you mind picking
22 up the '271 declaration.

1 A. Okay.

2 Q. Let's go to Page 29. Let me know when you're
3 there.

4 A. I'm here.

5 Q. So claim 1 of the '271 patent recites the
6 term "two rows of bipolar electrode pairs." Correct?

7 A. Correct.

8 Q. What do you understand the term "two rows of
9 bipolar electrode pairs" to mean in the context of the
10 '271 patent?

11 MR. NEMTZOW: Objection, form.

12 A. I would say it's similar to what is in figure
13 19; right? If you look on Page 34. I think this
14 would be one example of two rows of electrode pairs.

15 Q. So I guess speaking a little broader: What
16 generally does the term "two rows of bipolar electrode
17 pairs" mean in the context of this patent?

18 MR. NEMTZOW: Objection, form.

19 A. This is '271.

20 Wait, I don't have a copy of this patent.

21 Q. Do you want a copy?

22 A. Yes, please.

1 Q. So I'm going to give you what has previously
2 been marked as Neurent Exhibit 1 -- sorry, Neurent
3 Exhibit 1001. So this is just only an exhibit from
4 the '271 IPR.

5 A. Okay.

6 Q. And you've seen this document before; right?

7 A. Yes.

8 Q. It's the '271 patent; right?

9 A. Yes, I have.

10 Q. So the question just one more time was:
11 Generally speaking, what does the term "two rows of
12 bipolar electrode pairs" mean in the context of the
13 '271 patent?

14 MR. NEMTZOW: Same objection.

15 A. I mean, I can't give you a complete
16 interpretation of how it's described in the
17 specification right now.

18 Q. Can you give me a general -- your general
19 understanding of what the term means?

20 A. I'll give you a description but not a
21 definition; right?

22 So figure 19 is one description of what I

1 consider to be two rows of bipolar pairs.

2 Q. I think we're going to talk about that a
3 little bit more. But I guess in the general sense, is
4 it your understanding that the term "two rows" is
5 specifying a particular spatial arrangement of the
6 claimed bipolar electrode pairs?

7 MR. NEMTZOW: Objection, form.

8 A. Yes, I would say there's some spatial
9 apposition of electrodes, sure.

10 Q. What do you mean by "some spatial apposition
11 of the electrodes"?

12 A. Well, exactly what it says. I mean -- so,
13 for instance, figure 19; right? Two rows of electrode
14 pairs. And the electrodes, let's say the bottom of
15 one, the top of the other, well, they're parallel. So
16 let's say they weren't parallel. I would still
17 consider that two rows of electrode pairs, even though
18 the lines aren't --

19 If you drew a line through the center of
20 one electrode to the next electrode and you drew a
21 line through the bottom electrodes, the center of one
22 to the other one, those lines would be parallel. If

1 somehow you spaced those electrodes such that those
2 lines are not parallel, I still would consider those
3 two rows of electrode pairs.

4 Q. Just let me ask you this way: Do you believe
5 that any spatial arrangement of the bipolar electrode
6 pairs could be considered two rows of bipolar
7 electrode pairs?

8 MR. NEMTZOW: Objection, form.

9 A. In figure 19?

10 Q. No, generally.

11 A. Well, you had given the example before of a
12 random -- a random placement of electrodes; right?
13 That's something that I think it would be difficult to
14 identify rows of electrodes in.

15 Q. So, I mean, do you think that placing
16 electrode pairs at random would be considered two rows
17 of bipolar electrode pairs?

18 MR. NEMTZOW: Objection, form.

19 A. I don't think you would call it two rows, no.

20 Q. Why not?

21 A. I think "row" requires some measure of order
22 -- right? -- in the placement of the devices, some,

1 let's say, call it regular pattern.

2 Q. What do you mean by "regular pattern"?

3 A. Again, I'm not going to offer a definition,
4 but I'll be descriptive: something that has some kind
5 of repeating dimensional aspect, whether it's the
6 spacing between the electrodes, their positioning,
7 their location on the substrate in which they're
8 mounted.

9 Q. I guess when you say "repeating dimensional
10 aspect," what do you mean by that?

11 A. I'm trying to find a better way to explain
12 it, maybe.

13 Well, I would say that there's some form
14 of alignment -- right? -- between the electrodes. I
15 think that would constitute a row.

16 Q. Are you saying that a row of electrodes is
17 some form of alignment between any two given
18 electrodes?

19 MR. NEMTZOW: Objection, form, relevance.

20 A. I would say that's not a bad description.

21 Q. Okay. If you look at Page 34 of the '271
22 declaration again.

1 A. Yes.

2 Q. I'm sorry, give me one sec.

3 So Page 34 of the '271 declaration, again,
4 there's three annotated figures on this page; right?

5 A. Yes.

6 Q. And let's -- I guess let's look at the two
7 annotated versions of figure 19, starting on the
8 left-side one.

9 A. Yes.

10 Q. So you kind of have the row 1 is across the
11 top and then the row 2 is below that; right?

12 A. Yes.

13 Q. So in that annotated figure, what are the
14 pairs of electrodes? Is row 1 supposed to be one pair
15 and row 2 supposed to be the other pair?

16 MR. NEMTZOW: Objection, form.

17 A. That's certainly one way to interpret it.

18 Q. I'm asking for your interpretation.

19 A. As we discussed before, that the electrodes
20 can be electrically paired; right? And so if you
21 threw the switches in figure 15 above, one
22 configuration, you could create rows of paired

1 electrodes horizontal. If you threw the switches
2 another way, you could create rows vertical.

3 Q. I get that. I guess what I'm asking is, in
4 the left-side annotated figure, the annotated figure
5 you have here of figure 19 on Page 34, when you're
6 saying row 1 going horizontally, are you saying that
7 row 1 is a pair and row 2 is also a pair? Do you see
8 what I'm saying?

9 A. Yes.

10 Q. And for the annotated figure next to it,
11 where you have the rows going down, so for that
12 version now are you saying that the row 1 is the --
13 there's a vertical pair that's row 1 and there's
14 another vertical pair that's row 2?

15 A. I think either way. Like, you have it one
16 way in the left figure and the other way in the right
17 figure.

18 Q. Totally understand. So I'm just asking, the
19 way you drew it in the annotated figures.

20 A. Yes.

21 Q. So for the left-hand-side figure, are you
22 saying row 1, that's one pair, and then row 2 is the

1 other pair?

2 MR. NEMTZOW: Objection, form.

3 A. So it depends on how you throw the switches;
4 right?

5 Q. Yes, I get that. Just the way you're
6 demarcating these rows in your annotations, I'm just
7 asking, in the left-hand-side figure for row 1, are
8 you saying that's row 1, those two next to each other
9 are the pair for that version; row 2, the two
10 electrodes next to each other are a pair?

11 MR. NEMTZOW: Objection, form.

12 Q. I mean, let me ask it this way: So if you
13 look at Paragraph 74, you say, "Two rows can be seen
14 in either a horizontal configuration (left image of
15 Figure 19) or vertical configuration (right image of
16 Figure 19)." So if we're talking about the horizontal
17 configuration on the left side of Page 34 -- again,
18 I'm not trying to trip you up, but I just want to
19 know: You have this arrow pointing to two electrodes,
20 and you're calling that row 1.

21 A. Right.

22 Q. Is that row 1, you're saying that's a pair?

1 MR. NEMTZOW: Objection, form.

2 Q. And you're saying row 2 is also a pair?

3 MR. NEMTZOW: Objection, form, foundation,
4 relevance.

5 A. Yeah. Yeah, I think that's right. I think
6 that's right. So row 1 is a paired electrode. Row 2
7 looks like a paired electrode, yes.

8 Q. And then for figure 19 you're saying that the
9 vertical row 1, that's a pair.

10 A. Yes.

11 Q. And vertical row 2 is a pair.

12 A. Yes.

13 MR. NEMTZOW: Objection.

14 Q. Got it. And I think you say in the end of
15 Paragraph 74 that you think there would still be two
16 rows even if the electrodes in figure 19 were paired
17 diagonally; is that right?

18 A. Correct, yes.

19 Q. In the -- not that version, the bound
20 version, but the version I gave you of the '271, if
21 you opened to Page 34, can you just use this pen and
22 draw, I guess using like dashed lines, what it would

1 look like to have two rows even if the electrodes of
2 figure 19 were paired diagonally?

3 A. Sure.

4 MR. NEMTZOW: Objection, form, relevance.

5 A. So here are your rows, row 1 and row 2.

6 Q. Can you just write "row 1" and "row 2" next
7 to whatever you want to call row 1 and row 2?

8 MR. NEMTZOW: Objection, form, relevance.

9 Q. And then just your initials somewhere there.

10 So going back to Page 34 of your '271
11 declaration: In your annotated versions of figure 19
12 you highlighted four electrodes; correct?

13 A. Correct.

14 Q. And isn't there a fifth electrode directly
15 below the four highlighted ones?

16 A. In the unannotated version --

17 Q. Sorry, looking at the annotated versions you
18 have right in front of you.

19 A. Right.

20 Q. Isn't there a fifth electrode that you didn't
21 highlight directly below the four that you did
22 highlight?

1 A. I just want to confer with the original
2 patent to see.

3 Q. Understood. Take your time. It may be
4 helpful to look at Stern figure 39.

5 A. Thank you.

6 Yes.

7 Q. Going back to Page 34 of your '271
8 declaration.

9 A. I'm sorry, page?

10 Q. The page you have right in front of you. So
11 again, in that figure 19 there is a fifth electrode
12 directly below the four electrodes that you annotated;
13 correct?

14 A. Correct.

15 MR. NEMTZOW: Objection, form.

16 A. Correct, yes.

17 Q. Do you know why you ignored that fifth
18 electrode in your declaration for the '271 patent?

19 MR. NEMTZOW: Objection, form, foundation,
20 relevance.

21 A. I don't think it was relevant for the
22 analysis.

1 Q. Why do you say that?

2 A. Well, having a fifth electrode doesn't negate
3 the other -- the existence of the other electrodes and
4 their configuration.

5 Q. Do you believe that there would still be two
6 rows of electrode pairs in figure 19 even if you
7 swapped out one of the highlighted electrodes for the
8 fifth electrode at the bottom?

9 MR. NEMTZOW: Objection, form, relevance.

10 A. Possibly -- yes.

11 Q. Why do you say that?

12 A. So if you look in the case where we've
13 defined the vertical rows -- right? -- depending on
14 how you set the switches, you still have two rows.

15 Q. Okay. This might be another helpful one for
16 you to draw it in that same area where you were
17 drawing before. Page 34.

18 Can you draw for me using this pen a
19 version where you're swapping out one of the four
20 highlighted ones with the one at the bottom and you
21 still have two rows of electrode pairs?

22 MR. NEMTZOW: Objection, form, relevance.

1 A. You have one row, and you have another
2 row -- depending on how you actually pair them.

3 Q. I assume you could have different versions,
4 but what you drew is one example, is what you're
5 saying?

6 A. Yeah.

7 MR. NEMTZOW: Objection to remember.

8 Q. I'm going to give you a piece of paper. Hold
9 on to that red pen for a second. Here you go.

10 So go ahead and draw just a big circle on
11 that piece of paper for me.

12 MR. NEMTZOW: Objection, form, relevance.

13 Q. And let's go ahead and assume that the big
14 circle represents the surface of a device basically
15 similar to the surface of the device shown in Stern
16 figure 19.

17 So inside that circle can you draw for me
18 four large dots. Go ahead and place the dots anywhere
19 you want, but just make sure they're not touching the
20 circle or each other.

21 A. You're saying four large circles or dots?

22 Q. Just like a big dot.

1 A. So a circle that's filled in?

2 Q. Could I have the pen? So, for example, like
3 that.

4 A. Okay.

5 Q. Just a big dot. For those, anywhere you
6 want, totally at random, just not touching each other
7 or the larger circle.

8 MR. NEMTZOW: And I'll object to the
9 question for form, relevance.

10 Q. Now go ahead and place a plus sign next to
11 any of the two dots, whichever ones you want.

12 A. Any two?

13 Q. Yes, whatever you want.

14 MR. NEMTZOW: Again, objection to form,
15 relevance.

16 Q. And place a minus sign next to the other two
17 dots.

18 So now assume that one of the dots with a
19 plus sign and one of the dots with a minus sign, that
20 that's a bipolar electrode pair and that the other two
21 dots are a second bipolar electrode pair. With that
22 assumption, can you please draw a straight dashed line

1 between the electrodes of one of the pairs.

2 MR. NEMTZOW: Objection, form, foundation,
3 relevance.

4 A. One question I have is: So these electrodes,
5 positive and negative, are they all on at the same
6 time, or are they off, on, off different times?

7 Q. When you drew this, what were you assuming?
8 Again, I'm pointing to your annotations on figure --
9 on Page 34 of the '271 declaration.

10 A. So in the case -- figure 19 is being
11 controlled by figure 15; right? And so the actual
12 plus/minus configurations are determined by the switch
13 settings.

14 Q. So assume it's something similar, where you
15 can just make -- you can make the plus and the minus
16 with a similar switching arrangement and they can all
17 be on at the same time or you can do one pair at a
18 time and then go to a different pair or something like
19 that.

20 MR. NEMTZOW: Objection, form, foundation,
21 relevance.

22 A. So, now, what was the question? What was the

1 next thing you wanted me to do?

2 Q. So basically draw a straight dashed line
3 between one dot that you labeled plus and one dot that
4 you labeled minus.

5 A. Okay.

6 MR. NEMTZOW: Same objection.

7 Q. And then do the same thing between the other
8 two dots.

9 MR. NEMTZOW: Same objection.

10 Q. So now, looking at this drawing that you
11 made, do you believe that this drawing depicts two
12 rows of bipolar electrode pairs?

13 MR. NEMTZOW: Objection, form, foundation,
14 relevance.

15 A. Yes.

16 Q. Can you please label one of the rows as row 1
17 and the other row as row 2.

18 MR. NEMTZOW: The same objection.

19 Q. And can you please put your initials
20 somewhere next to the drawing.

21 MR. NEMTZOW: Same objection.

22 MR. GILFORD: And let's have the court

1 reporter mark that drawing as Martin Exhibit 2.

2 (Exhibit 2 marked for identification.)

3 MR. NEMTZOW: We're going to mark that as
4 Exhibit 2. I'll just note that there was a marking on
5 your deposition timeline it appears that was used in
6 the making of that exhibit. So I think that's part of
7 the exhibit. We can talk about how we can do that.

8 MR. GILFORD: Absolutely not. That's a
9 ridiculous position to take.

10 MR. NEMTZOW: You showed your notes to the
11 witness and made --

12 MR. GILFORD: I showed him what the dot
13 looks like. And we're not making my notes part of the
14 deposition. That's a ridiculous position to take.

15 MR. NEMTZOW: Shall we take this off the
16 record?

17 MR. GILFORD: We're off the record.

18 (Discussion off the record.)

19 MR. GILFORD: You guys can say what you
20 want.

21 MR. NEMTZOW: I'll just note for the
22 record that a dot on Mr. Gilford's notes was shown

1 during the deposition, in order to create the exhibit
2 which is going to be entered as Exhibit 2. And so
3 we're entering that dot as Exhibit 2, Part 2, into the
4 record without the remainder of Mr. Gilford's notes.

5 MR. GILFORD: Okay.

6 (Exhibit 2, modified, marked for
7 identification.)

8 Q. Let's go ahead and put that exhibit aside.

9 MR. GILFORD: Let's do another piece of
10 paper here.

11 Q. You still have that red pen?

12 A. Yes, I've got it.

13 Q. So can you go ahead and draw for me a single
14 row of bipolar electrode pairs.

15 MR. NEMTZOW: And I'll object to the
16 question based on form and relevance.

17 Q. Do you mind showing me?

18 So just so we're on the same page, the
19 question was: Can you draw for me a single row of
20 bipolar electrode pairs, plural.

21 A. So --

22 Q. A single row --

1 A. Of multiple bipolar electrode pairs.

2 Q. Let me ask you this: If I say "bipolar
3 electrode pairs," that means multiple pairs; right?

4 A. Sure.

5 Q. Is that a yes? If I say "bipolar electrode
6 pairs," does that mean multiple pairs?

7 MR. NEMTZOW: Objection, form.

8 Q. Was the answer yes?

9 A. Yeah.

10 Q. So please draw for me a single row of bipolar
11 electrode pairs.

12 MR. NEMTZOW: Objection, form, relevance.

13 A. It's not exhaustive; it's descriptive.

14 Q. Why do you believe that what you drew depicts
15 a single row of bipolar electrode pairs?

16 MR. NEMTZOW: Objection, form, relevance.

17 A. I think it fits that description.

18 Q. Can you draw a single row of bipolar
19 electrode pairs with three electrodes?

20 MR. NEMTZOW: Objection, form, relevance.

21 Q. Can you draw a single row of bipolar
22 electrode pairs with only two electrodes?

1 MR. NEMTZOW: Objection, form, relevance.

2 Q. How does that show a -- how does that show
3 multiple bipolar electrode pairs?

4 MR. NEMTZOW: Objection, form, relevance.

5 A. It's just one pair.

6 Q. So the last thing you drew there on this
7 piece of paper, where it's just a row of two
8 electrodes, that's just one pair; correct?

9 A. One pair, yeah.

10 Q. That's not electrode pairs plural; correct?

11 A. Correct.

12 Q. Now, the two rows you drew above it, where
13 there's one row with three and one row with four, you
14 believe that those two show rows of bipolar electrode
15 pairs; correct?

16 A. Correct.

17 MR. NEMTZOW: Objection, form, relevance.

18 Q. But the third thing you drew does not;
19 correct?

20 A. Correct.

21 Q. I guess go ahead and put your initials
22 somewhere on that. And can you just write row 1, row

1 2, row 3," just next to kind of what you drew, just in
2 the order that you drew it.

3 Just so the record is clear: So you agree
4 that row 1 of what you drew depicts a single row of
5 bipolar electrode pairs; correct?

6 MR. NEMTZOW: Objection, form, relevance.

7 A. Correct.

8 Q. And you agree that row 2 of what you drew
9 shows a single row of bipolar electrode pairs;
10 correct?

11 MR. NEMTZOW: Same objection.

12 A. Correct.

13 Q. And you agree that row 3 of what you drew
14 does not show a single row of bipolar electrode pairs;
15 correct?

16 MR. NEMTZOW: Same objection.

17 A. Correct.

18 MR. GILFORD: Can we go ahead and mark
19 this as Martin Exhibit 3.

20 (Exhibit 3 marked for identification.)

21 Q. And let's go back to your '271 declaration.
22 I'm looking at Page 49, Paragraph 95.

1 So I'm looking at the second sentence of
2 Paragraph 95. Do you see where you wrote, "For
3 example, arranging electrodes in rows, as opposed to
4 some other arrangement such as placing electrodes at
5 random, would have allowed for simplified spatial
6 resolution of the applied energy"? Do you see that?

7 A. Yes.

8 Q. What do you mean by "simplified spatial
9 resolution of the applied energy"?

10 A. Well, if the electrodes have some regularity
11 to their spacing, the power deposition, therefore the
12 temperature rise and the ablation field, is more
13 predictable.

14 Q. So I guess when you say "regularity to their
15 spacing," what do you mean by that?

16 MR. NEMTZOW: Objection, form.

17 A. Well, I mean, both figures show a regularity.
18 Both figures show electrodes, bipolar electrodes, with
19 a placement that has some measure of regularity.

20 Q. Would a single row of bipolar electrode pairs
21 allow for a simplified spatial resolution of the
22 applied energy?

1 MR. NEMTZOW: Objection to form.

2 A. As opposed to --

3 Well, the problem with one pair --
4 right? -- the random placement of one pair, you still
5 have -- there's still one pair. Right?

6 Q. I mean, let's look at what you drew in Martin
7 Exhibit 3. So, for example, that row 1, with the four
8 electrodes: You agree -- we agreed previously that
9 that shows a single row of bipolar electrode pairs;
10 right?

11 A. Correct, yeah.

12 Q. So taking that example that you drew, would
13 that example allow for simplified spatial resolution
14 of the applied energy?

15 A. Yes.

16 MR. NEMTZOW: Objection to form.

17 Q. What about the next row down, row 2? You
18 agreed previously that that row 2 shows a single row
19 of bipolar electrode pairs; right?

20 A. Yes.

21 MR. NEMTZOW: Objection, form, relevance.

22 Q. And that row 2, would that allow for

1 simplified spatial resolution of the applied energy?

2 MR. NEMTZOW: Objection, form, relevance.

3 A. Yes.

4 Q. Would a circle of bipolar electrode pairs
5 allow for simplified spatial resolution of the applied
6 energy?

7 MR. NEMTZOW: Objection, form, relevance.

8 A. What do you mean by "a circle"?

9 Q. If you aligned the electrode pairs in a
10 circle.

11 MR. NEMTZOW: Objection, form, relevance.

12 A. Could you draw that?

13 Q. Yeah, I could. What was that one, Martin 3?

14 A. Yes.

15 Q. Would you mind handing me the red pen.

16 Something like that.

17 A. Okay, good, I understand now. So what's the
18 question, then?

19 Q. Would a circle of bipolar electrode pairs
20 allow for simplified spatial resolution of the applied
21 energy?

22 MR. NEMTZOW: Objection, form, relevance.

1 A. Yes, as compared to a random arrangement,
2 yes.

3 MR. GILFORD: Let's go ahead and mark that
4 piece of paper as Martin Exhibit 4.

5 (Exhibit 4 marked for identification.)

6 MR. NEMTZOW: Objection, relevance.

7 Q. So if I understand you correctly, when you're
8 mentioning in Paragraph 95 of the '271 declaration
9 "simplified spatial resolution of the applied energy,"
10 basically what you're comparing is some sort of
11 ordered arrangement compared to a random arrangement.
12 Is that accurate?

13 MR. NEMTZOW: Objection, form, relevance.

14 A. I think that's one way to look at it, yes. I
15 mean, you're basically making the applied energy more
16 predictable -- more regular is more predictable.

17 Q. Okay, I think I understand. Can you go ahead
18 and turn to Page 23 of the '271 declaration. And I'm
19 looking at Paragraph 52. Do you see where you wrote,
20 "I have been asked to offer opinions regarding the
21 following limitations as they relate to the
22 above-referenced grounds"? And then there's some

1 limitations and claims after that. Do you see that?

2 A. Yes.

3 Q. And you list here limitation 1[a], claim 4,
4 claim 8, claim 9, claim 10. Correct?

5 A. Correct.

6 Q. Is it fair to say for the '271 patent IPR
7 you're only providing opinions on limitation 1[a],
8 claim 4, claim 8, claim 9, and claim 10?

9 MR. NEMTZOW: Objection, form.

10 A. Correct.

11 Q. If you flip over to Page 24, and I'm looking
12 at Paragraph 53. Do you see where you wrote in the
13 first sentence of that paragraph, "The technical
14 features and structures described in these limitations
15 were well-known and routinely applied in medical
16 devices in a manner suitable for treating tissue in a
17 nasal cavity"? Do you see that?

18 A. Yes.

19 Q. What is your basis for your opinion that the
20 technical features and structures described in these
21 limitations were, quote, "applied in medical devices
22 in a manner suitable for treating tissue in a nasal

1 cavity," end quote?

2 A. I'm sorry, I don't quite understand the
3 question per se.

4 Q. Well, again, what I read is basically -- it's
5 your opinion that "the technical features and
6 structures described in these limitations were
7 well-known and routinely applied in medical devices in
8 a manner suitable for treating tissue in a nasal
9 cavity." Did I read that correctly?

10 A. Yes.

11 Q. So I'm really focused on the part at the end
12 where you said "in a manner suitable for treating
13 tissue in a nasal cavity."

14 A. Okay.

15 Q. That's what I'm focusing on.

16 A. Sure. And some of that's provided by
17 Edwards.

18 Q. So if I understand Stern correctly, Stern's
19 teaching an endometrial ablation device; right?

20 MR. NEMTZOW: Objection, form.

21 A. In part, but Stern does say that everything
22 in the patent is applicable to other tissues, without

1 limitation.

2 Q. Stern doesn't specifically call out the nasal
3 cavity; correct?

4 MR. NEMTZOW: Objection, form.

5 A. He calls out tissue.

6 Q. And not specifically the nasal cavity;
7 correct?

8 MR. NEMTZOW: Objection, form.

9 A. Correct.

10 Q. So again, what is your basis for saying that
11 the technical features and structures described in
12 these limitations were well known and routinely
13 applied in medical devices, quote, "in a manner
14 suitable for treating tissue in a nasal cavity," end
15 quote?

16 MR. NEMTZOW: Objection, form.

17 A. Again, it's based on Edwards and Stern.

18 Q. Okay. Other than pointing to Edwards and
19 Stern, what is your basis for this statement that
20 we've been talking about?

21 MR. NEMTZOW: Objection, form.

22 A. Well, as I explained before, as an engineer

1 who's developed ablation devices, it matters less
2 where the tissue is located. Thermal properties,
3 electrical properties, they vary all over the body,
4 but every tissue has them. And so it doesn't matter
5 if it's in the nose, the uterus, the brain. The
6 fundamental physical principles of ablation remain the
7 same.

8 Q. Why do you say it doesn't matter whether it's
9 in the nose or elsewhere? You agree that different
10 tissues have different electrical and physical
11 properties; right?

12 A. Yes, but anyone that's developed ablation
13 devices -- someone skilled in the art knows how to
14 compensate for that.

15 Q. Why do you say that?

16 A. So, for instance, if the electrical
17 conductivity is lower, you can compensate by raising
18 the voltage. If the thermal conductivity is higher,
19 you can compensate by, you know, increasing the power
20 deposition.

21 Q. Are there certain tissues in the body where
22 you would not use radiofrequency ablative energy?

1 MR. NEMTZOW: Objection, form, relevance.

2 A. Well, it depends on the clinical condition
3 you're treating. But barring that limitation, based
4 on electrical and thermal properties, bone would be
5 one I could think of, based on its electrical
6 properties, where you might not treat with RF energy.

7 Q. Anything else you can think of?

8 MR. NEMTZOW: Objection, form, relevance.

9 A. I think everything else is -- you could use
10 RF energy to achieve a certain goal to get -- have a
11 certain clinical outcome.

12 Q. We were talking earlier about different types
13 of energy, that it can be used -- sorry, strike that.

14 We were talking earlier about -- I'm not
15 sure if we did talk about this.

16 We talked earlier about medical devices
17 and what types of energies they can apply to tissue.
18 Right? Do you recall that conversation?

19 A. Yes.

20 MR. NEMTZOW: Objection, form.

21 Q. So I guess let's narrow that down a little
22 bit to ablative devices. What kind of energy can

1 ablation devices, ablation medical devices, apply to
2 tissue?

3 A. What type of energy could be used to ablate
4 tissue?

5 Q. Yes. So certainly radiofrequency is one
6 example; right?

7 A. Sure. I mean, I think broadly speaking, you
8 can look at any energy modality that, when it contacts
9 the tissue, gets converted into heat energy -- so
10 radiofrequency, direct current would do that, light
11 energy, microwave -- you know, the whole
12 electromagnetic spectrum, practically; right?

13 Q. Ultrasound?

14 A. Yeah, ultrasound.

15 Q. Mechanical energy?

16 A. Mechanical energy, yeah, could work. It's
17 not used often, but sure.

18 Q. You know, you were talking earlier about the
19 CryoCath device.

20 A. Yes, cryogenic energy.

21 Q. Cryogenic energy.

22 A. Yes. And cryogenic ablation, you know, is a

1 form of, as it's mostly applied in tissue, a
2 contacting device, where you're actually -- you're
3 cooling a conductor, and then that's cooling the
4 tissue directly by thermal conduction.

5 The same is true with devices where you
6 heat up. Like, you might have a hot balloon that gets
7 inserted into tissue.

8 Q. Would you ever use light energy to ablate
9 tissue in the nasal cavity?

10 MR. NEMTZOW: Objection, form, relevance.

11 A. You could, and I would guess it's probably
12 been done.

13 Q. Okay, to your knowledge, has it ever been
14 done?

15 MR. NEMTZOW: Objection, form, relevance.

16 A. I'm not aware of specific efforts, but,
17 again, I bet if you looked in the literature it's been
18 done.

19 Q. Would you ever use electrical energy to
20 ablate tissue in the nasal cavity?

21 MR. NEMTZOW: Objection, form.

22 A. Possibly.

1 Q. Are you aware of any instances of people
2 using electrical energy to ablate tissue in the nasal
3 cavity?

4 MR. NEMTZOW: Objection, form, relevance.

5 A. And by "energy" you mean direct current?

6 Q. Yes.

7 A. No, I'm not aware of any.

8 Q. Would you use microwave energy to ablate
9 tissue in the nasal cavity?

10 MR. NEMTZOW: Objection, form, relevance.

11 A. You could.

12 Q. Are you aware of any specific instances of
13 people using microwave energy to ablate tissue in the
14 nasal cavity?

15 MR. NEMTZOW: Same objection.

16 A. No.

17 Q. Would you use ultrasound energy to ablate
18 tissue in the nasal cavity?

19 MR. NEMTZOW: Objection, form, relevance.

20 A. You could.

21 Q. And again, are you aware of anybody using
22 ultrasound energy to ablate tissue in the nasal

1 cavity?

2 MR. NEMTZOW: Same objection.

3 A. No.

4 Q. Could you use mechanical energy to ablate
5 tissue in the nasal cavity?

6 MR. NEMTZOW: Objection, form, relevance.

7 A. Probably not.

8 Q. Why do you say that?

9 A. Well, ablation requires the temperature gets
10 raised to a certain point where you're destroying
11 tissue in cells. If you used actual mechanical energy
12 to do that, you would mechanically have destroyed the
13 tissue in cells long before you ablated them,
14 destroyed them for ablation.

15 Q. Would you ever use cryogenic energy to ablate
16 tissue in the nasal cavity?

17 MR. NEMTZOW: Objection, form, relevance.

18 A. Yes, possibly.

19 Q. Are you aware of anybody who's ever used
20 cryogenic energy to ablate tissue in the nasal cavity?

21 MR. NEMTZOW: Same objection.

22 A. No, not particularly.

1 Q. So turning back to the opinions you rendered
2 on claim 1 of the '271 patent: Is it your opinion
3 that the entirety of claim 1 of the '271 patent is
4 invalid as obvious?

5 A. I'm sorry, could you repeat the question?

6 Q. Is it your opinion that the entirety of claim
7 1 of the '271 patent is invalid as obvious?

8 A. I'm sorry, I just want to make sure I'm
9 accurately representing my declaration here.

10 I believe the challenged claim language
11 was in regards to claim 1a, element a.

12 Q. So if I understand you correctly, you're not
13 opining on the entirety of claim 1 of the '271 patent?

14 A. Yes, I believe that's correct.

15 MR. NEMTZOW: I don't want to interrupt
16 this line of questioning. We've been going for about
17 an hour and 15 minutes.

18 MR. GILFORD: I'm a couple of minutes away
19 from a really good stopping point.

20 THE WITNESS: That's fine. I can power
21 through.

22 Q. And is it your opinion that claims 4, 8, 9,

1 and 10 of the '271 patent are invalid as obvious?

2 MR. NEMTZOW: Objection, form.

3 A. 4, 8, 9, and 10. That's what you said; yes?

4 Q. The question was: Is it your opinion that
5 claims 4, 8, 9, and 10 of the '271 patent are invalid
6 as obvious?

7 A. Well, those claims, 4, 8, 9, and 10, in my
8 '271 declaration I offered an opinion on their
9 limitations, not that they were invalid.

10 Q. Okay. I understand.

11 MR. GILFORD: I'm at a good place to stop.
12 Let's go off the record.

13 (Discussion off the record.)

