Transcript of Michael L. Metzker, Ph.D.

Date: December 3, 2025
Case: Qiagen Sciences, LLC -v- Tecan Genomics, Inc. (PTAB)

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WORLDWIDE COURT REPORTING & LITIGATION TECHNOLOGY

UNITED STATES PATENT AND TRADEMARK OFFICE

_____

BEFORE THE PATENT TRIAL AND APPEAL BOARD

QIAGEN SCIENCES, LLC,

Petitioner,

vs.

TECAN GENOMICS, INC.,

Patent Owner.

_____

IPR2025-00026; -00027; -00028; -00029

U.S. Patent No. 10,036,012

DEPOSITION OF MICHAEL L. METZKER, Ph.D.

via videoconference

Wednesday, December 3, 2025

12:46 p.m. EST

Job No.: 610711

Pages: 1 - 134

Stenographically Reported By:

Alison C. Webster, CSR-6266, RPR, RMR, CRR, RDR

Videotaped deposition of MICHAEL L. METZKER, Ph.D., produced as a witness at the instance of the Patent Owner, and duly sworn, was taken in the above-styled and numbered cause on Wednesday, December 3, 2025, from 12:46 p.m. EST to 4:03 p.m. Eastern Time, before Alison C. Webster, RPR, CRR, RMR, RDR, CSR-6266 (Michigan); License No. 14559 (California); License No. 084.004953 (Illinois); CSR-12432 (Texas), reported by stenographic method, via videoconference, pursuant to the Federal Rules of Civil Procedure and the provisions stated on the record or attached hereto.

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Lawrence Wallace, exhibit technician

T A B L E O F C O N T E N T S

Witness Page
MICHAEL L. METZKER, Ph.D.
EXAMINATION
BY MR. BEAVERS: 11

E X H I B I T I N D E X

Exhibit Page
(Exhibits attached to transcript.)
EXHIBIT 2201 54
Civil Docket For Case
#: 1:18-cv-01019-MN
EXHIBIT 2202 56
Plaintiffs' Identification of Accused
Products

Tecan Ex. 2213, Page 6 of 167
QIAGEN Sciences, LLC v. Tecan Genomics - IPR2025-00026

E X H I B I T I N D E X C O N T I N U E D

EXHIBIT 2203 62
Declaration of Eric J. Rutt in Support of Plaintiffs' Motion For Partial Summary Judgment of No Invalidity as to U.S. Patent No. 10,450,597 and to Strike and Preclude Testimony
EXHIBIT 2204 62
Case 1:18-cv-01019-MN Document 338-1 Filed 03/08/21
EXHIBIT 2205 62
Case 1:18-cv-01019-MN Document 338-2 Filed 03/08/21
EXHIBIT 2206 80
Defendants' Opposition to Plaintiffs' Motion For Injunction, Ongoing Royalty, Supplemental Damages, Pre- and Post-Judgment Interest, and Enhanced Damages

E X H I B I T I N D E X C O N T I N U E D

EXHIBIT 2207 84
Brief For Defendants-Appellants
EXHIBIT 2208 90
Article, Targeted Single Primer
Enrichment Sequencing with Single End
Duplex-UMI
EXHIBIT 2209 102
Pub. No: US 2025/0002900 A1 - Lader
EXHIBIT 2210 102
European Patent Specification
EP 3 362 577 B1
EXHIBIT 2211 102
Document, Reply to the Communication
Pursuant to Article 94(3) EPC Dated
18 June 2020
EXHIBIT 2212 102
Patent No.: US 10,941,438 B2 - Wang

DEPOSITION OF MICHAEL L. METZKER, Ph.D.

Wednesday, December 3, 2025

STENOGRAPHER: The attorneys participating in this deposition and the witness have verified that he is Michael Metzker, Ph.D. In lieu of an oath administered in person, the witness will visually affirm his testimony in this matter is under penalty of perjury.

The parties and their counsel consent to this arrangement and waive any objections to this manner of reporting or admissibility of the transcript.

Would counsel please state their appearance and any objections to proceeding in this manner, starting with scheduling counsel.

MR. BEAVERS: This is Timothy Beavers on behalf of Tecan Genomics Incorporated, the patent owner in this proceeding. I am joined by two of my colleagues, Linnea Cipriano and Samuel Herron.

MR. BILSKER: It's David Bilsker for Petitioner, and I'll note that it still says on our screen that this meeting is being recorded, which we just agreed that it's not going to be recorded.

PLANET DEPOS TECH: Sir, that may be --

STENOGRAPHER: The recording's been stopped.

PLANET DEPOS TECH: Yeah, the recording is stopped on my end. It may still be recording on your Zoom screen. If you go to the top of your screen and -- you'll see a stop button. You can click on that and stop it from recording.

MR. BILSKER: Do you see how to do it?

All I see is something that says the meeting is being recorded, and it says, "Okay." If I hit "okay," then it's going to get recorded.

STENOGRAPHER: I think you just hit

"okay" and then it will go away. It's not being recorded.

Just let me know when you're ready and I'll proceed with the swearing in.

MR. BILSKER: Go ahead.

STENOGRAPHER: All right.

Dr. Metzker, would you please raise your right hand.

Do you swear or affirm the testimony you are about to give in this matter will be the truth, the whole truth, and nothing but the truth?

DR. METZKER: I do.

STENOGRAPHER: Thank you.

You may proceed.

MR. BEAVERS: Good morning, Dr. Metzker. Thank you for sitting with us today.

MICHAEL L. METZKER, Ph.D., was thereupon called as a witness herein, and after having first been duly sworn to testify to the truth, the whole truth and nothing but

the truth, was examined and testified as follows:

EXAMINATION

BY MR. BEAVERS:

Q. Just to go ahead and set a little bit of the background here, you submitted a declaration in support of the Petitioner's reply regarding the '012 and '108 patents; is that correct?

A. That is correct.

Q. And that declaration has been marked as Exhibit 1121. Right?

A. I don't have that in front of me, but I think that number is correct.

Q. So you do not have a clean copy of the declaration in front of you?

A. Oh, yes, I do. I'm sorry. I was looking at the reply, and those are not marked. But my declaration is Exhibit 1121 --

Q. Correct.

A. -- for the '012 and the '108 patents.

Q. And you mentioned a second ago that you were looking at the reply. So Petitioner's reply

is also in front of you; is that right?
A. That is correct.
Q. And do you have any other documents in front of you?
A. I also have my declaration, Exhibit 1035 for the '357 patent. I also have the Petitioner's reply for that patent as well.
Q. And have you reviewed the Petitioner's replies that are in front of you?
A. I have.
Q. So I would like to direct your attention to the reply -- or the declaration that you submitted with respect to the '012 and '108 patents, Exhibit 1121, and I would like you to take a look at the Table of Contents in your declaration.
A. Yes, I'm there.
Q. Okay. And you'll see that you have a section titled Nothing in Patent Owner's Response Changes the Conclusion that Shapero Combined with Delseny Renders the Claims of the '012 and '108 Patents Obvious.

Do you see that?
A. I do see that.
Q. Now, in forming that opinion, did you review the entirety of Patent Owner's response?
A. Yes.
Q. And did you review the entire declaration submitted by Dr. Bustamante?
A. Yes.
Q. Did you review all exhibits that were cited in Patent Owner's response and Dr. Bustamante's declaration?
A. Yes.
Q. You reviewed Dr. Bustamante's full deposition transcript as well. Right?
A. I did.
Q. Which is Exhibit 1120 in this proceeding. Right?
A. 1120... I mean, I --
MR. BILSKER: Objection. Form.
So you're asking him like from a memory test if he knows, like, what --
BY MR. BEAVERS:

Q. I'll represent to you, Dr. Metzker, that that is the number.

Now, with respect to Dr. Bustamante's deposition --

A. I'm sorry, can I just have a moment?

Yeah, so I can confirm in my declaration the October 7th, 2025, deposition of Dr. Bustamante is Exhibit 1120.

BY MR. BEAVERS:

Q. Thank you.

And with respect to Dr. Bustamante's deposition, you were present. Right?

A. That is correct.

Q. Now, I would like to start by talking about Shapero. That has previously been marked as Exhibit 1006.

MR. BEAVERS: Lawrence, could we bring that exhibit up?

PLANET DEPOS TECH: Sure. What was that number again?

MR. BEAVERS: It's 1006.

PLANET DEPOS TECH: One moment,

please.
BY MR. BEAVERS:
Q. And, Dr. Metzker, you should have a PDF version in the Chat now if you would like to download it and follow along that way.
A. Okay. I also have a hard copy in front of me as well.
Q. Excellent. Okay.
Okay. Now, Dr. Metzker, Shapero discloses a library preparation method that it calls Multiplexed Anchored Runoff Amplification, or MARA. Right?
A. That's correct. That's cited in the abstract of Exhibit 1006.
Q. And Shapero describes how the MARA method works on pages 2 and 3 of the publication; is that right?
A. So are you referring to 2 and 3 at the top of the document with respect to the nucleic acid research numbering system and not the Bates numbering system?
Q. Thank you. Yes. So we'll be referring to

native pagination in this proceeding, so it will be page 2 of 9 and page 3 of 9 in the document.

A. Okay. Great. Thank you.

Can you repeat that question?

Q. Yeah.

So Shapero describes how the MARA method is performed on pages 2 and 3 of the publication. Right?

A. Well, I mean, I can see on page 2 and 3 there's a title under the Results of MARA, and also -- sorry, under the Methods and Material there's a section called MARA. And then -- that's on page 2. And then on page 3 there is a titled section MARA under Results.

But I would say that Shapero describes MARA in other sections of this publication as well.

Q. Including Figure 1 which is on page 4 of the reference.

A. Yes, Figure 1 illustrates the MARA method and then in the figure legend provides more

detail of how that figure is being described.
Q. Now, I want to walk through that method, and I'm going to focus on Figure 1.
MR. BEAVERS: Lawrence, could we zoom in a little bit on Figure 1 in the left-hand column?
PLANET DEPOS TECH: I need to take back control from you. Just one moment.
MR. BEAVERS: Okay.
Perfect.
PLANET DEPOS TECH: All right, I'm going to give back control.
Okay, you have control again. Just click on the screen.
MR. BEAVERS: Thank you.
BY MR. BEAVERS:
Q. Now, at the beginning of the MARA process, Shapero discloses that the first step is that, "Human genomic DNA [(pink)] is digested to completion with a restriction enzyme"...
Is that correct?
A. Yes, you are correctly reading the first

sentence of Figure 1 legend.
Q. And Shapero uses specific restriction enzymes for this digestion. Right?
A. Well, in the example that's being shown here, yes, they are using -- well, they actually don't describe any specific restriction enzyme in the figure legend.
Q. Now, I want to direct your attention, then, to page 2 of the reference, and I will show you where I'm going on the screen as well.

You'll see under the Materials and Methods the subsection MARA, and it notes, "Genomic DNA (100 nanograms) was digested with MseI (NEB) or Sau3AI (NEB)"...

Do you see that?
A. I do see that.
Q. And you would understand MseI and Sau3AI to be digestion enzymes. Correct?
A. Well, not -- not the way you've phrased the question.
Q. Could you explain to me why not?

MR. BILSKER: Objection. Relevance.

Beyond the scope of his declaration.

MR. BEAVERS: David, this is the process he opines about.

MR. BILSKER: Well, actually --

BY MR. BEAVERS:

Q. You can proceed, Doctor.

MR. BILSKER: Actually -- hold on. Objection. You guys have not disputed that the Shapero enrichment method is the same as the method disclosed in the patent. There's no dispute about that, so...

MR. BEAVERS: David, this deposition is not for you and I to argue. That's what our papers are for. You've noted your objection.

BY MR. BEAVERS:

Q. Dr. Metzker, you may proceed.

MR. BILSKER: So hold on. So if you then just start blabbing after I make my objection, I have to sit here quietly, that's not the way it's going to work. If you respond, then I'll respond to you.