14 Q. I think we're going to break for today,
15 Dr. Martin. I believe everybody at the table is in
16 agreement that you're still under cross-examination.
17 We will start again tomorrow at 9:00 a.m.

18 MR. GILFORD: Counsel, is that accurate?

19 MR. NEMTZOW: That works for us.

20 Q. Just before we break: Obviously we had a lot
21 of kind of breaks during today's deposition. There
22 was a lunch break, et cetera. During any of those

1 breaks did you discuss the substance of your testimony
2 with anybody?

3 A. No.

4 Q. Did you discuss any of your answers to any of
5 the questions I asked with anybody?

6 A. No.

7 Q. And did you discuss any answers to potential
8 future questions with anybody during those breaks?

9 A. No.

10 Q. So again, we'll adjourn. The understanding
11 is that you're still under cross-examination. Do you
12 understand that, since you're still under cross-
13 examination, that you are not supposed to talk with
14 counsel about your testimony, your anticipated future
15 answers, that kind of stuff?

16 A. Yes.

17 MR. GILFORD: Okay. Counsel, anything
18 from you before we break?

19 MR. NEMTZOW: Nothing further.

20 MR. GILFORD: We'll be back tomorrow.

21 (The deposition was suspended at 5:08 p.m.)
22

1 CERTIFICATE OF SHORTHAND REPORTER - NOTARY PUBLIC

2
3 I, Alan H. Brock, Certified Reporter
4 and Notary Public within and for the Commonwealth of
5 Massachusetts, do hereby certify:

6 That Gregory Thomas Martin, the
7 witness whose deposition is hereinbefore set forth,
8 was duly sworn by me before the commencement of such
9 deposition and that such deposition was taken before
10 me and is a true record of the testimony given by such
11 witness.

12 I further certify that the adverse
13 parties, Neurent Medical Inc. and Neurent Medical Ltd.,
14 were represented by counsel at the deposition.

15 I further certify that the deposition
16 of Gregory Thomas Martin occurred at the offices of
17 Wilmer Cutler Pickering Hale and Dorr on Tuesday,
18 September 24, 2024, commencing at 9:03 a.m. to 5:08
19 p.m.

20 I further certify that I am not
21 related to any of the parties to this action by blood
22 or marriage, I am not employed by or an attorney to

1 any of the parties to this action, and that I am in no
2 way interested, financially or otherwise, in the
3 outcome of this matter.

4 IN WITNESS WHEREOF, I have hereunto
5 set my hand this 25th day of September, 2024.

6

7 My commission expires:

8 March 25, 2027.

9

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Alan H. Brock, RDR, CRR

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A	95:2, 95:8, 95:12, 95:18, 97:17, 97:22, 99:18, 99:21, 109:5, 109:7, 109:9, 109:10, 109:16, 109:21, 110:5, 110:11, 110:17, 110:21, 117:10, 117:13, 126:9, 127:15, 127:22, 145:12, 146:1, 147:1, 147:12, 148:3, 149:17, 150:17, 152:12, 152:18, 165:17, 187:2, 189:11, 198:11, 205:20, 217:6, 220:5, 220:19, 237:7, 237:12, 238:18, 250:20, 288:12, 293:19, 295:1, 295:6, 295:12, 297:22, 300:9, 300:14	above-referenced 291:22 absolutely 283:8 academic 120:11, 120:14, 120:16 academically 140:17 accept 211:22, 236:18 access 93:5 according 53:12, 53:13, 181:10, 204:1, 205:18, 206:5, 233:20 accuracy 18:8 accurate 221:3, 222:16, 254:14, 291:12, 302:18 accurately 301:9 achieve 110:2, 147:3, 151:13, 152:1, 158:9, 296:10 achieved 152:17, 228:12 acquire 64:9, 66:2, 66:6 acquired 55:5, 55:6, 55:11, 57:20, 58:6, 58:9, 58:10, 58:14, 58:15, 58:18, 59:5, 64:12, 64:14, 64:19, 64:22, 65:4, 65:6, 68:5, 80:10, 80:12 acquires 52:13	acquisition 68:12, 68:17 across 189:3, 233:4, 234:15, 272:10 action 304:21, 305:1 active 156:8, 156:9, 156:10, 156:16, 157:15, 157:18, 159:20, 160:10, 160:20, 161:2 acts 191:2 actual 92:2, 106:20, 108:13, 111:11, 261:17, 281:11, 300:11 actually 60:15, 66:4, 66:5, 99:22, 129:1, 144:6, 147:16, 211:15, 215:9, 260:3, 266:5, 266:8, 279:2, 298:2 actuate 76:11 actuating 76:14, 76:17, 77:2 added 59:12 addition 57:11, 84:18 additional 34:4, 59:14, 141:21, 144:17, 167:10, 167:13 address 231:7, 241:21 addressed 192:3, 201:2 adhered 187:10 adiana 54:13, 54:20,
a-r-a-j 8:12 abdominal 89:4, 89:13 ability 85:15 ablate 64:7, 65:17, 66:1, 66:9, 67:5, 67:11, 79:8, 79:11, 79:15, 79:17, 81:4, 82:3, 84:8, 94:21, 109:11, 109:12, 109:14, 136:16, 297:3, 298:8, 298:20, 299:2, 299:8, 299:13, 299:17, 299:22, 300:4, 300:15, 300:20 ablated 54:13, 83:5, 300:13 ablates 50:17 ablating 93:14 ablation 22:13, 28:20, 29:3, 50:16, 50:18, 50:21, 53:21, 54:6, 54:15, 54:17, 54:22, 57:3, 61:11, 62:21, 74:12, 75:13, 78:18, 79:4, 79:21, 81:10, 82:17, 82:22, 83:5, 83:15, 90:14, 91:1, 92:2, 92:20, 93:4, 93:7, 93:21, 93:22,	ablation" 82:19 ablative 62:10, 64:3, 65:11, 67:12, 68:16, 78:12, 79:1, 81:7, 82:4, 83:16, 89:21, 93:7, 94:6, 109:17, 110:2, 205:19, 295:22, 296:22, 297:1 able 30:16, 84:13, 92:16, 92:18, 112:19, 115:16, 193:8, 209:2, 255:8 above 104:14, 223:7, 272:21, 286:12		

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

307

63:14, 64:4, 64:6, 64:9, 64:13, 64:15, 65:3, 65:5, 65:9, 67:9, 158:6, 198:10, 220:4, 220:10, 220:22 adjourn 303:10 advanced 177:15 advantageous 151:10 adverse 304:12 adviser 98:6 aerin 1:8, 2:8, 3:8, 8:9, 14:3, 14:9, 14:12, 38:16, 38:19 affects 148:5 affirmed 8:4 after 19:13, 21:22, 27:4, 28:19, 30:13, 30:19, 59:5, 97:10, 97:12, 97:13, 102:1, 102:19, 119:4, 119:11, 119:15, 122:19, 147:20, 151:3, 193:19, 292:1 again 15:13, 17:22, 18:17, 19:2, 24:5, 24:11, 24:18, 26:12, 28:15, 29:5, 34:22, 54:7, 57:17, 58:13, 72:6, 76:22, 94:20, 97:3,	110:20, 111:11, 114:18, 118:12, 118:16, 120:19, 125:1, 133:12, 139:1, 147:13, 169:1, 170:8, 170:15, 171:10, 173:16, 178:17, 179:14, 183:21, 192:5, 195:13, 206:6, 206:21, 206:22, 207:22, 211:13, 212:4, 212:11, 217:4, 218:1, 219:8, 220:8, 223:9, 227:21, 228:19, 236:3, 244:1, 245:18, 255:17, 256:8, 256:10, 257:5, 257:11, 257:13, 261:12, 271:3, 271:22, 272:3, 274:17, 277:11, 280:14, 281:8, 293:4, 294:10, 294:17, 298:17, 299:21, 302:17, 303:10 against 14:3, 14:6, 19:15, 19:22, 129:4 ago 13:15, 15:1, 15:8, 15:11, 85:9, 86:21, 94:4, 150:15 agree 206:22, 207:5, 215:11, 218:8, 225:3, 235:13, 235:16, 243:17, 245:1, 246:6, 264:11, 287:3, 287:8, 287:13, 289:8, 295:9 agreed 9:8, 9:10,	9:13, 118:20, 289:8, 289:18 agreement 100:10, 259:20, 302:16 agreements 9:21 ahead 8:7, 11:10, 42:20, 47:5, 88:14, 90:12, 90:13, 91:22, 99:6, 99:7, 103:14, 155:22, 164:3, 165:4, 168:21, 232:20, 236:20, 279:10, 279:13, 279:18, 280:10, 284:8, 284:13, 286:21, 287:18, 291:3, 291:17 alan 1:22, 2:22, 3:22, 4:22, 8:11, 304:3, 305:12 alex 31:19, 32:1, 32:6, 32:14, 33:9, 33:11, 33:13, 33:18, 34:1, 34:3 alexander 5:12, 5:17, 8:14 alexis 5:5, 5:9, 8:17, 31:19, 32:1, 32:7, 32:14, 33:9, 33:11, 33:13, 33:18, 34:1, 34:3 aligned 57:18, 290:9 alignment 271:14, 271:17 alive 148:9	all 9:5, 10:4, 10:6, 16:11, 26:21, 32:1, 32:10, 32:17, 34:7, 37:4, 42:21, 45:14, 46:21, 49:14, 65:5, 74:13, 89:1, 89:20, 100:11, 110:20, 129:14, 133:19, 153:4, 157:3, 160:3, 166:22, 179:15, 187:8, 188:5, 188:9, 190:4, 206:17, 220:21, 225:8, 226:10, 227:10, 241:20, 241:21, 242:1, 260:12, 262:11, 264:18, 264:19, 265:3, 265:10, 281:5, 281:16, 295:3 alleged 115:21, 116:3, 116:11, 116:18, 119:1 allow 263:16, 288:21, 289:13, 289:22, 290:5, 290:20 allowed 288:5 allows 61:1 almost 60:20 alone 230:18 along 54:2, 121:18, 202:18, 203:4, 203:20, 204:8, 207:1, 229:8, 258:5 aloud 165:12, 165:21,
---	--	--	---

PLANET DEPOS

888.433.3767 | WWW.PLANETDEPOS.COM

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

308

<p>169:13, 169:20, 170:3, 170:10, 171:2, 171:16, 172:5, 173:4, 174:2 already 110:4, 196:22, 212:19, 244:15, 260:19 also 6:22, 8:12, 23:3, 23:9, 23:11, 33:18, 56:6, 57:16, 63:14, 83:13, 84:9, 86:10, 91:12, 98:7, 115:3, 116:8, 142:22, 146:13, 146:14, 151:22, 152:2, 163:19, 180:12, 182:12, 189:22, 190:14, 210:10, 225:7, 228:8, 229:5, 229:12, 230:15, 239:8, 247:19, 263:15, 263:22, 264:6, 265:10, 273:7, 275:2 alternating 46:7, 104:8, 129:9, 145:13 always 241:11, 241:18, 241:19, 242:5, 242:11, 242:21, 243:4, 243:5 amount 109:22, 146:4 analogous 132:13 analysis 87:10, 93:20, 115:10, 174:20, 205:22, 207:10, 207:15, 212:1, 225:17, 228:15,</p>	<p>228:17, 228:21, 229:11, 230:22, 231:18, 232:14, 259:15, 277:22 analyze 28:21 analyzed 118:21 analyzing 75:19, 76:1, 76:8, 76:18, 116:17, 119:14, 137:12, 163:13, 163:18 anatomy 72:1, 126:5 andy 189:14 angle 62:3 animal 75:11, 75:15, 76:10, 76:11, 77:1, 85:4, 85:5, 87:2 annotate 43:2 annotated 175:4, 178:6, 178:7, 185:7, 193:10, 193:13, 199:14, 209:18, 209:20, 210:3, 272:4, 272:7, 272:13, 273:4, 273:10, 273:19, 276:11, 276:17, 277:12 annotations 262:7, 262:9, 274:6, 281:8 anode 241:18 another 39:12, 57:11, 63:17, 64:10, 89:4, 129:12, 137:9, 140:7,</p>	<p>145:6, 170:8, 190:7, 223:16, 242:12, 262:17, 273:2, 273:14, 278:15, 279:1, 284:9 answer 10:19, 10:20, 10:21, 11:5, 11:10, 42:19, 103:13, 161:11, 176:4, 230:4, 230:13, 231:10, 233:10, 234:10, 264:3, 266:17, 285:8 answered 212:19 answering 11:6 answers 303:4, 303:7, 303:15 antecedent 172:15 anticipated 51:9, 113:14, 303:14 anticipates 114:8, 114:19 anticipation 113:11, 114:15 anybody 31:15, 32:6, 38:11, 38:16, 38:22, 39:3, 40:16, 299:21, 300:19, 303:2, 303:5, 303:8 anyone 36:18, 38:5, 38:8, 38:14, 38:19, 160:1, 194:21, 295:12 anything 25:9, 31:12, 36:9, 36:11, 41:21, 42:2,</p>	<p>42:6, 51:10, 79:22, 82:21, 95:19, 95:22, 148:7, 187:11, 191:1, 193:2, 218:12, 227:3, 227:15, 246:5, 296:7, 303:17 anyway 137:17, 204:21 anyways 154:8 anywhere 46:12, 165:22, 279:18, 280:5 apart 158:5, 158:7, 255:19 apologies 177:6 apoptosis 147:8, 147:19, 148:1 apparatus 165:17, 263:11 apparent 114:5 appeal 1:2, 2:2, 3:2, 4:2 appear 46:12, 46:16, 118:7, 165:22 appearances 8:8 appeared 30:18 appearing 8:9 appears 45:19, 169:14, 214:5, 228:14, 252:21, 283:5 appendices 37:20 appendix 166:17 applicable 225:7, 225:9,</p>
--	--	---	---

PLANET DEPOS

888.433.3767 | WWW.PLANETDEPOS.COM

<p>293:22 applicant 161:14 application 157:22, 165:16, 166:4, 166:7, 166:22, 167:5, 167:12, 167:17, 168:10, 168:16, 170:14, 171:4, 171:5, 173:6, 173:7, 173:12, 173:20, 174:10, 174:15, 174:21, 181:11, 182:22, 199:21, 236:1, 263:12, 263:17 applied 46:7, 83:6, 83:11, 83:20, 123:10, 123:11, 180:9, 234:2, 264:14, 288:6, 288:9, 288:22, 289:14, 290:1, 290:5, 290:20, 291:9, 291:15, 292:15, 292:21, 293:7, 294:13, 298:1 applies 141:8 apply 62:18, 116:18, 188:17, 191:1, 296:17, 297:1 applying 75:18, 82:11, 151:12, 152:17, 154:13, 154:19, 155:5, 155:10, 206:9, 215:19, 233:2, 234:13 apposition 269:9, 269:10 approval 51:22, 56:12 approved 54:17, 55:5,</p>	<p>55:7, 138:3, 138:6 approximately 11:15, 11:21, 14:21, 16:16, 21:16, 26:15, 28:7, 33:10, 33:22, 34:4, 34:9, 34:12, 48:14, 50:22, 51:13, 51:17, 51:18, 56:10, 64:18, 65:21, 81:1, 87:7, 90:2, 90:17, 109:14, 220:12, 221:2 araj 6:17, 8:11 araj@gtaw 6:21 arc 179:10 area 91:16, 113:2, 159:15, 159:17, 278:16 areas 106:22 aren't 121:1, 204:10, 219:12, 269:18 argue 197:6, 250:16, 250:18, 255:8 around 90:7, 138:10, 150:7, 180:9, 188:5, 188:9, 190:4, 211:11, 217:15, 218:4, 232:19 arranged 108:9, 108:15, 108:21 arrangement 60:2, 106:8, 107:8, 111:13,</p>	<p>111:19, 111:22, 112:7, 208:10, 208:11, 208:13, 208:17, 208:21, 269:5, 270:5, 281:16, 288:4, 291:1, 291:11 arranging 288:3 array 59:12, 59:17, 59:20, 59:22, 105:15, 105:16, 105:19, 202:17, 203:1, 203:18, 208:2, 208:5, 208:8, 208:17, 208:20, 208:22, 209:4, 224:17, 241:15, 252:18, 256:9 arrays 106:21 arrow 274:19 arrows 211:6 art 35:5, 35:6, 35:10, 35:16, 35:17, 113:16, 113:19, 114:3, 114:6, 114:8, 114:10, 114:13, 114:19, 115:16, 115:20, 117:4, 117:11, 117:18, 117:21, 118:9, 118:21, 120:16, 121:6, 122:1, 122:9, 163:10, 186:4, 186:7, 186:12, 187:15, 195:19, 197:9, 197:18, 199:4, 222:20, 227:7, 233:22, 295:13 arts 141:21, 142:4</p>	<p>aside 75:10, 284:8 asked 26:1, 41:22, 57:2, 75:21, 178:22, 179:22, 185:8, 256:11, 256:17, 291:20, 303:5 asking 176:17, 176:18, 186:17, 187:19, 209:11, 244:1, 249:14, 249:17, 249:21, 250:1, 250:12, 253:2, 256:1, 272:18, 273:3, 273:18, 274:7 aspect 20:14, 22:13, 123:7, 157:5, 206:20, 271:5, 271:10 aspects 72:1, 225:9, 226:8 asserted 114:12, 153:9, 153:20, 154:2, 154:13, 154:19, 155:5, 155:10, 155:17 asserting 114:7, 114:18 assign 100:7, 100:9, 100:10 assigned 100:4 assignee 167:15 assigning 100:18 associated 37:20 assume 11:6, 119:15,</p>
--	--	--	--

195:21, 197:21, 214:13, 216:8, 217:13, 217:14, 257:1, 279:3, 279:13, 280:18, 281:14 assumed 207:13, 210:22, 211:15 assuming 12:21, 20:13, 63:11, 89:19, 93:7, 151:6, 195:9, 215:22, 216:3, 281:7 assumption 213:12, 214:16, 217:17, 218:3, 280:22 assumptions 218:1 atraumatic 59:13 atraumatically 61:1 attached 7:7, 37:11 attend 9:11 attention 36:22 attest 172:2, 173:16 attesting 13:16, 13:17 attorney 32:4, 32:5, 304:22 attorneys 18:22, 34:11, 34:18, 35:2, 35:3, 36:16, 36:19, 38:6, 38:9 authenticating 13:19 authority 138:4	available 98:5 avenue 5:6, 6:18 aware 118:6, 169:12, 169:16, 173:5, 173:7, 173:11, 236:14, 248:18, 298:16, 299:1, 299:7, 299:12, 299:21, 300:19 away 301:18 axis 180:11 <hr/> B <hr/> b-e-a-u-d-e-t 101:20 b2 1:7, 2:7, 3:7, 4:7 bachelor 46:18, 120:5, 120:20, 122:11, 122:12, 141:5, 141:17, 142:3, 142:13, 143:2, 143:13, 144:15, 144:16 bachelor's 79:20, 90:14, 90:18, 91:2, 91:10, 92:17, 141:1 back 16:20, 19:3, 19:14, 26:22, 32:13, 34:9, 36:9, 62:8, 75:20, 77:16, 83:21, 84:20, 88:1, 90:13, 94:4, 98:16, 99:14, 101:8, 105:7, 105:22, 108:3, 116:4,	116:21, 119:10, 119:18, 125:1, 128:8, 129:21, 133:11, 134:21, 137:15, 137:18, 139:10, 144:11, 145:17, 147:20, 149:10, 155:15, 158:20, 168:21, 170:2, 171:3, 171:15, 175:2, 176:3, 177:8, 178:6, 180:13, 182:15, 185:7, 197:5, 199:13, 200:14, 222:13, 228:17, 232:21, 233:21, 239:1, 251:9, 258:16, 263:4, 263:19, 276:10, 277:7, 287:21, 301:1, 303:20 background 37:8, 85:10, 85:12 bad 271:20 baker 35:11, 152:21, 154:12, 154:17, 154:19, 155:5, 155:10, 167:16, 168:7, 168:13, 168:17, 173:6 balloon 129:3, 298:6 barring 296:3 based 173:1, 179:16, 197:9, 211:15, 212:4, 257:18, 257:19, 284:16, 294:17, 296:3, 296:5 basically 57:7, 104:8,	106:22, 147:9, 148:12, 149:19, 213:1, 242:4, 251:17, 263:11, 279:14, 282:2, 291:10, 291:15, 293:4 basis 172:15, 237:5, 292:19, 294:10, 294:19 battery 104:5 beaudet 101:19, 101:20, 102:5 became 68:10 because 8:20, 10:22, 25:4, 30:12, 61:14, 86:20, 131:16, 132:2, 151:5, 180:18, 187:8, 188:15, 206:7, 207:5, 213:19, 226:3, 241:8, 249:16, 255:18, 256:3, 256:5, 258:2, 260:2 become 146:14, 159:21, 254:13 becomes 151:10 been 11:13, 11:15, 13:16, 14:3, 14:6, 16:14, 16:16, 17:2, 23:22, 27:8, 31:1, 31:10, 37:16, 44:6, 51:21, 56:11, 65:21, 67:15, 74:12, 75:14, 76:19, 83:20,
---	---	---	---

84:21, 86:17, 87:18, 88:8, 114:16, 145:3, 145:4, 150:17, 152:20, 162:19, 164:4, 168:22, 188:14, 193:19, 193:20, 220:10, 220:11, 232:19, 268:2, 291:20, 294:20, 298:12, 298:13, 298:17, 301:16 before 1:2, 2:2, 3:2, 4:2, 8:20, 11:13, 11:16, 11:19, 11:22, 14:4, 14:7, 14:10, 14:12, 14:16, 14:18, 15:15, 32:18, 39:13, 56:15, 65:5, 80:11, 82:7, 99:11, 99:14, 107:1, 117:10, 117:13, 137:16, 142:21, 149:3, 150:5, 150:16, 152:8, 164:21, 175:17, 193:19, 215:7, 224:22, 242:15, 256:17, 263:19, 268:6, 270:11, 272:19, 278:17, 294:22, 300:13, 302:20, 303:18, 304:8, 304:9 began 56:15, 68:2 begin 65:18 beginning 65:22, 68:9, 144:12, 156:6 begins 171:17	behalf 5:3, 6:1, 8:9, 8:16, 12:22, 16:4, 16:8, 17:5 being 8:4, 13:8, 23:14, 23:21, 26:2, 27:7, 63:7, 76:14, 76:16, 78:12, 78:16, 83:5, 91:7, 92:12, 115:16, 158:4, 208:9, 235:4, 263:13, 281:10 belabor 143:12 believe 8:10, 15:7, 17:3, 17:11, 17:18, 19:4, 19:13, 25:1, 25:16, 26:17, 27:11, 28:5, 28:6, 28:12, 30:22, 33:3, 38:3, 39:20, 48:12, 63:20, 64:16, 65:22, 68:7, 81:3, 86:2, 87:11, 94:13, 103:6, 103:7, 103:10, 103:22, 112:15, 119:3, 119:11, 122:14, 125:2, 155:3, 165:1, 178:18, 190:17, 192:10, 194:17, 195:18, 196:16, 210:2, 229:16, 231:5, 237:1, 241:8, 270:4, 278:5, 282:11, 285:14, 286:14, 301:10, 301:14, 302:15 below 52:17, 272:11,	276:15, 276:21, 277:12 ben 8:8 benefit 115:6 benign 79:11, 85:20, 86:5, 86:9 benjamin 6:10 besides 127:10 best 10:20, 16:12, 16:19, 66:22 bet 298:17 better 271:11 between 15:11, 84:1, 114:15, 118:5, 120:22, 131:6, 137:5, 145:14, 150:3, 150:21, 151:14, 159:6, 159:7, 235:4, 236:5, 238:17, 238:21, 242:15, 246:3, 246:16, 246:19, 254:22, 259:3, 260:20, 271:6, 271:14, 271:17, 281:1, 282:3, 282:7 beyond 24:9, 129:7, 140:17, 182:12, 227:18 bias 115:10, 116:22 big 159:12, 279:10, 279:13, 279:22, 280:5 biocompatible 187:16	biological 151:7, 151:21, 152:2, 152:4 biomedical 82:22, 87:12 bit 19:3, 20:17, 56:13, 57:16, 85:16, 91:5, 111:17, 124:9, 129:21, 147:1, 171:3, 185:9, 187:1, 209:10, 214:11, 216:7, 217:12, 217:22, 232:20, 245:7, 250:22, 261:22, 266:19, 269:3, 296:22 blah-blah-blah 165:16 blockage 150:18 blood 91:20, 93:3, 126:5, 138:9, 138:19, 139:6, 304:21 blowing 83:3, 139:8 blue 210:11, 210:13, 211:5 blush 30:12 board 1:2, 2:2, 3:2, 4:2 body 74:13, 82:11, 82:12, 82:21, 84:4, 91:16, 92:22, 93:4, 93:5, 130:16, 134:9, 134:16, 151:8, 198:8, 295:3, 295:21 boil 150:1
---	--	--	---

boiling 149:22 bonded 60:11 bone 49:22, 296:4 bones 135:6 bony 135:4 boston 1:13, 2:13, 3:13, 4:13, 5:15, 47:21, 71:21, 80:14 boston-based 80:13 both 8:12, 9:12, 83:12, 105:18, 111:18, 121:9, 133:5, 133:17, 133:18, 141:6, 141:8, 150:8, 159:18, 183:15, 190:9, 192:2, 201:22, 220:11, 226:1, 247:9, 248:6, 252:21, 263:11, 288:17, 288:18 bottom 78:17, 78:20, 115:1, 193:11, 211:5, 211:8, 236:21, 269:14, 269:21, 278:8, 278:20 bought 88:9 bound 275:19 bowel 110:19 brachytherapy 50:19, 50:20 brain 50:19, 295:5	break 11:8, 11:11, 67:17, 111:9, 111:17, 113:4, 125:13, 145:7, 146:18, 148:5, 164:1, 209:10, 217:22, 248:14, 248:16, 250:21, 302:14, 302:20, 302:22, 303:18 breaks 302:21, 303:1, 303:8 breast 50:19, 89:12 brief 80:8 briggs 6:3, 8:11 briggsh@gtlaw 6:7 bringing 36:21 broad 53:2, 57:4, 57:17, 236:14 broader 267:15 broadly 205:1, 297:7 brock 1:22, 2:22, 3:22, 4:22, 304:3, 305:12 broken 146:19 budget 53:6, 53:12 build 237:10 building 33:17 bullet 52:5, 52:19 business 53:4, 53:13, 55:22, 57:19	butcher 109:3 buys 52:12 <hr/> C <hr/> c-o-s-t-e 153:2 c-y-t-y-c 58:11 calendar 30:17 california 12:10, 21:15, 57:22 call 59:20, 140:10, 148:20, 148:21, 151:20, 158:19, 165:1, 196:8, 270:19, 271:1, 276:7, 294:2 called 49:1, 54:13, 54:16, 58:7, 59:8, 69:3, 69:11, 79:9, 80:10, 80:19, 81:22, 83:4, 89:7, 92:13, 137:14, 140:5, 140:8, 147:8, 148:10, 148:14, 203:15, 205:8, 242:17, 242:19 calling 198:1, 265:20, 274:20 calls 294:5 can't 97:12, 147:9, 166:9, 167:10, 167:11, 172:2, 173:16, 176:22, 181:7, 183:18, 247:9, 268:15 cancer 79:16, 89:6	candidate 187:13 cannot 168:1, 227:19 capability 247:8 capable 205:19, 246:22 car 83:2, 83:3, 207:7, 207:8 carbonization 148:1 carbonize 147:16 cardiac 79:8, 81:5 care 71:2 career 140:3, 199:5, 220:18 carried 91:12 carry 227:13 cases 24:16, 24:17, 25:20, 26:8, 26:12, 26:18, 26:22, 31:2, 31:3, 75:18, 76:17, 77:2, 77:3, 84:7, 147:18, 147:19, 182:9 catheter 79:8, 80:5, 80:18, 81:2, 81:14, 81:16, 84:20, 88:2, 88:11, 95:16, 180:8, 180:10, 180:11, 181:5, 191:3, 191:5, 194:9, 195:3, 195:9, 195:10, 195:22, 196:1,
--	---	---	---

<p>196:22, 197:11, 197:21, 198:2, 198:14, 198:20 catheters 188:15, 213:4 cathode 241:19 cause 62:21, 110:2, 127:14, 127:15, 127:21, 127:22, 219:7 caused 155:18 causes 29:1, 126:9, 202:12 causing 133:6, 205:20 caution 18:21, 34:17, 35:1, 36:14 cavities 93:4, 93:5, 112:17, 198:8 cavity 63:6, 63:8, 63:9, 63:12, 175:14, 175:21, 176:1, 177:10, 177:16, 177:19, 178:5, 292:17, 293:1, 293:9, 293:13, 294:3, 294:6, 294:14, 298:9, 298:20, 299:3, 299:9, 299:14, 299:18, 300:1, 300:5, 300:16, 300:20 cell 84:7, 84:8, 146:8, 146:10, 146:15, 147:8, 147:9, 148:6, 148:12, 149:4, 149:5, 149:8, 150:6</p>	<p>cells 83:8, 83:21, 84:1, 84:5, 84:17, 84:18, 146:6, 146:12, 146:13, 146:14, 147:5, 148:5, 148:9, 149:13, 149:19, 149:20, 150:4, 150:8, 151:5, 151:19, 300:11, 300:13 cellular 110:3, 148:6, 148:20, 149:2 celsius 81:20 center 89:7, 269:19, 269:21 centimeter 158:4 certain 13:18, 53:13, 62:19, 84:10, 109:22, 110:2, 110:22, 112:17, 146:4, 254:9, 254:12, 254:17, 255:14, 256:12, 257:7, 265:14, 266:2, 266:8, 266:13, 295:21, 296:10, 296:11, 300:10 certainly 35:10, 57:19, 272:17, 297:5 certificate 304:1 certified 304:3 certify 304:5, 304:12, 304:15, 304:20 cervix 61:2 cetera 133:22, 177:17,</p>	<p>178:1, 302:22 chalk 248:11 challenged 301:10 chambers 81:15 change 112:20, 181:6, 200:17, 201:8, 201:12, 202:4, 202:12, 216:7, 217:12, 245:6 changed 45:5, 59:13, 59:16, 112:15 changes 59:14, 200:21, 212:1 changing 104:9, 201:18 channels 233:4, 234:15, 258:8, 258:11 char 147:16 characterization 9:21 characterize 86:22 charge 104:11 check 22:14, 24:9, 99:5 chemical 148:8 choice 263:12 chronic 161:3 churchill 101:19, 102:4 circle 178:19, 208:15, 226:17, 263:8, 279:10, 279:14, 279:17, 279:20,</p>	<p>280:1, 280:7, 290:4, 290:8, 290:10, 290:19 circled 180:14 circles 178:8, 279:21 circuit 156:22, 227:19 circuits 248:8 circumference 180:10, 188:6, 188:10, 218:20 cite 155:18 cited 166:11 cites 202:17 civil 122:17, 122:18, 143:3, 143:4, 143:13, 143:14 claim 113:14, 113:15, 163:7, 163:14, 163:19, 190:10, 190:14, 191:21, 191:22, 192:1, 200:15, 200:16, 202:16, 203:18, 206:9, 208:1, 228:15, 228:17, 228:21, 229:3, 229:11, 230:21, 231:18, 232:14, 233:11, 233:12, 233:13, 234:18, 239:2, 239:4, 239:8, 243:9, 248:18, 248:21, 249:4, 249:11, 249:12, 249:22, 251:19, 252:12, 252:13, 256:8, 257:14, 257:17, 258:3, 258:6,</p>
---	---	--	--

<p>267:5, 292:3, 292:4, 292:8, 301:2, 301:3, 301:6, 301:10, 301:11, 301:13 claim's 206:22, 257:14 claimed 118:16, 150:16, 200:3, 200:11, 233:7, 233:17, 234:5, 269:6 claims 114:8, 114:12, 114:19, 115:21, 116:3, 116:12, 116:19, 117:3, 124:10, 124:15, 204:2, 205:22, 292:1, 301:22, 302:5, 302:7 clapping 247:18 clarification 11:5 clarify 8:20, 58:9, 128:12, 134:13 clean 38:1, 38:3 clear 13:21, 29:2, 106:18, 153:19, 155:4, 155:9, 161:16, 173:11, 184:19, 190:6, 213:11, 218:21, 220:21, 225:17, 228:1, 228:14, 228:20, 253:13, 257:10, 266:11, 287:3 clearance 137:9 cleared 138:3, 138:7 client 93:18</p>	<p>clinic 131:10 clinical 53:14, 63:5, 73:8, 73:13, 73:18, 74:18, 74:21, 74:22, 75:6, 75:9, 75:16, 77:3, 94:13, 94:16, 119:21, 122:5, 122:7, 123:14, 144:19, 152:16, 157:21, 160:1, 296:2, 296:11 clinically 83:20, 152:16 clinician 160:4 clock 30:17 close 62:20, 110:14, 110:15, 157:18, 159:18, 159:19, 160:10, 160:20, 161:2, 255:1, 256:4, 259:20, 261:13, 264:5, 266:2, 266:8, 266:13 closed 68:7, 203:5, 254:17, 255:4, 255:14, 256:13, 257:7, 259:2, 261:14, 264:21, 265:2, 265:9, 265:15 closer 78:6, 242:18 closing 254:3, 254:9, 254:13, 256:19, 258:20, 259:10 co-development 66:4 coagulator 54:10, 54:20,</p>	<p>55:3, 55:11, 55:18, 56:2, 62:9, 63:1, 64:18, 65:9, 67:9 cognizant 132:10 cohen 5:5, 8:18, 145:4 cohen@wilmerhale 5:9 cold 81:9, 82:3, 82:4, 82:10 collaborated 15:21 collaboration 89:5 collagen 84:6, 84:9, 84:12, 146:11, 146:13, 146:16, 146:18 collagens 149:6 collapse 61:8 collapsed 180:19, 181:2, 182:11, 182:18, 184:3, 184:7, 184:14, 184:21, 185:4 collapsible 182:9, 183:2, 183:8, 183:14, 184:1 collect 92:18 colorado 6:5 column 105:2, 105:18, 165:4, 165:8, 169:1, 169:3, 169:5, 169:20, 170:19, 171:12,</p>	<p>172:9, 172:14, 172:16, 177:14, 205:5, 238:15 com 5:9, 5:17, 5:18, 6:7, 6:14, 6:21 combination 114:13, 144:5, 223:11, 228:19, 229:5, 229:11, 229:12, 232:13, 242:2 combinations 230:20, 231:17, 263:18 combine 223:17, 225:11, 225:14, 228:22 combined 222:18, 226:1, 228:9 combines 232:5 combining 196:10, 196:17, 221:5, 222:4, 225:18, 228:3, 229:18, 230:6, 230:14, 230:15, 232:3, 232:9 come 186:7, 189:21 comes 10:6, 144:2, 158:17, 198:16 coming 111:8 commencement 304:8 commencing 304:18 commercial 237:8 commercialization 51:12 commercially 51:10, 98:4</p>
--	---	---	---

commission 305:7 commits 147:10 common 115:12, 187:8, 187:9, 188:15, 234:1 commonwealth 304:4 communications 18:22, 34:18, 35:2, 36:15 company 49:1, 52:12, 52:15, 55:6, 55:12, 58:7, 64:10, 64:13, 66:5, 66:13, 66:20, 69:3, 69:11, 79:9, 80:10, 80:13, 80:15, 80:19, 85:12, 86:20, 87:20, 88:8, 94:15, 94:18, 102:1, 112:18 compare 92:19, 250:11, 253:2 compared 106:14, 291:1, 291:11 comparing 141:4, 250:3, 250:9, 291:10 compensate 139:13, 143:8, 295:14, 295:17, 295:19 compensates 143:9 compensation 100:17, 100:21 competent 138:3 complete 268:15	completed 151:4, 156:22 completely 213:11 complex 147:2 complicated 189:4, 224:1 components 206:2 comprise 200:7 compute 91:6 computer 122:21 concept 104:11 concepts 52:15 conceptus 12:20, 13:9, 20:1, 26:18 conclude 216:18 condition 63:5, 160:18, 296:2 conditions 186:19 conducting 129:2 conduction 128:18, 298:4 conductivity 295:17, 295:18 conductor 298:3 conducts 187:12 confer 123:6, 277:1 configuration 106:12, 106:14, 107:22, 108:14, 111:3, 112:4, 156:7, 157:19, 158:12, 158:17,	182:8, 184:15, 200:17, 200:18, 200:22, 201:9, 201:12, 201:13, 202:13, 224:2, 224:8, 224:14, 225:1, 225:5, 228:10, 241:17, 242:13, 272:22, 274:14, 274:15, 274:17, 278:4 configurations 109:4, 223:22, 281:12 configure 224:5 configured 200:17, 201:8, 201:11, 210:17 confine 51:15 confirm 8:22, 164:12, 167:4 conform 62:7, 137:8, 190:22 confused 203:18, 252:11 conjunction 92:13, 243:1 connected 258:11 connection 162:12, 257:12 connections 257:19, 258:1 connectivity 246:3 connects 192:11 consider 82:4, 142:9, 160:5, 259:13, 269:1, 269:17, 270:2 considered 36:12, 82:17,	140:9, 167:1, 209:3, 212:7, 270:6, 270:16 considering 115:4, 129:7, 186:13, 196:21 consist 84:5, 206:16 consistent 207:14, 238:10 consists 149:3 constitute 271:15 constraints 136:10, 139:1 construction 191:13 consult 178:15, 178:16 consultant 79:8, 80:9, 80:19 consulting 47:14, 47:18, 85:13, 93:19 contact 61:9, 62:15, 81:21, 156:21, 157:1, 175:14, 215:6, 215:10, 215:20, 216:2, 217:8 contacted 156:9 contacting 175:21, 177:19, 189:10, 189:12, 215:12, 217:5, 298:2 contacts 156:19, 260:21, 297:8 contend 238:22 content 18:21, 150:1 contents 34:17, 35:1,
---	---	---	---

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

316

<p>36:15 context 15:2, 15:3, 166:12, 166:16, 167:7, 167:8, 190:20, 191:10, 192:7, 192:11, 208:6, 209:4, 239:12, 240:1, 240:10, 240:15, 244:3, 244:12, 267:9, 267:17, 268:12 continue 9:9, 147:9, 201:6 continued 88:9, 90:5, 97:13 continues 160:18, 197:22 continuing 152:19 contraception 54:15 control 16:12, 109:8, 110:10, 222:2, 224:11, 225:16, 228:12, 263:13 controlled 16:8, 281:11 controlling 226:12, 263:15 convenient 193:1, 198:20 conversation 40:3, 40:7, 40:17, 40:21, 42:4, 42:9, 42:15, 80:3, 206:20, 296:18 converted 125:17, 126:8, 132:4, 132:11, 132:16, 132:17, 132:18, 133:1, 133:2, 133:13,</p>	<p>133:15, 297:9 cool 81:19 cooled 147:20 cooling 298:3 copies 38:1, 38:3, 43:4 copy 99:3, 116:7, 166:6, 166:7, 221:11, 235:2, 267:20, 267:21 corporation 67:22 correctly 18:13, 55:10, 80:17, 225:3, 254:11, 291:7, 293:9, 293:18, 301:12 costa 57:22 coste 153:2, 154:12 costly 99:20 cough 161:3 could 47:5, 51:10, 53:11, 54:5, 60:22, 62:17, 62:19, 75:10, 75:11, 75:12, 93:4, 120:20, 122:11, 122:12, 123:1, 129:8, 129:9, 129:17, 136:5, 138:18, 141:13, 141:14, 141:19, 141:20, 152:6, 158:4, 175:15, 182:11, 183:15, 183:16, 190:7, 191:1,</p>	<p>191:2, 191:3, 192:10, 195:2, 195:6, 196:7, 197:11, 197:14, 197:15, 205:2, 205:12, 206:4, 206:5, 208:14, 208:15, 212:11, 212:12, 217:20, 223:20, 224:5, 225:14, 241:17, 241:20, 241:21, 242:6, 243:13, 243:18, 243:20, 243:21, 244:20, 247:3, 250:16, 250:18, 260:22, 261:10, 263:20, 263:22, 264:4, 264:6, 264:20, 265:3, 265:6, 265:10, 266:6, 266:7, 270:6, 272:22, 273:2, 279:3, 280:2, 290:12, 290:13, 296:5, 296:9, 297:3, 297:16, 298:11, 299:11, 299:20, 300:4, 301:5 couldn't 181:5, 181:18 counsel 8:20, 9:11, 113:22, 114:1, 114:16, 302:18, 303:14, 303:17, 304:14 couple 8:19, 17:1, 35:12, 41:19, 55:7, 80:9, 105:8, 111:10, 162:21, 301:18 coupled 136:13 course 35:13, 187:7</p>	<p>courses 71:14, 72:12, 72:20 court 10:16, 10:22, 12:5, 12:6, 12:7, 12:9, 17:10, 19:17, 20:6, 20:8, 20:18, 20:19, 21:5, 21:11, 21:13, 22:4, 22:5, 22:11, 22:22, 23:15, 23:20, 23:22, 39:7, 175:7, 282:22 cover 18:8, 25:17, 103:4, 103:8, 103:10, 103:12, 219:20 covered 18:6, 95:16, 96:1, 199:3, 219:9 covering 22:13 covers 18:6, 18:15, 95:6 create 81:10, 81:22, 110:21, 148:10, 210:1, 213:3, 261:16, 272:22, 273:2, 284:1 created 62:16, 210:2, 213:1 creates 46:9 creating 149:14 cross 9:13, 303:12 cross-examination 9:16, 302:16,</p>
--	---	---	---

303:11 cross-reference 153:13 crr 1:22, 2:22, 3:22, 4:22, 305:12 cryoablation 81:22 cryocath 79:9, 80:7, 80:10, 80:19, 88:12, 95:16, 96:2, 96:14, 96:18, 297:19 cryogenic 79:7, 80:5, 80:18, 81:2, 81:9, 83:12, 84:20, 88:1, 88:11, 297:20, 297:21, 297:22, 300:15, 300:20 cryoguns 137:14 cuff 138:10, 138:20, 139:6 current 46:9, 57:19, 104:5, 104:8, 129:9, 129:10, 145:13, 156:7, 156:15, 156:17, 157:8, 158:17, 173:1, 227:13, 240:20, 241:2, 242:12, 243:20, 246:10, 254:21, 297:10, 299:5 current's 256:6 currently 47:13, 94:13 curve 62:4 curved 62:6	customary 101:1 customer 81:16 cut 213:3 cutler 5:4, 5:11, 8:15, 304:17 cv 47:8, 52:2 cycle 148:10 cytyc 58:9, 58:10, 58:11, 58:14, 58:15, 59:6, 65:4, 65:6, 67:22, 68:1, 68:3, 68:5, 68:13, 68:16 <hr/> D <hr/> d-e-l-g-a-u-d-i-o 39:8 damage 149:16 damaged 147:6 damages 149:13 damaging 150:3, 150:8 dana 89:6 daniel 101:19, 102:4 dashed 211:10, 212:5, 216:10, 216:20, 275:22, 280:22, 282:2 data 66:21, 75:19, 76:1, 76:9, 76:18, 92:19 date 40:1, 56:11,	116:6, 116:18, 118:17, 150:16 day 32:18, 305:5 day-to-day 55:20 days 147:20 dc 243:20 deal 68:8, 256:15 dealing 8:21, 90:14 death 147:9 decades 77:20, 78:6, 150:15, 237:7 declaration 9:17, 23:3, 24:3, 24:6, 37:7, 37:12, 41:16, 41:18, 41:22, 43:11, 43:12, 43:20, 43:21, 44:8, 44:9, 44:19, 44:20, 45:14, 45:21, 46:2, 46:5, 46:13, 47:6, 77:17, 98:17, 99:2, 99:16, 113:7, 116:9, 117:16, 118:13, 119:19, 139:11, 140:12, 145:10, 150:11, 154:9, 155:16, 155:19, 156:1, 163:3, 163:7, 166:18, 168:14, 168:18, 175:2, 178:7, 178:15, 185:8, 192:4, 193:10, 199:1, 199:3, 199:6, 200:13, 200:20,	201:3, 206:21, 208:1, 209:8, 209:15, 219:22, 221:4, 224:19, 228:1, 228:3, 229:4, 229:10, 229:17, 230:5, 231:6, 232:20, 233:20, 234:12, 236:4, 239:2, 240:6, 253:22, 256:17, 262:9, 263:5, 263:6, 264:8, 264:14, 266:20, 266:22, 271:22, 272:3, 276:11, 277:8, 277:18, 281:9, 287:21, 291:8, 291:18, 301:9, 302:8 declarations 9:1, 9:14, 23:6, 36:12, 37:20, 42:22, 43:3, 45:6, 45:8, 45:12, 45:20, 46:15, 118:6, 162:12, 196:9 deeper 110:17 default 262:21 defendant 13:6, 13:7, 17:13, 19:7 defendants 29:13, 29:17, 29:20 defending 27:6, 27:7, 27:12 define 53:4, 135:2, 138:2, 161:11, 201:22, 202:4, 244:20, 263:20,
--	--	---	---

<p>263:21, 263:22, 264:4, 264:6 defined 123:5, 152:15, 171:8, 204:14, 208:8, 278:13 defines 204:19, 205:2, 205:10 defining 122:15, 123:22, 125:5, 243:14, 255:21, 257:18 definitely 164:10 definition 117:17, 117:20, 120:22, 127:18, 127:20, 128:3, 129:18, 130:3, 130:6, 130:11, 130:15, 130:17, 241:6, 241:7, 263:19, 264:9, 265:21, 268:21, 271:3 definitions 118:4, 118:5 degree 46:18, 46:21, 120:5, 120:21, 122:14, 122:17, 122:18, 122:22, 139:22, 140:4, 140:6, 141:5, 141:6, 141:17, 141:19, 141:20, 141:21, 142:9, 143:3, 143:13 degrees 47:2, 121:1, 121:3, 121:4, 123:6, 142:4 delgaudio 39:7, 39:10, 39:11, 39:13, 39:16, 39:19, 39:21, 40:4,</p>	<p>40:5, 40:8, 40:9, 41:4, 41:13, 41:17, 41:22, 42:2, 42:5, 42:6, 42:10, 42:15 deliver 76:20, 120:1, 123:17, 124:17, 125:6, 125:7, 127:4, 127:11, 127:14, 127:18, 127:19, 128:5, 128:10, 128:13, 128:16, 128:17, 130:1, 144:21, 215:4, 215:5, 215:14, 215:16, 217:9, 227:13 delivered 129:17 delivering 127:21, 128:20, 132:17 delivers 73:7, 73:12, 73:17, 73:22, 74:4, 74:9, 74:19, 75:1, 75:22, 76:3, 76:7, 77:7, 77:12, 124:2, 125:3, 128:17, 128:19, 130:4, 130:9, 130:16, 130:21, 132:6, 134:20, 136:3, 137:20, 138:11, 138:15 delivery 157:6, 199:10, 199:18, 200:6, 200:10, 200:21, 201:11, 201:15, 201:18, 202:1, 203:1, 203:8, 204:15, 204:18, 204:22, 205:9,</p>	<p>205:10, 206:1, 206:15, 207:18, 214:21, 228:11 demarcating 274:6 denature 84:10, 146:5 denatured 146:14 denaturing 146:6, 146:21 denaturization 146:18, 148:4 densitometry 49:22 denver 6:5 depending 147:2, 149:21, 152:1, 244:20, 247:2, 261:12, 264:21, 265:2, 265:9, 278:13, 279:2 depends 143:20, 147:13, 151:11, 157:21, 224:5, 255:9, 255:17, 274:3, 296:2 depicted 106:8, 182:17, 183:6, 184:7, 184:9, 184:10, 186:14, 187:21, 188:8, 195:7, 213:15, 215:3, 224:7, 226:20 depicting 175:10, 175:20, 179:5, 182:5, 183:13 depicts 282:11, 285:14, 287:4 deployed 60:19, 61:3, 110:14, 193:19,</p>	<p>193:20 deposed 11:13, 11:16, 23:11, 23:14, 23:18, 23:19, 23:21, 26:2, 26:4, 28:2, 28:4, 30:2 deposited 131:22, 132:1 deposition 1:12, 2:12, 3:12, 4:12, 7:8, 9:5, 9:8, 9:12, 24:16, 31:13, 31:16, 32:8, 32:15, 34:15, 34:21, 35:7, 35:20, 36:1, 36:4, 36:7, 36:10, 36:19, 37:16, 37:22, 38:12, 38:17, 39:1, 43:1, 43:16, 44:3, 44:14, 45:2, 250:13, 283:5, 283:14, 284:1, 288:11, 295:20, 302:21, 303:21, 304:7, 304:9, 304:14, 304:15 depth 109:5, 109:6, 109:8, 109:16, 110:2, 110:5, 110:10, 110:21, 237:11 derived 100:12 describable 208:16 describe 62:2, 194:15, 195:17, 197:15 described 165:15, 170:13, 182:3, 182:19,</p>
---	---	--	---

188:14, 268:16, 292:14, 292:20, 293:6, 294:11 describes 177:13, 180:18, 183:11, 185:3, 224:10 describing 188:21, 189:1, 228:10 description 174:16, 179:14, 179:17, 181:10, 182:21, 185:2, 185:6, 227:19, 241:5, 268:20, 268:22, 271:20, 285:17 descriptions 118:3 descriptive 196:6, 271:4, 285:13 design 67:1, 71:22, 80:16, 85:3, 85:4, 95:12, 96:3, 96:6, 96:7, 96:14, 96:22, 97:4, 97:17, 98:7, 98:11, 119:21, 144:19, 183:1, 184:5, 197:4, 198:16, 227:19 designed 61:6, 62:6, 89:2, 89:3, 95:7, 97:21, 109:13, 110:21, 111:3, 139:7, 152:9, 181:2, 192:21, 199:5 designer 158:9, 183:1 designing 77:20, 96:18, 132:5, 137:5,	138:19, 220:4, 220:8, 220:22 designs 18:8, 66:22, 85:3, 85:8, 85:14 desire 242:2 desired 9:18 destroy 150:18 destroyed 300:12, 300:14 destroying 150:21, 151:15, 151:19, 151:21, 300:10 destruction 110:3 detail 194:8, 195:1, 197:8 details 222:9, 222:10, 227:16 determine 115:5, 126:8, 144:7, 144:8, 172:20 determined 281:12 develop 52:15, 53:5, 53:8, 53:12, 59:7, 66:14 developed 56:10, 57:13, 58:4, 59:5, 59:7, 79:5, 82:6, 86:19, 89:9, 97:10, 295:1, 295:12 developing 53:16, 55:8, 65:18, 77:21, 78:18, 92:9, 92:10	development 49:14, 52:7, 52:21, 53:6, 53:9, 53:15, 55:20, 56:12, 56:14, 57:10, 57:18, 65:15, 65:16, 66:7, 66:8, 66:10, 66:15, 66:17, 67:4, 79:7, 80:16, 92:7, 95:4, 119:21, 122:19, 139:2, 144:20 device's 28:21 devices 47:18, 48:6, 48:20, 49:5, 50:7, 50:11, 50:14, 51:4, 51:11, 51:19, 51:21, 53:21, 54:7, 54:22, 57:3, 65:11, 65:12, 68:13, 68:15, 68:16, 68:20, 69:7, 69:14, 69:20, 74:12, 74:14, 76:12, 76:19, 77:2, 77:21, 77:22, 78:3, 78:4, 78:10, 78:12, 78:18, 79:2, 79:3, 79:4, 85:4, 88:22, 89:10, 89:16, 89:20, 90:3, 90:9, 95:1, 95:2, 95:15, 95:18, 95:20, 97:18, 97:22, 98:4, 99:18, 99:21, 117:10, 117:13, 119:22, 120:1,	121:11, 123:17, 124:16, 125:6, 127:4, 127:11, 128:10, 128:13, 130:1, 137:17, 144:20, 150:17, 150:18, 157:3, 160:9, 184:9, 198:8, 199:5, 203:1, 206:1, 213:4, 220:5, 220:9, 220:19, 231:2, 231:20, 270:22, 292:16, 292:21, 293:7, 294:13, 295:1, 295:13, 296:16, 296:22, 297:1, 298:5 diagnostic 131:7, 131:9, 131:14, 131:18, 143:15 diagnostics 49:22 diagonal 208:15 diagonally 275:17, 276:2 diagram 107:7, 226:1 diametrically 151:18 die 147:7 differ 59:9, 106:14, 112:12 difference 51:6, 51:8, 59:11, 84:1, 114:14, 114:17, 137:5, 150:3, 150:21, 151:14, 159:6, 242:15, 260:19 differences 118:4, 118:5
--	---	--	---

<p>different 9:18, 18:7, 20:2, 37:12, 51:1, 51:14, 51:19, 61:15, 68:20, 74:12, 84:16, 99:18, 106:11, 113:2, 121:1, 121:3, 126:10, 126:13, 126:17, 126:21, 132:18, 132:19, 133:19, 134:8, 134:14, 135:9, 135:13, 135:17, 135:21, 148:5, 164:17, 184:10, 184:12, 186:22, 204:2, 204:10, 207:3, 223:22, 249:15, 249:16, 250:7, 250:14, 253:10, 266:20, 279:3, 281:6, 281:18, 295:9, 295:10, 296:12 differently 133:1, 133:14 differing 128:6 difficult 188:20, 198:21, 270:13 dimension 213:19, 219:8 dimensional 271:5, 271:9 dimensions 186:18 direct 104:4, 129:10, 243:20, 297:10, 299:5 direct-current 250:19 directed 205:15, 206:8 direction 219:7</p>	<p>directions 104:9 directly 107:20, 146:6, 146:7, 146:9, 215:6, 276:14, 276:21, 277:12, 298:4 discipline 122:13, 123:2 disclose 234:7, 235:6, 235:9 disclosed 237:21 discloses 226:9, 233:6, 233:17, 234:4, 235:8, 235:14, 237:17, 237:20, 238:5, 238:20 disclosure 236:14, 237:1, 238:10, 238:11 discovery 13:17 discuss 198:22, 303:1, 303:4, 303:7 discussed 79:4, 117:9, 129:15, 216:4, 237:16, 260:19, 272:19 discussing 68:21 discussion 138:1, 283:18, 302:13 diseases 72:13, 72:16 disorders 72:13, 72:17 disposed 189:3, 202:18, 203:3, 203:12, 203:20, 207:1, 215:1</p>	<p>disposition 165:15, 170:13 disrupt 84:9, 149:19 disrupting 83:9, 83:22, 84:2, 84:15, 151:6, 151:20 disruption 110:3 dissertation 79:14, 88:16 distal 192:12 distance 159:7, 242:17 distinction 253:12 distinguish 131:6 distribution 91:6, 131:12 distributions 93:21 district 12:7, 12:9, 17:10, 19:17, 20:6, 20:8, 20:17, 20:19, 21:5, 21:11, 21:13, 22:4, 22:5, 22:10, 22:22, 23:14, 23:20, 23:22 division 49:14, 49:22, 50:1, 50:3 divisions 49:17, 49:20, 49:21 divorce 12:5 doable 226:10 doctor 46:20, 70:2, 76:14, 120:5, 120:20, 121:13,</p>	<p>139:18, 141:6, 141:9, 141:11 doctoral 141:20 document 103:14, 164:21, 165:5, 268:6 documents 13:19, 34:14, 34:20, 35:2, 36:16 doing 9:19, 83:8, 107:12, 137:10, 145:2 dollar 101:1 dollars 101:2 done 15:18, 74:18, 74:21, 92:12, 298:12, 298:14, 298:18 dorr 5:4, 5:11, 8:16, 304:17 dot 279:22, 280:5, 282:3, 283:12, 283:22, 284:3 dots 61:17, 279:18, 279:21, 280:11, 280:17, 280:18, 280:19, 280:21, 282:8 dotted 211:19, 212:13 double-check 111:9, 164:8, 164:9, 166:10, 234:22 down 10:17, 10:22, 52:6, 52:19, 54:5, 55:9, 62:14, 62:18,</p>
---	--	--	---

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

321

81:20, 83:2, 111:17, 123:16, 125:13, 144:2, 146:18, 146:19, 148:5, 195:16, 198:16, 217:22, 219:19, 250:21, 273:11, 289:17, 296:21 dozens 74:11, 96:11 dr 8:22, 9:4, 9:8, 9:11, 9:13, 9:16, 10:10, 37:22, 38:1, 39:10, 39:11, 39:13, 39:16, 39:19, 39:21, 40:4, 40:5, 40:8, 40:9, 41:4, 41:13, 41:17, 41:22, 42:2, 42:5, 42:6, 42:10, 42:15, 67:20, 209:14, 248:18, 302:15 drafted 45:6 dramatically 112:12 draw 61:7, 107:6, 194:22, 275:22, 278:16, 278:18, 279:10, 279:17, 280:22, 282:2, 284:13, 284:19, 285:10, 285:18, 285:21, 290:12 drawing 7:10, 7:11, 7:13, 7:14, 107:4, 108:3, 108:6, 108:9, 179:3, 180:13, 183:3, 183:5,	183:22, 184:7, 184:13, 189:12, 194:20, 195:15, 198:6, 213:20, 216:17, 217:3, 262:19, 264:5, 278:17, 282:10, 282:11, 282:20, 283:1 drawings 184:20, 194:18 drawn 183:22, 216:13, 262:20 draws 194:21 drew 112:4, 112:22, 269:19, 269:20, 273:19, 279:4, 281:7, 285:14, 286:6, 286:12, 286:18, 287:1, 287:2, 287:4, 287:8, 287:13, 289:6, 289:12 drip 160:21 drive 83:2 drop 251:8 duly 8:4, 304:8 dumb 81:11, 93:6, 247:20, 248:1, 248:11 duplicated 22:16 during 19:18, 43:16, 44:3, 44:14, 45:2, 54:11, 66:6, 76:13, 76:16, 79:10, 143:21, 147:12, 148:3, 148:10,	149:16, 284:1, 302:21, 302:22, 303:8 <hr/> E <hr/> e-l-a-n-a 8:12 each 10:18, 12:3, 45:13, 104:12, 106:17, 113:15, 125:19, 132:15, 156:20, 157:16, 163:14, 163:19, 190:3, 211:6, 214:2, 243:1, 256:4, 274:8, 274:10, 279:20, 280:6 earlier 56:13, 68:21, 118:20, 170:19, 172:9, 185:9, 216:12, 237:16, 264:18, 296:12, 296:14, 296:16, 297:18 early 85:2, 85:8, 87:19, 88:8 easy 187:8, 188:16 educating 140:17 education 121:21, 122:3, 139:13, 139:16, 139:17, 140:2, 140:12, 140:20, 141:4, 141:10, 141:17, 141:22, 143:8, 144:1, 144:17 educational 140:10, 141:15 edwards 35:10, 35:11, 165:2, 168:21,	169:14, 169:19, 174:9, 174:14, 193:13, 193:16, 194:7, 194:8, 194:14, 194:17, 195:17, 196:10, 196:17, 196:21, 197:2, 197:5, 197:7, 197:16, 199:9, 199:15, 200:1, 200:2, 204:19, 205:1, 205:5, 205:10, 205:17, 206:5, 206:9, 209:21, 210:2, 212:8, 213:10, 213:11, 213:15, 214:19, 214:20, 216:4, 219:9, 219:19, 221:5, 221:8, 221:21, 222:5, 222:8, 222:15, 222:22, 223:12, 223:17, 228:20, 228:22, 229:18, 230:6, 230:9, 230:10, 230:11, 230:12, 230:14, 230:20, 231:1, 231:17, 231:20, 232:3, 232:5, 232:6, 232:7, 232:9, 232:13, 232:16, 237:1, 237:14, 237:20, 238:9, 238:13, 238:15, 238:22, 293:17, 294:17, 294:18 edwards's 195:10, 197:21 effect 147:19 effectively 61:20, 62:5, 62:16, 123:7, 123:11, 158:3,
--	--	--	--

PLANET DEPOS

888.433.3767 | WWW.PLANETDEPOS.COM

<p>191:2, 191:8, 193:3, 227:11 effectiveness 110:22, 136:10 effects 147:3, 149:21, 237:10 efforts 298:16 eight 33:12, 34:13 eighty-six 45:2 either 23:18, 27:10, 121:4, 193:21, 212:11, 219:10, 263:13, 273:15, 274:14 elana 6:17, 6:21, 8:11 electrical 104:1, 104:3, 104:11, 126:4, 126:11, 126:13, 129:5, 129:6, 129:8, 133:21, 134:2, 134:11, 134:14, 134:15, 135:6, 145:13, 156:19, 227:17, 257:12, 257:19, 258:1, 264:9, 264:15, 265:21, 295:3, 295:10, 295:16, 296:4, 296:5, 298:19, 299:2 electrically 62:20, 255:22, 264:1, 264:6, 266:10, 266:13, 272:20 electricity 62:15, 187:12 electrified 246:17, 247:1</p>	<p>electrocauterizi- ng 160:3 electrode's 241:19 electromagnetic 297:12 electrophysiology 181:5 electroporation 148:15, 148:18, 149:7, 149:9 element 113:15, 114:10, 200:4, 200:8, 200:11, 200:16, 201:22, 202:4, 202:19, 203:4, 203:16, 203:21, 204:3, 204:8, 204:11, 207:2, 207:3, 207:11, 207:16, 207:19, 224:12, 225:9, 301:11 elements 225:8, 226:22 elevated 146:4 elevating 146:2 elongated 191:13 else 40:16, 46:12, 61:17, 66:3, 79:22, 95:19, 95:22, 135:4, 148:7, 189:20, 194:22, 195:7, 197:7, 227:3, 227:15, 243:11, 296:7, 296:9 elsewhere 135:6, 197:19, 202:3, 295:9 emails 13:18</p>	<p>embodiment 169:6, 169:9, 170:8, 214:20, 228:9, 260:3 employed 68:22, 304:22 employee 20:1, 27:5, 68:10 employment 19:14, 100:10 encompasses 213:22 encountered 180:7, 212:22 end 65:22, 68:7, 80:3, 98:20, 147:17, 147:18, 174:2, 191:4, 192:12, 195:16, 198:7, 211:7, 218:22, 220:13, 266:21, 275:14, 293:1, 293:11, 294:14 ended 90:7, 94:4 ending 220:12 endometrial 22:13, 28:19, 29:3, 50:16, 54:17, 63:12, 109:10, 293:19 endometriosis 54:12, 63:5 endometrium 63:3, 63:6, 109:12 endoscope 29:11, 30:14 endoscopes 29:12 ends 178:2, 192:2 energies 129:14, 129:17,</p>	<p>296:17 energize 260:10 energized 61:10 energy's 132:16 energy-based 77:22, 78:2 engagement 94:3 engineer 82:20, 83:4, 126:3, 227:18, 294:22 engineering 46:19, 46:20, 46:21, 57:9, 82:22, 87:12, 120:6, 120:21, 122:12, 122:14, 122:17, 122:18, 123:4, 123:6, 123:7, 123:8, 123:10, 123:11, 141:5, 141:18, 142:4, 142:14, 143:3, 143:4, 143:13, 143:14 engineers 58:1, 58:3, 58:21 enhancement 141:15 enlarged 86:6, 86:10 enough 117:6, 159:20, 173:3, 235:3 ensuring 115:9 entered 284:2 entering 284:3 entire 34:8, 110:12 entirety 10:4, 13:14,</p>
--	---	---	--