MR. BEAVERS: David, are you instructing the witness not to answer the question?

MR. BILSKER: Did you ever hear that? I mean, are you hearing things in your head? Because I never -- those words never came out of my mouth.

MR. BEAVERS: Okay.

BY MR. BEAVERS:

Q. Dr. Metzker, will you answer the question?

A. I'm sorry, I've lost track of the question. Can you repeat your question?

Q. Understood.

So a moment ago -- and I will read back to you the Q&A here so that we can get to the point -- I had noted that Shapero discloses that genomic DNA (100 nanograms) was digested with MseI or Sau3AI, and I asked you whether these were digestion enzymes. And I phrased it as: "And you would understands MseI and Sau3AI to be digestion enzymes. Correct?"

You testified: "Well, not -- not the way you've phrased the question."

And so then I asked you: "Could you explain to me why not?"

MR. BILSKER: Objection. Multiply compound. Relevance. Beyond the scope.

BY MR. BEAVERS:

Q. Dr. Metzker, could you please answer the question?

A. So MseI, Sau3A1 are referred to as restriction endonucleases.

Q. And so Shapero uses these restriction endonucleases to digest genomic DNA at the beginning of the MARA process; is that correct?

MR. BILSKER: Objection. Relevance. Beyond the scope.

A. On page 2, they do describe two ways of digesting genomic DNA. There's many ways to do that, but in this particular passage they are referring to two different restriction endonucleases.

BY MR. BEAVERS:
Q. And so just to clarify, when you say "two ways," you mean the two endonucleases.
A. I'm sorry, I thought --
MR. BILSKER: Objection. Mischaracterization.
A. I thought I said there were numerous ways, which could be both site directed or randomly directed, and those are well-known in the art.
BY MR. BEAVERS:
Q. So, Dr. Metzker, you, a minute ago said, "On page 2, they do describe two ways of digesting genomic DNA."
To which I asked you, just to clarify -- I understand you said more after, but I asked, just to clarify, ..."when you say 'two ways,' you mean the two endonucleases."
MR. BILSKER: Objection. Mischaracterization. Beyond the scope. Relevance.
A. No, I wasn't referring to MseI and Sau3A1 as

two different ways. Those are two different restriction endonucleases that digest DNA by a sequence specific manner.

What I was saying, there are other ways to digest genomic DNA using enzymes that introduce random breaks in fragmentation, and those are the numerous ways that I was trying to refer to.

BY MR. BEAVERS:

Q. And so just to clarify, when you testified a moment ago that Shapero describes two ways of digesting genomic DNA, what is the second way that you were referring to?

MR. BILSKER: Objection. Mischaracterization. Beyond the scope. Relevance.

A. Yeah, I don't think I said "two ways." I said -- I thought I said numerous ways.

One way is using restriction endonucleases, and there are hundreds of restriction endonucleases that are commercially available mostly through New

England Biolabs, with the acronym NEB, but you can use enzymes such as DNase 1 or other exonucleases that randomly introduce breaks into genomic DNA.

Q. Now, Shapero also discloses that after enzymatic digestion adapters are ligated to the fragments; is that correct?

MR. BILSKER: Objection. Relevance. Beyond the scope of his reply declaration. Not in dispute.

A. So if you're looking at page 2 under the Materials and Methods section, under the subsection MARA, Shapiro described after digestion with restriction endonucleases there is a heat treatment process that will activate the endonucleases. After that, it states, "Adapters were ligated to genomic DNA in 20 microliter reactions containing the 100 nanograms of restriction enzyme digested genomic DNA"...

And it goes on to give the ligation buffer and ligase reaction conditions.

Q. And the adapters that were ligated contained a sequence that Shapero refers to as A2; is that right?

MR. BILSKER: Objection. Relevance. Beyond the scope.

A. Well, I see A2 in Figure 1, little i, where A2 is a partially double-stranded adapter construct, including the top strand which is longer and a bottom strand which is shorter that is blocked on the 3 prime end with an amino.

BY MR. BEAVERS:

Q. Now, looking at Figure 1, under the second Romanette, Shapero uses a forward primer that contains a common sequence called A1; is that right?

MR. BILSKER: Objection. Relevance. Beyond the scope.

A. In Figure 1, Romanette ii, there is depicted a target-specific primer that specifically anneals to the single-stranded, adapter-ligated genomic DNA that on it's 5

prime end has a common sequence referred to as A1.

BY MR. BEAVERS:

Q. And that forward primer is what Shapero separately refers to as the locus-specific primer. Right?

MR. BILSKER: Objection. Beyond the scope. Relevance. And you've waived any arguments with respect to this.

A. I believe that's correct, Shapero refers to it as a locus-specific primer, but a person of ordinary skill in the art would understand that is the same term as target-specific primer.

BY MR. BEAVERS:

Q. What is a locus?

MR. BILSKER: Objection. Relevance. Beyond the scope.

A. Do you -- can you be more specific in what you --

BY MR. BEAVERS:

Q. In the context -- sorry, Dr. Metzker.

In the context of this publication, what is a locus?

A. So we're talking about a genome, and in particular the human genome, which constitutes about 3 billion base pairs in the haploid form. And within that genome there are specific locations that are targets of interest, and that would be referred to as a locus.

So it's a position on the genome that's of interest.

Q. Now, does Shapero disclose another way to introduce the A1 common sequence other than through the use of this locus-specific primer?

A. I don't understand the question.

Q. Certainly.

So if we look at Romanette ii, as we discussed a moment ago, there is a forward primer that contains the A1 common sequence -- common sequence on its tail. Do you see that?

A. I do.

Q. Does Shapero disclose any other way, besides

using this locus-specific primer, to introduce the A1 common sequence into any of the extension products that are generated in MARA?

MR. BILSKER: Objection. Relevance. Beyond the scope. Waived.

A. Your -- I'm sorry, your question is confusing because the figure speaks for itself. Shapero is showing a target-specific primer that has a common sequence that has an A1 -- that is designated as a A1. I mean, that's how I would answer that question.

BY MR. BEAVERS:

Q. So in the second step, Shapero is annealing the forward primer, the locus-specific primer, to specific loci in the sample. Right?

MR. BILSKER: Objection. Relevance. Beyond the scope. Waived.

A. All right, so I'm just going to go to page 2 in the Materials and Methods section to answer your question under the subtitle of Oligonucleotide Design and Synthesis, and it says that the "Locus-Specific

oligonucleotides were designed using Primer 3" -- referencing the Rozen 2000 article that describes the Primer 3 algorithm:

"All oligonucleotides contained 23 bases of common sequence at the 5 Prime end (T3 promoter" -- and it provides the actual DNA sequence -- "followed by about 25 bases of locus-specific sequence at the 3 prime end. [The] primers were designed using the July 2023 human reference sequence based on NCBI" -- and those are all capitalized -- "Build 34 that was produced by the International Human Genome Sequencing Consortium."

Those are -- those are how the primers were described by Shapero.

BY MR. BEAVERS:

Q. Thank you, Dr. Metzker.

My question was whether in the second step Shapero is annealing the forward primer to specific loci in the sample.

MR. BILSKER: Objection. Relevance.

Beyond the scope. Waived.

A. Yes. And you can -- that is described on page 3 of Shapero. It's on the left-hand column, it is a little over ten lines down.

It says [as read]: Conditions of the primary MARA amplification were as follows: 1 cycle of 95 degrees for 7 minutes, followed by 18 cycles of 95 degrees for 20 seconds, 68 degrees for 2.5 minutes (minus 0.5 degrees Celsius per cycle) and 72 degrees for 60 seconds. The annealing and elongation times were increased to 5 and 2 minutes, respectfully [sic], per cycle for the 4565-plex MARA.

BY MR. BEAVERS:

Q. And so to clarify here, the annealing part of the cycle is the 68 degrees Celsius for 2.5 minutes; is that right?

MR. BILSKER: Objection. Relevance. Beyond the scope. Waived.

A. No, that's incorrect. And I've read that into the record already that there were 18

cycles. The annealing step first starts at 68 degrees for 2.5 minutes, but with each cycle the temperature is lowered by one half of a degree Celsius.

BY MR. BEAVERS:

Q. Okay. I understood the parenthetical there. But that portion of the cycle is the annealing step. Correct?

MR. BILSKER: Objection. Relevance. Beyond the scope. Waived.

A. That's how a person of ordinary skill in the art would have understood that step.

BY MR. BEAVERS:

Q. And I noticed, before, that there is one cycle of 95 degree Celsius for 7 minutes and then you have the 18 cycles where it's 95 degree Celsius for 20 seconds. What's the purpose of, you know, those temperatures and at those different times?

A. So I'll draw your attention --

MR. BILSKER: Objection. Relevance. Beyond the scope. Waived.

A. -- to a section above where we just read, and it -- I guess I'll read the whole sentence just for completeness. Let's see, where does it start?

It says, "Primary MARA 4365-plex reactions were carried out in a total volume of 60 microliters containing 60 nanograms of adapter-ligated genomic DNA, 250 micromolar of each dNTP (dATP, dCTP, dGTP, and dTTP), 1X GeneAmp PCR Gold Buffer" -- it provides the composition of that buffer -- "2.5 millimolar magnesium chloride, 0.025 micromolar of each locus-specific oligonucleotide, and 1.25 units" -- just u -- "AmpliTaq Gold (Applied Biosystems)"...

Now, that particular DNA polymerase, the AmpliTaq Gold, is a -- is a modified polymerase that is inactive, and I believe it could be by an antibody or some kind of structural variant within the polymerase itself, and the 95 degrees for 7 minutes is necessary to activate the AmpliTaq Gold DNA

polymerase so that you can perform what is called hot-start PCR.

After that, the 95 degrees for 20 seconds, the 68 degrees as we've described as the annealing, and then the 72 degrees for 60 seconds constitutes the general cycles of denaturation, annealing, and extension in the PCR cycle.

BY MR. BEAVERS:

Q. Now I would like to direct your attention back to Figure 1.

A. Okay, I'm there.

Q. Okay. So if we look, going on to Romanette iii, we see that Shapero describes the primary MARA reaction, and that is the multiple cycles of denaturation, annealing, and extension that we just discussed a minute ago. Right?

A. Right. It's described in the figure legend, Romanette iii, "The primary MARA reaction involves multiple cycles of primer annealing and extension, which can lead to a

full-length extension product (dashed line) that has" been copied -- "that has copied the adapter sequence (A2) from the genomic DNA template."

That's what's described.

Q. And so the full-length extension product that's generated will contain the A1 adapter sequence and then a complementary sequence to the A2 adapter sequence. Right?

MR. BILSKER: Objection. Relevance. Beyond the scope. Waived.

A. That's not complete.

BY MR. BEAVERS:

Q. Why not?

A. Well, it will -- the extension product will have the A1 common sequence, it will have the target-specific primer sequence, it will also contain the complement of the target-specific loci, and then it will also have the complement of the A2 sequence.

Q. And that is the product that is depicted immediately under Romanette iv in Figure 1.

Right?

MR. BILSKER: Objection. Relevance. Beyond the scope. Waived.

And from now on, for shorthand, I'm just going to say on that one, same. So when I say "same objection," it will be those three bases.

BY MR. BEAVERS:

Q. You may answer, Dr. Metzker.

A. Can you repeat the question, please?

Q. Yeah.

So the extension product that you just described, that is depicted as the first product under Romanette iv in Figure 1.

Right?

MR. BILSKER: Same objection.

A. And what I described in my previous answer is the first depiction shown in Shapero Figure 1. There are other extension products that Shapero was also showing that are the result of the step in Romanette iii.

BY MR. BEAVERS:

Q. And let's walk through those products.

The second and third product both depict partial extension products that lack the complement to the A2 adapter sequence. Right?

A. That's correct.

Q. And the final product here is really just the forward primer and solution. Right?

MR. BILSKER: Same objection.