174:11, 301:3, 301:6, 301:13 entities 16:12 entity 16:8 envision 218:18 equally 198:6 equipment 29:14 equivalent 253:21 error 45:19, 109:2 errors 45:8, 45:11, 45:17 especially 225:15 esq 5:5, 5:12, 5:13, 6:3, 6:10, 6:17 essentially 61:3, 61:4, 62:12, 159:21, 217:5, 218:14, 242:22, 245:14, 245:20 et 133:22, 177:16, 178:1, 302:22 evaluate 115:16 evaluated 115:19 evaluating 117:3, 117:11 even 15:6, 25:1, 29:10, 128:20, 147:20, 159:16, 186:13, 217:12, 248:6, 269:17, 275:16, 276:1, 278:6	eventually 138:6, 139:9 ever 14:3, 14:6, 14:9, 14:15, 15:18, 15:21, 16:3, 16:7, 16:14, 26:12, 31:10, 38:14, 38:19, 39:3, 40:5, 48:2, 48:5, 48:19, 71:17, 72:8, 72:12, 72:16, 73:2, 74:4, 74:18, 87:13, 88:3, 90:9, 91:8, 94:10, 95:7, 95:11, 148:14, 166:14, 166:15, 167:5, 167:11, 194:14, 219:1, 237:13, 298:8, 298:13, 298:19, 300:15, 300:19 every 10:17, 45:20, 75:13, 130:2, 295:4 everybody 302:15 everyone 99:20, 107:19 everything 11:1, 37:3, 293:21, 296:9 everywhere 135:4 exact 40:1, 116:6, 235:20 exactly 13:20, 21:18, 28:14, 41:2, 48:17, 123:19, 136:18, 140:19, 155:1, 159:16,	172:3, 222:4, 223:10, 234:7, 235:6, 235:9, 269:12 examination 7:2, 9:14, 10:8, 303:13 examined 8:6, 71:6 example 10:1, 105:2, 127:6, 128:11, 129:1, 129:13, 142:11, 142:12, 143:11, 147:5, 150:18, 152:7, 165:9, 165:10, 165:14, 166:17, 170:11, 170:12, 171:17, 172:3, 173:4, 202:9, 208:19, 220:3, 223:5, 231:13, 247:7, 267:14, 270:11, 279:4, 280:2, 288:3, 289:7, 289:12, 289:13, 297:6 examples 147:22, 148:2, 254:2, 256:18, 258:20 except 45:20 exception 45:13, 45:14 excluded 31:10 exhaustive 285:13 exhibit 7:9, 7:10, 7:11, 7:13, 7:14, 7:17, 7:18, 7:19, 7:20, 7:21, 43:10, 44:7, 44:18, 99:7,	99:9, 107:9, 164:4, 168:3, 168:6, 168:14, 168:22, 176:9, 221:13, 221:16, 268:2, 268:3, 283:1, 283:2, 283:4, 283:6, 283:7, 284:1, 284:2, 284:3, 284:6, 284:8, 287:19, 287:20, 289:7, 291:4, 291:5 exhibits 7:8, 7:16 existence 278:3 exists 46:5, 84:7 expand 112:18, 128:19, 181:18, 210:17, 213:13, 216:20, 218:7, 218:9, 218:13, 218:21 expandable 169:7, 169:10, 170:4, 170:18, 171:19, 172:1, 172:10, 172:14, 182:9, 183:9, 183:14, 183:16, 199:9, 200:3, 200:6, 200:9, 201:7, 201:16, 201:17, 201:22, 202:5, 202:11, 202:12, 203:3, 203:13, 204:15, 210:14, 210:16, 210:19, 213:6, 213:10, 213:16, 213:22, 214:6, 214:12, 214:14, 215:1, 215:17, 215:18, 216:8, 216:14, 216:19,
--	---	--	--

<p>216:21, 217:13, 217:16, 217:18, 218:2, 218:5, 218:7, 218:13, 218:15, 219:10 expanded 52:6, 175:14, 181:3, 182:2, 182:5, 182:12, 182:14, 182:18, 183:4, 184:1, 184:7, 184:14, 184:16, 184:17, 201:8, 202:11, 210:20, 211:1, 211:2, 212:9, 212:13, 212:14, 214:3, 214:13, 216:9, 217:18, 218:18, 219:10 expansion 219:6 expect 160:9 expedite 231:12 expensive 237:9 experience 72:8, 77:5, 77:20, 117:9, 117:12, 119:21, 120:10, 121:19, 121:21, 122:4, 122:20, 124:1, 124:6, 125:2, 125:6, 131:2, 136:6, 137:1, 138:19, 139:14, 142:5, 142:15, 143:5, 143:9, 143:10, 143:15, 143:20, 144:2, 144:16, 144:17, 144:19 experimental 93:19, 109:2 experimentally 109:3</p>	<p>experiments 85:6, 92:16 expert 13:3, 13:22, 16:14, 16:17, 16:21, 17:16, 17:17, 19:10, 19:11, 19:15, 20:21, 21:6, 21:9, 24:14, 24:20, 25:22, 26:13, 26:16, 27:2, 27:18, 27:21, 29:8, 29:21, 31:2, 31:4, 31:5, 39:12, 247:20 expires 305:7 explain 186:22, 204:6, 271:11 explained 110:4, 150:5, 195:1, 242:15, 294:22 exposing 147:14 expressly 225:22, 226:3 extent 21:4, 22:8, 25:19, 43:3, 55:16, 56:19, 57:6, 57:14, 76:18, 84:21, 86:16 exterior 92:21, 173:8, 173:13</p> <hr/> <p style="text-align: center;">F</p> <hr/> <p>fabric 61:4, 61:5 fabricated 60:10 face 216:16</p>	<p>facilitated 179:8, 185:17, 185:20 facing 189:16 fact 13:3, 13:4, 182:11, 185:19 fact-based 13:15 factors 126:7 fair 34:10, 73:6, 73:11, 73:16, 73:21, 77:6, 77:11, 82:15, 102:18, 111:2, 117:6, 130:20, 132:22, 133:12, 135:7, 136:15, 144:18, 157:8, 163:13, 170:3, 170:16, 171:17, 171:20, 172:13, 172:16, 173:3, 173:13, 173:18, 174:14, 174:16, 183:18, 186:11, 192:16, 192:17, 202:16, 234:6, 235:3, 236:11, 238:9, 240:22, 241:3, 265:14, 265:22, 266:14, 292:6 fall 129:16, 130:5, 130:10, 130:16 fallopian 50:17, 54:14, 63:22, 64:8, 110:15 familiar 39:6, 39:10, 132:7, 161:9, 180:1 familiarize 72:1</p>	<p>fan 60:20, 60:21, 61:3, 61:21, 61:22 fang 35:15 far 16:20, 26:22, 107:3, 109:17, 158:10, 255:19 farber 89:6 fashion 225:15 favor 224:18 fda 51:22, 54:17, 131:15, 137:8, 138:3, 138:7 fda-approved 51:16 fear 110:17 features 292:14, 292:20, 293:5, 294:11 february 64:16, 64:20, 68:4 federal 12:6 feel 61:14, 155:2, 235:1 fellowship 139:20, 139:21, 140:5, 140:14, 141:13 female 54:15, 89:12 few 36:22, 53:20, 53:21, 83:3, 99:21, 237:16 fiber 93:4, 205:2 fiction 45:16, 46:9,</p>
--	--	--	---

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

325

<p>46:10 field 82:8, 82:18, 83:7, 87:1, 121:10, 122:9, 163:9, 237:6, 288:12 fifth 276:14, 276:20, 277:11, 277:17, 278:2, 278:8 figure's 216:13 figures 200:1, 223:19, 223:21, 272:4, 273:19, 288:17, 288:18 filed 21:17, 29:9, 102:15, 102:18, 102:22, 165:17 fill 227:8 filled 280:1 final 181:11, 181:12, 181:15 financially 305:2 find 30:16, 131:10, 181:4, 185:6, 193:1, 235:20, 271:11 fine 24:18, 43:6, 78:9, 162:18, 209:12, 230:5, 248:15, 301:20 finish 10:19 firm 8:15 first 8:4, 8:21, 14:21, 15:3,</p>	<p>15:8, 16:21, 17:1, 17:4, 19:17, 26:21, 27:1, 28:20, 30:12, 53:18, 56:10, 77:18, 101:18, 108:6, 145:11, 163:6, 199:7, 200:12, 200:17, 200:21, 201:2, 201:7, 201:8, 201:12, 202:13, 233:1, 292:13 first-named 102:12 fits 285:17 five 51:17, 109:14, 113:4, 153:19, 154:11 fixed 182:8, 183:7, 183:13, 183:17 flakes 83:3 flip 47:8, 153:12, 155:22, 209:7, 236:20, 292:11 flipping 77:17, 150:10, 163:2, 219:21, 261:21 flow 46:9, 91:21, 93:3, 126:5, 156:20, 156:22, 242:12, 246:10, 246:16 flowing 246:19, 254:22, 256:6 flows 156:8, 156:15, 157:9, 158:18, 158:20, 240:21,</p>	<p>241:3 fluid 129:3 focus 23:21, 77:21, 154:8, 225:8 focused 79:15, 217:2, 293:11 focusing 40:7, 91:16, 190:1, 239:21, 293:15 folded 60:22 follow 242:3 followed 28:21 following 178:21, 181:7, 240:4, 240:5, 291:21 follows 8:6 forget 86:20 formal 70:9, 121:21, 122:3 formed 254:17, 255:14, 256:12, 257:6, 262:17, 262:18 former 141:14 forms 83:7, 146:16 formula 144:7 formulated 52:20, 55:21 formulating 42:10, 42:16 forth 133:11, 304:7 forward 19:2, 19:9,</p>	<p>24:11, 24:19, 25:7, 29:5 found 63:6, 63:7 foundation 24:1, 61:18, 64:11, 65:20, 67:6, 96:15, 111:6, 116:5, 116:15, 137:21, 151:1, 169:22, 173:9, 173:15, 173:21, 174:12, 174:18, 174:22, 179:6, 180:16, 185:5, 187:5, 188:11, 194:11, 194:16, 195:12, 197:3, 201:1, 201:14, 202:6, 203:10, 206:13, 211:17, 228:5, 231:3, 252:4, 275:3, 277:19, 281:2, 281:20, 282:13 founders 80:13, 85:11 foundry 4:8, 8:10, 14:7, 14:16, 14:18, 14:22, 15:9, 15:14, 38:22, 39:4 four 8:21, 9:1, 9:5, 10:4, 11:17, 16:18, 32:10, 32:17, 34:7, 37:21, 42:21, 45:6, 51:17, 59:19, 60:5, 61:20, 109:14, 118:6, 131:3, 136:7, 138:20, 162:22, 178:8, 178:11, 180:14, 185:10, 185:12,</p>
---	---	---	---

186:14, 189:3, 189:5, 189:14, 210:4, 210:7, 212:15, 244:17, 244:19, 260:12, 260:16, 261:10, 264:19, 265:3, 265:10, 265:16, 276:12, 276:15, 276:21, 277:12, 278:19, 279:18, 279:21, 286:13, 289:7 frame 81:1, 87:7, 90:2, 90:17, 94:2 free 155:2, 235:1 freeze 81:9, 81:12 freon 81:17 freon-like 81:18 frequencies 215:18, 233:3, 234:14, 236:5, 236:12 frequency 62:19, 145:12, 234:1, 238:17, 243:14, 243:16, 245:9, 245:14 friction 45:16, 46:11, 132:3, 133:5, 133:6, 133:7, 133:9, 133:17, 133:18 front 36:22, 37:4, 37:16, 110:2, 110:17, 190:17, 261:17, 263:6, 276:18, 277:10 fulfill 182:2	full 10:10 fully 212:14, 234:9 function 148:6 fundamental 121:9, 121:10, 121:14, 124:7, 295:6 fundamentally 133:17, 137:11 funded 66:7 funding 15:22, 66:8 further 109:20, 123:16, 128:20, 229:8, 303:19, 304:12, 304:15, 304:20 furthermore future 303:8, 303:14 <hr/> G <hr/> g-o-b-l-e 153:1 gamut 129:16 gas 179:9 gave 107:9, 109:4, 114:1, 128:10, 163:14, 235:1, 275:20 gears 266:19 gen 59:8, 59:9, 59:10, 106:21 general 18:2, 18:13, 22:9, 22:21, 28:16, 78:13, 78:14, 78:16,	83:9, 85:10, 91:19, 92:14, 110:7, 127:16, 128:1, 128:2, 128:6, 128:7, 128:13, 129:22, 130:14, 187:3, 191:12, 205:17, 227:18, 231:8, 240:8, 268:18, 269:3 generally 18:18, 58:18, 104:16, 106:2, 112:6, 112:22, 113:1, 145:13, 152:12, 160:8, 187:2, 240:8, 267:16, 268:11, 270:10 generate 52:14, 189:11, 227:20 generated 136:13 generates 46:10 generating 226:19 generation 57:19, 57:20, 58:22, 95:17, 97:7, 97:8, 97:9, 103:11, 111:15, 111:18 generations 96:22, 112:3, 112:13, 112:21 generator 157:4, 157:9, 157:11, 158:18, 158:21, 226:9, 226:21, 227:1 generic 171:22 geometry 126:5, 188:1 getting 161:14, 203:17,	261:2, 263:19 gilford 6:10, 7:3, 8:7, 8:8, 8:19, 10:9, 67:18, 99:6, 111:8, 113:3, 145:2, 145:8, 162:21, 164:1, 164:7, 164:15, 164:19, 176:16, 176:20, 177:3, 177:5, 177:7, 209:11, 248:15, 282:22, 283:8, 283:12, 283:17, 283:19, 284:5, 284:9, 287:18, 291:3, 301:18, 302:11, 302:18, 303:17, 303:20 gilford's 283:22, 284:4 gilfordb@gtlaw 6:14 give 10:21, 11:2, 13:11, 42:21, 43:4, 46:4, 54:6, 78:4, 78:10, 93:16, 107:6, 124:6, 127:6, 143:11, 158:13, 163:7, 163:19, 164:3, 178:14, 260:4, 268:1, 268:15, 268:18, 268:20, 272:2, 279:8 given 48:2, 48:5, 48:19, 104:12, 270:11, 271:17, 304:10 gives 233:10 giving 226:18 go 8:7, 11:10,
--	---	---	---

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

327

<p>37:3, 42:20, 47:5, 88:1, 99:6, 99:7, 103:14, 105:7, 113:7, 114:22, 117:15, 125:17, 134:21, 140:4, 140:7, 144:11, 145:6, 145:9, 147:7, 148:9, 155:22, 156:17, 157:2, 162:17, 164:3, 165:4, 166:10, 166:17, 168:21, 169:3, 171:15, 175:2, 175:3, 176:8, 177:8, 188:9, 193:9, 197:5, 197:8, 199:6, 199:13, 200:14, 206:21, 209:7, 232:20, 233:21, 236:20, 239:1, 258:16, 267:2, 279:9, 279:10, 279:13, 279:18, 280:10, 281:18, 284:8, 284:13, 286:21, 287:18, 287:21, 291:3, 291:17, 302:12 goal 151:13, 296:10 goble 153:1, 154:12 goes 109:18, 109:20, 115:6, 136:14, 139:14, 157:8, 158:18, 165:9, 173:5, 181:11, 188:5, 194:8, 199:10, 201:18, 212:13, 226:19, 258:13 going 9:2, 9:19,</p>	<p>16:19, 19:2, 19:9, 24:11, 24:18, 25:7, 26:22, 29:5, 42:21, 43:19, 44:6, 44:17, 62:8, 67:15, 75:20, 80:2, 83:20, 91:22, 99:14, 105:22, 116:21, 119:10, 119:18, 122:5, 123:16, 125:1, 128:8, 131:21, 131:22, 136:19, 139:4, 145:3, 145:4, 155:15, 156:5, 162:16, 164:3, 169:3, 170:2, 175:3, 178:6, 180:13, 182:2, 182:15, 185:7, 192:22, 193:2, 194:22, 211:11, 219:12, 228:17, 231:14, 235:19, 246:5, 246:15, 253:22, 260:5, 266:19, 268:1, 269:2, 271:3, 273:6, 273:11, 276:10, 277:7, 279:8, 283:3, 284:2, 301:16, 302:14 gold 60:10, 187:17 goldplated 81:16 goldplating 61:5 good 11:11, 67:18, 111:9, 113:3, 113:4, 113:5, 129:1, 129:12, 145:8, 152:6, 164:1, 177:7,</p>	<p>186:21, 208:19, 248:13, 266:21, 290:17, 301:19, 302:11 good's 107:4 gotcha 128:3 grab 176:8, 191:2, 192:22, 195:2, 195:6 grabbed 191:6 grabbing 193:3 grabs 192:14, 192:18, 193:5, 195:9, 195:21 graduate 90:5 great 164:20 green 178:8, 180:15, 210:4, 210:7 greenberg 6:2, 6:9, 6:16, 8:8, 8:13 gregory 1:12, 2:12, 3:12, 4:12, 7:2, 8:3, 10:12, 304:6, 304:16 ground 158:22, 159:2, 159:12, 159:15, 159:19, 160:3 grounding 242:16, 260:22, 261:5 grounds 37:9, 37:10, 153:10, 153:21, 154:3, 154:14, 154:20, 155:6, 155:11, 155:17,</p>	<p>230:3, 291:22 group 29:13, 229:9 groups 48:12 guessing 176:21 guidance 197:19, 197:20 gun 137:18 guys 33:16, 283:19 gyn 131:10 <hr/>H<hr/>h-e-a-l-t-h 94:19 h-e-m-e-d-e-x 69:4 h-o-l-o-g-i-c 49:10 h-o-v-d-a 153:3 h-y-t-o-n-e-n 153:4 hale 5:4, 5:11, 8:15, 304:17 half 41:10, 78:7, 94:4, 145:5, 145:7 hand 43:19, 44:6, 44:17, 190:22, 198:18, 247:17, 305:5 handing 43:9, 176:8, 221:12, 290:15 handle 190:10, 190:15, 190:19, 190:21, 191:1, 191:2, 191:3, 191:6, 191:22, 192:13,</p>
--	---	--	---

PLANET DEPOS

888.433.3767 | WWW.PLANETDEPOS.COM

192:21, 193:4, 193:6, 194:12, 194:15, 194:17, 195:11, 195:20, 196:1, 196:5, 196:7, 196:8, 196:11, 196:18, 196:22, 197:2, 197:14, 197:22, 198:2, 198:3, 198:7, 198:9, 198:10, 198:12, 198:14, 198:19 handled 9:15, 9:17 handwritten 7:10, 7:11, 7:13, 7:14 happen 87:16, 87:20, 102:21, 103:11, 217:17, 248:8, 255:2 happened 117:10, 161:13 happens 109:21, 149:8, 151:3, 152:2 hardware 18:6, 237:10 harm 139:4 harvard 123:8 head 11:2, 27:9 health 94:19 heard 14:12, 14:18, 14:22, 15:3, 15:8, 148:14 hearing 11:18, 11:22, 12:12, 21:1, 26:5, 28:9, 30:4 hearings 12:3	heart 81:16, 135:21 heat 46:10, 83:13, 84:7, 84:10, 85:11, 127:15, 129:3, 131:17, 131:20, 132:4, 136:11, 136:12, 139:6, 146:12, 147:6, 148:11, 159:14, 159:15, 159:17, 297:9, 298:6 heated 91:7 heath 6:3, 8:11 heating 134:19, 136:2, 136:6, 136:9, 136:11, 136:15, 136:21, 137:2, 137:6, 137:12, 147:7, 148:10 held 63:10 helium 54:10, 54:19, 55:3, 55:11, 55:17, 56:2, 62:8, 62:16, 62:18, 62:21, 63:1, 64:17, 65:3, 65:5, 65:8, 67:9 help 54:14, 71:21, 80:15, 167:19, 234:11 helped 85:2, 85:3, 85:4, 85:7 helpful 277:4, 278:15 helping 72:3, 85:13 helps 124:6	hemedex 69:3, 69:4, 69:8 here 8:17, 8:21, 8:22, 35:8, 35:9, 55:8, 77:19, 82:9, 98:19, 110:13, 119:4, 119:12, 122:15, 124:1, 128:4, 140:12, 142:7, 149:11, 152:21, 155:18, 156:6, 157:14, 160:3, 162:16, 167:3, 167:7, 167:9, 169:20, 171:9, 175:12, 178:15, 183:6, 188:21, 189:2, 189:15, 190:2, 194:13, 196:14, 199:21, 200:15, 205:17, 216:17, 217:3, 233:8, 239:3, 240:19, 258:19, 267:4, 273:5, 276:5, 279:9, 284:10, 292:3, 301:9 here's 204:21, 207:5 hereby 304:5 hereinbefore 304:7 hereunto 305:4 high 17:22, 18:1, 22:8, 24:5, 28:15, 30:8, 81:19, 90:22, 127:3, 127:10, 145:12, 147:15, 147:17, 247:5 high-level 13:11	high-power 79:15, 88:16, 88:19, 88:22, 89:10, 89:15, 89:20, 90:3, 90:8, 131:7, 131:19 higher 139:13, 139:16, 139:17, 140:1, 140:11, 140:19, 140:22, 141:4, 141:10, 141:16, 141:22, 142:7, 142:9, 142:10, 142:20, 142:21, 143:7, 143:22, 295:18 highlight 276:21, 276:22 highlighted 210:10, 211:5, 212:16, 276:12, 276:15, 278:7, 278:20 himself 263:10 hindsight 115:6, 115:10, 116:22 hired 19:14, 55:19, 57:8, 57:11, 58:1, 58:3 histories 162:11 history 161:6, 161:10, 161:18, 161:22, 162:4, 162:7 hold 19:18, 108:5, 181:20, 279:8 holding 75:17 hologic 12:20, 12:22, 13:5, 13:7,
---	--	---	--

19:14, 19:21, 20:5, 20:9, 20:20, 21:5, 21:21, 22:1, 22:12, 23:4, 23:17, 24:4, 24:12, 24:19, 25:7, 25:18, 26:19, 27:4, 27:13, 27:16, 49:9, 49:10, 49:17, 49:20, 50:3, 50:8, 50:12, 50:15, 51:2, 51:14, 51:19, 52:2, 52:12, 53:22, 54:22, 56:7, 56:16, 57:4, 57:13, 58:6, 58:10, 58:15, 58:17, 59:6, 63:18, 64:9, 64:14, 64:19, 64:22, 65:2, 65:6, 65:12, 65:18, 66:2, 66:9, 67:3, 67:12, 68:5, 68:10, 68:12, 68:17, 68:22, 79:2, 97:11, 97:14, 100:5, 100:7, 100:9, 100:11, 100:13, 100:18, 101:3, 101:6, 102:19, 152:9, 220:13 horizontal 273:1, 274:14, 274:16 horizontally 273:6 hospital 29:13, 92:15, 138:8 hospitals 29:14	hot 298:6 hour 34:4, 41:8, 41:9, 41:11, 67:16, 145:3, 145:5, 145:7, 301:17 hours 33:12, 34:4, 34:12, 147:20 hovda 153:2, 154:12 however 242:2, 257:14 human 75:12, 75:16, 76:12 hyperplasia 79:12, 85:18, 85:20, 86:5 hypotenuse 62:6 hypothetically 219:4 hytonen 153:3, 154:12 <hr/> I <hr/> idea 93:16, 168:9, 168:16, 254:7 identification 99:9, 283:2, 284:7, 287:20, 291:5 identified 66:12, 66:13, 178:8 identify 28:22, 109:3, 202:8, 270:14 ieee 87:11 ignored 277:17 illustrated 214:21, 215:2	image 274:14, 274:15 imagine 61:4, 61:19, 62:4, 110:1, 213:2 impact 18:7, 85:14, 125:18, 131:13, 149:9 impacts 131:18 impeded 181:13, 181:15 implementation 241:9 implemented 52:20, 260:4, 266:5 implication 213:20, 262:16 implicitly 226:2 implied 181:12, 182:6, 195:7, 195:15, 244:18, 264:7 implies 106:16, 182:11, 183:3, 183:22, 194:20, 226:17, 246:2, 254:20, 262:19, 262:21, 264:5 implying 226:17, 243:15, 259:6 important 10:17, 11:1, 115:5, 120:12, 159:10, 259:17 improve 67:1 improved 228:12 improvements 59:7 inc 1:4, 1:8, 2:4,	2:8, 3:4, 3:8, 4:4, 8:10, 8:16, 14:4, 14:10, 14:12, 15:18, 15:22, 16:4, 16:9, 38:17, 38:20, 49:1, 49:2, 49:9, 49:10, 69:4, 69:12, 304:13 include 52:7, 118:14 included 227:1 includes 37:7, 143:1, 150:6, 214:22, 235:11 including 34:5, 51:11, 51:21, 119:22, 163:8, 225:16, 233:3, 234:14, 234:18 incorporate 197:1 incorporated 22:14, 165:18, 174:3, 174:7, 174:10, 225:15 incorporates 235:12 incorporating 174:15 increase 149:12 increasing 295:19 independent 80:9, 80:19 indicated 112:17 indication 112:18 indirectly 102:5, 102:7 individual 39:6, 244:7
--	---	--	---

individuals 32:11, 32:22, 33:6, 101:11, 101:14, 101:17, 102:3 induces 46:9 inflated 217:18 inflates 138:10, 138:16 information 133:15, 167:10, 167:13, 167:14 informed 113:22, 114:16 infringement 13:9, 18:11, 22:12, 22:22 inherently 187:16 initial 96:14, 147:7 initially 147:6 initials 108:2, 276:9, 282:19, 286:21 initiated 15:12 injured 28:19 injury 29:1 innovation 52:8, 52:11, 52:14 inorganic 52:11 input 111:12, 111:19 inserted 61:2, 180:20, 181:2, 198:8, 298:7 inside 61:7, 62:7, 63:6, 63:7,	81:15, 129:3, 146:15, 149:4, 213:15, 214:6, 215:17, 216:13, 216:21, 235:16, 279:17 instance 84:6, 110:13, 122:16, 131:14, 146:11, 147:15, 158:2, 180:19, 180:20, 196:15, 198:10, 206:10, 224:1, 227:10, 255:18, 259:1, 263:16, 269:13, 295:16 instances 299:1, 299:12 instead 62:13, 63:7, 129:9, 243:9 institute 89:6 institutions 123:5 instructions 28:22 insufficient 120:6 intended 63:2, 63:4, 63:20, 63:21, 86:13, 88:20, 89:16, 92:21, 93:2, 94:21, 103:4, 103:8, 103:10, 103:12, 103:21, 103:22, 104:19, 105:13, 106:3, 121:12, 138:6, 187:21, 188:13 intense 131:15 intention 159:17 interaction 14:9, 14:15,	15:14 interested 305:2 interesting 62:8, 100:1, 211:4, 213:18, 246:6 interface 136:20 interfaces 139:3 interfacing 157:6 interior 135:9, 177:16 interpret 151:17, 188:20, 263:3, 272:17 interpretation 186:6, 198:5, 212:1, 264:12, 264:13, 268:16, 272:18 interpreted 257:15 interpreting 257:20 interrupt 301:15 intestines 63:9, 63:10 introduction 150:15 invalid 301:4, 301:7, 302:1, 302:5, 302:9 invalidity 153:9, 153:21, 154:2, 154:14, 154:20, 155:5, 155:11, 155:17, 174:20 invention 115:21, 116:3, 116:12, 116:18, 119:1, 121:8 inventions 100:11	inventor 102:12 inventors 100:2, 101:8, 101:12, 109:1, 110:9, 166:8, 167:15, 167:17, 237:13 invests 99:20 involve 22:17, 24:16, 27:13, 27:16, 66:19, 133:5 involved 22:12, 24:7, 24:17, 74:22, 75:14, 75:18, 76:19, 82:7, 89:1, 95:3, 95:11, 96:21, 97:17, 98:7, 98:10, 137:10, 189:20 involvement 21:4, 55:17, 56:1, 56:20, 56:22, 57:1, 57:6, 57:14, 66:10, 67:4, 76:2, 76:6, 84:22, 86:16, 87:3, 90:4 involving 110:18 ions 46:8 ipr 1:6, 2:6, 3:6, 4:6, 9:1, 9:2, 9:3, 9:17, 16:13, 19:16, 19:18, 20:10, 20:14, 23:4, 23:13, 23:19, 24:4, 24:5, 38:5, 42:11, 42:16, 43:10,
--	--	---	--

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

331

43:12, 43:20, 44:9, 44:20, 162:13, 268:4, 292:6 iprs 8:21, 9:15, 14:10, 14:13, 14:16, 14:19, 15:12, 15:17, 37:5, 37:21, 39:13, 221:16 israeli 86:19 issue 9:20, 17:19, 204:9 itself 53:16, 91:4, 148:13, 151:8, 179:16, 207:3, 215:18	june 116:12, 116:18, 118:17, 119:4, 119:11, 119:15 <hr/> K <hr/> keep 139:8 key 142:7 kill 84:8, 146:6, 146:13, 149:19 killing 83:7, 83:8, 83:21, 84:1, 84:16, 84:18, 150:4, 151:5, 151:19 kills 149:13 kilohertz 145:14, 233:3, 233:7, 233:14, 233:18, 233:22, 234:5, 234:7, 234:14, 234:19, 235:3, 235:4, 235:6, 235:12, 235:16, 235:20, 236:5, 236:8 kind 13:12, 15:2, 22:20, 25:14, 34:20, 50:14, 60:8, 61:16, 62:10, 64:3, 81:7, 82:10, 94:6, 104:16, 107:8, 139:14, 147:10, 150:5, 150:12, 156:5, 158:8, 169:4, 179:4, 179:17, 179:20, 180:10, 186:22, 187:18, 187:22, 202:3, 208:16, 211:7,	211:10, 212:5, 218:18, 219:11, 231:14, 236:22, 241:22, 258:6, 271:4, 272:10, 287:1, 296:22, 302:21, 303:15 kinds 187:9 kingdom 55:12 knit 60:16 knitted 60:11, 60:13, 61:4 knitting 60:15 knowledge 16:12, 21:19, 31:9, 31:11, 38:2, 42:14, 120:11, 120:13, 120:14, 120:16, 167:4, 169:17, 194:14, 222:19, 298:13 known 294:12 knows 295:13 kong 232:5 <hr/> L <hr/> lab 92:14 label 282:16 labeled 210:7, 210:13, 211:20, 282:3, 282:4 laboratory 75:11, 75:14, 85:3, 86:21 language 200:15, 233:11,	239:2, 301:10 large 52:11, 89:3, 279:18, 279:21 larger 280:7 laser 79:21, 90:14, 90:22, 91:7, 92:2, 92:14, 92:20, 93:3, 93:7, 93:8, 95:17, 97:17, 97:22, 128:16, 205:2 lasers 92:15 last 25:13, 39:7, 98:18, 139:11, 169:4, 169:9, 177:13, 220:2, 286:6 lastly 44:17 later 19:14, 58:5, 80:10, 80:14, 83:6, 147:7, 172:16, 195:1 law 8:15 lawyer 113:22 layer 165:16 leads 222:13 learned 143:21 least 21:12, 22:3, 22:4, 23:20, 28:5, 116:2, 119:20, 178:1, 213:21, 214:4, 216:12, 234:19, 244:6, 244:19,
<hr/> J <hr/> january 39:21, 40:4, 40:8, 41:4, 41:14, 42:5, 102:15 job 1:20, 2:20, 3:20, 4:20 john 39:7 joined 102:1 joint 89:7 josh 31:20, 31:21, 31:22, 32:4, 32:7, 32:15, 33:19, 34:1, 34:5 judgment 115:15 jump 10:20, 62:20 jumping 232:19			

PLANET DEPOS

888.433.3767 | WWW.PLANETDEPOS.COM

<p>245:1, 251:6 leaves 178:2, 186:5 leaving 226:13, 226:14, 227:3 lecture 48:2, 48:5, 48:19 lecturer 47:21 led 161:14 left 19:13, 21:22, 27:4, 97:12, 97:13, 101:3, 101:6, 101:9, 102:1, 102:19, 197:7, 197:8, 220:13, 273:16, 274:14, 274:17 left-hand-side 273:21, 274:7 left-side 272:8, 273:4 legal 113:10, 210:3, 236:18 lesions 149:14 less 101:1, 139:13, 143:8, 145:3, 234:20, 295:1 let's 8:7, 20:6, 20:17, 23:20, 26:8, 26:21, 32:13, 33:2, 34:3, 35:8, 42:20, 46:1, 47:5, 75:10, 78:8, 80:5, 85:9, 85:16, 88:14, 91:14, 99:6, 99:7, 111:17, 113:7,</p>	<p>121:20, 122:16, 124:9, 125:13, 127:17, 129:2, 129:8, 131:6, 131:9, 141:9, 142:11, 143:12, 144:12, 145:9, 149:22, 151:20, 154:8, 166:14, 168:21, 175:2, 180:8, 193:9, 196:13, 199:6, 209:7, 214:13, 216:7, 217:12, 217:13, 217:14, 222:5, 225:21, 229:7, 234:3, 238:13, 239:19, 247:7, 248:15, 248:21, 250:21, 251:8, 255:10, 256:7, 260:2, 267:2, 269:14, 269:16, 271:1, 272:6, 279:13, 282:22, 284:8, 284:9, 287:21, 289:6, 291:3, 296:21, 302:12 level 17:22, 18:1, 22:9, 24:5, 28:15, 30:8, 48:11, 90:22, 109:22, 127:3, 127:11, 139:13, 139:16, 139:17, 140:2, 140:11, 140:20, 140:22, 141:4, 141:10, 141:16, 141:22, 142:22, 143:8, 143:22, 237:18 liability 25:2, 26:9, 27:3, 29:6 liang 35:17, 230:10,</p>	<p>230:11, 232:6, 232:7 liberal 141:21, 142:4 light 93:9, 93:11, 128:16, 133:20, 134:2, 297:10, 298:8 likely 189:13 limitation 249:22, 250:17, 250:19, 258:10, 292:3, 292:7, 294:1, 296:3 limitations 291:21, 292:1, 292:14, 292:21, 293:6, 294:12, 302:9 limited 15:19, 16:1, 16:5, 16:9 limits 131:15 line 58:3, 82:2, 105:3, 106:17, 165:7, 165:8, 205:5, 208:14, 211:10, 211:19, 212:5, 212:14, 216:20, 238:15, 269:19, 269:21, 280:22, 282:2, 301:16 lines 54:3, 61:16, 104:14, 104:19, 105:12, 106:3, 106:17, 106:22, 169:4, 169:20, 170:19, 171:12, 172:14, 174:5, 216:10, 269:18, 269:22, 270:2, 275:22</p>	<p>list 37:8, 166:11, 168:4, 168:14, 292:3 listed 35:8, 36:11, 100:1, 101:12, 153:9, 153:20, 154:2, 167:1, 167:3, 168:18 listing 101:8 literature 142:9, 142:10, 142:14, 298:17 little 19:3, 20:17, 67:16, 81:16, 85:16, 91:5, 111:17, 124:9, 129:21, 171:3, 182:22, 185:9, 187:1, 187:10, 189:9, 201:4, 203:18, 209:10, 214:11, 216:7, 217:12, 217:22, 220:20, 224:1, 232:19, 242:4, 245:7, 250:21, 261:22, 266:19, 267:15, 269:3, 296:21 livers 109:2 llc 4:8, 8:10, 14:7, 14:16, 14:18, 14:22, 15:9, 15:14, 38:22, 39:4, 47:14, 47:18 llp 5:4, 5:11, 6:2, 6:9, 6:16, 8:9 located 156:10, 157:15, 295:2</p>
---	---	--	--

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

333

location 271:7 locations 177:20 long 33:10, 33:22, 41:3, 85:9, 123:8, 150:15, 300:13 longer 84:13 look 21:19, 52:5, 52:17, 52:18, 61:14, 105:2, 106:1, 116:8, 118:1, 153:12, 154:5, 154:18, 154:22, 155:2, 159:9, 159:10, 168:2, 169:3, 171:3, 172:19, 177:13, 184:5, 184:13, 186:4, 194:18, 194:19, 197:19, 202:21, 205:1, 208:9, 211:4, 218:21, 221:10, 222:8, 222:11, 226:6, 226:16, 230:3, 234:11, 235:19, 238:13, 239:15, 247:1, 249:6, 262:10, 267:13, 271:21, 272:6, 274:13, 276:1, 277:4, 278:12, 289:6, 291:14, 297:8 looked 167:12, 167:20, 211:14, 298:17 looking 52:2, 77:17, 98:17, 101:8, 103:15, 105:3, 106:18, 108:5,	113:8, 114:22, 117:16, 118:12, 139:10, 139:11, 145:10, 149:11, 150:11, 156:3, 163:5, 165:7, 168:3, 168:6, 168:22, 169:4, 179:11, 183:3, 193:10, 199:7, 205:4, 205:7, 207:22, 209:17, 220:2, 224:21, 232:21, 236:3, 236:21, 239:2, 254:1, 257:17, 262:3, 262:8, 263:4, 276:17, 282:10, 287:22, 288:1, 291:19, 292:11 looks 60:20, 106:6, 107:8, 107:13, 108:7, 185:4, 257:18, 264:8, 275:7, 283:13 loss 148:6 lot 84:12, 99:17, 99:18, 109:1, 139:20, 148:5, 148:8, 148:12, 158:5, 186:5, 195:14, 226:13, 226:15, 226:19, 253:8, 302:20 low 147:18, 247:5 lower 237:18, 295:17 lumps 218:14, 219:11 lunch 145:7, 162:17, 164:2, 302:22 <hr/> M <hr/> m-a-k-o-w-e-r 175:8	m-a-y 94:19 machine 130:20 machines 60:15, 131:2, 143:15 macromolecules 150:7, 151:20 macroscopic 62:1, 179:2 made 18:4, 59:14, 100:11, 213:7, 218:11, 260:21, 263:13, 264:20, 282:11, 283:11 magnetic 128:18, 133:21, 134:4, 134:6 magnitude 97:14 major 180:11 make 38:4, 59:14, 61:9, 67:1, 67:16, 186:8, 186:10, 187:10, 188:17, 191:6, 193:6, 195:10, 196:1, 198:13, 209:9, 215:9, 218:1, 218:3, 219:1, 247:3, 261:10, 279:19, 281:15, 301:8 making 57:17, 117:2, 254:7, 283:6, 283:13, 291:15 makower 35:11, 175:4, 175:7, 175:13, 175:20, 176:2, 176:7, 176:10, 177:10, 177:12, 177:19, 177:21,	179:7, 179:14, 180:18, 181:1, 181:9, 182:7, 183:11, 184:2, 184:20, 185:3, 185:6, 185:13, 185:15, 186:1, 186:5, 186:15, 188:8, 188:13, 188:21, 189:5, 229:5, 229:18, 230:7, 230:9, 230:10, 230:11, 230:15, 230:21, 231:17 makower's 175:9, 229:13, 231:2, 231:20 makower-stern 229:11 malignancy 86:11 malignant 86:9 mammography 50:1 management 56:4 manipulate 194:3, 194:5, 194:10, 195:3, 195:22, 198:21 manner 292:16, 292:22, 293:8, 293:12, 294:13 manufacturable 67:1 manufacture 187:8 manufacturing 57:22, 59:15 many 11:15, 11:21, 16:16, 17:19, 21:9, 23:6, 26:15, 27:21, 28:4, 39:18,
---	---	---	---

51:1, 51:13, 51:18, 75:15, 76:10, 76:12, 77:2, 84:7, 96:10, 96:17, 97:6, 97:13, 98:3, 98:13, 123:9, 140:4, 150:16, 192:10 march 64:20, 94:5, 305:8 mark 42:20, 42:21, 99:6, 99:7, 283:1, 283:3, 287:18, 291:3 marked 43:9, 44:7, 44:18, 99:9, 164:4, 164:6, 164:8, 176:9, 221:13, 268:2, 283:2, 284:6, 287:20, 291:5 market 51:22, 55:8, 88:10 marking 283:4 marriage 304:22 martin 1:12, 2:12, 3:12, 4:12, 7:2, 7:8, 8:3, 8:22, 10:10, 10:12, 37:22, 38:1, 67:20, 99:7, 209:14, 248:18, 283:1, 287:19, 289:6, 290:13, 291:4, 302:15, 304:6, 304:16 martin's 9:4, 9:8, 9:11, 9:13, 9:16 massachusetts 1:13, 2:13,	3:13, 4:13, 5:15, 92:14, 304:5 massage 137:18 massager 137:14 massive 236:12 master 46:19 master's 48:10, 79:10, 85:22, 91:13, 92:18, 141:19 material 83:1, 179:21, 186:17, 187:11, 187:14, 187:15 materials 36:11, 37:4, 166:11, 167:1, 187:12 materials-consid- ered 168:3 mathematics 123:10, 123:12 matter 13:12, 22:9, 24:6, 28:16, 30:8, 100:12, 125:16, 143:1, 159:7, 181:22, 220:16, 247:7, 295:4, 295:8, 305:3 matters 258:15, 295:1 maximize 110:22 maybe 11:17, 15:8, 16:18, 21:12, 35:14, 48:16, 51:22, 78:5, 97:7, 98:14, 101:1, 126:5,	143:18, 143:19, 145:6, 154:17, 157:5, 158:4, 158:19, 187:18, 187:19, 195:19, 195:20, 206:17, 234:11, 244:20, 271:12 meaning 84:11, 163:8, 163:15, 163:20, 245:15 means 161:10, 192:11, 241:1, 249:2, 253:17, 259:11, 259:14, 268:19, 285:3 meant 114:2, 141:3, 188:4 measure 226:11, 270:21, 288:19 measurement 18:5, 18:9 meatus 177:16 mechanical 46:19, 46:20, 46:21, 129:11, 129:12, 133:22, 134:2, 138:16, 146:17, 257:12, 297:15, 297:16, 300:4, 300:11 mechanically 255:21, 263:21, 264:4, 300:12 mechanism 216:1 medical-malpract- ice 30:21 medicine 83:7, 120:5, 120:20, 121:14, 122:6, 122:7,	139:18, 140:4, 141:6, 141:9, 141:11 medtronic 80:11, 80:12, 88:9 meet 53:13, 55:22 meeting 33:16 meetings 66:20 megahertz 234:20, 235:4, 236:6, 236:8, 237:2, 237:8, 237:12, 237:17, 237:21, 238:1, 238:2, 238:6, 238:7, 238:8, 238:10, 238:11, 238:17, 238:18, 238:19, 238:20 melted 187:11 member 169:7, 169:10, 199:9, 200:3, 200:6, 200:7, 200:9, 201:7, 201:16, 201:17, 202:1, 202:5, 202:11, 202:12, 203:3, 203:13, 204:16, 210:14, 210:17, 210:19, 213:16, 213:22, 214:3, 214:6, 214:12, 214:14, 215:2, 215:17, 215:18, 216:8, 216:14, 216:19, 216:22, 217:13, 217:16, 217:18, 218:2, 218:5, 218:8, 218:13, 218:15, 218:20, 219:11
--	--	--	---

members 175:13, 182:8, 182:9, 203:8, 210:3 membrane 18:5, 149:8, 149:9, 165:15, 169:7, 169:10, 169:14, 169:18, 170:4, 170:5, 170:13, 170:17, 170:18, 171:1, 171:12, 171:18, 171:20, 171:22, 172:1, 172:5, 172:10, 172:14, 172:16 membranes 148:6 memory 154:5 menorrhagia 54:18, 109:11 mention 78:17, 98:21, 99:1, 99:15, 168:7 mentioned 26:9, 47:3, 48:18, 53:20, 53:21, 54:19, 54:20, 55:11, 56:6, 63:14, 66:2, 67:2, 79:1, 85:17, 88:15, 90:13, 95:18, 95:21, 97:16, 147:22, 148:1, 149:3, 149:18, 152:7, 152:21, 153:4, 153:9, 153:20, 154:11, 158:6, 169:18, 171:12, 177:20, 215:1, 215:7, 261:15, 264:18 mentioning 211:19, 213:19,	291:8 mentions 171:18 met 39:11, 53:6 metal 186:9, 213:2, 213:7, 218:12 metals 187:17 method 205:18 methods 188:17, 205:11 meyerowich 6:22 microscopic 179:1 microwave 79:12, 86:3, 86:22, 205:2, 297:11, 299:8, 299:13 middle 236:22 might 26:1, 43:2, 81:11, 93:6, 122:20, 164:17, 186:21, 193:8, 194:12, 195:19, 202:15, 209:2, 212:19, 215:16, 219:17, 247:16, 248:11, 255:8, 278:15, 296:6, 298:6 millimeter 158:7 millimeters 109:14 million 61:14 mind 77:16, 98:16, 107:12, 108:2, 150:10, 163:2, 165:12, 209:14,	219:21, 254:20, 261:20, 266:21, 284:17, 290:15 minerva 19:15, 20:5, 20:14, 20:20, 21:5, 22:15, 23:4, 24:4, 24:12, 24:19, 25:8, 25:18 minimally 183:2 minimum 121:17 minneapolis 6:12 minnesota 6:12 minus 81:20, 103:17, 103:20, 104:6, 104:9, 104:13, 105:13, 106:3, 280:16, 280:19, 281:12, 281:15, 282:4 minute 67:3, 178:15 minutes 113:4, 145:7, 147:19, 162:19, 162:22, 237:16, 301:17, 301:18 mis-set 30:18 miss 80:3 missing 155:16 misspoke 65:2 mit 46:21, 69:18, 69:21, 79:10, 79:14, 85:22, 88:15, 89:5, 90:6 mix 53:7	modalities 125:20, 132:14 modality 132:4, 297:8 mode 263:16 model 75:11, 85:5, 87:2, 91:19 models 75:15 modes 263:14 modification 148:18, 148:20, 148:21, 149:2 modifications 147:11, 148:2 modified 7:12, 112:5, 284:6 modifies 146:1 modify 59:21, 145:14, 145:21, 146:7, 146:9, 146:20 modifying 60:2, 112:7 molecules 133:9, 146:7, 146:10, 149:6, 150:9 moment 238:14, 248:7 monitoring 157:5 monopolar 158:12, 158:16, 159:6, 159:12, 159:13, 160:4, 160:5, 179:8, 185:17, 185:20, 224:2, 224:8, 224:22, 225:4, 228:8, 242:11, 242:16, 242:17, 260:13, 260:20,
---	---	--	---

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

336

261:1, 261:11, 261:16, 263:12, 263:13, 264:20, 265:16 month 68:2, 101:6 montreal 80:15 more 15:1, 22:17, 35:14, 35:16, 41:7, 41:9, 41:10, 57:16, 59:15, 64:17, 67:8, 78:8, 78:13, 78:14, 78:16, 100:22, 112:1, 112:19, 125:2, 126:6, 143:11, 147:1, 153:18, 162:22, 164:9, 172:1, 174:1, 189:4, 194:20, 195:16, 195:19, 197:11, 197:14, 198:19, 198:21, 201:4, 206:16, 214:22, 217:12, 220:20, 224:1, 226:19, 231:8, 237:9, 239:18, 240:8, 240:12, 242:4, 242:5, 242:13, 242:22, 243:21, 247:14, 248:10, 253:14, 257:18, 266:1, 266:12, 268:10, 269:3, 288:12, 291:15, 291:16 most 85:12, 117:9, 185:15, 189:13, 198:7, 198:17, 212:22, 234:1 mostly 13:16, 298:1	mounted 271:8 mouth 211:14, 234:17 movable 193:17 move 46:8, 88:14, 194:1, 219:8, 248:12 moved 80:15 moving 90:12 mri 128:19 much 109:20, 136:12, 194:8, 237:11 mucus 160:19 multiple 89:10, 202:17, 203:1, 203:19, 208:2, 210:8, 224:16, 233:4, 234:15, 239:5, 239:18, 239:19, 244:7, 244:8, 244:10, 244:14, 244:16, 244:18, 244:22, 245:5, 252:16, 252:18, 256:9, 257:21, 258:10, 258:11, 285:1, 285:3, 285:6, 286:3 multisegment 224:11 murphy 5:13, 8:18 murphy@wilmerhale 5:18 must 118:21 myometrium 109:13, 109:15 myself 72:1, 144:14	N name 8:12, 10:11, 25:2, 27:10, 39:7, 64:13, 86:20 named 39:6 namely 110:19 narrow 296:21 nasal 47:17, 48:5, 48:19, 49:5, 50:7, 69:7, 69:14, 69:20, 71:14, 71:17, 72:1, 72:9, 72:12, 72:16, 72:20, 73:2, 175:10, 175:14, 175:21, 176:1, 177:9, 177:15, 177:19, 178:5, 292:17, 292:22, 293:8, 293:13, 294:2, 294:6, 294:14, 298:9, 298:20, 299:2, 299:9, 299:14, 299:18, 299:22, 300:5, 300:16, 300:20 nature 91:5 navigated 81:15 nd 32:22, 33:3, 33:4, 33:7, 33:8, 33:11 near 78:17, 150:12, 156:10, 157:16 necessarily 93:2, 110:11,	139:22, 151:18, 192:20, 204:5, 219:16, 219:19, 241:5, 241:17 necessary 9:8, 122:8 need 11:8, 17:22, 37:3, 42:21, 132:7, 134:21, 153:12, 153:13, 157:15, 157:19, 160:11, 160:21, 161:3, 167:14, 186:20, 231:9, 242:12, 242:13, 245:1 needed 57:21 needs 55:22, 197:10 negate 278:2 negative 107:19, 107:20, 264:2, 265:10, 265:17, 281:5 nemtzw@wilmerhale 5:17 neurent 1:4, 1:5, 2:4, 2:5, 3:4, 3:5, 4:4, 4:5, 7:17, 7:18, 7:19, 7:20, 7:21, 8:16, 8:17, 15:18, 15:22, 16:4, 16:5, 16:9, 32:4, 38:11, 38:14, 43:10, 44:7, 44:18, 164:4, 176:9, 221:13, 268:2, 304:13 neurent's 34:11, 36:19, 38:6, 38:9
---	---	--	--

PLANET DEPOS

888.433.3767 | WWW.PLANETDEPOS.COM

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

337

<p>never 15:14, 70:4, 71:2, 71:6, 71:10, 73:6, 73:11, 73:16, 73:21, 75:17, 75:18, 77:6, 77:11, 98:4, 237:8 new 6:19, 49:15, 58:4 next 19:10, 24:13, 24:20, 25:8, 29:7, 43:19, 52:17, 58:22, 105:12, 106:3, 107:8, 108:3, 150:10, 156:17, 258:10, 259:1, 269:20, 273:10, 274:8, 274:10, 276:6, 280:10, 280:16, 282:1, 282:20, 287:1, 289:17 next-generation 57:12, 59:8 nickel 187:16 nitinol 187:17 nitpick 82:9 nits 82:10 nods 11:2 none 31:8, 153:8, 153:20, 154:1 nonpatent 26:8, 26:12, 26:13, 26:16, 27:2, 29:7 nope 250:1</p>	<p>normal 147:21 normally 180:7, 188:18 northern 12:10, 21:15 nose 48:2, 48:13, 70:13, 70:17, 70:21, 71:6, 71:11, 73:13, 73:18, 77:8, 77:13, 89:16, 124:12, 124:17, 125:8, 125:22, 126:1, 126:6, 126:14, 126:22, 134:7, 134:14, 135:2, 135:3, 135:5, 135:9, 135:12, 135:16, 135:20, 144:21, 145:1, 160:18, 181:22, 193:17, 194:2, 195:3, 295:5, 295:9 nostril 177:15, 181:3 notary 304:1, 304:4 note 283:4, 283:21 notes 38:2, 38:4, 283:10, 283:13, 283:22, 284:4 nothing 8:5, 303:19 notice 36:22 novacept 57:21, 58:7, 58:10, 58:14, 65:4 novasure 27:17, 28:19, 29:2, 54:16, 54:21, 56:6,</p>	<p>56:9, 56:14, 56:20, 57:5, 57:7, 57:12, 57:15, 58:4, 58:7, 58:14, 58:18, 58:21, 59:19, 60:5, 60:19, 65:1, 65:10, 67:10, 95:17, 97:1, 103:10, 103:12, 106:7, 106:20, 107:7, 108:7, 108:14, 108:16, 108:20, 110:10, 111:3, 111:11, 112:16, 158:2, 198:9, 220:4, 221:1 november 101:7 number 13:15, 164:18, 165:16, 177:1, 187:17, 235:9, 235:20 numeral 261:4 numerals 105:8 nw 5:6 <hr/>O<hr/>o-p-s-o-n-i-x 49:2 ob 131:10 object 10:1, 10:3, 153:15, 280:8, 284:15 objection 15:5, 16:10, 18:20, 19:12, 21:8, 24:1, 24:22, 25:11, 25:21, 29:18,</p>	<p>31:7, 32:16, 33:20, 34:2, 34:16, 34:22, 36:13, 37:6, 37:13, 37:18, 41:1, 42:7, 42:12, 42:18, 43:8, 47:19, 48:3, 48:7, 48:21, 49:8, 50:5, 50:9, 51:3, 51:20, 53:10, 53:17, 54:9, 55:1, 55:15, 56:3, 56:17, 56:21, 59:3, 59:18, 60:9, 61:18, 62:11, 64:1, 64:5, 64:11, 65:13, 65:20, 66:11, 67:6, 67:13, 68:18, 69:2, 69:9, 69:16, 69:22, 70:7, 70:10, 70:14, 70:18, 70:22, 71:4, 71:8, 71:12, 71:18, 72:10, 72:14, 72:18, 72:22, 73:4, 73:9, 73:14, 73:19, 74:1, 74:7, 74:20, 75:3, 75:8, 76:4, 76:21, 77:9, 77:14, 78:15, 78:21, 79:6, 80:21, 81:13, 82:5, 82:14, 83:18, 84:3, 85:1, 85:19, 86:8, 86:15, 86:18, 87:5, 89:17, 90:10, 91:3, 91:11, 91:18,</p>
--	---	---	--

PLANET DEPOS

888.433.3767 | WWW.PLANETDEPOS.COM

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

338

92:8, 93:1, 94:8, 94:12, 95:5, 95:9, 95:14, 96:4, 96:15, 97:20, 98:1, 100:15, 100:19, 102:13, 103:1, 103:5, 103:9, 104:21, 105:10, 105:14, 105:20, 106:5, 106:10, 107:5, 107:10, 107:17, 108:4, 108:11, 108:18, 108:22, 109:19, 111:5, 111:14, 111:21, 112:10, 112:14, 113:20, 114:4, 115:11, 115:22, 116:5, 116:15, 117:7, 119:5, 120:8, 121:2, 121:7, 121:16, 122:2, 122:10, 124:13, 124:18, 125:11, 126:15, 126:20, 127:1, 127:5, 127:8, 127:13, 128:15, 130:7, 130:12, 130:18, 130:22, 131:5, 132:9, 132:20, 133:4, 133:16, 134:1, 134:5, 134:10, 134:17, 135:14, 135:18, 135:22, 136:4, 136:8, 136:17, 137:21, 138:13, 138:17, 138:22, 139:19, 140:15, 140:21, 141:7, 141:12, 142:1, 142:6, 142:17, 143:6, 143:17, 144:4, 144:10, 144:22,	146:22, 148:17, 148:19, 148:22, 151:1, 151:16, 152:14, 153:7, 153:11, 154:15, 154:21, 155:7, 155:12, 155:20, 156:13, 156:18, 157:12, 157:20, 159:8, 159:22, 160:12, 160:22, 161:4, 161:20, 162:1, 162:5, 162:9, 162:14, 163:16, 163:21, 166:2, 167:2, 167:6, 168:11, 168:19, 169:8, 169:15, 169:22, 170:6, 170:20, 171:21, 172:7, 172:11, 172:17, 173:9, 173:15, 173:21, 174:12, 174:18, 174:22, 175:11, 177:22, 178:13, 179:6, 179:13, 179:19, 180:6, 180:16, 181:17, 182:20, 183:10, 183:20, 184:4, 184:11, 184:22, 185:5, 185:14, 186:2, 186:16, 187:5, 188:11, 189:8, 189:17, 190:5, 190:12, 190:16, 191:7, 191:11, 191:16, 192:9, 192:15, 192:19, 193:7, 193:18, 194:6, 194:11, 194:16, 195:5, 195:12, 196:2, 196:12, 196:19, 197:3, 197:13, 197:17, 198:4,	198:15, 199:2, 199:19, 200:5, 201:1, 201:14, 202:2, 202:6, 203:10, 203:14, 204:4, 204:13, 205:16, 206:3, 206:13, 207:4, 207:12, 207:17, 208:7, 208:18, 209:1, 209:5, 210:21, 211:17, 212:10, 212:21, 213:17, 214:9, 214:18, 215:15, 216:5, 216:15, 217:1, 217:7, 217:19, 218:10, 218:17, 219:3, 219:14, 221:9, 221:22, 222:7, 222:17, 223:1, 223:18, 224:4, 224:9, 225:6, 225:13, 226:5, 227:4, 228:5, 229:2, 229:15, 229:20, 230:8, 230:16, 231:3, 231:15, 231:22, 232:4, 232:12, 232:17, 233:19, 234:8, 234:21, 235:7, 235:10, 235:22, 236:17, 238:12, 239:14, 240:3, 240:17, 241:4, 241:13, 242:10, 243:3, 243:6, 243:12, 244:5, 245:3, 245:10, 245:17, 246:1, 246:9, 246:14, 246:21, 247:13, 249:5, 249:20, 250:6, 250:15, 251:2, 251:13, 251:21,	252:4, 252:15, 253:6, 253:19, 254:19, 255:7, 255:16, 256:14, 257:8, 257:16, 258:9, 259:9, 259:16, 260:15, 260:18, 262:15, 263:9, 264:10, 264:17, 264:22, 265:5, 265:7, 265:12, 265:18, 266:3, 266:15, 267:11, 267:18, 268:14, 269:7, 270:8, 270:18, 271:19, 272:16, 274:2, 274:11, 275:1, 275:3, 275:13, 276:4, 276:8, 277:15, 277:19, 278:9, 278:22, 279:7, 279:12, 280:14, 281:2, 281:20, 282:6, 282:9, 282:13, 282:18, 282:21, 285:7, 285:12, 285:16, 285:20, 286:1, 286:4, 286:17, 287:6, 287:11, 287:16, 288:16, 289:1, 289:16, 289:21, 290:2, 290:7, 290:11, 290:22, 291:6, 291:13, 292:9, 293:20, 294:4, 294:8, 294:16, 294:21, 296:1, 296:8, 296:20, 298:10, 298:15, 298:21, 299:4, 299:10, 299:15, 299:19, 300:2, 300:6, 300:17, 300:21, 302:2
---	---	--	--

PLANET DEPOS

888.433.3767 | WWW.PLANETDEPOS.COM

objective 152:17 obvious 115:17, 301:4, 301:7, 302:1, 302:6 obviously 43:4, 57:4, 77:3, 127:6, 135:2, 187:20, 216:19, 249:16, 302:20 obviousness 114:12, 114:15, 115:4, 115:5, 115:18 occasion 32:12 occlude 54:14 occur 147:11, 147:19, 148:3, 149:16 occurred 30:19, 61:11, 202:8, 304:16 october 12:15, 65:7, 68:7, 68:8, 68:10, 165:17 offer 10:14, 250:9, 271:3, 291:20 offered 24:13, 302:8 offhand 231:11 office 1:1, 2:1, 3:1, 4:1, 161:14 offices 304:16 often 297:17 oh 19:19, 35:15, 53:22, 81:20, 125:22, 175:19,	262:7 okay 17:12, 19:20, 23:10, 23:19, 24:18, 25:14, 34:6, 43:7, 51:13, 51:18, 53:20, 57:7, 62:8, 65:8, 75:5, 84:19, 91:14, 92:10, 100:1, 105:21, 112:6, 112:21, 117:15, 135:7, 138:5, 139:10, 143:2, 143:22, 154:7, 154:10, 155:14, 156:2, 163:1, 163:4, 164:20, 167:18, 167:21, 169:2, 170:12, 171:14, 172:4, 172:8, 172:12, 175:19, 176:13, 177:5, 180:12, 180:22, 182:4, 183:5, 186:8, 186:11, 189:14, 191:20, 192:3, 194:14, 200:14, 202:8, 207:9, 207:20, 211:4, 211:22, 212:15, 214:15, 215:21, 216:11, 217:4, 217:11, 219:21, 220:1, 220:14, 222:4, 222:13, 226:7, 227:21, 232:22, 233:12, 233:15, 236:3, 246:6, 249:13, 252:11, 255:12, 257:4, 262:22, 266:11, 267:1, 268:5, 271:21, 278:15, 280:4, 282:5,	284:5, 290:17, 291:17, 293:14, 294:18, 298:13, 302:10, 303:17 once 39:20, 156:15 ones 43:5, 47:3, 68:21, 154:18, 252:2, 276:15, 278:20, 280:11 only 11:9, 24:15, 24:17, 32:17, 50:2, 92:21, 96:6, 169:13, 169:18, 171:11, 174:14, 189:15, 216:16, 217:2, 254:17, 255:14, 256:12, 257:6, 257:9, 263:14, 264:12, 268:3, 285:22, 292:7 open 178:2, 186:5, 259:7 opened 262:12, 275:21 opening 259:12, 259:13, 259:22 operate 121:11, 121:12, 121:15, 215:9, 237:8, 241:11, 241:14, 244:21, 260:5, 260:22 operates 181:9, 238:19 operating 241:21 operation 55:20, 160:9, 177:14, 180:21, 182:3, 228:13, 259:3 operational 196:3	opine 196:17, 200:20, 201:11 opined 136:7, 138:21, 154:3 opining 301:13 opinion 45:14, 120:4, 129:15, 166:12, 167:7, 167:9, 200:2, 233:6, 233:17, 234:4, 250:9, 254:12, 292:19, 293:5, 301:2, 301:6, 301:22, 302:4, 302:8 opinions 16:4, 16:8, 18:11, 25:16, 31:10, 35:4, 42:10, 42:16, 45:5, 45:15, 114:9, 114:20, 131:4, 166:17, 291:20, 292:7, 301:1 opposed 82:11, 117:5, 151:18, 257:22, 288:3, 289:2 opposite 104:12, 108:1, 240:20, 241:2, 241:19, 246:8, 247:4, 254:8, 254:21, 256:5 opsonix 49:1, 49:2, 49:6 optics 93:5 order 97:14, 270:21, 284:1, 287:2 ordered 291:11
--	---	---	---