A. I wouldn't refer to it as a "product." It is -- it is the target-specific primer that contains the A1 common tail that has not been extended at all.

BY MR. BEAVERS:

Q. And now after the primary MARA reaction, Shapero discloses a secondary PCR reaction. Right?

MR. BILSKER: Same objection.

A. Right. That's described -- that's first illustrated in Romanette v, and it's also described in the figure legend for Figure 1.

BY MR. BEAVERS:

Q. Before we get there, Shapero also tells us that they did something different with the 250-plex reaction than the other plex reactions. Right?
A. I believe that's correct.
Q. In fact, Shapero describes an enrichment step that follows the primary reaction. Right?
A. Well, in the figure legend, it says, "An enrichment step [was] used in the MARA 250-plex reactions following the primary reaction."
Q. And that step uses one-cycle PCR with primer A2 to convert the full-length extension products into double-stranded DNA. Right?
A. I think that's correct. I mean, I think they realize that was an unnecessary step because in the presence of A1 and A2, by default, you would create that second string from the A2 primer.
Q. And now with this additional step, though, with the 250 plex, Shapero creates double-stranded DNA by targeting the

complementary A2 sequence that is only present in the full-length extension products. Right?

MR. BILSKER: Same objection.

A. That's correct. The whole purpose of their single primer extension reaction was to create the complement of A2, and only those full-length products could be amplified in the next step.

BY MR. BEAVERS:

Q. So Shapero tells us that any of the fragments that lack the A2 primer site are not converted into double-stranded DNA. Right?

MR. BILSKER: Same objection.

A. Any extension product, or even the target-specific loci that does not have on the 3 prime end a complement of A2 will not participate in the next PCR step, and that's one of the key advantages that Shapero talks about.

BY MR. BEAVERS:

Q. Now, before we get to that next PCR step, with the 250 plex, Shapero discloses that they used

an exonuclease I digestion after converting the extension products to double-stranded DNA. Right?

MR. BILSKER: Same objection.

A. So I'll just continue to read on.

It says, "One cycle of PCR with primer A2 converts full-length amplification products (which contain an A2 primer annealing site)" to -- "into double-stranded DNA, while incomplete products lacking the A2 primer annealing site are not converted into a double-stranded product. Exonuclease I digestion removes single strand[ed] products, while double-strand[ed] products are resistant to digestion."

That's what is described in Shapero Figure legend 1.

BY MR. BEAVERS:

Q. And so after this digestion step, Shapero is telling us that you only have the double-stranded products left because of digestion process. Right?

MR. BILSKER: Same objection.
A. It says -- it goes and says, "This step enriches for full-length products generated by the primary reaction, but cannot discriminate between products derived from specific and non-specific primer-target DNA annealing."
BY MR. BEAVERS:
Q. Non-specific target-primer annealing is something that we would refer to as mispriming. Right?
MR. BILSKER: Same objection.
A. That could be -- that could be one way of thinking about non-specific primer-target annealing. I think what they're trying to describe here is, this exonuclease step doesn't discriminate between those two. What Shapero did is show other experiments that showed that the non-specific primer-target annealing was not an issue in the MARA reaction.
BY MR. BEAVERS:

Q. And when you say "other experiments," you're referring to the hybridization array data that Shapero later reports in the publication. Right?

MR. BILSKER: Objection. Assumes facts. Mischaracterization.

A. No, I'm not really referring to that at all.

BY MR. BEAVERS:

Q. Now I want to pivot a little bit here. I want to talk about a concept that's been a little bit at issue here, primer dimers, and so I just want to get a little bit of a better understanding of your view on this, Dr. Metzker.

So when primers dimerize, the primers bind to each other. Right?

A. That's the understanding.

Q. And so when we refer to a primer-primer structure, we would call that a primer dimer. Right?

A. Yeah, I mean, it's been well described in the art. There's a reference in the case called

Brownie (1997) which quite nicely illustrates how a primer dimer is formed from two primers.

Q. And so then this primer dimer that's formed, we would expect the length of it to be somewhere between the length of one of the primers to the length of the two primers combined. Right?

MR. BILSKER: Objection. Vague and ambiguous.

A. I don't think I would expect it to be as small as the length of a single primer. The way these typically form is the 3 prime ends of the primers can anneal to each other, and those products are extended.

So typically a primer dimer is going to be slightly less than double the length of a single primer.

BY MR. BEAVERS:

Q. And these primer dimers are undesirable byproducts of library preparation. Right?

MR. BILSKER: Objection. Assumes

facts. Incomplete hypothetical.
A. I think it depends on the way the library is constructed.
MR. BEAVERS: We can take down Shapero for now.
BY MR. BEAVERS:
Q. So I want to direct your attention, Dr. Metzker, to your declaration, and I'd like to direct you to paragraph 14.
A. Okay, I'm at paragraph 14.
Q. Okay. Now, you state that, ..."one of ordinary skill in the art would have understood that the data presented --
A. I'm sorry, Mr. Beavers, where are you reading from?
Q. Oh, I'm sorry, who -- was this David?
A. No. It was -- it was Dr. Metzker.
Q. Oh, okay. Sorry. I heard a voice in the void.
A. Yeah, sorry. But it -- I don't see where you're reading from.
Q. Yeah, if you turn to page 10 of your

Tecan Ex. 2213, Page 44 of 167
QIAGEN Sciences, LLC v. Tecan Genomics - IPR2025-00026

declaration, it's paragraph 14. I started right after you say, "In actuality"... I started right there.

Do you see it?

A. All right. I do now. Thank you.

Q. Okay. Great.

So you wrote, ..."one of ordinary skill in the art would have understood that the data presented in Shapero (2004) leads to the conclusion that MARA is achieving high on-target rates, not the opposite."

Do you see that?

A. That's right. And that beginning phrase, "in actuality," is actually responding to Dr. Bustamante in paragraph 13.

Q. And in this paragraph, the data that you cite is the result from Figure 2A, the gel in Figure 2A. Right?

A. Well, that's one piece of data that I relied on.

Q. That's the data that you cite in this paragraph. Right?

MR. BILSKER: Objection. Mischaracterization. Vague and ambiguous.

A. Can I have a moment to read through this paragraph?

BY MR. BEAVERS:

Q. Yes, please.

A. Okay. Thank you.

Can you repeat the question, please?

Q. Yeah, so the data that you cite to in that paragraph is the gel read in Figure 2A of the publication. Correct?

A. Well, paragraph 14 is really responding to the gel in Figure 2A in particular reference to the lack of primer dimers in the gel, and in refuting Dr. Bustamante's suggestion that maybe the reason why he couldn't see primer dimers in Figure 2A is because maybe they just ran off the gel, which is kind of -- I mean, it's possible, but not the way that the data are presented.

Because the data are presented where there are molecular weight markers, and I

would have expected -- and I say this in paragraph 14 -- that if there were primer dimers, they would be slightly under 100 base pairs because each primer is almost 48 base pairs.

And I've run lots of PCRs and lots of gels. Primer dimers are very prominent when they're in a library, and what I'm speaking to here is that Figure 2A does not show any evidence whatsoever of primer dimers being created from the 250-plex MARA reaction.

Q. Thank you, Dr. Metzker.

So just to confirm the answer to my question, the gel read is the only data that you cite in that paragraph. Right?

A. With respect to the absence of primer dimers. That's -- that's what I'm talking -- there's other information in Figure 2A that also speaks to on-target specificity. For example, the size range of the expected extension products are exactly what you --

what -- the way they design the assay to be. That is another indication of on-target specificity.

But paragraph 14 is really only dealing with the lack of primer dimers in Figure 2A.

Q. And when you say that it speaks to how they -- let me make sure I get this right.

The way they design the assay to be, you are referring to the specific use of endonucleases to fragment the genome and then from there do the library preparation method. Right?

MR. BILSKER: Objection. Vague and ambiguous.

A. No, not at all. I mean, if you go back to Figure 1A and if you actually look at Romanette Number ii, Shapero is very clear of how it defined what the extension product -- how long the extension product would be in relation to where the SNP existed in the locus.

So, for example, they have a D1 region which is the distance from the 3 prime end of the target-specific primer to the SNP, and then they have a D2 distance which is from the SNP to the end where one of the restriction enzymes that were used in MARA would cut genomic DNA.

So based on that, they had an expected size range of about 150 to 550 base pairs, and when you look at Figure 2A, that's exactly what they get and it's reproducible over nine different samples, genomic samples.

Q. So, again, just to answer my question, with respect to paragraph 14, the data that you are referring to there is from the gel that is in Figure 2A of the publication. Correct?

MR. BILSKER: Objection. Argumentative. Asked and answered. Vague and ambiguous.

A. I am answering your question, and your question leaves out details that are in Figure -- in paragraph 14. And so I'm

filling in the gaps of what I'm talking about in relation to the gel in Figure 2A.

BY MR. BEAVERS:

Q. So let's go to paragraph 17 of your declaration.

A. Okay, I'm there. I guess, can I have a moment to read through that?

Q. Yes, please.

A. Okay. Thank you.

Q. And, here, I'm going to direct you to page 15, so it's the latter part of paragraph 17, and you will see a sentence that states, "Rather, the data in Shapero (2004) would have led them to believe that it was performing exceptionally well."

Do you see that?

A. I do see that sentence.

Q. And just to confirm, the data that you are referring to in paragraph 17 is the hybridization array outputs, the call rates and the concordance rates, that Shapero reports. Correct?

A. Well, that's not complete.

It's referring to, first, their discrimination scores, and they're describing them as greater than 0.08. And they provide what that formula is, where they look at perfect matches of both the wild-type variant, the reference variant, and then mismatches in either the wild type or the reference variant. And it provides a way of estimating how good the data are coming from the array, and they are describing that their array was calling greater than 99 percent of the SNPs with a DS score greater than 0.08.

And then I also do rely on the call rates, which Shapero refers to as a proxy for on-target specificity, and then the concordance rates with a different assay that Affymetrix was using called WGSA.

Q. Now, just to be clear, you never -- in any part of your declaration, you never rely on the relative abundances of the target sequences before or after amplification, do

you?

MR. BILSKER: Objection. Vague and ambiguous. Unintelligible.

MR. BEAVERS: Thank you, David.

A. I would disagree with that.

BY MR. BEAVERS:

Q. So you cite relative abundances in your declaration?

A. Well, I -- what I do cite to is the difference between Figure 2A and Figure 2B.

For example, you can look at the gel and you can see the abundance of target-specific loci being amplified in the presence of the target-specific primers, and then the lack of signal, i.e., the lack of abundance when the same assay is performed, except that the target-specific primers are not included in the MARA reaction.

Q. I want to change gears a little bit.

Dr. Metzker, this is not the first time that you've provided sworn testimony to a court or a tribunal on behalf of Qiagen

Sciences LLC; is that correct?
A. That is correct.
Q. You previously testified in the ArcherDX versus Qiagen Sciences litigation in the United States District Court for the District of Delaware. Right?
A. Yes. I think that's included in my CV, which I think is Exhibit 1004.
Q. And in that litigation, the plaintiffs accused various Qiagen entities, including Qiagen Sciences, of patent infringement and trade secret misappropriation. Right?
MR. BILSKER: Objection. Relevance.
A. I do know -- it's been a while. I do know that there was a patent infringement suit. I don't remember all the details of any trade secrets that you're referring to.
BY MR. BEAVERS:
Q. Uh-huh. Now, the plaintiffs accused Qiagen of infringing two patents in that litigation. Right?
A. Again, it's been a long time. That could

very well be true, I just don't remember that detail at this point.

Q. Now, do you recall offering testimony concerning the invalidity data of the asserted patents in that litigation?

MR. BILSKER: Objection. Relevance.

A. Yes, I believe I did provide invalidity declarations and testimony in the Archer case.

BY MR. BEAVERS:

Q. And you also offered testimony that several of Qiagen's products did not infringe the patents. Right?

MR. BILSKER: Objection. Relevance.