<p>ordinary 115:20, 117:18, 117:20, 118:8, 120:15, 120:18, 121:5, 122:1, 122:8, 163:8, 163:10, 163:15, 163:20, 186:12 organic 52:7, 52:13 organs 110:18 orientation 182:1 original 56:18, 106:1, 106:21, 109:1, 110:9, 171:15, 199:21, 222:14, 277:1 originally 57:2, 64:12, 80:12, 88:11, 180:1, 256:11 oscillating 133:10 ostium 177:16 others 35:12, 196:16 otherwise 251:15, 305:2 ourselves 51:15, 52:16 out 66:22, 140:19, 157:1, 158:17, 167:19, 172:4, 186:10, 187:10, 188:17, 189:21, 197:9, 213:7, 234:11, 244:10, 251:5, 278:7, 278:19, 294:2, 294:5 outcome 296:11, 305:3 outer 189:6, 189:13,</p>	<p>190:8 output 157:8, 258:7, 258:11 outside 15:17, 84:7, 110:18, 146:8, 146:10, 146:12, 146:14, 149:4, 149:5, 149:20, 217:16, 218:4 ovarian 79:18 ovaries 94:21 ovary 79:18, 93:14, 126:7 over 10:18, 67:16, 77:20, 86:21, 89:9, 91:13, 96:11, 292:11, 295:3 overall 53:4, 56:4, 59:14 overlap 238:20 oversaw 55:21, 57:9, 57:10, 66:15 oversee 66:16 oversight 56:5 overview 13:12 own 120:6, 234:22 owned 16:8 owner 1:9, 2:9, 3:9, 4:9, 6:1 owners 8:9</p> <hr/> <p style="text-align: center;">P</p> <hr/> <p>pad 134:19, 136:2,</p>	<p>136:9, 136:11, 136:15, 136:21, 137:2, 137:6, 158:22, 159:2, 159:12, 159:15, 159:19, 160:3, 242:16, 260:22, 261:5 pads 136:6 page 7:2, 7:8, 47:9, 75:6, 77:17, 77:18, 98:17, 103:14, 112:22, 113:7, 114:22, 117:15, 139:12, 145:9, 150:10, 150:12, 153:12, 155:22, 163:2, 166:20, 174:5, 175:3, 175:17, 177:12, 185:8, 192:3, 193:9, 196:15, 199:6, 199:13, 199:14, 200:14, 206:21, 207:22, 209:7, 209:14, 209:17, 213:21, 214:2, 214:4, 219:21, 224:18, 231:13, 232:21, 233:10, 236:20, 239:1, 240:13, 253:22, 262:2, 262:8, 263:4, 263:6, 267:2, 267:13, 271:21, 272:3, 272:4, 273:5, 274:17, 275:21, 276:10, 277:7, 277:9, 277:10, 278:17, 281:9, 284:18, 287:22, 291:18, 292:11 pages 1:21, 2:21,</p>	<p>3:21, 4:21 pair 157:13, 222:10, 239:17, 240:18, 242:6, 245:8, 245:12, 245:13, 245:19, 246:2, 246:7, 246:12, 246:19, 247:4, 247:11, 248:3, 250:22, 251:3, 251:17, 254:16, 254:20, 255:21, 256:12, 257:6, 257:13, 260:10, 262:16, 262:17, 262:18, 262:21, 263:1, 263:2, 263:8, 263:21, 264:4, 264:9, 265:21, 265:22, 272:14, 272:15, 273:7, 273:13, 273:14, 273:22, 274:1, 274:9, 274:10, 274:22, 275:2, 275:9, 275:11, 279:2, 280:20, 280:21, 281:17, 281:18, 286:5, 286:8, 286:9, 289:3, 289:4, 289:5 paired 254:3, 254:13, 256:3, 256:5, 256:19, 257:11, 258:20, 259:8, 259:10, 259:12, 259:14, 259:18, 259:19, 259:21, 260:6, 260:7, 260:9, 266:1, 266:4, 266:6, 266:7, 266:8, 266:10, 266:13, 272:20, 272:22, 275:6, 275:7,</p>
--	---	--	---

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

341

<p>275:16, 276:2 pairs 64:7, 202:17, 203:1, 203:19, 208:2, 220:5, 222:2, 223:13, 239:5, 240:11, 240:12, 241:12, 244:1, 244:8, 244:11, 244:14, 244:15, 244:16, 244:18, 244:22, 245:5, 245:6, 248:20, 249:2, 249:3, 249:8, 249:9, 249:18, 250:4, 251:1, 251:7, 251:10, 251:11, 251:17, 251:18, 252:2, 252:6, 252:10, 252:13, 252:16, 252:18, 252:20, 253:3, 253:4, 253:10, 253:11, 253:16, 253:17, 255:5, 255:13, 255:18, 256:2, 256:9, 257:21, 258:12, 262:14, 267:6, 267:9, 267:14, 267:17, 268:12, 269:1, 269:6, 269:14, 269:17, 270:3, 270:6, 270:7, 270:16, 270:17, 272:14, 278:6, 278:21, 281:1, 282:12, 284:14, 284:20, 285:1, 285:3, 285:6, 285:11, 285:15, 285:19, 285:22, 286:3, 286:10, 286:15, 287:5, 287:9, 287:14, 288:20, 289:9,</p>	<p>289:19, 290:4, 290:9, 290:19 paper 215:8, 279:8, 279:11, 284:10, 286:7, 291:4 paragraph 46:6, 46:16, 77:19, 78:17, 78:20, 98:17, 98:20, 113:8, 113:10, 113:13, 115:1, 116:8, 116:22, 117:16, 117:17, 118:12, 119:18, 120:19, 123:3, 123:13, 123:16, 128:4, 139:10, 140:2, 140:12, 145:10, 149:10, 150:11, 152:19, 155:15, 156:3, 156:6, 163:5, 169:5, 177:12, 177:21, 196:16, 199:7, 200:13, 201:2, 201:6, 201:21, 202:21, 203:16, 220:2, 222:8, 223:5, 226:6, 228:6, 228:14, 230:1, 230:2, 231:5, 231:10, 233:1, 234:12, 236:3, 236:21, 239:15, 254:1, 256:21, 258:16, 274:13, 275:15, 287:22, 288:2, 291:8, 291:19, 292:12, 292:13 parallel 269:15, 269:16, 269:22, 270:2 parens 203:3, 203:5 part 13:17, 20:6,</p>	<p>20:8, 20:13, 20:18, 20:19, 21:5, 27:6, 53:18, 79:14, 79:20, 80:7, 85:10, 85:21, 91:9, 91:10, 92:17, 93:18, 96:8, 96:9, 96:12, 96:13, 97:3, 97:16, 97:21, 98:10, 125:21, 152:3, 181:14, 191:5, 192:13, 192:18, 207:7, 207:10, 207:19, 211:5, 228:15, 244:10, 250:12, 251:8, 251:15, 283:6, 283:13, 284:3, 293:11, 293:21 partially 212:12 participate 40:16 particular 10:2, 91:16, 91:17, 184:5, 206:20, 208:10, 208:12, 230:2, 254:3, 254:13, 256:19, 258:21, 269:5 particularly 300:22 particulars 24:10 parties 9:7, 9:10, 9:11, 9:13, 9:21, 12:18, 304:13, 304:21, 305:1 parts 79:18, 93:14, 134:8, 134:16, 227:1</p>	<p>passageway 175:10, 177:15 past 67:3, 131:8 patel 35:13, 35:14 patent's 150:16 patents 17:19, 22:13, 35:5, 38:9, 114:8, 114:19, 117:22, 124:10, 124:11, 124:15, 124:16, 124:19, 125:10, 131:3, 136:7, 137:2, 138:20, 154:3, 163:19, 163:20, 190:20, 191:10, 192:8, 196:10, 205:14, 206:7, 239:13, 240:2, 240:10, 244:4, 244:13, 249:15, 250:7, 250:10, 252:6, 252:22 patient 27:8, 28:18, 29:1, 29:15, 71:3, 151:7 patient's 71:6, 71:11, 73:12, 73:18, 77:7, 77:13 patients 112:19, 123:15, 140:7 pattern 271:1, 271:2 pen 107:6, 108:3, 275:21, 278:18, 279:9, 280:2, 284:11, 290:15 pending 11:10 penetration 237:12</p>
--	---	---	---

<p>pennsylvania 5:6 people 30:11, 33:4, 83:11, 96:10, 97:6, 97:13, 98:3, 98:13, 102:8, 299:1, 299:13 percent 23:8, 183:21 perhaps 138:18, 196:3, 196:4 period 24:12, 72:6, 80:8, 119:3, 119:11, 119:15 periodic 66:20 peritoneal 63:6, 63:8, 63:12 permanent 54:14 permit 180:21, 250:19 perpendicular 180:10, 214:1, 215:8, 216:1 person 9:12, 33:14, 40:10, 40:11, 96:6, 115:15, 115:20, 117:17, 117:20, 118:8, 120:15, 121:5, 121:22, 122:8, 163:10, 195:18, 197:9, 197:18, 199:4, 227:7 personally 66:16, 74:15, 74:22, 95:7, 95:10, 95:11 perspective 57:9, 115:19, 117:4, 118:22,</p>	<p>184:8, 187:12, 194:20, 196:3, 197:4, 198:16, 220:16, 220:17 petitioner 20:15 petitioners 1:6, 2:6, 3:6, 4:6, 5:3, 8:16 ph 1:12, 2:12, 3:12, 4:12, 140:22, 142:10, 142:14, 143:4, 143:14 pharyngeal 178:5 phase 53:19 philosophical 247:14, 248:10 philosophy 46:20 phrase 123:13, 171:17 physical 91:8, 91:9, 295:6, 295:10 physically 263:22 physician 27:6, 27:7, 27:12, 28:21, 193:5, 260:5 physician's 27:9, 192:22 physicians 139:20, 140:4 physics 85:14 physiology 71:15, 71:17, 72:9 pick 82:9, 184:14, 232:20, 235:1 pickering 5:4, 5:11,</p>	<p>8:15, 304:17 picking 77:16, 98:16, 261:20, 266:21 piece 279:8, 279:11, 284:9, 286:7, 291:4 pig 109:2 pipeline 52:7 place 48:15, 117:13, 186:9, 279:18, 280:10, 280:16, 302:11 placed 37:16, 207:6, 256:4, 258:5, 263:22 placeholder 226:21 placement 257:12, 257:18, 257:22, 270:12, 270:22, 288:19, 289:4 placing 83:13, 132:12, 270:15, 288:4 plain 163:8, 163:14, 163:20, 189:2 plaintiff 13:6, 17:13, 17:15, 19:5, 20:7, 27:8, 29:15, 29:16, 30:10 plaintiff's 27:10 plaintiffs 27:5 plan 53:11, 53:12 plane 178:19, 179:3,</p>	<p>189:21, 213:21, 214:1, 214:4, 215:8, 215:10, 215:22 planning 53:19 plasma 50:17, 54:10, 54:19, 55:3, 55:11, 55:17, 56:2, 62:9, 62:13, 62:16, 62:20, 63:1, 64:17, 65:3, 65:5, 65:9, 67:9, 179:10 plastic 18:6 plated 187:17 platform 40:14 please 10:10, 10:19, 11:5, 67:20, 161:11, 238:4, 267:22, 280:22, 282:16, 282:19, 285:10 plural 244:15, 284:20, 286:10 plurality 170:9, 202:22 plus 103:17, 103:20, 104:5, 104:8, 104:13, 105:12, 106:3, 280:10, 280:19, 281:12, 281:15, 282:3 point 104:12, 143:12, 144:15, 172:4, 175:15, 182:22, 201:4, 205:4, 205:6, 206:15, 213:11, 228:2,</p>
---	---	--	--

<p>245:5, 246:6, 300:10, 301:19 pointed 212:4, 223:5, 231:9 pointing 175:16, 223:6, 230:2, 261:4, 274:19, 281:8, 294:18 points 52:5, 52:19, 110:13 polarities 247:10 polarity 104:1, 104:2, 107:18, 108:1, 240:20, 241:2, 246:5, 246:8, 246:12, 247:4, 247:9, 248:6, 248:9, 254:8, 254:21, 256:6 polycystic 79:18 porous 169:7, 169:10, 170:4, 170:18, 171:19, 172:1, 172:10, 172:14, 173:7, 173:13 portion 210:10, 210:13 portions 92:22, 149:13 posed 11:7 posita 118:9, 118:22, 119:20, 120:7, 120:9, 120:13, 120:20, 120:22, 122:15, 123:22, 125:5, 127:19, 127:20, 128:3, 129:18, 130:4, 130:15, 142:5,</p>	<p>142:16, 143:5, 143:16, 144:1, 144:9, 144:14 position 207:20, 234:3, 283:9, 283:14 positioned 176:2, 177:11 positioning 271:6 positive 107:19, 107:20, 264:1, 265:3, 265:6, 265:17, 281:5 possibility 123:12, 222:1, 222:18 possible 183:2, 190:9, 195:2, 198:7, 219:20, 241:14 possibly 16:20, 28:14, 164:8, 191:4, 263:20, 278:10, 298:22, 300:18 postdoc 140:13 postdoctoral 139:21, 140:8, 141:13, 141:20 postnasal 160:21 potassium 133:10 potential 29:1, 131:18, 266:4, 303:7 potentially 28:22, 232:9 power 125:17, 136:20, 224:11, 225:8, 228:11, 288:11, 295:19, 301:20 practical 120:10, 120:13,</p>	<p>121:21, 122:4, 122:20, 142:15, 143:4 practically 297:12 practice 115:9, 117:2, 122:5, 122:7, 160:2 practitioners 160:8 predictable 288:13, 291:16 preferably 238:17 preferences 198:17, 198:22 premarked 7:16 preparation 34:14, 35:7, 35:20, 36:1, 36:4, 36:7 prepare 31:12, 31:15, 32:7, 32:15, 34:21 preparing 36:10 prescriptive 196:6 present 6:22, 76:11, 76:13, 76:16, 113:15, 113:18, 114:3 press 129:4 pressure 81:19, 138:10, 138:20, 139:6 presumably 59:9 presume 178:4, 195:19 pretty 57:4, 113:3, 236:11, 266:20</p>	<p>prevent 116:22, 193:2 previous 134:21 previously 16:3, 16:7, 39:15, 43:9, 44:7, 44:18, 79:3, 142:8, 164:4, 176:9, 198:11, 221:13, 268:1, 289:8, 289:18 primarily 89:11, 91:4, 146:5 principal 47:13 principles 137:10, 137:11, 295:6 prior 25:13, 31:19, 35:5, 35:6, 35:10, 35:16, 35:17, 68:12, 68:16, 113:16, 113:19, 114:3, 114:8, 114:10, 114:13, 114:19, 115:16, 117:11, 118:21 priority 116:6, 118:17, 150:16 privilege 18:20, 34:16, 36:14 probably 35:11, 74:11, 78:6, 83:20, 90:4, 90:6, 94:3, 96:19, 196:16, 233:22, 264:6, 298:11, 300:7 problem 82:19, 289:3</p>
---	--	--	--

<p>procedure 30:15</p> <p>proceeding 10:7, 20:10, 23:4, 23:7, 39:11, 164:6, 176:15</p> <p>proceedings 9:2, 9:6, 10:2, 10:4, 16:13, 25:18, 38:6, 42:11, 42:17, 42:22, 161:13, 162:13</p> <p>process 19:18, 81:10, 81:22, 82:22, 86:9, 86:10, 147:1, 147:8, 149:7, 151:4, 152:18, 231:12</p> <p>processes 148:8</p> <p>produce 160:19</p> <p>produced 60:1</p> <p>product 22:15, 22:16, 25:2, 26:9, 27:3, 27:4, 27:14, 27:16, 29:2, 29:3, 29:6, 29:11, 49:17, 49:20, 51:9, 52:7, 52:20, 53:5, 53:7, 53:8, 53:15, 53:16, 54:13, 54:16, 55:4, 55:20, 56:6, 56:7, 56:9, 56:15, 56:18, 56:20, 57:6, 57:8, 57:17, 57:20, 57:21, 58:2, 58:3, 58:21,</p>	<p>58:22, 59:6, 59:7, 59:8, 63:17, 65:9, 65:10, 67:10, 80:16, 87:14, 87:16, 88:2, 88:4, 88:6, 88:7, 88:10, 88:11, 90:9, 91:8, 91:9, 92:3, 92:5, 94:11, 94:16, 95:4, 96:14, 96:18, 97:1, 103:4, 103:7, 106:7, 107:2, 108:7, 108:14, 108:16, 108:21, 111:3, 111:12, 111:13</p> <p>products 49:14, 49:15, 50:2, 51:1, 51:5, 51:14, 51:16, 52:13, 53:12, 65:10, 65:11, 67:12, 79:2, 97:4, 106:11, 106:13, 106:20, 111:18, 111:20</p> <p>program 48:10, 123:9, 123:12</p> <p>programmed 147:8</p> <p>programs 140:9</p> <p>progress 66:21</p> <p>project 48:13, 48:15, 48:18, 55:9, 56:4, 66:5, 67:10, 72:3</p> <p>projects 48:11, 57:10</p> <p>pronunciation 67:21</p>	<p>properly 30:11, 110:14</p> <p>properties 126:4, 126:11, 126:14, 126:18, 126:22, 132:1, 132:7, 132:10, 134:7, 134:8, 134:11, 134:12, 134:14, 134:15, 135:3, 135:6, 135:8, 135:10, 135:12, 135:13, 135:16, 135:17, 135:20, 135:21, 136:22, 295:2, 295:3, 295:11, 296:4, 296:6</p> <p>propose 144:6, 196:10, 221:5, 225:18, 228:3, 229:18, 232:2</p> <p>proposed 144:9</p> <p>proposing 221:7, 221:20, 223:17, 225:11, 228:22, 229:12, 230:6, 230:14, 230:15, 230:22, 231:19, 232:15</p> <p>proposition 99:20</p> <p>prosecuting 99:19</p> <p>prosecution 161:6, 161:10, 161:17, 161:22, 162:4, 162:7, 162:11</p> <p>prostate 79:11, 86:6, 86:10, 86:13, 89:13, 130:5, 135:17</p> <p>prostatic 79:12, 85:17,</p>	<p>85:20</p> <p>prosthetic 86:5</p> <p>protect 148:13</p> <p>protein 84:9, 84:11, 146:15, 148:4</p> <p>proteins 146:5, 146:6, 146:21, 148:11</p> <p>protocols 75:19, 76:1, 76:8, 76:18</p> <p>prototype 51:11</p> <p>prototypes 98:5</p> <p>provide 13:22, 20:20, 21:1, 27:18, 84:14, 113:10, 184:2, 222:9, 241:7</p> <p>provided 16:3, 16:7, 16:21, 17:2, 17:5, 18:10, 19:10, 24:20, 25:9, 25:16, 25:19, 27:1, 27:22, 29:8, 31:2, 31:4, 35:3, 36:16, 66:13, 71:2, 114:9, 114:20, 131:3, 162:12, 293:16</p> <p>provides 84:12, 117:17, 197:19, 198:19, 226:11</p> <p>providing 17:16, 21:6, 22:2, 172:15, 292:7</p> <p>proximal 191:4, 192:12</p>
---	--	--	---

<p>proximity 242:19, 262:21, 264:5 public 21:18, 304:1, 304:4 published 87:10, 87:11 pull 46:1, 47:5 pump 62:17 pumped 81:17, 81:18 purpose 138:1 purposes 122:15, 163:7, 187:4, 205:22, 217:6 pushing 219:18 put 19:18, 159:19, 186:9, 188:18, 211:13, 213:3, 234:16, 246:4, 250:17, 282:19, 284:8, 286:21 puts 131:15 putting 108:2, 144:14</p> <hr/> <p>Q</p> <p>qualification 121:18, 122:8 qualifier 135:7 qualifies 144:9 qualify 76:22, 78:6, 88:21, 110:8, 111:22, 120:7, 121:5, 121:22, 122:20, 134:22, 141:22, 142:5,</p>	<p>142:15, 143:5, 143:16, 144:1 quasi 140:6 question 10:18, 11:4, 11:6, 11:9, 25:4, 81:11, 93:6, 99:14, 99:15, 106:1, 119:10, 125:21, 128:8, 128:9, 128:12, 133:12, 134:22, 135:8, 153:16, 155:4, 170:14, 171:15, 176:4, 177:8, 177:9, 182:10, 182:15, 186:21, 192:5, 192:6, 197:5, 201:10, 213:18, 217:21, 221:18, 221:19, 222:14, 223:3, 230:4, 230:5, 231:9, 231:10, 231:16, 233:10, 233:16, 235:5, 238:3, 238:5, 240:5, 240:7, 242:3, 244:9, 247:15, 247:20, 247:21, 248:1, 248:10, 248:12, 253:9, 253:14, 253:15, 255:20, 256:11, 257:5, 257:15, 264:3, 268:10, 280:9, 281:4, 281:22, 284:16, 284:19, 290:18, 293:3, 301:5, 302:4 questioner 9:15, 9:18, 10:6 questioning 10:5, 301:16</p>	<p>questions 41:15, 41:17, 125:12, 162:22, 303:5, 303:8 quite 13:15, 96:5, 106:18, 141:1, 154:17, 204:19, 218:21, 223:2, 261:2, 293:2 quote 292:21, 293:1, 294:13, 294:15</p> <hr/> <p>R</p> <p>r&d 52:20 r-i-o-u-x 101:22 radiation 50:18, 89:7, 238:16 radiofrequency 62:12, 64:6, 73:17, 77:12, 93:21, 94:9, 104:7, 124:17, 125:7, 127:7, 127:10, 128:10, 128:17, 128:18, 129:7, 132:6, 133:2, 133:14, 133:21, 145:12, 145:19, 147:12, 148:3, 149:17, 150:17, 152:12, 157:3, 157:4, 158:18, 187:2, 202:18, 203:2, 203:19, 205:15, 206:8, 206:11, 208:3, 217:6, 217:9, 217:15, 220:5, 237:7, 239:5, 239:12, 239:22, 240:15, 241:1, 242:8, 243:5, 243:10,</p>	<p>243:19, 244:2, 244:11, 245:9, 245:14, 245:15, 245:20, 245:22, 246:7, 246:13, 246:15, 246:18, 246:20, 249:3, 249:9, 249:19, 249:21, 250:5, 250:17, 250:18, 251:5, 251:12, 251:15, 251:18, 251:20, 252:3, 252:7, 252:14, 252:17, 252:18, 252:21, 253:3, 253:11, 253:18, 256:10, 257:21, 258:11, 258:12, 295:22, 297:5, 297:10 radiotherapy 128:20, 128:21 raechel 6:22 raised 300:10 raising 295:17 ran 48:10 random 208:17, 270:12, 270:16, 280:6, 288:5, 289:4, 291:1, 291:11 randomly 208:21 range 233:3, 234:14, 235:8, 235:11, 235:14, 235:17, 236:5, 236:12, 236:13, 236:15, 236:16, 237:2, 237:9, 237:12, 237:17, 238:6, 238:8, 238:10,</p>
--	---	--	---

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

346

238:11 ranges 243:16 rather 112:1 rd 32:19, 33:19, 34:10 rdr 1:22, 2:22, 3:22, 4:22, 305:12 reached 51:11 reaches 109:21 read 165:21, 167:11, 169:13, 169:19, 170:2, 170:8, 170:10, 171:2, 171:16, 172:5, 173:4, 174:2, 201:6, 204:5, 235:3, 293:4, 293:9 reader 189:16 reading 165:12, 236:1 really 45:16, 97:12, 125:12, 144:1, 144:2, 144:7, 147:15, 151:2, 188:4, 202:14, 202:15, 219:9, 293:11, 301:19 reask 25:4, 142:11, 238:3, 253:9, 256:10 reason 10:13, 158:11, 159:13, 237:9 reasons 137:4 recall 12:2, 12:4,	12:9, 12:14, 12:18, 13:2, 13:5, 13:14, 14:21, 15:1, 15:2, 15:6, 17:9, 17:11, 17:12, 17:19, 18:10, 18:18, 19:1, 19:7, 20:6, 20:7, 21:9, 21:11, 21:13, 21:16, 21:18, 21:20, 22:2, 22:8, 22:10, 22:19, 22:21, 23:6, 23:14, 23:21, 24:5, 24:9, 25:20, 26:2, 27:9, 27:10, 27:21, 28:12, 28:14, 28:16, 31:8, 33:6, 35:6, 35:19, 35:22, 36:3, 36:6, 40:1, 40:9, 41:3, 41:5, 41:6, 41:7, 41:10, 41:12, 41:19, 42:8, 48:14, 48:16, 54:2, 64:14, 64:18, 64:22, 68:2, 79:22, 88:6, 88:7, 100:21, 101:6, 116:6, 154:22, 173:16, 296:18 receive 100:17 received 15:21, 28:19, 51:22 receives 91:20 receiving 139:18	recent 93:13, 93:18, 94:1, 220:15, 220:20 recently 79:17, 117:8, 220:4, 220:22 recess 67:19, 113:6, 164:2, 209:13, 248:17 recite 252:2, 252:6 recited 249:4 recites 190:10, 190:14, 191:22, 208:2, 239:4, 239:8, 248:19, 252:10, 267:5 recollection 16:19, 230:4 reconfirm 118:1 record 10:11, 30:12, 37:19, 162:20, 164:13, 176:14, 221:15, 253:13, 266:11, 283:16, 283:17, 283:18, 283:22, 284:4, 287:3, 302:12, 302:13, 304:10 record's 153:19, 155:4, 161:16 records 30:19 rectangles 210:5, 210:7 red 279:9, 284:11, 290:15 redundant 244:15, 245:6 refer 43:5, 43:15,	44:2, 44:12, 44:13, 45:1, 118:8, 176:3, 257:11 reference 43:6, 113:16, 113:19, 114:3, 152:21, 153:1, 153:2, 153:3, 158:20, 165:2, 165:18, 174:3, 174:7, 174:11, 174:15, 175:5, 199:20, 221:14, 261:4 referenced 105:8 references 37:8, 152:20, 153:8, 153:19, 154:2, 154:11, 154:13, 155:17, 155:18, 223:11, 232:10 referred 170:19, 200:1 referring 43:17, 44:4, 44:15, 45:3, 53:3, 72:3, 74:10, 78:11, 84:16, 92:11, 140:13, 145:18, 170:4, 170:18, 171:1, 171:19, 172:2, 173:19, 176:6, 221:1 refers 52:14, 170:17, 173:7, 173:13, 191:12 refresh 154:5, 230:3 regard 205:18 regarding 9:1, 70:12, 70:16, 70:20,
---	---	--	---

PLANET DEPOS

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Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

347

<p>125:22, 221:18, 291:20 regards 301:11 region 149:22 regular 271:1, 271:2, 291:16 regularity 288:10, 288:14, 288:17, 288:19 relate 291:21 related 48:13, 122:13, 123:2, 304:21 relates 43:12, 43:21, 44:9, 44:20, 112:1 relative 142:20, 214:2 relay 227:12 relays 227:11, 227:12 released 49:15, 51:10, 51:16, 51:21, 54:13, 54:16, 55:4, 58:5, 63:17, 87:14, 87:17, 88:3, 88:6, 88:7, 88:12, 90:9, 92:5, 94:11, 97:10, 97:11, 106:11, 106:13, 107:2, 112:16 releasing 87:21 relevance 107:5, 107:10, 107:17, 108:4, 108:18, 108:22, 111:5, 111:14, 112:14, 122:2,</p>	<p>125:14, 137:22, 138:13, 148:19, 148:22, 170:1, 180:17, 187:6, 188:12, 202:7, 203:11, 206:14, 211:18, 222:17, 223:1, 223:18, 229:15, 231:4, 231:22, 232:4, 232:17, 241:13, 243:7, 249:5, 249:20, 250:15, 251:2, 251:13, 253:6, 253:19, 271:19, 275:4, 276:4, 276:8, 277:20, 278:9, 278:22, 279:12, 280:9, 280:15, 281:3, 281:21, 282:14, 284:16, 285:12, 285:16, 285:20, 286:1, 286:4, 286:17, 287:6, 289:21, 290:2, 290:7, 290:11, 290:22, 291:6, 291:13, 296:1, 296:8, 298:10, 298:15, 299:4, 299:10, 299:19, 300:6, 300:17 relevant 10:2, 118:14, 119:4, 119:7, 119:12, 119:16, 125:9, 125:19, 126:2, 131:3, 136:7, 137:2, 138:20, 277:21 reliable 59:15 relied 42:15 relook 104:22</p>	<p>rely 42:9, 133:18 relying 117:12, 222:14 remain 295:6 remainder 284:4 remained 98:5 remains 107:3 remember 16:20, 25:1, 27:1, 29:10, 41:2, 41:21, 176:22, 279:7 remind 220:8 remotely 6:3, 6:17, 9:12 removing 82:11, 83:1, 83:13, 150:1 rendered 301:1 repair 151:8 repeat 217:20, 231:16, 256:17, 301:5 repeating 271:5, 271:9 rephrase 242:7 report 17:2, 17:5, 18:2, 18:11, 18:14, 18:18, 20:21, 21:6, 22:3, 22:10, 22:21, 24:10, 24:17, 24:21, 25:9, 27:18, 28:20, 29:10, 30:7, 30:9, 31:5, 144:13, 145:18, 145:21,</p>	<p>149:10, 175:12, 233:8, 258:17 reported 1:22, 2:22, 3:22, 4:22, 102:8, 102:9, 102:10 reporter 10:16, 10:22, 39:7, 175:7, 283:1, 304:1, 304:3 reports 13:18, 21:9, 25:19, 27:21, 28:13, 28:16, 29:21, 66:21 represent 37:19, 43:11, 43:20, 44:8, 44:19, 99:10, 103:21, 103:22, 104:19, 105:13, 106:4, 154:6, 169:17, 176:19 representation 224:11 represented 29:19, 304:14 representing 29:16, 171:10, 176:16, 301:9 represents 279:14 reproduced 200:15, 239:3, 239:16 request 11:9 required 100:10, 112:19, 227:13 requirements 53:7, 53:14 requires 215:19, 251:19, 270:21, 300:9 research 49:13, 52:6,</p>
--	--	---	--

PLANET DEPOS

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Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

348

<p>140:8, 140:9, 141:14 reserve 9:22 resolution 288:6, 288:9, 288:21, 289:13, 290:1, 290:5, 290:20, 291:9 respond 253:14 response 151:7, 151:21, 152:2, 152:4 responses 11:2 responsibilities 52:18 responsible 49:13, 87:21 rest 172:20, 218:20, 226:21, 226:22 resulted 99:22 results 87:10 retracted 60:22 return 156:9, 156:16, 157:15, 157:18, 160:10, 160:20, 161:2 returns 157:10 reusable 29:12 reveal 18:21, 36:15 review 34:14, 34:20, 36:9, 36:11, 161:15, 161:17, 162:7, 162:11, 168:13, 233:21, 234:9 reviewed 35:4, 35:6,</p>	<p>35:17, 161:6, 161:21, 162:3, 166:4, 166:13, 167:5 reviewing 35:19, 35:22, 36:3, 36:6, 66:20, 66:21 rf 62:15, 125:14, 125:15, 133:8, 145:18, 146:1, 152:18, 187:13, 189:11, 215:5, 215:9, 215:14, 215:16, 215:19, 225:8, 226:9, 226:18, 226:19, 226:21, 227:1, 227:13, 227:20, 233:2, 234:1, 234:13, 237:12, 238:16, 238:18, 243:15, 263:12, 263:17, 296:6, 296:10 rhinitis 160:11, 160:14, 160:16 rica 58:1 ride 201:19 ridiculous 283:9, 283:14 rigid 180:20, 181:1, 181:4, 218:12 ring 178:12, 178:18, 178:22, 179:3, 179:22, 180:1, 180:4, 180:7, 180:12, 180:15, 181:1, 181:4, 181:13, 181:16, 181:19, 181:21, 181:22, 182:1,</p>	<p>182:13, 187:2, 187:7, 187:19, 188:3, 188:15, 188:18, 212:16, 212:20, 212:22, 213:5, 213:9, 213:14, 213:22, 214:3, 214:5, 214:22, 218:4, 218:8, 218:11, 218:15, 218:19, 219:7, 219:11, 219:12, 219:18 rings 178:19, 178:20, 179:2, 180:20, 181:19, 213:3, 213:12 rioux 101:22 rise 127:15, 127:22, 136:19, 288:12 road 83:2 room 32:2 routinely 292:15, 293:7, 294:12 row 209:3, 270:21, 271:15, 271:16, 272:10, 272:11, 272:14, 272:15, 273:6, 273:7, 273:12, 273:13, 273:14, 273:22, 274:7, 274:8, 274:9, 274:20, 274:22, 275:2, 275:6, 275:9, 275:11, 276:5, 276:6, 276:7, 279:1, 279:2, 282:16, 282:17, 284:14, 284:19, 284:22, 285:10,</p>	<p>285:15, 285:18, 285:21, 286:7, 286:13, 286:22, 287:1, 287:4, 287:8, 287:9, 287:13, 287:14, 288:20, 289:7, 289:9, 289:17, 289:18, 289:22 rows 251:7, 251:8, 267:6, 267:8, 267:14, 267:16, 268:11, 269:1, 269:4, 269:13, 269:17, 270:3, 270:6, 270:14, 270:16, 270:19, 272:22, 273:2, 273:11, 274:6, 274:13, 275:16, 276:1, 276:5, 278:6, 278:13, 278:14, 278:21, 282:12, 282:16, 286:12, 286:14, 288:3 rudimentary 71:19 run 54:5, 92:16, 104:16, 243:13, 243:17, 243:19, 245:18 running 62:13 <hr/>S<hr/>s 17:3, 17:6, 87:19, 239:20 safe 137:10 safety 22:14, 24:9, 111:1, 136:10 said 12:11, 12:16,</p>
--	--	--	---

<p>15:7, 17:5, 18:15, 19:4, 19:19, 20:10, 22:2, 25:16, 27:11, 28:6, 28:12, 32:21, 33:3, 33:18, 45:19, 58:6, 58:20, 60:5, 63:21, 80:6, 81:4, 85:21, 86:2, 90:20, 91:22, 92:1, 93:12, 96:21, 122:11, 125:1, 128:8, 141:4, 141:16, 183:7, 187:18, 195:14, 204:17, 216:12, 223:12, 226:3, 243:8, 243:9, 245:19, 256:20, 262:22, 263:20, 293:12, 302:3</p> <p>sake 43:1</p> <p>same 24:7, 32:11, 34:7, 34:22, 53:15, 64:20, 75:5, 97:14, 107:15, 107:21, 117:21, 131:21, 135:3, 136:9, 137:11, 159:11, 159:17, 168:9, 168:17, 172:3, 174:5, 176:21, 203:14, 204:5, 207:16, 218:19, 239:9, 240:13, 241:20, 243:11, 245:15, 245:21, 246:4, 246:11, 247:4, 247:5, 247:9, 248:6, 248:9, 249:2, 249:14, 249:18,</p>	<p>250:2, 250:14, 250:22, 251:11, 253:17, 257:13, 262:2, 268:14, 278:16, 281:5, 281:17, 282:6, 282:7, 282:9, 282:18, 282:21, 284:18, 287:11, 287:16, 295:7, 298:5, 299:15, 300:2, 300:21</p> <p>sarah 5:13, 5:18, 8:18, 31:20, 32:1, 32:7, 32:15, 33:9, 33:11, 33:14, 33:19, 34:1, 34:3</p> <p>satisfy 129:18</p> <p>satisfying 198:17</p> <p>saying 54:2, 124:1, 144:3, 188:3, 200:9, 203:7, 205:8, 206:1, 206:10, 226:2, 234:17, 247:6, 247:10, 260:20, 271:16, 273:6, 273:8, 273:12, 273:22, 274:8, 274:22, 275:2, 275:8, 279:5, 279:21, 294:10</p> <p>says 52:18, 105:5, 105:15, 105:18, 105:19, 106:6, 123:19, 128:2, 143:7, 147:9, 150:15, 169:6, 172:5, 172:9, 172:13, 173:4, 174:3, 174:6,</p>	<p>175:12, 175:13, 177:14, 182:7, 185:16, 194:21, 199:8, 200:16, 201:7, 202:22, 203:18, 205:18, 214:20, 233:2, 233:8, 233:13, 238:15, 256:18, 258:19, 263:11, 269:12</p> <p>scale 179:2</p> <p>schematic 221:7, 221:20, 223:7, 224:10, 228:22, 229:13, 231:1, 231:19, 232:15</p> <p>schematics 223:6</p> <p>school 70:4</p> <p>science 46:18, 46:19, 120:5, 120:21, 122:12, 122:21, 141:5, 141:17, 142:3, 142:13, 143:3, 143:13, 144:15, 144:16</p> <p>scientist 90:6</p> <p>scope 130:3, 130:5, 130:10, 130:14, 130:17</p> <p>se 48:8, 48:9, 60:4, 258:4, 293:3</p> <p>sec 272:2</p> <p>second 10:6, 46:6, 95:17, 96:22, 97:7, 125:21, 145:17, 200:18,</p>	<p>200:22, 201:9, 201:12, 202:13, 279:9, 280:21, 288:1</p> <p>second-to-last 78:19, 149:11, 254:1</p> <p>section 52:3, 52:17</p> <p>sections 36:12</p> <p>see 34:3, 35:8, 37:14, 37:15, 41:15, 52:6, 52:8, 52:19, 77:19, 77:22, 78:19, 85:9, 98:20, 100:4, 101:11, 102:16, 103:17, 104:13, 104:17, 105:5, 105:7, 107:19, 113:13, 113:16, 115:3, 115:6, 117:9, 118:13, 119:8, 119:19, 120:1, 139:12, 140:7, 145:11, 149:12, 149:14, 150:14, 150:19, 153:4, 153:17, 154:22, 156:6, 156:11, 157:16, 163:5, 163:11, 165:7, 165:9, 166:8, 169:6, 169:11, 174:3, 174:6, 178:7, 184:6, 190:3, 196:13, 199:8, 199:10, 199:20, 200:16, 201:10, 203:17, 203:21, 204:9, 208:1, 210:5, 211:6, 211:8, 211:16, 211:19, 220:3,</p>
---	---	---	---

<p>222:11, 223:7, 225:21, 229:7, 233:2, 233:4, 237:2, 238:13, 248:21, 249:13, 253:12, 254:2, 273:7, 277:2, 288:2, 288:6, 291:19, 292:1, 292:12, 292:17 seem 251:15, 259:6 seems 159:5, 202:3, 251:14 seen 61:14, 99:11, 105:11, 137:16, 164:21, 189:2, 237:8, 240:19, 241:9, 268:6, 274:13 select 187:15 selectable 263:15 selection 187:14 selective 263:17 sense 46:4, 67:16, 115:12, 198:13, 209:9, 215:13, 219:1, 240:8, 240:21, 240:22, 269:3 sensors 206:18, 225:15 sentence 46:6, 77:18, 78:19, 98:18, 139:12, 141:8, 143:7, 144:6, 144:12, 145:11, 149:11, 150:14, 156:6, 163:6, 165:8, 165:12,</p>	<p>165:21, 166:1, 169:5, 169:9, 169:12, 169:19, 169:20, 170:2, 170:3, 170:7, 170:16, 170:17, 171:1, 171:16, 171:18, 172:5, 173:3, 174:2, 174:4, 175:17, 177:13, 178:2, 199:7, 200:12, 201:7, 220:3, 233:1, 234:18, 236:22, 254:1, 258:19, 259:1, 288:1, 292:13 sentences 259:6 separate 10:7, 198:1, 248:8 september 1:14, 2:14, 3:14, 4:14, 8:1, 9:9, 32:19, 32:22, 33:3, 33:4, 33:7, 33:11, 33:19, 34:10, 304:18, 305:5 serial 165:16, 165:19, 166:4, 166:22, 167:5, 168:10, 168:17, 173:6, 173:12, 173:20, 174:10, 174:15, 174:21 serially 213:3 series 86:21, 87:2 served 26:13, 26:15 set 75:10, 239:18, 241:18, 278:14,</p>	<p>304:7, 305:5 setting 73:8, 73:13, 73:18 settings 281:13 seven 33:12, 34:12, 34:13, 44:3 several 31:2, 79:1, 85:5, 88:22, 142:4, 152:20, 237:7 shaft 190:11, 190:15, 191:9, 191:12, 191:22, 192:7, 192:10, 192:17, 193:3, 193:4, 193:5, 193:6, 194:21, 195:19 shall 283:15 shape 60:16, 60:17, 62:1, 62:4, 62:7, 84:10, 84:11, 112:1, 112:4, 112:8, 112:12, 112:15, 112:20, 112:21, 113:1, 179:21, 181:6, 181:11, 181:12, 181:15, 181:20, 201:18, 208:16, 242:19 shaped 190:22 share 34:17, 35:1 sheath 59:12, 59:22, 61:1 sherwood 17:3, 17:6, 17:12, 18:4, 19:4, 25:15,</p>	<p>26:2 shock 148:11 shorthand 304:1 should 45:16, 46:10, 66:14, 78:5, 88:21, 110:7, 158:10, 164:11, 202:15, 257:15 show 184:20, 197:16, 199:17, 210:19, 223:12, 223:21, 286:2, 286:14, 287:14, 288:17, 288:18 showed 30:12, 283:10, 283:12 showing 182:17, 189:5, 199:14, 284:17 shown 106:15, 184:16, 189:15, 190:2, 194:13, 194:15, 194:18, 199:8, 210:17, 213:10, 216:3, 216:10, 224:12, 224:22, 229:1, 260:13, 262:12, 266:12, 279:15, 283:22 shows 184:2, 199:9, 212:8, 214:12, 214:14, 216:8, 217:13, 218:2, 223:14, 242:1, 255:11, 287:9, 289:9, 289:18 shrink 150:19, 152:9 shrinking 150:22, 152:4 shrugs 11:2</p>
---	---	--	---

<p>shut 55:9</p> <p>side 61:21, 61:22, 62:4, 107:14, 107:20, 107:21, 274:17</p> <p>sides 189:18</p> <p>sign 280:10, 280:16, 280:19</p> <p>signal 226:9, 226:20</p> <p>signature-mig2k 305:10</p> <p>signs 103:17, 103:20, 104:14, 105:13, 106:3</p> <p>similar 29:14, 46:16, 106:8, 107:22, 112:7, 112:22, 113:1, 118:3, 118:7, 135:5, 139:1, 158:13, 159:5, 242:19, 251:16, 267:12, 279:15, 281:14, 281:16</p> <p>similarly 135:4, 264:4</p> <p>simple 137:7, 144:11</p> <p>simplest 104:4, 104:7, 240:21, 240:22</p> <p>simplification 104:10</p> <p>simplified 107:7, 288:5, 288:8, 288:21, 289:13, 290:1, 290:5, 290:20, 291:9</p> <p>simplify 180:8</p>	<p>simplistic 242:4</p> <p>simply 213:2</p> <p>simulation 91:5, 91:19, 92:19</p> <p>simulations 92:17</p> <p>simultaneously 84:8</p> <p>since 45:5, 58:17, 83:11, 144:13, 150:15, 198:6, 303:12</p> <p>single 9:15, 113:15, 113:18, 114:3, 114:10, 209:3, 284:13, 284:19, 284:22, 285:10, 285:15, 285:18, 285:21, 287:4, 287:9, 287:14, 288:20, 289:9, 289:18</p> <p>sinus 177:16</p> <p>sinusoid 233:7, 233:9, 233:14, 233:18, 234:5</p> <p>six 34:4, 52:18</p> <p>size 112:1, 112:8, 112:17, 112:20, 159:11, 159:17, 179:21, 242:19</p> <p>skill 115:20, 117:4, 117:18, 117:21, 118:8, 120:15, 121:5, 122:1, 122:9, 163:10, 186:12</p> <p>skilled 114:6, 115:15,</p>	<p>120:17, 186:3, 186:7, 187:15, 195:18, 197:9, 197:18, 199:4, 222:19, 227:7, 233:22, 295:13</p> <p>skin 135:3, 135:4</p> <p>slight 82:19</p> <p>slightly 112:4</p> <p>slip 18:6, 18:15, 25:17</p> <p>small 46:8, 133:9</p> <p>smaller 52:12, 159:13</p> <p>snow 83:1, 83:2, 83:5</p> <p>sodium 133:10</p> <p>some 25:16, 35:4, 35:8, 40:14, 40:15, 43:1, 72:1, 75:16, 75:18, 76:17, 78:4, 78:10, 85:2, 85:7, 85:17, 91:12, 92:1, 92:12, 95:20, 120:10, 120:13, 121:18, 123:5, 125:6, 125:8, 133:18, 137:9, 138:3, 141:14, 144:17, 146:16, 147:18, 147:19, 147:22, 148:2, 157:5, 187:22, 188:4, 197:20, 198:9, 200:15, 210:3, 216:1, 225:14, 226:11, 226:13,</p>	<p>269:8, 269:10, 270:21, 270:22, 271:4, 271:13, 271:17, 288:4, 288:10, 288:19, 291:10, 291:22, 293:16</p> <p>somebody 120:7, 121:5, 121:13, 121:20, 142:3, 142:13, 143:2, 143:12</p> <p>somehow 194:4, 218:20, 270:1</p> <p>someone 82:20, 102:9, 102:10, 114:5, 120:16, 144:15, 186:3, 186:7, 186:12, 187:14, 222:19, 233:22, 295:13</p> <p>something 26:9, 51:9, 54:2, 58:20, 61:17, 80:3, 83:16, 84:16, 84:18, 88:15, 90:13, 93:12, 93:13, 99:5, 107:13, 137:19, 138:2, 148:14, 155:16, 190:21, 192:11, 194:22, 196:7, 197:6, 198:18, 198:19, 201:4, 205:10, 208:19, 222:21, 240:5, 243:11, 260:22, 262:19, 270:13, 271:4, 281:14, 281:18, 290:16</p> <p>sometime 17:6, 68:5, 101:3</p> <p>sometimes 123:4, 138:8</p>
--	---	---	---

<p>somewhat 158:13, 178:2</p> <p>somewhere 66:3, 178:4, 257:1, 276:9, 282:20, 286:22</p> <p>soon 162:16</p> <p>sorry 19:3, 19:9, 22:5, 23:17, 25:2, 40:20, 54:5, 64:17, 65:2, 71:10, 82:10, 88:1, 110:4, 134:21, 171:7, 192:5, 200:8, 217:20, 225:19, 237:20, 238:2, 240:4, 240:12, 244:9, 251:22, 268:2, 272:2, 276:17, 277:9, 293:2, 296:13, 301:5, 301:8</p> <p>sort 61:22, 62:2, 62:4, 151:10, 188:4, 191:13, 219:18, 291:10</p> <p>sound 11:11, 50:20, 113:4, 132:1, 132:7, 133:21, 247:17</p> <p>sounds 25:14, 40:2, 82:3, 113:5, 137:7, 145:8, 159:5, 171:22, 172:1, 205:17, 215:11, 245:1, 245:13, 247:14</p> <p>source 50:18, 105:16, 226:18</p> <p>sourced 109:3</p>	<p>south 6:11</p> <p>spaced 270:1</p> <p>spacing 271:6, 288:11, 288:15</p> <p>spanish 60:21</p> <p>spanning 221:1</p> <p>spans 220:18</p> <p>spatial 269:5, 269:8, 269:10, 270:5, 288:5, 288:8, 288:21, 289:13, 290:1, 290:5, 290:20, 291:9</p> <p>speak 31:15, 31:18, 32:6, 32:10, 32:14, 33:10, 33:22, 38:11, 38:16, 38:22, 40:11, 40:12, 41:13</p> <p>speaking 33:13, 34:6, 199:4, 219:4, 267:15, 268:11, 297:7</p> <p>specific 10:1, 124:11, 124:16, 149:7, 152:17, 172:1, 184:20, 191:20, 201:5, 231:5, 231:8, 231:10, 236:15, 255:10, 298:16, 299:12</p> <p>specifically 46:7, 78:12, 86:13, 109:13, 110:6, 111:4, 117:12, 127:17, 140:13, 140:16,</p>	<p>146:21, 151:11, 154:8, 182:16, 195:7, 195:17, 205:7, 206:16, 208:8, 240:6, 294:2, 294:6</p> <p>specification 110:22, 172:20, 268:17</p> <p>specifications 66:14, 171:9</p> <p>specifics 18:1</p> <p>specify 179:7</p> <p>specifying 269:5</p> <p>spectrum 297:12</p> <p>spelled 58:11</p> <p>spent 55:7, 96:17</p> <p>split 120:22</p> <p>spoke 31:19, 32:21, 33:3, 33:6, 33:18, 34:11, 39:21, 40:9, 41:3</p> <p>spoken 36:18, 38:5, 38:8, 38:14, 38:19, 39:3, 39:15, 39:18, 40:5, 237:13</p> <p>spot 111:9, 113:3, 164:1</p> <p>spots 187:10</p> <p>sprayed 81:19</p> <p>squiggle 226:17</p> <p>staff 90:6</p>	<p>stages 89:1</p> <p>stainless 187:16</p> <p>standard 113:11</p> <p>start 46:8, 80:5, 91:14, 127:17, 141:9, 166:14, 302:17</p> <p>started 8:20, 21:20, 21:22, 56:12, 56:15, 87:9, 90:4, 94:3</p> <p>starting 96:2, 108:7, 166:20, 170:10, 220:10, 220:11, 272:7</p> <p>starts 165:9</p> <p>startup 66:5, 66:12</p> <p>state 5:14, 10:10, 118:13, 119:19, 182:5, 182:11, 182:12, 182:18, 183:4, 184:1, 184:3, 184:21, 185:4, 210:20, 211:1, 211:2, 211:15, 212:9, 216:9, 217:14, 218:3</p> <p>stated 251:3</p> <p>statement 236:19, 237:5, 294:19</p> <p>states 1:1, 2:1, 3:1, 4:1, 94:14, 263:10</p> <p>stay 148:9, 218:19</p>
---	---	--	--

step 251:8 sterilization 29:11, 30:14, 30:17, 30:20 sterilizes 29:12 stern 31:22, 32:4, 35:13, 197:19, 221:5, 221:12, 221:14, 221:19, 222:2, 222:5, 222:11, 222:14, 223:13, 223:19, 224:7, 226:8, 227:2, 227:22, 228:3, 228:4, 228:8, 228:11, 228:20, 229:6, 229:18, 229:19, 230:7, 230:9, 230:10, 230:11, 230:14, 230:15, 230:21, 231:17, 231:18, 232:3, 232:6, 232:7, 232:9, 232:14, 233:2, 233:6, 233:17, 234:4, 234:6, 234:13, 234:18, 234:19, 235:1, 235:5, 235:8, 235:11, 235:13, 235:19, 235:20, 236:4, 236:11, 237:17, 237:20, 238:5, 238:19, 241:22, 247:2, 254:2, 255:10, 256:15, 256:18, 257:2, 258:19, 261:3, 261:17, 261:22, 262:3, 262:6, 263:10, 266:6, 266:12, 277:4, 279:15, 293:18,	293:21, 294:2, 294:17, 294:19 stern's 196:11, 196:18, 197:1, 221:8, 221:10, 221:20, 224:22, 225:4, 225:11, 225:12, 225:18, 225:19, 226:10, 229:13, 231:1, 231:19, 232:16, 238:11, 247:2, 254:12, 254:16, 255:5, 255:13, 256:11, 257:5, 258:18, 262:11, 293:18 still 21:21, 22:5, 61:12, 82:17, 92:6, 112:2, 112:3, 120:17, 131:20, 136:21, 140:5, 160:5, 181:7, 181:14, 182:13, 216:21, 225:9, 266:20, 269:16, 270:2, 275:15, 278:5, 278:14, 278:21, 284:11, 289:4, 289:5, 302:16, 303:11, 303:12 stop 302:11 stopping 301:19 straight 61:16, 280:22, 282:2 strategies 57:18 strategy 52:21, 53:2, 53:5, 53:6, 53:9, 53:15, 53:18, 55:21 stream 62:16	street 5:14, 6:4, 6:11 strict 82:20 strictly 123:5 strike 15:12, 27:12, 42:2, 58:19, 96:12, 296:13 structure 84:12, 84:13, 84:14, 146:17, 146:19 structured 144:6 structures 84:5, 135:5, 292:14, 292:20, 293:6, 294:11 struggling 181:14 strut 175:13, 180:19, 182:8, 182:9, 189:13, 189:15, 190:4 struts 188:6, 188:10, 188:19, 189:3, 189:7, 189:21, 190:1 students 48:11, 48:12, 71:21, 72:4 studied 71:17, 72:9, 72:16, 73:2, 123:7, 123:9, 123:11 studies 75:16, 76:10, 76:11, 76:12, 87:2, 90:5 study 76:13 stuff 11:2, 25:5,	37:4, 67:2, 91:14, 194:20, 195:14, 195:16, 195:18, 195:20, 197:11, 197:14, 212:5, 258:8, 303:15 style 184:13 subject 13:12, 22:9, 24:6, 28:16, 30:8, 37:21, 38:8, 100:12, 143:1 submission 10:3 submit 29:21 submitted 9:1, 9:5, 21:10, 23:3, 23:7, 24:4, 30:1, 30:7, 37:22, 43:12 submitting 22:10, 22:21, 28:13, 28:17 subsequent 112:2 subsequently 88:9, 126:9, 152:2 subsets 254:4, 256:19, 258:21 substance 18:2, 18:14, 28:20, 81:18, 303:1 substantially 253:20 substrate 187:11, 271:7 successfully 109:11 sudden 160:4
--	---	--	---

<p>sued 13:8, 27:7 sufficient 11:3, 122:15, 124:3, 125:5, 227:12 suggested 225:22, 226:2, 226:3 suggesting 205:9 suicide 147:10 suitable 165:10, 165:14, 170:12, 173:4, 173:19, 179:9, 185:18, 185:21, 292:16, 292:22, 293:8, 293:12, 294:14 suite 6:4, 6:11 summarize 22:20, 25:15, 25:19 summarizes 67:7, 80:1 summary 37:8, 37:10, 37:11, 37:12 sums 77:4, 89:14 sunday 33:8 superimportant 105:22 supervise 102:2 supervised 102:4, 102:6 supplies 105:16 supplying 157:4 support 57:8 supported 57:21, 58:2</p>	<p>supposed 63:11, 115:19, 144:8, 179:5, 187:22, 188:9, 189:1, 272:14, 272:15, 303:13 sure 9:18, 23:8, 25:6, 37:17, 54:8, 57:17, 90:12, 96:5, 117:3, 118:2, 131:9, 131:11, 134:6, 135:1, 141:1, 154:17, 166:6, 167:16, 167:21, 184:9, 202:9, 204:19, 215:3, 218:22, 223:2, 243:20, 248:15, 255:12, 266:16, 269:9, 276:3, 279:19, 285:4, 293:16, 296:15, 297:7, 297:17, 301:8 surface 113:1, 129:4, 165:10, 165:14, 170:13, 173:5, 173:8, 173:13, 173:19, 174:16, 186:19, 189:6, 189:13, 189:15, 190:8, 202:19, 203:2, 203:4, 203:12, 203:20, 204:7, 207:2, 215:1, 258:5, 279:14, 279:15 surgeon 198:17, 198:22 surgeons 198:18, 199:5 surgery 54:11 surgical 19:15, 22:15,</p>	<p>49:14, 50:2, 50:18 surrounding 150:9 survive 147:6 survives 151:7 suspended 303:21 swapped 278:7 swapping 278:19 switch 242:1, 247:10, 259:2, 259:7, 259:22, 261:14, 263:10, 266:19, 281:12 switches 227:10, 247:2, 254:4, 254:9, 254:13, 254:17, 255:1, 255:4, 255:14, 256:13, 256:20, 257:7, 258:21, 259:11, 259:12, 259:13, 259:20, 261:12, 261:15, 262:12, 263:14, 263:15, 263:16, 264:21, 265:2, 265:9, 265:15, 266:1, 266:2, 266:8, 266:12, 266:14, 272:21, 273:1, 274:3, 278:14 switching 281:16 sworn 8:4, 304:8 symmetric 219:15, 219:17 syndrome 79:19 system 261:16</p>	<p>systems 85:3, 85:5</p> <hr/> <p>T</p> <hr/> <p>t-r-e-m-o-n-t 47:14 table 302:15 tactile 198:18 take 11:10, 62:17, 80:2, 92:16, 108:3, 113:4, 142:11, 155:2, 181:5, 181:21, 216:16, 223:20, 236:2, 244:10, 247:7, 251:8, 277:3, 283:9, 283:14, 283:15 taken 67:19, 71:14, 72:12, 72:20, 113:6, 164:2, 209:13, 248:17, 304:9 taking 10:16, 10:22, 207:21, 289:12 talk 10:18, 20:6, 20:17, 26:8, 26:21, 33:2, 85:16, 108:6, 124:9, 131:9, 202:15, 234:4, 258:3, 258:4, 258:6, 261:21, 269:2, 283:7, 296:15, 303:13 talked 31:4, 31:6, 72:2, 95:1, 95:3, 107:1, 133:20, 187:1, 214:11, 296:16 talking 19:21, 20:2,</p>
---	--	--	---

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

355

<p>22:5, 23:22, 24:3, 24:8, 25:5, 29:6, 31:1, 51:4, 62:9, 84:21, 86:17, 91:15, 94:2, 108:13, 109:17, 111:11, 116:21, 118:9, 124:19, 127:16, 127:21, 127:22, 128:2, 128:5, 137:15, 141:2, 146:21, 152:20, 174:4, 176:11, 182:16, 191:17, 191:20, 196:13, 202:10, 206:9, 206:10, 211:16, 227:21, 228:1, 228:19, 229:21, 251:22, 260:2, 274:16, 294:20, 296:12, 296:14, 297:18 talks 258:4 teach 236:15 teaches 175:13, 222:2, 224:22, 225:4, 228:8, 228:11, 233:2, 233:17, 234:5, 234:13, 234:18, 234:19, 236:4, 236:11, 254:2, 256:18, 258:19 teaching 293:19 teachings 174:21 team 27:7, 55:19, 57:8, 57:11, 66:13, 96:8, 96:9, 96:10,</p>	<p>96:12, 96:13, 96:19, 97:3, 97:6, 97:21, 98:3, 98:10, 98:13, 210:3 technical 17:17, 56:4, 66:15, 66:16, 292:13, 292:20, 293:5, 294:11 technician 6:22 technologies 69:12, 69:15 technology 24:8, 52:13, 55:6, 55:12, 57:10, 58:7, 58:14, 58:18, 64:9, 64:12, 64:15, 64:19, 65:1, 65:3, 65:5, 65:11, 66:2, 66:6, 187:3 tell 158:14, 167:11, 179:11, 179:17, 183:5, 183:18 temperature 18:5, 18:8, 91:6, 93:20, 109:21, 125:18, 126:9, 127:15, 127:21, 136:19, 146:2, 146:3, 147:3, 147:14, 147:15, 149:12, 151:4, 225:16, 288:12, 300:9 ten 15:1, 15:8, 15:11, 52:1, 220:19 term 75:6, 82:19, 83:6, 83:15, 110:6, 145:18,</p>	<p>161:9, 169:18, 170:4, 170:22, 171:12, 173:19, 180:1, 190:19, 191:9, 192:7, 196:6, 196:7, 208:5, 236:18, 239:5, 239:9, 239:11, 239:21, 240:1, 240:9, 240:14, 241:1, 244:1, 244:3, 245:8, 245:13, 245:15, 245:19, 245:21, 248:19, 249:1, 249:3, 249:17, 249:18, 250:3, 251:10, 251:11, 252:6, 252:20, 253:2, 253:4, 253:16, 253:17, 256:8, 257:9, 257:20, 267:6, 267:8, 267:16, 268:11, 268:19, 269:4 terminal 104:6 terminated 194:19, 195:16 terminology 82:6, 159:1, 160:7, 258:17 terms 10:5, 163:8, 163:14, 163:19, 249:17, 250:1, 250:3, 250:12, 250:13, 253:8 test 74:15, 85:4, 85:5 tested 18:7, 73:21, 74:4, 74:8, 74:14, 75:14, 75:15, 75:16, 75:17, 75:21,</p>	<p>77:6, 77:11, 137:10 testified 8:6, 11:18, 11:22 testify 8:4, 8:22, 26:5, 28:9, 30:4 testifying 12:12, 12:21, 13:2, 24:16 testimony 10:1, 10:13, 13:13, 13:22, 16:3, 16:7, 16:22, 17:16, 19:11, 21:1, 24:14, 25:9, 25:20, 27:2, 29:8, 31:3, 31:5, 31:9, 155:9, 303:1, 303:14, 304:10 testing 18:15, 25:17, 74:18, 75:1, 75:7, 75:10, 76:2, 76:7, 76:19, 77:1, 80:16, 119:22, 144:20 tests 18:7, 76:16, 86:22 th 6:4, 9:9, 39:22, 40:4, 40:8, 41:4, 41:14, 42:5, 102:15, 116:12, 116:18, 118:17, 119:4, 119:11, 119:15, 305:5 thank 13:20, 36:21, 153:14, 155:14, 170:12, 277:5 thanks 209:11</p>
--	--	--	---

<p>themselves 213:12</p> <p>theoretical 91:5, 91:14, 93:20, 120:10, 120:14</p> <p>therapy 89:8</p> <p>therefore 84:12, 113:14, 136:18, 202:12, 215:6, 288:11</p> <p>thermal 69:11, 69:15, 85:13, 87:1, 125:17, 126:4, 126:17, 126:21, 128:22, 131:18, 132:12, 132:17, 132:19, 133:1, 133:2, 133:13, 133:15, 134:11, 134:13, 134:15, 135:6, 136:22, 147:1, 295:2, 295:18, 296:4, 298:4</p> <p>thermodynamics 85:11, 124:7</p> <p>thesis 79:10, 79:20, 90:14, 90:18, 91:2, 91:4, 91:10, 92:18, 98:6</p> <p>thick 110:17</p> <p>thickness 106:17, 186:18, 186:21</p> <p>thin 165:16</p> <p>thing 53:16, 168:10, 168:17, 172:3, 174:1, 198:1, 204:21, 207:16, 219:5, 243:11,</p>	<p>245:21, 249:2, 249:18, 250:2, 250:14, 250:22, 251:11, 253:17, 259:17, 282:1, 282:7, 286:6, 286:18</p> <p>things 8:19, 13:16, 36:22, 43:2, 83:9, 111:10, 121:1, 126:6, 137:14, 148:5, 148:12, 149:5, 151:2, 192:10, 205:13, 227:7, 250:14</p> <p>thinner 59:12, 59:22, 110:16, 198:20</p> <p>third 95:17, 96:22, 97:8, 97:9, 213:19, 286:18</p> <p>thomas 1:12, 2:12, 3:12, 4:12, 7:2, 8:3, 10:12, 304:6, 304:16</p> <p>thought 15:7, 30:10, 180:12</p> <p>thousand 101:1</p> <p>thread 60:11</p> <p>three 9:14, 11:17, 16:18, 32:17, 32:21, 33:4, 49:21, 51:16, 52:5, 54:21, 78:6, 101:11, 101:14, 102:2, 119:20, 122:19, 124:1, 124:15, 124:16, 125:2, 144:16, 144:18,</p>	<p>154:3, 244:7, 244:20, 245:1, 272:4, 285:19, 286:13</p> <p>three-dimensional 187:22</p> <p>threw 272:21, 273:1</p> <p>through 37:3, 39:11, 61:2, 81:17, 81:18, 132:3, 147:7, 156:8, 156:21, 157:9, 158:19, 171:4, 172:19, 178:19, 181:2, 243:14, 243:17, 256:6, 269:19, 269:21, 301:21</p> <p>throughout 74:13, 90:5, 109:5, 110:11</p> <p>throw 274:3</p> <p>time 16:20, 17:4, 18:4, 19:2, 19:9, 24:11, 24:12, 24:19, 25:7, 26:22, 29:5, 32:11, 34:7, 34:8, 53:6, 53:13, 64:17, 64:20, 66:6, 67:8, 67:18, 72:6, 80:2, 80:8, 81:1, 83:4, 85:9, 87:7, 89:6, 90:2, 90:6, 90:17, 92:13, 92:15, 94:1, 104:12, 109:22, 115:20, 118:22, 119:3, 119:11, 119:15, 123:8, 144:15,</p>	<p>145:2, 146:4, 147:2, 147:13, 153:18, 155:2, 169:13, 169:18, 171:11, 240:12, 241:20, 248:13, 253:14, 266:6, 266:21, 268:10, 277:3, 281:6, 281:17, 281:18</p> <p>timeline 283:5</p> <p>times 11:15, 11:21, 12:2, 16:16, 26:15, 28:4, 39:18, 118:14, 119:7, 281:6</p> <p>tip 81:17, 81:19, 81:20</p> <p>tips 59:13</p> <p>tires 207:6, 207:7</p> <p>tissues 74:13, 84:4, 89:2, 99:19, 126:10, 126:17, 146:16, 293:22, 295:10, 295:21</p> <p>today 10:14, 31:19, 107:3, 117:5, 155:10, 302:14</p> <p>today's 31:12, 31:16, 32:7, 32:15, 34:15, 34:21, 35:7, 35:20, 36:1, 36:4, 36:7, 36:10, 36:18, 37:16, 38:12, 38:17, 39:1, 43:1, 43:16, 44:3, 44:14, 45:2, 302:21</p>
---	--	---	---