A. I may have. Again, it's been a long time.

MR. BEAVERS: So why don't we take a break -- we've been going for about an hour -- before I get to this next module. Let's go ahead and take a ten-minute break.

THE WITNESS: Okay.

STENOGRAPHER: Okay, off the record, Counsel.

(Off the record at 1:39 p.m.)

(Back on the record at 1:49 p.m.)

MR. BEAVERS: Lawrence, if you don't mind, could you pull up Exhibit 2201?

PLANET DEPOS TECH: Stand by, please.

MR. BILSKER: Is that something that's previously marked?

MR. BEAVERS: No, David. This is a new exhibit.

MR. BILSKER: All right. Then we may have to print it out.

MR. BEAVERS: If you would like to print this one out. This one you may not need to print out. Once you see it, I'll leave it up to you as to whether or not Dr. Metzker would prefer a paper copy of it.

MARKED FOR IDENTIFICATION:

EXHIBIT 2201

1:50 p.m.

BY MR. BEAVERS:

Q. And so, Dr. Metzker, we will put a copy of it in the Chat as well so you can download it.

But while we're doing that, just for context here, this exhibit is a docket report. Have you seen a docket report before?

A. It's possible.

Q. Well, I'm going to represent to you that this is the docket report for the ArcherDX litigation that we were just discussing. I pulled this document from PACER. I'll also represent to you that this document reflects the entire docket from the start of the litigation up through yesterday.

Now, let me know when you're ready because I would like to direct your attention to a specific page in the docket report.

A. Trying to... okay, I've downloaded it and it's now on my computer.

Q. Great. And I also have control of the screen, so I will -- oops. I don't know what's happened here. Here we go.

So I would like to direct your attention to page 57 of the document.

And so you'll see a docket entry

number that is 451. Do you see that?
A. Yes, I see it.
Q. And this docket entry number is for: "Plaintiffs' Identification of Accused Products by ArcherDX, LLC."
Do you see that?
MR. BILSKER: Objection. Relevance.
A. I mean, I see those words.
BY MR. BEAVERS:
Q. Okay.
MR. BEAVERS: Lawrence, I'd like to introduce what is Exhibit 2202.
PLANET DEPOS TECH: Stand by.
MR. BILSKER: Objection. Relevance.
MARKED FOR IDENTIFICATION:
EXHIBIT 2202
1:52 p.m.
BY MR. BEAVERS:
Q. Dr. Metzker, we'll get a copy for you to download.
As you will see and I will represent to you, this document bears the same docket

entry number, 451, and it is the same document that is referred to in that docket report.

A. I do see Exhibit 2202 with a document number of 451.

Q. Thank you.

And you'll see that this document is titled Plaintiffs' Identification of Accused Products. Right?

A. I do see those words.

Q. It lists two patents, the '810 and '597 patents. Right?

MR. BILSKER: Objection. Relevance.

A. Yes, I do see those two patent numbers on the document.

BY MR. BEAVERS:

Q. And these patents were directed to sequencing library preparation methods that used nested gene-specific primers. Right?

MR. BILSKER: Objection. Mischaracterization. Relevance.

A. I don't see where that's described on this document.

BY MR. BEAVERS:
Q. Do you recall what these patents cover?
MR. BILSKER: Hold on. Objection. Relevance. Beyond the scope. And I'm just going to remind you of your obligations under 37 C.F.R. Section 42.51(b)(1)(ii).
MR. BEAVERS: David, we are entitled to impeach Dr. Metzker and the testimony that he's provided in this proceeding.
MR. BILSKER: So now you're asking me -- so now you're asking me to engage with you? I just stated an objection. Now you're asking me to engage with you because you're responding.
BY MR. BEAVERS:
Q. Dr. Metzker -- Dr. Metzker, you may answer the question.
MR. BILSKER: Same objections.
A. I don't remember the details of this case. This case was tried more than four years ago.
BY MR. BEAVERS:
Q. Now, you'll see on this document that for both

patents the plaintiffs accuse the QIAseq targeted DNA panels of infringement. Do you see that?

MR. BILSKER: Objection. Relevance. Beyond the scope.

A. I can see those words on this document.

BY MR. BEAVERS:

Q. And you also see that they accuse the QIASeq targeted RNA scan panels. Right?

MR. BILSKER: Objection. Beyond the scope. Relevance.

A. Again, I see those words on this document.

BY MR. BEAVERS:

Q. Okay. Now I'd like to direct your attention back to Exhibit 2201.

A. Okay, I'm there.

Q. And I'd like you to look at page 23 of the exhibit.

I'm sorry, this is not the page I want.

One second and I will tell you the right page.

Here we go. It's going to be page 46 of the exhibit.

A. Okay, I'm at page 46.

Q. You'll see a Docket Entry Number 338. Do you see that?

A. It's the very bottom one? Yes.

Q. Yes.

And you'll see that the name of this exhibit -- this entry is, "Redacted Version of 323 Declaration"... and it states that there are Attachments 1 and 2.

Do you see that?

MR. BILSKER: Objection. Relevance. Beyond the scope. And 37 C.F.R. 42.12, I'm citing that section to you now so that you're aware of it for abuse of discovery under the PTAB rules. You're actually referring now to a document submitted by Archer. I have no idea what possible relevance this could have for this case.

And I'm just making you aware of 47 -- 37 C.F.R. 42.12 for abuse of discovery with

potential sanctions available.

MR. BEAVERS: Thank you, David.

BY MR. BEAVERS:

Q. Dr. Metzker, back to my question. So you'll see that this entry is named "Redacted Version of 323 Declaration"... and it includes Attachments 1 and 2. Correct?

MR. BILSKER: Objection. Incomplete, improper reading.

A. I mean, I think the document speaks for itself. It says, "Redacted Version of 232 Declaration, by ArcherDX, LLC, The General Hospital Corporation." And in parentheses, "(Attachments: Number 1 Part 2 of 3, Number 2 Part 3 of 3 (Joyce, Alexandra) (Entered: March 8th, 2021.

BY MR. BEAVERS:

Q. Thank you.

MR. BEAVERS: Lawrence, we're going to introduce three exhibits. It will be Exhibit 2203, 2204, and 2205.

PLANET DEPOS TECH: Just one moment.

MR. BILSKER: And these are not previously marked; is that correct?

MR. BEAVERS: These are new exhibits. Yes.

MARKED FOR IDENTIFICATION:

EXHIBITS 2203 - 2205

1:59 p.m.

BY MR. BEAVERS:

Q. And, Dr. Metzker, I will apologize that we have three exhibits here. This is how this was filed in the public docket, and these were filed in tranches of documents. So I do apologize for the fact that there are multiple exhibits within each of these, but this is how they were filed publicly.

And so, Dr. Metzker --

A. I'm sorry, I don't even see them in the Chat yet.

Q. Okay. Yeah, let's wait a second for you to have to them in the Chat.

MR. BILSKER: So this first document is a almost 300-page document filed by Archer,

and you want to question him about this?

MR. BEAVERS: David, we have a couple more questions and we'll get there.

A. Okay, I have Exhibit twenty -- I'm sorry, Exhibit 2203 open.

BY MR. BEAVERS:

Q. Okay. And, Dr. Metzker, could you confirm that Exhibit 2203 lists the same case number as the docket report that we've been discussing?

MR. BILSKER: Objection. How is he supposed to confirm that?

MR. BEAVERS: He has both documents.

A. So, actually, I'm not following -- which document do I -- do you want me to compare to this document?

BY MR. BEAVERS:

Q. Yes, Dr. Metzker. So 2201, you will recall, is the docket report that we've been discussing, and so I'm asking you whether or not the case number, which you'll see at the top of 2203, is the same as the docket report

that we've been discussing.
A. Right. So Exhibit 2201, I would find that on the cover page?
Q. Yes.
A. Is that where you want to me to look?
Q. And if helpful, I could direct you to the numbers on that if that's easier.
A. I'm just asking for direction of where you want me to go and confirm the numbers.
Q. Certainly. So let's look at Exhibit 2203. You'll see "Case," and then you'll see "1:18-CV-01019-MN." Do you see that?
A. I do see those numbers.
Q. And if we could go back to Exhibit 2201, and we'll go to the first page, you'll see up at the top Civil Docket for Case Number: 1:18-cv-01019-MN.

Do you see that?
A. I do see that.
Q. And if you'll recall, a minute ago we were talking about Docket Entry Number 338. Right?
A. I think that's right.

Q. And so if we go back to Exhibit 2203, you'll see that the docket number at the top of the document is 338. Do you see that?
A. I do see document 338 listed on Exhibit 2203.
Q. Okay. And now this document contains an attorney declaration starting at page 1, and then starting at page 5 it has attached to it Exhibit 1.

Do you see that?
A. I have no idea whether this is an attorney document or not.

MR. BILSKER: So objection. Relevance. Beyond the scope of his declaration.

BY MR. BEAVERS:
Q. So I'll direct you to paragraph 1, Dr. Metzker. You'll see that Eric J. Rutt declared, "I am an attorney with the law firm Wolf Greenfield & Sacks, P.C."

And so what I want to direct you to is paragraph 3. You will see that this declaration states, "Attached as Exhibit 2 is

a true and correct copy of excerpts from the transcript of the February 9, 2021 deposition (Volume 1) of Dr. Michael Metzker."

Do you see that?

A. I do see those words.

Q. And now I want to direct you to page 54 of this document, and you'll see that it has a cover sheet, Exhibit 2. Do you see that?

A. I do.

Q. And if we look at the next page, we'll see the beginning of a transcript, Remote Oral and Videotaped Deposition of Dr. Michael Metzker. Do you see that?

A. I do see that sentence.

Q. And this is the transcript -- from this cover page, this is dated February 9th, 2021. Correct?

A. That is the date on this document.

Q. And do you recall giving deposition testimony in the ArcherDX case?

A. I generally remember giving a deposition, but not even specific to what date it was on.

Q. No worries about the specific date.

The deposition that you gave, though, was under oath. Right?

A. Yes.

Q. Now, we can set this document aside. I want to look at 2204 and 2205 real quick. We'll look first at -04 and then we can go to the next document.

And I just want to confirm with you that this document has the ID number 338-1. Do you see that?

MR. BILSKER: Objection. Relevance. Beyond the scope.

A. I do see Document 338-1 listed in Exhibit 2204.

BY MR. BEAVERS:

Q. And then in 2205, we'll see Document 338-2. Do you see that?

MR. BILSKER: Same objection.

A. I do see listed Document 338-2 in Exhibit 2205.

MR. BEAVERS: Okay, we can set this

aside for now.

BY MR. BEAVERS:

Q. Dr. Metzker, at the beginning of the deposition you testified that you had reviewed Qiagen's reply papers in this proceeding. Right?

A. That is correct.

Q. Now, I would like to direct your attention to page 24 of the reply paper.

MR. BEAVERS: And, Lawrence, if we could display that on the screen. It's Paper 22 in the box.

PLANET DEPOS TECHNICIAN: One moment, please.

MR. BILSKER: Mr. Beavers, which reply?

MR. BEAVERS: Oh, sorry. So this will be for the '012 patent.

MR. BILSKER: And is that also being put in the Chat?

MR. BEAVERS: We can do that as well, if that's helpful.

And that is in the Chat now.
A. Okay, I have it open.
BY MR. BEAVERS:
Q. Okay. Perfect.
And so on page 24, I want to direct you to the first paragraph. Do you see Qiagen's statement, "Dr. Bustamante admitted, however, the QIAGEN workflow is closer to the Shapero workflow than PO's"?
A. I'm sorry, you didn't start at the beginning of the paragraph. You're into the second sentence of the paragraph?
Q. Yes, this is the second sentence.
A. Okay, could I just have a moment to review the whole paragraph?
Q. Yes, please.
A. Okay, I've reviewed that paragraph now.
Q. Okay. Do you agree that the Qiagen workflow is closer to the Shapero workflow than patent owners?
A. Well, I agree -- again, you pointed out that I was present during Dr. Bustamante's

deposition when these questions were asked, and I do agree with this -- with the steps that were shown to be side by side that the Shapero workflow was closer to the Qiagen workflow than the Tecan workflow.