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

357

<p>together 200:10, 203:15 tomorrow 9:9, 302:17, 303:20 took 48:15, 117:13, 160:2, 251:5, 257:1, 260:21 top 27:9, 62:3, 77:18, 83:1, 83:3, 101:9, 103:18, 150:12, 156:5, 169:5, 201:21, 209:17, 211:5, 211:7, 224:21, 269:15, 272:11 topics 23:1 total 51:22, 61:21, 98:14 totally 273:18, 280:6 touched 151:3 touching 219:13, 279:19, 280:6 towards 98:20, 193:11, 211:4, 236:21 track 140:3, 140:7 trademark 1:1, 2:1, 3:1, 4:1 traditional 83:4 trained 30:11, 30:13 training 30:18, 30:19, 70:6, 70:8, 70:9, 70:12, 70:16, 70:20,</p>	<p>139:21, 139:22, 140:6, 140:9, 227:18 transactions 87:11 transcript 7:7, 9:4, 10:3 transfer 85:11 transferred 57:22 transfers 123:20 transition 58:2 translation 35:15 transmission 205:12 transmit 215:20 transmitting 139:4 traurig 6:2, 6:9, 6:16, 8:8, 8:13 treat 54:11, 54:17, 63:4, 78:5, 78:11, 79:11, 79:16, 79:18, 85:15, 86:13, 88:20, 89:2, 89:3, 89:11, 89:12, 89:16, 92:21, 93:2, 109:11, 112:19, 150:19, 151:22, 152:8, 152:11, 207:10, 296:6 treated 71:10, 71:11, 207:15, 207:18 treating 70:17, 70:21, 111:4, 123:15, 150:22, 151:15, 160:11, 160:21,</p>	<p>161:3, 292:16, 292:22, 293:8, 293:12, 294:14, 296:3 treatment 22:14, 151:11, 152:3, 200:3, 200:7, 200:11, 200:16, 201:22, 202:4, 202:18, 202:19, 203:4, 203:15, 203:20, 204:3, 204:7, 204:8, 204:11, 207:2, 207:3, 207:11, 207:16, 207:19, 258:5 treatments 72:21, 73:3 tremont 47:13, 47:14, 47:18, 93:19 trial 1:2, 2:2, 3:2, 4:2, 11:18, 11:22, 12:11, 12:13, 12:14, 21:2, 26:5, 28:9, 30:4, 75:9, 109:2 trials 12:3, 74:18, 74:21, 75:1, 75:7, 94:13, 94:16 triangle 62:5 trick 205:21, 206:7, 223:9 tricky 253:8 trip 274:18 trouble 61:13 true 117:22, 154:1,</p>	<p>204:1, 219:16, 298:5, 304:10 truth 8:5 truthful 10:14 truthfully 161:12, 167:11 try 10:20, 162:16 trying 66:22, 82:9, 109:8, 110:1, 110:10, 116:22, 127:14, 140:18, 148:9, 148:12, 151:8, 151:13, 152:1, 158:9, 166:8, 201:20, 205:21, 206:7, 223:4, 223:9, 223:10, 271:11, 274:18 tube 62:17, 213:2 tubes 50:17, 54:14, 63:22, 64:8, 110:15 tuesday 304:17 tumor 50:19, 79:16 tumors 89:2, 89:4, 89:11, 89:12, 89:13, 89:16 turn 103:14, 165:4, 168:21, 196:15, 224:18, 241:20, 247:2, 291:18 turning 84:20, 149:10, 209:14, 301:1 twice 12:1 two 12:2, 21:12,</p>
---	--	---	--

PLANET DEPOS

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26:17, 28:1, 28:13, 28:14, 40:19, 40:20, 44:3, 45:2, 59:19, 61:21, 64:7, 77:20, 78:6, 78:8, 94:19, 96:20, 101:18, 120:22, 125:12, 159:7, 159:20, 189:18, 189:19, 190:1, 211:6, 218:1, 220:4, 220:9, 223:11, 238:21, 240:10, 240:20, 241:1, 242:5, 242:22, 243:13, 246:3, 246:11, 246:12, 247:8, 247:11, 250:1, 250:10, 250:12, 250:13, 251:6, 251:7, 251:8, 252:6, 255:18, 259:6, 259:14, 266:1, 266:11, 267:6, 267:8, 267:14, 267:16, 268:11, 269:1, 269:4, 269:13, 269:17, 270:3, 270:6, 270:16, 270:19, 271:17, 272:6, 274:8, 274:9, 274:13, 274:19, 275:15, 276:1, 278:5, 278:14, 278:21, 280:11, 280:12, 280:16, 280:20, 282:8, 282:11, 285:22, 286:7, 286:12, 286:14 two-dimensional 216:17, 217:3 tympanic 18:4	type 91:20, 179:12, 185:10, 185:12, 185:22, 186:14, 186:17, 187:15, 208:10, 208:12, 227:11, 297:3 types 61:15, 127:3, 127:11, 128:9, 128:13, 129:14, 129:16, 129:22, 132:18, 133:20, 147:11, 148:2, 149:16, 186:22, 187:3, 296:12, 296:17 typical 158:22, 198:17 typically 52:14, 158:22, 159:10, 215:19 typo 45:15, 45:19, 46:5, 46:12, 46:16, 237:2, 238:22 <hr/> U <hr/> uh-huh 119:9, 150:13, 152:22, 258:22 uk 55:5, 55:7 ultimately 54:12, 132:3, 133:6 ultrasound 79:15, 88:16, 88:20, 88:22, 89:4, 89:10, 89:15, 89:20, 89:21, 90:3, 90:8, 95:20, 98:8, 98:11, 128:16, 128:17, 130:20, 131:2, 131:7, 131:15,	131:16, 131:18, 131:19, 132:13, 132:22, 133:7, 133:13, 143:15, 152:7, 205:3, 206:2, 297:13, 297:14, 299:17, 299:22 unannotated 261:22, 262:3, 262:7, 262:10, 276:16 unaware 173:12 under 52:2, 81:18, 92:6, 144:9, 302:16, 303:11, 303:12 undergo 139:20 underneath 207:6 understand 11:4, 18:13, 34:6, 44:4, 44:14, 45:3, 55:10, 65:8, 84:19, 85:13, 112:6, 114:14, 115:4, 115:17, 118:16, 131:11, 131:17, 136:12, 180:4, 181:15, 190:19, 191:9, 192:6, 201:20, 207:20, 208:5, 212:3, 212:20, 217:11, 223:2, 223:10, 225:3, 230:17, 230:19, 234:3, 239:11, 239:22, 240:9, 240:14, 244:3, 245:8, 245:12, 247:6, 250:11, 250:13, 254:11, 259:19, 267:8,	273:18, 290:17, 291:7, 291:17, 293:2, 293:18, 301:12, 302:10, 303:12 understanding 9:4, 9:7, 9:10, 43:17, 56:9, 58:13, 66:21, 68:9, 75:6, 75:9, 102:11, 103:3, 105:11, 106:2, 108:8, 108:15, 114:2, 115:18, 116:3, 116:11, 118:21, 121:9, 121:11, 121:14, 124:7, 125:16, 131:21, 158:12, 158:14, 158:16, 160:7, 160:16, 161:17, 167:16, 170:22, 171:11, 173:2, 175:19, 177:18, 178:11, 185:10, 185:11, 185:21, 186:13, 188:7, 190:2, 203:7, 210:16, 213:5, 214:7, 220:14, 249:1, 250:2, 253:16, 261:3, 261:7, 262:22, 268:19, 269:4, 303:10 understanding's 158:14 understood 80:17, 160:8, 163:9, 163:10, 235:5, 277:3 unexpanded 210:20, 211:15, 212:9, 212:12, 214:13, 214:14, 216:9, 217:14, 218:3
---	--	---	---

uniform 109:4, 109:6, 110:5, 110:6, 110:11 unipolar 228:11 united 1:1, 2:1, 3:1, 4:1, 55:12, 94:14 university 47:21, 71:22 unnecessary 197:1 unpair 259:22 unpatentable 113:14 unravel 84:11 unshown 197:11 unsure 173:18 until 97:10, 97:11, 255:1, 265:14, 266:2, 266:8, 266:13 updates 58:2 urethra 65:17, 66:1, 66:9, 67:5, 67:11, 135:13, 152:8, 152:10 urethral 50:21 use 28:22, 43:3, 62:10, 64:4, 81:8, 82:2, 82:4, 83:15, 83:17, 83:19, 93:4, 94:7, 115:15, 119:21, 123:14, 137:15, 137:18, 144:19,	174:20, 186:11, 194:9, 198:13, 220:5, 221:7, 221:20, 227:12, 229:12, 230:22, 231:19, 232:15, 243:5, 256:7, 257:13, 275:21, 295:22, 296:9, 298:8, 298:19, 299:8, 299:17, 300:4, 300:15 user 157:6, 192:14, 192:18, 194:1, 194:9, 195:2, 195:9, 195:21, 198:17 uses 256:8 using 30:11, 82:10, 89:10, 109:2, 115:5, 117:9, 137:6, 152:11, 193:3, 196:7, 222:22, 257:15, 258:17, 258:18, 264:9, 265:20, 275:22, 278:18, 299:2, 299:13, 299:21 usually 213:7 uterine 50:20, 61:8, 110:15, 112:17 uterus 61:2, 61:8, 62:7, 63:7, 109:5, 110:12, 110:18, 111:4, 126:7, 126:13, 126:21, 130:10, 135:10, 295:5 utilized 228:13 utilizes 145:12	v vacuum 59:13, 61:7 vague 182:22, 189:9, 190:6 value 216:16, 236:15 valve 59:13 vanderbilt 6:18 variability 241:9 various 48:11, 74:13, 83:6, 89:1, 89:2, 263:17 vary 295:3 venture 97:15 verbal 11:2 version 58:4, 175:4, 183:6, 183:7, 183:8, 183:13, 183:14, 183:16, 183:17, 183:19, 184:16, 184:17, 193:13, 199:14, 209:20, 262:10, 264:15, 273:12, 274:9, 275:19, 275:20, 276:16, 278:19 versions 272:7, 276:11, 276:17, 279:3 versus 12:20, 20:5, 20:20, 21:5, 23:4, 24:4, 24:12, 24:19, 25:8, 25:18, 26:18, 214:3,	245:6, 249:6, 250:4 vertical 105:12, 106:2, 273:2, 273:13, 273:14, 274:15, 275:9, 275:11, 278:13 vertically 104:16 vibration 132:2, 133:8 visualizing 61:13 voltage 46:7, 62:18, 145:13, 226:18, 295:18 volumes 93:22 <hr/> W <hr/> wait 124:19, 267:20 wall 110:16 walls 61:8 want 15:13, 43:5, 99:5, 110:16, 128:19, 131:16, 131:20, 136:11, 136:16, 141:3, 143:11, 159:13, 159:14, 159:15, 164:7, 209:12, 211:13, 218:1, 218:3, 225:17, 227:22, 230:3, 231:6, 234:16, 234:22, 238:3, 253:9, 261:21, 262:9, 267:21, 274:18, 276:7, 277:1, 279:19, 280:6, 280:11, 280:13, 283:20,
--	---	--	---

<p>301:8, 301:15 wanted 8:22, 59:6, 112:18, 282:1 washington 5:7 water 150:1 wave 233:4, 233:7, 233:8, 233:14, 233:18, 234:5, 234:14 way 61:7, 61:19, 61:20, 62:6, 62:13, 62:22, 74:3, 74:17, 82:15, 83:19, 108:9, 108:16, 108:21, 137:9, 151:10, 159:9, 159:10, 181:9, 181:22, 183:18, 183:22, 188:5, 188:9, 189:19, 190:4, 190:7, 190:8, 195:15, 196:5, 204:5, 206:22, 215:3, 216:1, 216:13, 219:10, 219:18, 222:2, 223:15, 223:16, 243:8, 251:3, 256:7, 256:16, 257:11, 257:14, 262:20, 270:4, 271:11, 272:17, 273:2, 273:15, 273:16, 273:19, 274:5, 274:12, 291:14, 305:2 ways 132:19, 140:17, 224:6 we'll 11:10, 108:6,</p>	<p>303:10, 303:20 we're 8:21, 9:19, 25:4, 75:5, 174:5, 176:10, 191:17, 191:20, 206:10, 228:19, 240:13, 260:2, 262:2, 266:20, 269:2, 274:16, 283:3, 283:13, 283:17, 284:3, 284:18, 302:14 we've 23:22, 31:1, 67:15, 79:3, 84:21, 86:17, 96:1, 129:14, 133:20, 145:3, 145:4, 152:20, 168:22, 187:1, 204:8, 232:19, 252:16, 260:3, 278:12, 294:20, 301:16 well-known 292:15, 293:7 wellman 92:14 went 70:4, 122:19 weren't 34:6, 189:10, 269:16 whatever 195:6, 215:17, 276:7, 280:13 whereof 305:4 wherever 193:1 whether 12:2, 13:2, 13:5, 17:9, 17:12, 18:10, 21:20, 40:9, 41:7, 41:10, 42:14, 103:3,</p>	<p>126:6, 161:21, 162:3, 167:21, 168:9, 168:16, 175:9, 182:17, 183:6, 185:9, 193:16, 213:9, 213:14, 214:12, 250:13, 259:13, 265:15, 271:5, 295:8 whichever 243:16, 280:11 whole 8:5, 10:21, 254:7, 297:11 wide 236:13 william 101:18, 102:4 wilmer 5:4, 5:11, 8:15, 304:17 wilmerhale 32:5 wire 62:14, 186:10, 222:10, 222:15, 223:13, 223:20 wired 61:19, 248:8, 258:4, 258:7 wires 206:17 wiring 226:1 within 52:15, 123:11, 129:16, 130:5, 130:10, 130:14, 130:16, 135:5, 178:4, 193:17, 194:1, 195:3, 236:15, 263:15, 304:4 without 122:3, 167:10, 167:12, 236:1, 284:4, 293:22</p>	<p>witness 13:3, 13:4, 13:15, 13:22, 14:3, 14:6, 16:14, 16:17, 18:21, 25:22, 26:13, 26:16, 27:2, 29:8, 31:2, 31:4, 31:5, 34:17, 35:1, 36:14, 39:12, 113:5, 163:1, 283:11, 301:20, 304:7, 304:11, 305:4 word 10:17, 45:15, 53:2, 57:5, 83:19, 142:7, 165:22, 169:14, 187:20, 236:2 words 94:19, 211:13, 232:8, 234:16, 235:8, 244:22 work 15:17, 15:18, 49:5, 50:2, 50:7, 50:11, 50:14, 51:14, 51:19, 55:21, 57:12, 58:3, 59:22, 65:10, 67:11, 68:13, 68:15, 69:7, 69:14, 69:20, 82:2, 85:22, 91:4, 91:8, 91:12, 91:13, 91:15, 92:1, 92:12, 93:16, 93:19, 97:13, 99:18, 100:13, 101:17, 101:22, 123:1, 139:13, 142:4, 142:15, 143:4, 143:8, 143:10, 143:15,</p>
--	--	--	---

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

361

<p>144:2, 144:17, 182:13, 198:19, 214:17, 215:13, 217:5, 220:15, 221:1, 234:22, 297:16 worked 29:19, 47:17, 48:11, 48:13, 49:1, 49:9, 49:10, 50:16, 51:1, 53:22, 54:22, 56:7, 57:3, 57:4, 57:5, 58:1, 62:13, 63:18, 67:20, 67:21, 69:3, 69:11, 74:11, 74:14, 79:2, 79:7, 79:10, 79:14, 79:17, 79:20, 80:6, 80:11, 80:13, 85:21, 93:13, 96:13, 96:19, 99:17, 99:22, 101:18, 131:8, 152:8, 198:10, 198:11, 220:4, 220:8, 220:22, 237:6 working 21:21, 32:5, 55:17, 56:15, 57:11, 58:21, 58:22, 68:3, 80:18, 81:2, 84:22, 86:12, 86:17, 87:3, 87:8, 87:13, 88:2, 90:3, 91:1, 92:6, 92:21, 94:10, 94:15, 94:20, 96:7, 97:3, 242:22 works 136:13, 146:5,</p>	<p>158:12, 302:19 worth 143:14 wouldn't 77:16, 122:3, 180:21, 182:13, 188:18, 189:10, 195:10, 195:22, 197:1, 198:13, 215:13 wrap 138:10, 162:16, 190:4, 206:19 wrapped 217:15 write 115:3, 123:13, 123:17, 140:11, 145:17, 145:21, 156:7, 236:22, 276:6, 286:22 writing 75:19, 75:22, 76:8, 76:17, 144:13 written 35:4, 141:8, 185:2, 206:22, 207:14 wrong 89:19, 158:15 wrote 52:6, 52:19, 77:19, 113:13, 139:12, 145:11, 149:12, 163:6, 220:3, 237:1, 254:2, 256:16, 288:2, 291:19, 292:12 <hr/>x<hr/>x 1:3, 1:10, 2:3, 2:10, 3:3, 3:10, 4:3, 4:10 <hr/>y<hr/>yeah 10:5, 30:22,</p>	<p>35:15, 44:13, 93:11, 96:1, 126:1, 155:3, 157:13, 176:20, 191:8, 191:19, 204:17, 212:6, 216:16, 221:12, 229:9, 238:15, 245:4, 246:10, 248:5, 255:3, 256:2, 266:16, 275:5, 279:6, 285:9, 286:9, 289:11, 290:13, 297:14, 297:16 year 48:12, 48:15, 94:3, 143:21, 259:20 year's 143:14 years 13:15, 15:1, 15:8, 15:11, 55:8, 56:15, 80:9, 83:20, 86:21, 89:9, 96:11, 96:17, 96:20, 119:20, 121:18, 122:19, 123:9, 124:1, 125:2, 144:16, 144:19, 220:19 yep 177:5, 249:8, 257:3 yesterday 32:17, 32:19, 33:19, 34:1, 34:10 york 6:19 yourself 96:3, 96:6, 140:17 <hr/>z<hr/>zone 146:12</p>	<p>zoom 6:22, 8:11, 40:12, 40:13 <hr/>'s 174:16, 193:14, 193:16, 196:10, 196:17, 200:2, 212:8, 222:15, 231:1, 231:20, 232:16, 238:9 <hr/>.6000 5:8, 5:16 .6500 6:6 .9200 6:20 .9700 6:13 <hr/>0<hr/>00 302:17 000 236:8 00277 1:6, 9:2, 43:20 00278 2:6, 9:3, 43:10, 43:12 00281 44:9 00282 3:6, 9:3, 44:20 00669 4:6, 9:3 0187 177:12 02109 5:15 028 177:14 03 1:15, 2:15, 3:15, 4:15, 8:1,</p>
--	--	--	--

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

362

<p>304:18 077 36:6, 44:12, 44:13, 46:15, 117:22, 162:8, 163:18, 164:15, 164:19, 176:22, 177:2, 177:4 08 165:19, 166:5, 167:1, 167:5, 168:10, 168:17, 173:6, 173:12, 173:20, 174:10, 174:16, 174:21, 303:21, 304:18</p> <hr/> <p>1</p> <hr/> <p>1 276:6 10 7:3, 39:22, 40:4, 40:8, 41:4, 41:14, 42:5, 102:15, 117:15, 139:12, 237:21, 292:4, 292:8, 302:1, 302:3, 302:5, 302:7 100 23:8, 183:21, 234:20, 235:4, 236:5, 236:8, 238:1, 238:2, 238:20 100,000 236:8 1001 7:17, 268:3 10017 6:19 1002 7:18, 43:10, 44:18 1005 177:4 1007 44:7</p>	<p>1008 164:19 101 254:1, 256:21, 258:16 1010 7:19, 164:4, 164:8 1011 168:6, 168:14 1021 7:20, 176:10, 176:15, 176:20, 177:2 1033 7:21, 221:13, 221:17 11 145:9 11,033,318 2:7, 43:13 11,241,271 1:7, 43:22 11,679,077 4:7, 44:10 11,766,286 3:7, 44:21 110 224:18 113 220:2 1144 6:4 12 113:8, 113:10, 113:13 124 194:9, 194:18, 194:19, 195:3, 195:10, 195:15, 195:22, 196:1, 196:22, 197:6, 197:12, 197:22, 198:2, 198:14 125 222:8, 223:5 13 228:15</p>	<p>132 199:9, 200:3, 200:10, 201:7, 201:15, 202:1, 202:5, 202:11, 202:12, 203:3, 203:13 134 199:10, 199:18, 199:22, 200:10, 200:21, 201:11, 201:15, 202:1, 203:8 14 116:12, 116:18, 118:17, 119:4, 119:11, 119:15 15 6:4, 98:14, 221:8, 221:10, 221:19, 221:21, 222:11, 222:15, 222:21, 223:7, 223:14, 223:21, 225:12, 225:20, 226:11, 226:12, 226:14, 226:16, 227:3, 227:22, 228:4, 228:10, 229:1, 229:13, 231:1, 231:20, 232:16, 254:12, 254:16, 255:5, 255:6, 255:11, 255:13, 256:12, 257:6, 260:13, 261:3, 261:21, 262:3, 262:6, 262:11, 263:3, 266:12, 272:21, 281:11, 301:17 16 155:22 164 7:19 17 177:12, 239:16, 239:20, 240:19,</p>	<p>245:11 171 47:9 175 226:6 176 7:20, 166:20 178 233:1, 234:12, 236:3 18 115:1, 116:22, 225:19 180 236:21 187 177:21 19 267:13, 268:22, 269:13, 270:9, 272:7, 273:5, 274:15, 274:16, 275:8, 275:16, 276:2, 276:11, 277:11, 278:6, 279:16, 281:10 1988 90:19 1994 165:17 1998 69:12, 69:18 1a 301:11</p> <hr/> <p>2</p> <hr/> <p>2 108:8, 276:6 20 1:14, 2:14, 3:14, 4:14, 8:1, 98:15, 145:6, 304:18 2000 69:4, 69:12, 88:8 2002 56:10</p>
--	---	---	---

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

363

<p>20037 5:7 2007 49:10, 64:16, 64:21, 65:7, 67:22, 68:2, 68:6, 68:8, 68:10, 69:4, 220:11, 221:2 2010 65:22 2011 12:15, 49:11, 101:3, 116:4, 116:13, 116:18, 117:4, 117:10, 117:13, 118:14, 118:17, 119:4, 119:7, 119:11, 119:15, 220:13, 220:15, 221:2 2012 102:15, 102:22 2013 47:22 2016 48:16, 72:7 2017 27:8, 28:7, 47:22, 48:16, 49:2, 72:7 2018 49:2 2019 47:22, 118:14, 119:7 202.863 5:8 2020 47:22 2024 1:6, 1:14, 2:6, 2:14, 3:6, 3:14, 4:6, 4:14, 8:1, 9:2, 9:3, 9:9, 39:22, 40:4, 40:8, 41:4, 41:14, 42:5,</p>	<p>43:10, 43:12, 43:20, 44:9, 44:20, 304:18, 305:5 2027 305:8 209 228:6 2100 5:6 212.801 6:20 214 175:13, 188:10 217 117:21 22 32:22, 33:3, 33:4, 33:7, 33:8, 33:11 220 259:3, 259:8, 260:16, 261:11, 262:17, 263:1, 263:8, 264:4, 264:6, 264:7, 264:19 221 7:21 222 259:4, 259:8, 260:17, 261:11, 262:17, 263:1, 263:8, 264:7, 264:19 224 260:17, 261:11, 262:17, 263:1, 264:5, 264:19 226 260:17, 261:11, 262:17, 263:1, 264:19 228 226:16 23 32:19, 33:19, 34:10, 291:18</p>	<p>230 261:4 232 261:14 238 259:2, 259:7 24 1:14, 2:14, 3:14, 4:14, 8:1, 292:11, 304:18 246 261:15 248 259:2, 259:7, 261:15 25 9:9, 116:9, 153:12, 163:2, 305:5, 305:8 250 234:20, 236:5 26 153:13 260 235:4 268 7:17 27 117:16, 118:12, 119:18, 120:19, 123:3, 123:13, 123:16, 128:4, 139:10, 140:12, 193:9 271 36:3, 44:2, 46:2, 46:4, 46:13, 124:10, 124:21, 125:10, 161:22, 163:18, 164:12, 176:21, 177:2, 221:16, 232:2, 232:5, 232:8, 232:15, 248:19, 248:21, 249:6, 249:8, 252:5, 252:10, 253:4, 266:22,</p>	<p>267:5, 267:10, 267:19, 268:4, 268:8, 268:13, 271:21, 272:3, 275:20, 276:10, 277:7, 277:18, 281:9, 287:21, 291:8, 291:18, 292:6, 301:2, 301:3, 301:7, 301:13, 302:1, 302:5, 302:8 277 9:14 278 9:14 28 165:7, 165:8, 174:5 282 9:15 283 7:10 284 7:11 286 35:13, 35:22, 45:1, 46:15, 117:21, 124:10, 124:21, 125:9, 162:4, 163:18, 164:12, 176:21, 177:2, 190:14, 190:20, 191:10, 191:19, 192:8, 196:10, 221:16, 229:17, 229:22, 230:1, 230:6, 230:13, 230:22, 231:6, 231:18, 239:8, 239:13, 240:1, 240:16, 244:4, 244:13, 252:2, 252:8, 252:9, 252:12, 252:13, 252:16, 252:21 287 7:13</p>
--	---	--	---

Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

364

<p>29 46:6, 145:10, 149:10, 267:2 291 7:14 2d 213:20</p> <hr/> <p style="text-align: center;">3</p> <hr/> <p>30 97:14, 150:12, 152:19, 155:15, 266:21 300 145:14, 238:17, 238:19 303.572 6:6 305 1:21, 2:21, 3:21, 4:21 31 174:5 318 35:19, 43:15, 43:16, 45:14, 45:20, 47:5, 77:16, 98:16, 113:7, 116:2, 116:7, 116:8, 116:9, 116:12, 116:17, 117:15, 117:18, 118:13, 118:17, 119:14, 119:18, 121:15, 124:10, 124:21, 125:9, 128:4, 139:11, 145:9, 150:16, 153:21, 154:9, 155:16, 155:22, 161:7, 161:18, 163:9, 163:13, 164:7, 164:10, 166:18, 168:14, 175:2, 176:15, 176:20, 178:7, 185:8, 190:10, 190:20,</p>	<p>191:10, 191:17, 191:19, 192:7, 193:9, 196:9, 199:6, 202:16, 206:21, 208:1, 208:6, 209:4, 209:7, 209:15, 219:22, 221:4, 221:16, 222:6, 225:18, 228:1, 228:2, 228:21, 229:5, 229:10, 232:20, 236:4, 239:1, 239:4, 239:13, 240:1, 240:16, 244:4, 244:13, 249:4, 249:7, 249:9, 249:11, 249:22, 252:2, 252:5, 252:7, 252:17, 252:22, 253:22, 256:8, 256:9, 263:5, 263:6 319373 165:19, 166:5, 167:1, 167:5, 168:10, 168:17, 173:6, 173:12, 173:20, 174:10, 174:16, 174:21 32 175:3, 175:17, 185:8 3300 6:4 34 105:3, 267:13, 271:21, 272:3, 273:5, 274:17, 275:21, 276:10, 277:7, 278:17, 281:9 35 86:21, 220:19 3500 6:11 36 192:3, 205:5</p>	<p>38 156:3, 156:6, 196:15 39 277:4 3c 199:8, 199:15, 199:17</p> <hr/> <p style="text-align: center;">4</p> <hr/> <p>40 81:20, 97:7, 97:15 43 7:18, 199:13, 199:14, 200:14 44 105:5, 105:8, 105:15, 105:17, 105:19, 199:6 46 206:21, 207:22, 238:16, 239:1 460 233:3, 233:7, 233:14, 233:18, 233:22, 234:5, 234:7, 234:14, 234:19, 235:3, 235:6, 235:12, 235:16, 235:20 48 209:7, 209:15, 209:16 49 287:22</p> <hr/> <p style="text-align: center;">5</p> <hr/> <p>5 266:21, 303:21, 304:18 5's 224:1, 224:2, 228:11 50 83:20, 253:22, 262:8, 263:4, 263:6</p>	<p>52 291:19 53 163:5, 292:12 535 35:11, 165:2, 169:14, 169:19, 174:9, 174:14, 193:14, 193:16, 196:10, 196:17, 196:21, 197:2, 199:9, 199:15, 200:2, 209:21, 212:8, 213:10, 213:15, 216:4, 221:5, 221:8, 221:21, 222:5, 222:15, 222:22, 223:17, 228:20, 228:22, 229:18, 230:6, 230:14, 230:20, 231:1, 231:17, 231:20, 232:3, 232:5, 232:9, 232:13, 232:16, 237:1, 237:14, 238:9 553700 1:20, 2:20, 3:20, 4:20 55402 6:12 56 162:19 59 219:21 5g 184:17 5g1 184:6, 184:9, 184:18 5g2 184:6, 184:9 5h 175:4, 175:9, 175:20, 176:2, 177:10, 177:13, 177:19, 179:11,</p>
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Transcript of Gregory T. Martin, Ph.D.
Conducted on September 24, 2024

365

182:4, 182:16, 182:17, 183:12, 184:3, 184:10, 184:14, 184:21, 185:3, 185:13, 185:22, 186:15, 187:21, 188:8, 189:5	9	
6	9 1:15, 2:15, 3:15, 4:15, 8:1, 302:17, 304:18 90 6:11, 17:3, 17:6, 87:9, 87:19 91 87:12, 202:11 93 233:10 94 202:15, 202:21 95 69:18, 232:21, 287:22, 288:2, 291:8 96 81:3 97 81:3, 236:20 98 90:20 99 7:9, 90:7, 239:15	
60 5:14 612.259 6:13 617.526 5:16 669 9:17 68 231:13		
7		
700 145:14, 238:18 74 274:13, 275:15 79 196:16 7th 6:11		
8		
8,814,796 7:9, 98:21, 99:11 80202 6:5 88 90:20, 90:21 886 35:11 89 87:9, 90:5, 199:7, 200:13, 201:2, 201:6, 201:21, 202:10, 203:16, 204:14, 204:17, 207:14		