Q. So I would like to now go back to Exhibit two thousand -- there we go. I would like to now go back to Exhibit 2205.

A. Okay.

Q. And I'm going to direct your attention to -- on the PDF, it's page number 65. You will see what is noted as Exhibit 17. Do you see that?

A. Well, I don't really know what this document is, in the first place. I really have no -- because it looks incomplete.

Q. So you understand, a moment ago when we were talking about the docket report, we looked at a public filing from the plaintiffs in that case where they filed excerpted versions of documents to the public docket. Do you recall that?

MR. BILSKER: Objection. Assumes

facts not in evidence. Beyond the scope of his declaration.

A. So can we go back to that section in the docket?

BY MR. BEAVERS:

Q. Yeah, let's look at the docket report.

So we're going to go back to Docket Entry Number 338, which I believe was on page 42, if I recall -- 46.

A. Sorry, which exhibit number are we?

Q. So this is going to be Exhibit 2201.

A. -1, okay.

And which page?

Q. Page 46.

A. Right. So I do see there are attachments. I have no idea what those attachments are or the relevance of those attachments based on this description here. I just see that there are attachments.

Q. And a moment ago we discussed that the first document, Exhibit 2203, bears the number -- the Docket Entry Number 338, and that document

contained a portion of your deposition transcript. Do you recall that?

MR. BILSKER: Objection. Relevance. Beyond the scope.

A. Well, you took me to Exhibit 2 of Exhibit 2203, and on the first page you took me to the cover page of what is titled Remote Oral and Videotaped Deposition of Dr. Michael Metzker. I have no idea whether this is partial, complete, if it's an exhibit to -- I don't understand what the attachments are that you're trying to take me to now.

BY MR. BEAVERS:

Q. I'm going to represent to you that this is an excerpted version of your deposition transcript. This is the only thing that's available to the public and this is an excerpted version. I will show you -- as you will see, it is, as I said, a portion of your deposition transcript.

If you would like to take a moment to read through it, by all means, please.

A. Right. But I -- that actually wasn't my question. My question was, you're taking me to exhibit -- I think it's 2205.
Q. Yes, that is Exhibit 17 which we are about to discuss.
A. Which is part of this deposition that was shown to me as an exhibit?
Q. It may be more helpful if we look at Exhibit 17. I think that may clear up some of the questions you have.
A. Okay.
Q. So if you look, you will see that this exhibit is titled Noninfringement and No Trade Secret Misappropriation Expert Report of Dr. Michael Metzker Responding to the Expert Report of Niall Lennon.

Do you see that?

A. I do see that, yes.
Q. And do you recall authoring a noninfringement report in the ArcherDX litigation?
A. This has reminded me that I did provide a noninfringement and no trade secret

misappropriation expert report.

Q. And just to confirm, again I will represent to you that this is excerpted because this is a public filing, and so this is not a complete version since that is not public. But I would like to show you the end -- I will scroll through, and I would like to show you the end of the report to confirm that it is your signature.

MR. BILSKER: Objection. Relevance.

And if you need to read through the whole thing, go ahead and read through it.

BY MR. BEAVERS:

Q. And so you'll see --

MR. BILSKER: Well, hold on. You're just scrolling through it. He's actually sitting there and reading it now. And I couldn't even keep up with it, it was scrolling so fast. So he's actually reading it.

MR. BEAVERS: Yes, David, I'm directing him to his signature page to ask him

about that.
BY MR. BEAVERS:
Q. Dr. Metzker, is this an accurate copy of your signature?
A. That is my signature.
Q. And this was executed November 20th, 2020; is that correct?
A. That's what the document says.
Q. Now I would like to -- once you have oriented yourself with the document, please let me know because I would like to direct your attention back to Table of Contents.

And please let me know whenever you're ready for the next question.
A. I'm at the Table of Contents.
Q. Okay. Great.

So you'll see that you have a Section V to the Table of Contents. Do you see that?
A. I do.
Q. And that's the Overview of the Qiagen Accused Products, is what it says. Right?

A. You read that title correctly.
Q. Thank you.
And does this refresh your memory that you provided opinions with respect to the noninfringement of Qiagen's products that were accused in that litigation?
A. Well, as I testified, it refreshed my memory that I did provide a noninfringement and a no trade secret expert report.
Q. And, now, do you recall that one reason you offered as to why the asserted -- the accused products were not infringing the asserted patents was that the accused -- the asserted patents were directed to a nested PCR approach, while the Qiagen products used only one PCR step with a gene-specific primer followed by one universal PCR step? Do you recall offering that opinion?
MR. BILSKER: Objection. Relevance.
A. Not to that detail, I do not recall. If it's in this document, I'm happy to review it.
BY MR. BEAVERS:

Q. Certainly. And so I'll direct you to subparts A and B.
A. Okay, I've read those two titles in the subsection -- Section V.
Q. And so would you agree that Qiagen's accused products do not use nested gene-specific primers?
A. So --
MR. BILSKER: Objection. Assumes facts. Vague and ambiguous.
A. So there is not enough information to answer that question. And I have scrolled down below the document, and the pages 29 and 32 are not included in this document so there's no way for me to answer that question with any certainty.
BY MR. BEAVERS:
Q. And as I noted earlier, this is excerpted. We do not have a full copy of the report.
But you would agree that, based on what we do have here, that you provided testimony that the Qiagen products use only a

single gene-specific primer.

MR. BILSKER: Objection. Vague and ambiguous. Relevance.

A. I can agree that there is a title that says The Accused QIAGEN Products Use Only One PCR Step With a Gene Specific Primer Followed by One Universal PCR Step. Beyond that, I can't provide any detail without being able to review what was actually written starting on page 29 of this -- of my declaration.

BY MR. BEAVERS:

Q. And you could also agree that you provided a title that states, Inventors of the '810 Patent and '597 Patent Were Surprised That QIAGEN Could Achieve High Specificity Without a Second PCR Round Using Nested Gene-Specific Primers.

Do you see that?

MR. BILSKER: Objection. Relevance.

A. I can agree that that's what the title says.

BY MR. BEAVERS:

Q. And do you recall providing testimony that the

inventors of the asserted patents were surprised that Qiagen was able to achieve high specificity without using a nested PCR approach?

MR. BILSKER: Objection. Asked and answered. Relevance.

A. Can you be more specific on "testimony"?

BY MR. BEAVERS:

Q. Certainly.

Do you recall whether -- offering a written opinion, deposition testimony, or trial testimony with respect to the statement that we see here?

A. Well, I don't have the benefit of reviewing my declaration starting on page 32 of what I actually wrote. I can agree what the title says in this document.

As to what I was asked at deposition or at trial, I have no memory of that, being asked or not, and whether I provided any testimony or not.

Q. And I understand, you know, again, these are

excerpted. This is all that we have publicly. I think there may be another document that may help shed some light here.

MR. BEAVERS: I'd like to introduce Exhibit 2206.

PLANET DEPOS TECH: One moment.

MARKED FOR IDENTIFICATION:

EXHIBIT 2206

2:22 p.m.

BY MR. BEAVERS:

Q. And so, Dr. Metzker, we'll put that in the Chat for you so you can download it as well.

A. Thank you.

Q. And as you will see on the cover page of this document, this is a public version of a brief that Qiagen filed in the ArcherDX case. And I will represent to you that it bears the exact same case number as the other documents that we've discussed, the new exhibits today, and the docket report that we've discussed today.

A. Okay.

Q. And I'm also going to represent to you that

this is a redacted public version of the opposition brief. So, again, we will not have a complete brief given the fact that there is some confidential information that was not included in the public version.

A. Okay.

Q. Now, if we look at pages 25 and 26 of the brief --

A. I have no idea what the relevance of this is. I didn't -- this is something I did not author, and I probably have never reviewed this in this case or in the Archer case.

Q. So would it surprise you if Qiagen had taken a position in litigation that was different than the opinions that you had authored in that litigation?

MR. BILSKER: Objection. Assumes facts not in evidence. Incomplete hypothetical. Relevance.

A. There's no way for me to answer that question.

BY MR. BEAVERS:

Q. Would you be surprised? Whether or not -- I'm not saying that they did or didn't, but would you be surprised if they did take a position contrary to testimony that you provided?

MR. BILSKER: Same objections.

A. I would have to review the details to determine whether I would have a surprised reaction or not. I have no idea how to answer that question.

BY MR. BEAVERS:

Q. Well, I want to refer you to the bot- -- middle of the first paragraph on 26. You'll see a statement -- and just for context, you'll see that this is identified as Read Factor 1: Copying in their brief.

And you will see a statement that Qiagen made: "QIAGEN did what Archer's inventors said it was unable to do: produce a product with only one enrichment step."

Do you see that?

A. I agree that that's what the sentence says.

Q. And does that at all refresh your recollection

as to the opinions that you authored in the noninfringement report that we just discussed?

MR. BILSKER: Objection. Assumes facts. Relevance.

A. It does not.

BY MR. BEAVERS:

Q. Okay. Now, in the ArcherDX litigation, do you recall that it went to trial?

A. Yes.

Q. And do you recall testifying at trial?

A. Yes, I did.

Q. And do you recall testifying on the noninfringement opinions that you offered in that case?

A. I believe that's correct.

Q. Now, ultimately the jury found that Qiagen infringed the ArcherDX patents. Right?

A. Well, I think initially the jury found that. That ruling was overturned.

Q. Right. Because Qiagen appealed to the Federal Circuit. Right?

A. I mean, that's my understanding. I wasn't

involved in that, but that's my understanding.

Q. Now, I'd like to show you what is marked as Exhibit 2207.

MARKED FOR IDENTIFICATION:
EXHIBIT 2207
2:26 p.m.

MR. BEAVERS: And we'll put this in the Chat as well for you.

THE WITNESS: Thank you.

BY MR. BEAVERS:

Q. And so you'll see that this document is the opening brief that Qiagen submitted on appeal to the Federal Circuit. I am going to represent to you that I pulled this document off of the public docket for that appeal.

A. I'm sorry, if I could just have a moment to look at this because I'm not familiar with reading court documents like this.

Q. Absolutely.

A. Where does it say -- where does it say it's an opening brief?

Q. Yeah, so I'm representing to you it's the brief for the defendants-appellants, and so this will be the opening brief in the appeal. The appellants will issue the first brief.

I will represent to you that that is their opening brief.

A. Okay.

Q. Let me know when you're ready for a question.

A. I will do my best. I don't think I've reviewed this document as well, so...

Q. I want to direct you to page 11 in the document. And this -- we'll get through a couple of forms that are included as well before we get to their brief.

Now, you'll see there is a paragraph that starts with, "There is no dispute that the only unique primer that anneals to a sequence one is interested in analyzing, that is, the target, is the GSP, the gene specific primer."

Do you see that?

A. I do. But I have no idea where -- what the

relevance of this is. Can I have some time to review this document? Because you've taken me into 11 pages, and I don't know what the first 10 pages are even describing to get to this statement.

Q. Certainly. Please take your time.

A. Thank you.

Q. Let me know when you're ready.

A. I've read through the end of this page here.

Q. Okay. Great.

So to direct your attention back to the paragraph in -- on page 11 that starts with, "There is no dispute that the only unique primer that anneals to a sequence one is interested in analyzing, that is, the target, is the GSP, the gene specific primer."

Do you see that paragraph?

A. I see that sentence.

Q. And you see the paragraph that that sentence belongs to. Right?

A. I do see the paragraph, but you didn't read anything after the first sentence.

Q. Well, we're getting there.

So then Qiagen wrote, "All of the other primers are the same across all of QIAGEN'S kits."

Do you see that?

A. I do see that sentence.

Q. "This includes the UP, FP and SIP."

Do you see that sentence?

A. After the citation, yes, I see that sentence.

Q. And then after the citation, do you see the sentence where Qiagen wrote, "QIAGEN carefully designed its process and constructed its GSPs so that its process can enrich for the sequence to be analyzed with a single pair of primers: the GSP and the FP"?

Do you see that?

A. I do see that sentence.

Q. Now, does this sentence refresh your recollection of the testimony that you provided in the district court case?

A. It does not.

Q. Sitting here today, do you agree with Qiagen's

statement?

MR. BILSKER: Objection. Relevance. Beyond the scope.

A. Which statement would that be?

BY MR. BEAVERS:

Q. Do you agree that Qiagen carefully designed its process and constructed its GSPs -- oh, sorry. Let me go back to that page.

And I'll -- I'll start from the beginning on the question.

Sitting here today, do you agree that, "Qiagen carefully designed its process and constructed its GSPs so that its process can enrich for the sequence to be analyzed with a single pair of primers: the GSP and the FP"?

MR. BILSKER: Objection. Beyond the scope. Relevance.

A. Well, I can read the sentence. I have no reason to disagree with it. But it's nothing that I wrote, so it's -- and there's really -- I mean, I can just agree that

that's what the word says, and I have no reason to disagree with that statement.

BY MR. BEAVERS:

Q. Now, you'll see next, in the next paragraph -- it's only a line -- it points to the joint appendix, so "JX 8.12 that both parties relied on depicts the QIAGEN workflow:"

Do you see that?

A. I do.

Q. And on page 12, we see a workflow. Do you see that?

A. Yes, I do see the workflow.

Q. And that is the same product workflow that Dr. Bustamante compared in his declaration. Right?

A. Oh, I would have to confirm that.

Q. Oh, I'm -- I'm sorry, I didn't hear you.

A. I don't know. I would have to confirm that.

Q. Okay.

MR. BILSKER: Objection. Beyond the scope of his declaration.

MR. BEAVERS: Okay. We can take this

exhibit down.

Lawrence, I'd like to introduce Exhibit 2208.

MARKED FOR IDENTIFICATION:

EXHIBIT 2208

2:41 p.m.

BY MR. BEAVERS:

Q. And so I'm going to introduce, and we'll put this into the Chat for you as well, a publication from 2019 that's titled Targeted Single Primer Enrichment Sequencing with Single End Duplex-UMI.

Do you see that?

A. I do see the title. I don't know if I've reviewed this one or not.

MR. BILSKER: Hold on -- hold on just a second.

I'm going to ask that we email this to somebody so that we can print this one out.

THE WITNESS: Yeah.

MR. BILSKER: You have it open. Do you have a way to email it? So can you just

email it to me and my secretary Marita [ph]. Let me just make sure she's there.

MR. BEAVERS: Okay, David, I will email this exhibit to you real quick.

MR. BILSKER: Yeah, but I only have my phone. I'm not going to read it on my phone.

MR. BEAVERS: Because I don't have your secretary's email so you could forward it to her or whoever.

MR. BILSKER: Mike is doing that.

MR. BEAVERS: Okay.

MR. BILSKER: Stay on the record. I'm just going to let her know that it's coming.

MR. BEAVERS: Okay. Perfect. So no need for me. Perfect.

THE WITNESS: And this is 2208; is that right?

MR. BEAVERS: Yes, this is 2208. Correct. And we'll give your counsel a moment to get that printed before we continue.

THE WITNESS: Okay. I have just emailed that to David and his secretary.

MR. BEAVERS: Perfect.

MR. BILSKER: I just got it, so she's probably printing it out right now.

If you have a bunch of other scientific articles that you're going to do, you can email them to me right now so I can send them to my sect.

MR. BEAVERS: This is the only scientific article.

MR. BILSKER: Dr. Metzker now has a hard copy of the ten-page article.

MR. BEAVERS: Great. Okay.

BY MR. BEAVERS:

Q. Dr. Metzker, let me know when you're ready to resume questions.

A. I can agree what the title says. If you want any more detailed questions, I'll probably have to review this document because I have not seen this document before.

Q. Okay, so you have not reviewed this document

Tecan Ex. 2213, Page 93 of 167
QIAGEN Sciences, LLC v. Tecan Genomics - IPR2025-00026

before. Correct?
A. I do not remember reviewing this document.
Q. Okay. I'm going to ask you some questions. To the extent you feel that you need to look through the document, then we can cross that bridge at that point.
But, first, this document --
MR. BILSKER: This is 2208? Is that what it is?
MR. BEAVERS: Yes. Correct. Yep.
BY MR. BEAVERS:
Q. So this paper was published in Nature's Scientific Reports. Right?
A. That's correct.
Q. And Nature's Scientific Reports is a periodical?
A. That's kind of an old term. I mean, it is a peer-reviewed journal article.
Q. Okay. And so where it's peer-reviewed, you would consider it a reliable source in your field. Right?
A. Yeah, I think Scientific Reports is a

reputable journal for sure.
Q. Now, if we look at the bottom of the first page, you will see a statement, Research and Foundation Department QIAGEN Sciences, Incorporated."
Do you see that?
A. I do see that.
Q. And then you'll see that it -- after it provides the geographical location, Frederick, Maryland, USA, it states, "Correspondence and requests for materials should be addressed to Y.W. (email: yexun.wang@qiagen.com."
Do you see that?
A. I do see that at the bottom of the page.
Q. Now, in your experience, what does it mean when a company is listed on the publication like this?
MR. BILSKER: Objection. Vague and ambiguous.
A. Well, usually scientific papers will list the authors, which are right below the title, and then they will list their affiliation. And

it appears at least the senior author is a Qiagen employee because he has a Qiagen email address.

BY MR. BEAVERS:

Q. And do you recognize the senior author?

A. I do not.

Q. Okay. Now, I want to look at the last sentence in the second paragraph of the body, so this will be the last paragraph in -- on the first page.

A. Okay. I can have a chance to read at least --

Q. Sorry, it will be the middle paragraph. Sorry.

And, yes, please, take your time.

A. Okay, I've read the first three paragraphs of the introduction.

Q. Okay. Great.

And I want to direct your attention to the last sentence in the second paragraph, so the middle paragraph in the body.

And do you see where the authors

wrote, "Although traditional amplicon enrichment using two locus-specific primers can severely limit the coverage of large indels and translocations, and is prone to SNP induced allele dropouts, newer single primer technologies based on ligation mediated PCR have alleviated those concerns."

Do you see that sentence?

A. I do see that sentence.

Q. And do you see that following that sentence, there is -- there are -- is a citation, and I'll zoom in for those following on the screen, to references 3 through 5. Do you see that?

A. I do see that.

Q. Okay. I want to direct your attention to what's going to be page 9 of the publication, and this will be the References page.

A. Yes, I'm there.

Q. Okay. Perfect.

And if we look at reference 3, we see an article by Zheng titled Anchored multiplex

PCR for targeted next-generation sequencing, and this was published in 2014.

Do you see that?

A. I do see that.

Q. And do you recall that Zheng was one of the named inventors on the patents that were asserted in the ArcherDX litigation?

MR. BILSKER: Objection. Assumes facts.

A. I don't recall if Zheng was a named inventor on the patents in the Archer case.

BY MR. BEAVERS:

Q. Do you know of Dr. Zheng?

A. I'm familiar with this publication.

Q. Now, if we look at the next reference, reference 4, we'll see Scolnick, Dimon, Huelga -- or, sorry, Wang, Huelga, and Amorese. Do you see that?

A. I do see those authors listed in reference 4.

Q. And do you recognize that that is a paper that Dr. Bustamante testified about in his declaration?

A. I remember -- I read this paper, and I read it because it was cited in his declaration. I don't remember specifically what he said about this paper in his declaration.
Q. You recall that this paper describes NuGEN's ovation product workflow?
A. I think as of 2015, I think that's correct.
Q. And then if we look at the fifth reference, we'll see that the senior author here is Dr. Wang, and it's titled Detecting Very Low Allele Fraction Variants Using Targeted DNA Sequencing and a Novel Molecular Barcode-Aware Variant Caller, and this is the 2017 publication.

Do you see that?

A. I do see those authors in Reference 5.
Q. And you understand that those authors are Qiagen employees. Correct?
A. I actually wouldn't know that just by reading Reference 5.
Q. Okay. Now, looking at references 3 through 5, does it surprise you that Qiagen did not cite

to Shapero or Jones?

MR. BILSKER: Objection. Vague and ambiguous.

A. Mr. Beavers, can you repeat your question, please?

BY MR. BEAVERS:

Q. Yes.

So my question was whether it surprised you that Qiagen does not cite to Shapero or Jones.

MR. BILSKER: Objection. Vague and ambiguous.

A. No, it doesn't -- doesn't surprise me at all.

MR. BEAVERS: And we've been going for quite some time. I think this is a good time to take a break, so let's say ten minutes.

MR. BILSKER: Sure.

(Off the record at 2:58 p.m.)

(Back on the record at 3:09 p.m.)

BY MR. BEAVERS:

Q. Dr. Metzker, would it surprise you that Qiagen

has taken the position that its single primer enrichment technology is eligible for patent protection?

MR. BILSKER: Objection. Vague and ambiguous. Overbroad. Assumes facts not in evidence.

A. Can you repeat that question, please?

BY MR. BEAVERS:

Q. Certainly.

Would it surprise you that Qiagen has taken the position that its single primer enrichment technology is eligible for patent protection?

MR. BILSKER: Same objections.

A. I have no idea what Qiagen has done or plans to do or anything else.

MR. BEAVERS: Lawrence, I'd like to introduce what is marked as Exhibit 2209.

MR. BILSKER: So I -- is this a patent application?

MR. BEAVERS: This exhibit is a patent application.

Tecan Ex. 2213, Page 101 of 167
QIAGEN Sciences, LLC v. Tecan Genomics - IPR2025-00026

MR. BILSKER: So you're going to need to email it to us, and then I can have my secretary print it out.

MR. BEAVERS: If you don't mind, Lawrence, could we add that to the Chat as well?

PLANET DEPOS TECH: It's uploading.

MR. BEAVERS: Perfect.

And to save you time -- so, David, were you going to print these documents out -- I'm going to go ahead as well and introduce Exhibits 2210, 2211, and 2212. We'll talk about those in time, but I just want to introduce those now so that you can print them before we continue.

THE WITNESS: I just sent you 2209.

MR. BEAVERS: And those exhibits are all in the Chat.

MR. BILSKER: You sent it to Mel, is what you're saying?

THE WITNESS: Uh-huh.

MR. BEAVERS: And let's go ahead --

Tecan Ex. 2213, Page 102 of 167
QIAGEN Sciences, LLC v. Tecan Genomics - IPR2025-00026

while you print those, David, let's go ahead and take, I guess, a five-minute break.

MR. BILSKER: No, we're going to stay -- no, no, we're staying on the record. Because, again, I asked you to send these to us beforehand so that we wouldn't be wasting time, so we're staying on the record while we do this.

MR. BEAVERS: That's fine with me, David.

Let me know when you're ready.

THE WITNESS: I'm sending the next three that he just sent us, emailed it to you.

MR. BILSKER: So that's five total?

THE WITNESS: There's four.

MR. BILSKER: Four. Right?

MR. BEAVERS: Yes, there are four exhibits. It's 2209 through 2212.

MARKED FOR IDENTIFICATION:

EXHIBITS 2209 - 2212

3:13 p.m.

MR. BEAVERS: All good on the

printouts?

MR. BILSKER: We're waiting still.

MR. BEAVERS: Okay.

THE WITNESS: I don't know how big that patent was. 23 pages? Or application, rather.

FEMALE SPEAKER: So I only received one exhibit.

MR. BILSKER: There's another email.

FEMALE SPEAKER: It's probably coming.

MR. BILSKER: And it has three attachments.

FEMALE SPEAKER: Okay.

MR. BILSKER: You can start with the patent. We're printing out the other ones.

MR. BEAVERS: Okay. Thank you.

And that's Exhibit 2209. Correct?

MR. BILSKER: Sorry, say that one more time?

MR. BEAVERS: So it's Exhibit 2209 that you have printed, the patent application

that's on the screen now?

MR. BILSKER: Correct.

MR. BEAVERS: Okay. Great.

BY MR. BEAVERS:

Q. So, Dr. Metzker, if we look at this exhibit, you'll see that this patent application publication published at the beginning of this year. Do you see that?

A. I see, at the top, a publication date of January 2nd, 2025.

Q. And you'll see that the applicant is Qiagen Sciences LLC. Do you see that?

A. I do see that.

Q. And you'll see that it also states PCT Filed, and the date is October 15, 2021. Do you see that?

A. I do see that date.

Q. Okay. And I want to direct your attention to Figure 1 of the patent.

Now, if we look at Figure 1 of the patent, it illustrates the single primer enrichment workflow. Right?

A. I'm sorry, which workflow are you referring to?
Q. The Qiagen single primer enrichment workflow.
MR. BILSKER: Objection. Vague and ambiguous.
A. I would have to review this document to answer that question, because when I look just at the abstract, this is about incorporating the UTPs into DNA fragments and treating with uracil-DNA glycosylase, and kits for preparing DNA libraries.
And so, I mean, I do see there is a single primer extension, but I don't really think that's what this patent is about.
BY MR. BEAVERS:
Q. Uh-huh. And so you do see, though, with respect to Figure 1, that it has a targeted enrichment by SPE step.
MR. BILSKER: Objection. Relevance. Beyond the scope.
A. I'm sorry, what was the question?
BY MR. BEAVERS:

Q. So if you look at Figure 1, you see that it has a step labeled "Target enrichment by SPE."

Do you see that?

A. I see those words in Figure 1.

Q. And then you see a subsequent step, "Universal PCR amplification i5/i7 indexing."

Do you see that?

A. I do see those words.

Q. Okay.

MR. BEAVERS: Now, let me know, David, when you have Exhibit 2210 printed.

MR. BILSKER: I will let you know.

MR. BEAVERS: Thank you.

THE WITNESS: Yeah, it shows that it was sent from my computer.

MR. BILSKER: We have the other exhibit.

MR. BEAVERS: Great.

BY MR. BEAVERS:

Q. Dr. Metzker, are you ready to resume?

A. Yes.

Q. All right. So I'll direct your attention to

Exhibit 2210.
A. Yes. I have it in front of me.
Q. And you'll see that this exhibit bears the European Patent Number 3,362,577. Do you see that it lists, at 73, the proprietor as Qiagen Sciences LLC?
A. I do see that.
Q. And you can see that Qiagen filed for this patent on October 14th, 2016.
MR. BILSKER: Objection. Relevance. Beyond the scope.
A. Sorry, Mr. Beavers, what was that date again?
BY MR. BEAVERS:
Q. So if you look at "Date of filing" next to 22, you'll see a 14.10.2016.
So you would agree that Qiagen filed for this patent on October 14, 2016. Right?
MR. BILSKER: Same objections.
A. That's what's listed on the cover page.
BY MR. BEAVERS:
Q. And if we look at the International Application Number -- this is 86 -- you'd

agree that it lists PCT/US2016/057073.

Do you see that?

A. I do see that at number 86.

Q. And then at number 54, you'll see that this patent is titled Methods and Kits for Highly Multiplex Single Primer Extension.

Do you see that?

A. Can you repeat that, please?

Q. Yes.

So if you look at what is paragraph 54, you'll see Methods and Kits for Highly Multiplex Single Primer Extension.

Do you see that?

A. I do see that title.

Q. Okay. Great.

Now I'd like you to flip to the last page of the document.

A. Okay, I'm at the last page.

Q. And so at the last page you'll see a statement References Cited in the Description.

Do you see that?

A. I do.

Q. Okay. And you'll see two subsections. One contains patent documents that are cited in the description, and the other contains nonpatent literature cited in the description.

Do you see that?

A. I do.

Q. Okay. And if we look at the nonpatent literature, do you see any reference to Shapero or Jones?

A. I don't. I don't see any reference, and I'm not surprised because this is a patent about improving the primer annealing efficiency using a protein called MutS.

Q. Uh-huh. And we'll talk about that in a second.

But if you look then at the patent documents cited in the description, do you recognize any of these numbers as being a patent for Jones or Shapero, to the best of your ability?

MR. BILSKER: Objection. Beyond the scope. Relevance.

A. Well, I'm -- for this case, I'm only familiar with two patents from Jones. There may be other patents that Jones has filed, and I would not be familiar with those numbers at all.

BY MR. BEAVERS:

Q. Okay. And the U.S. -- you'll see there are three U.S. patent applications, and for those applications, the starting numbers are either 2009 or 2010. Correct?

A. That's what's listed here.

Q. Okay. And then there's two issued patents, which are then -- the first patent has a bracket for paragraph 1, and the second patent has a bracket for paragraph 61. Correct?

A. I don't know what those bracketed numbers represent.

Q. Okay. I will represent to you that those bracketed numbers refer to the paragraphs that are within this document, the labeled paragraphs.

A. Okay.

Q. And so I'd like to take a look at the first U.S. patent, so this is going to be at paragraph 1. So we'll flip back to the beginning.

And so you will see this on page 3 of the document.

A. Yes, I'm there.

Q. Okay. And you will see that there's a statement here, that, "This application claims the benefit under 35 U.S.C. Section 119(e) to U.S. Provisional Application Number 62/242,766, filed October 16, 2015."

Do you see that?

A. I see the sentence.

Q. Okay. And then let's flip to paragraph 61.

A. I don't see the relationship to the issued patent on page 23, though.

Q. Understood.

Let's look at paragraph 61. And if we look at paragraph 61, first off, if you look -- and if you'd like, here, at the end of the paragraph, you will see a reference to a

U.S. patent number. And if you'd like to compare that to -- this is 5,877,280. And you will see that that is the same patent number that's recorded on the last page for paragraph 61.

Do you see that?

MR. BILSKER: Objection. Beyond the scope. Relevance.

A. Mr. Beavers, if I can have a moment to review paragraph 61.

BY MR. BEAVERS:

Q. Absolutely.

A. Okay. Again, I think that's what the real scope of the invention is, is about the use of this MutS protein for increasing the hybridization efficiencies, and it's describing things that have mismatches or unpaired bases or insertion/deletion loops, things like that, and it's not surprising that it's citing to a patent. Probably -- I haven't read that patent, but the one that ends in '280 is related to the MutS protein.

Q. And so you would agree that the sentence right before that string citation that includes the patent states, "Exemplary thermostable MutS proteins include MutS proteins from" -- and then there are five different species.

Do you see that?

A. I do.

MR. BILSKER: Objection. Relevance.

BY MR. BEAVERS:

Q. Have you used a MutS protein before?

MR. BILSKER: Objection. Relevance. Beyond the scope.

A. I don't think I actually have used a MutS protein. I'm familiar with their uses, but in my own work, I don't think I've used it.

BY MR. BEAVERS:

Q. Okay. Now I want to direct you back to the first page. And so at the first page, you'll see -- and this is going to be at number 21 -- you'll see there's an application number, and this is 16784755.7. Do you see that?

A. I do see that.

Q. Okay. I want you to bear that in mind for a minute.

So would it surprise you that Qiagen described to a patent office that its use of a single target-specific primer rather than a primer pair was what differentiates its invention from the standard prior art methods?

MR. BILSKER: Objection. Assumes facts not in evidence. Mischaracterization. Beyond the scope. Relevance.

A. Yeah, I think the patent application in Exhibit 2210 really is an invention around the scope of the use of MutS and improving the hybridization efficiencies of primers.

BY MR. BEAVERS:

Q. So you would be surprised, then, if Qiagen had described its use of a single target-specific primer rather than a primer pair is what differentiated its invention from the standard prior art methods. Right?

MR. BILSKER: Objection. Assumes facts not in evidence. Mischaracterization.

Beyond the scope. Relevance.
A. The invention being what is described in the European patent application ending in '577?
BY MR. BEAVERS:
Q. Yes.
A. I have no idea what Qiagen has represented, but, you know, I've briefly looked at the European patent application.

And you can look at paragraph 31, for example, where it is describing, "Faced with challenges of low primer annealing efficiency and specificity, the present inventors have identified a solution to increasing primer annealing extension efficiency while improving primer extension specificity via a combination of magnesium at a concentration higher than in a typical PCR reaction and a MutS protein."

I mean, I think that's what the invention is really trying to describe, is the improvements, that it may be in single primer, but I think that's what the invention is

about.
Q. So you would understand -- where it says, "via a combination of magnesium at a concentration higher than in a typical PCR reaction," you would understand that to mean that magnesium was used in PCR reactions and the invention is directed to higher concentrations; is that correct?
MR. BILSKER: Objection. Beyond the scope. Relevance.
And what paragraph are you referring to?
MR. BEAVERS: So this is paragraph 31 of the patent.
A. Mr. Beavers, is there a pending question?
BY MR. BEAVERS:
Q. Oh, yes, there is.
So, Dr. Metzker, I had asked you, "So you would understand -- where it says 'via a combination of magnesium at a concentration higher than in a typical PCR reaction,'" that that would mean that magnesium was used in PCR

reactions and that the invention is directed to a higher concentration of it.

MR. BILSKER: Objection. Beyond the scope. Relevance.

A. Well, your question leaves out the MutS protein. It's the combination of a higher concentration of magnesium with the MutS protein.

Now, if your question is geared towards was magnesium used in PCR, a person of ordinary skill in the art would know the basics that polymerase requires a magnesium ion cofactor to synthesize DNA in any polymerase extension reaction, be it PCR, single primer extension, or sequencing, that magnesium ion is a required cofactor.

Q. Right.

So I'd like to direct your attention now to Exhibit 2211.

A. Okay.

Q. Okay. And I'm going to show you a communication from Qiagen to the European

Patent Office during the prosecution of this application, the patent we just discussed, and I'm going to represent to you that I retrieved this document from a global dossier.

If we look at this document, you can see --

A. Sorry, I don't know what that means at all.

Q. Certainly. I'm just going to represent to you that I retrieved this from a public database where you can retrieve prosecution materials for European patent proceedings.

And so if we look at the document, you'll see that it lists the same European patent application number as the patent we just looked at. Right? It's 16784755.7.

A. The letter has a -1111 which is not listed on the European patent specification cover page.

Q. Understood.

And you'll see that the applicant is Qiagen Sciences LLC. Do you see that?

A. I do see that in Exhibit 2211.

Q. And you also see that the title is "Methods

and Kits for Highly Multiplex Single Primer Extension."

Do you see that?

A. I do see that title.

Q. Okay. And this letter is dated October 26, 2020. Do you see that?

A. Yes, I do see the date October 26th, 2020.

Q. Okay. Now I'm going to direct you to page 2 of the letter.

A. I'm going to need time to review this letter. I have not seen this letter before. I'm not even sure what the purpose of this letter is.

Q. Certainly.

And just to go ahead and give you just a little bit of direction here, I'm going to be asking you questions about paragraph 1.1 on the second page.

Please take your time in reviewing this document.

A. Okay, I've read through paragraph 1.1.

Q. Okay. Great.

And so I want to direct your

attention toward the middle of this paragraph, and so you'll see --

A. I'm sorry to interrupt. What I will say is, it looks like it is a response to a European proceeding. I have no idea what an IPRP, Item VIII is. I have no idea what they're responding to.

And so, I mean, can you -- I mean, this is not enough information to -- I mean, I can agree that maybe the words are in the paragraph, but there's no way for me to interpret what they are doing in this document as they're responding to something that I haven't looked at.

Q. Yeah, and I understand, Dr. Metzker, that you were not involved in the prosecution of this patent and that, you know, this is a proceeding that may not be so familiar to you.

I want to ask you, though, about some specific statements, and to the extent that you feel that you need more context at that point, by all means, please, you know, make

that note. But I do want to direct you to some of the statements that Qiagen made to the patent office.

And so you will see that Qiagen -- in the section in this paragraph about clarity, Qiagen mentions that the -- the application, the invention they're applying to, are for -- "There are 1000 different target specific primers, however each primer only binds to one target and these primers are not complementary. The one primer bound to one target is then extended to amplify the target sequence.

"There is no reverse primer directed to the other end of the DNA, the amplification only takes place from one end. This difference is crucial, because it is what differentiates the claimed methods from the standard prior art methods for amplifying polynucleotides, which require a forward and a reverse primer."

Do you see that statement?

A. Okay, again, I can agree the words are in this paragraph. What they're actually responding to and the questions that the examiner is raising, I have no idea.

Q. So does this statement refresh your recollection at all about your testimony that you gave in the ArcherDX case distinguishing Qiagen's products from the ArcherDX inventions?

MR. BILSKER: Objection. Vague and ambiguous. Beyond the scope. Relevance. And I'm going to again remind you of your obligations under 37 C.F.R. 42.12.

MR. BEAVERS: Thank you, David.

BY MR. BEAVERS:

Q. Dr. Metzker, you may answer.

A. I have -- I have no idea how to answer that question. Again, this -- this is in response to an office action. I don't know what the examiner is actually questioning and how they're responding to that.

And again this invention seems to me

more related to the use of the MutS protein and increasing the annealing efficiency of their library production, so I have no idea how this relates to Archer.

Q. You'd agree, though, that Qiagen is not differentiating in this paragraph the prior art based on the MutS protein or any other point, they're differentiating based on whether they're using a single target-specific primer or a primer pair. Right?

MR. BILSKER: Objection. Absolute mischaracterization. Relevance. Beyond the scope. And I'm going to again remind you of your obligations under 42.12.

MR. BEAVERS: Thank you again, David.

BY MR. BEAVERS:

Q. Dr. Metzker, you may answer.

A. Yeah, and I think Qiagen is responding to something that the examiner said which I don't have the benefit of even reviewing, so I have no idea why they're writing this other than they appear to be responding to a

question that the examiner is asking, and I think they're being -- they're trying to address, you know, whatever -- whatever.

Like, there's too many unknowns here to know exactly what the purpose of this paragraph is in the first place.

Q. Now, you're aware that U.S. patent applications -- or applicants are required to discuss -- or disclose relevant prior art that they are aware of to the patent office during prosecution. Right?

A. Right, so we're not talking about European patents anymore, you're asking --

Q. And I should say, we're setting this aside. This is a new topic.

A. Okay. Well, I'm not a patent agent and I'm not a legal scholar, but my understanding is there is a duty to disclose all of the relevant prior art to the patent office. That's not cumulative. There's no obligation to do that, but the applicants are required to disclose all the relevant art to their

knowledge.
Q. Now, when Qiagen sought U.S. patents on its SP technology, it failed to disclose Shapero or Jones to the patent office. Does that surprise you?
MR. BILSKER: Objection. Mischaracterization. Beyond the scope. Relevance. Abuse of the process.
A. Are we on a different exhibit now, or just in general? Because I have no idea which patents you're referring to.
BY MR. BEAVERS:
Q. Just, first, the question, would it surprise you if Qiagen had failed to disclose Shapero or Jones to the patent office or a patent directed to its single primer enrichment technology?
MR. BILSKER: Objection. Assumes facts not in evidence. Beyond the scope. Relevance. And incomplete hypothetical.
A. I have no reaction one way or the other because I don't have enough information to --

it all comes down to details of the patent application, what is -- what is actually being claimed and described in the patent application, and you've provided none of that to me so I really would not know how to answer that question.

BY MR. BEAVERS:

Q. Certainly. Let's fix that. Let's look at Exhibit 2212. And you'll see that this is a U.S. Patent Number 10,941,438.

Do you see that?

A. I do see that as the patent number.

Q. And you see that the date of this patent is March 9th, 2021. Do you see that?

A. I do see that as the date of the patent.

Q. And you'll see that the applicant is Qiagen Sciences LLC.

A. I do see that.

Q. And if you look at related U.S. application data -- so this is number 60 -- you'll see that there is a Provisional Application Number 62/242,766 which was filed on

October 16th, 2015.

Do you see that?

A. I do see that provisional application number.

Q. Now, Dr. Metzker, I'd like you to take a moment, look at the References Cited at number 56, and please let me know if you see a reference to Shapero or Jones listed in the References Cited.

A. Well, again, I'm only familiar with two patent publication numbers to Jones. There may be others that they had filed as part of a family of that patent portfolio.

I do not see, in the seven applications or patents that are listed, either belonging to Jones that I'm familiar with, either the '577 or the '348. Those are the only two that I would be familiar from Jones, but there may be others out there that I'm unfamiliar with.

Q. Uh-huh. And if we look at Other Publications, do you see a reference to Jones or Shapero?

MR. BILSKER: Objection. Beyond the

scope. Relevance.

A. Well, this looks like the same patent that we were talking about in Exhibit 2210, but this is just the U.S. version. They both have the same PCT/US2016/057073, which, again, as I've testified, I think this invention is really about increased magnesium concentration in combination with the MutS protein.

So I'm not -- I wouldn't be surprised at all because it's really about improvement in the primer extension reaction, not the actual method itself, and that's what's described in the abstract here.

And if you look at the claims, it's -- the claims are about performing multiplex single primer extension reaction comprising extending at least 1,000 different primers and a single primer extension reaction using a plurality of target nucleic acids as templates in the presence of, one, a MutS protein and, two, magnesium ion at a minimum concentration of 6 millimolar to

generate extension products where the primers of each differ from each other.

Q. Thank you, Dr. Metzker.

A. So that is -- that's what the invention is about.

Q. So, Dr. Metzker, just to clarify, and I think I know your answer based on what you've just said, but there is no reference to Shapero or Jones in the Other Publications section of this patent. Correct?

MR. BILSKER: Objection. Beyond the scope. Relevance.

A. No, but it's -- it's not because I think -- you know, if I look at the other publications -- for example, there is one from Brotherton titled "Single primer extension (SPEX) amplification to accurately genotype highly damaged DNA templates," so I think that really is more of the focus of this invention.

BY MR. BEAVERS:

Q. So to be clear, again, there is no reference

to Jones or Shapero in that list. Right?
A. I agree, I do not see a reference to Jones. I'm not familiar with a Jones publication. I am familiar with the Shapero publication and I don't see it listed on the cover page.
Q. Thank you.
MR. BEAVERS: Let's take a break, let's say five minutes, and then we'll go back on the record.
MR. BILSKER: Yeah, hold on just a second. It's 1:00 here almost. I don't know how you're feeling as far as hunger.
THE WITNESS: I'm getting a little hungry, actually.
MR. BILSKER: I assume we're going to keep going for a little while?
MR. BEAVERS: So, actually, David, you know, I just want to go back over my notes. I think I am finished. So, you know, I'd rather, you know, take a short break.
MR. BILSKER: If you think you're almost finished or finished within 25, 30

minutes, then we'll take a short break and come back.

MR. BEAVERS: Absolutely. Let's do that. Let's do a five-minute break and then we can come back.

(Off the record at 3:57 p.m.)

(Off the record at 4:03 p.m.)

MR. BEAVERS: Dr. Metzker, thank you for your time. I have no further questions with respect to the '012 and the '108 patents, and then I have no questions with respect to the '357 patent, so at least on my end we're finished with the deposition for today.

MR. BILSKER: Okay. No questions.

MR. BEAVERS: Thank you.

(Proceedings concluded at 4:03 p.m.)

REPORTER'S CERTIFICATE

I, Alison C. Webster, Certified Reporter and Notary Public within and for the State of Michigan do hereby certify:

That MICHAEL L. METZKER, Ph.D., the witness whose deposition is hereinbefore set forth, was duly sworn by me before the commencement of such deposition and that such deposition was taken before me and is a true record of the testimony given by such witness.

I further certify that the adverse party, TECAN GENOMICS, INC., was represented by counsel at the deposition.

I further certify that the deposition of MICHAEL L. METZKER, Ph.D., occurred at remotely on Wednesday, December 3, 2025, commencing at 12:46 p.m. to 4:03 p.m.

I further certify the inspection, reading and signing of said deposition was waived on the record by agreement of all parties.

I further certify that I am not related to any of the parties to this action by blood or marriage, I am not employed by or an attorney to any of the parties to this action, and that I am in no way interested, financially or otherwise, in the outcome of this matter.

In WITNESS HEREOF, I have hereunto set my hand this December 6, 2025.

Alison C. Webster

ALISON C. WEBSTER, CSR NO. 6266

ACKNOWLEDGMENT OF DEPONENT

I, MICHAEL L. METZKER, Ph.D., do hereby acknowledge that I have read and examined the foregoing testimony and the same is a true, correct, and complete transcription of the testimony given by me and any corrections appear on the attached errata sheet signed by me.

_____
(SIGNATURE)

_____
(DATE)

Tecan Ex. 2213, Page 135 of 167
QIAGEN Sciences, LLC v. Tecan Genomics - IPR2025-00026

A
a1
7:9, 25:15, 26:2, 27:13, 27:19, 28:2, 28:9, 28:10, 34:7, 34:16, 36:12, 37:17
a2
25:2, 25:6, 25:7, 34:3, 34:9, 34:20, 36:4, 37:13, 37:17, 37:18, 38:1, 38:6, 38:11, 38:16, 39:7, 39:8, 39:10
ability
109:20
able
78:8, 79:2
about
10:10, 14:14, 19:3, 19:11, 27:3, 27:5, 29:7, 38:19, 40:14, 41:10, 48:9, 49:1, 53:17, 63:1, 64:21, 67:1, 70:17, 73:4, 75:1, 97:21, 98:4, 101:13, 105:8, 105:14, 109:11, 109:14, 112:14, 116:1, 119:16, 120:19, 121:5, 122:6, 124:12, 128:3, 128:7, 128:10, 128:15, 129:5
above
32:1
above-styled
2:4
absence
46:17
absolute
123:11
absolutely
84:20, 112:12, 131:3
abstract
15:13, 105:8, 128:13
abundance
51:12, 51:16
abundances
50:21, 51:7
abuse
60:16, 60:22, 125:8
accurate
75:3
accurately
129:17
accuse
59:1, 59:8
accused
5:15, 52:9, 52:19, 56:4, 57:7, 75:21, 76:6, 76:11, 76:13, 77:5, 78:5
achieve
78:15, 79:2
achieving
44:10
acid
15:19
acids
128:20
acknowledge
134:5
acknowledgment
134:1
acronym
24:1
across
87:3
action
122:19, 133:7, 133:9
activate
24:16, 32:22
actual
29:6, 128:12
actuality
44:2, 44:14
actually
18:5, 19:4, 19:7, 44:14, 47:17, 60:17, 63:14, 73:1, 74:16, 74:19, 78:9, 79:16, 98:19, 113:13, 122:2, 122:20, 126:2, 130:14, 130:17
adapter
25:7, 34:3, 34:7, 34:9, 36:4
adapter-ligated
25:22, 32:8
adapters
24:6, 24:17, 25:1
add
101:5
additional
37:20
address
95:3, 124:3
addressed
94:11
administered
8:8
admissibility
8:13
admitted
69:7
advantages
38:18
adverse
132:14
affiliation
94:22
affirm
8:9, 10:9
affymetrix
50:18
after
10:21, 19:19, 22:16, 24:5, 24:13, 24:16, 33:3, 36:15, 39:1, 39:19, 44:2, 50:22, 86:22, 87:9, 87:10, 94:8
again
14:20, 17:13, 48:13, 52:22, 53:15, 59:12, 69:21, 74:2, 79:22, 81:2, 102:5, 107:12, 112:13, 122:1, 122:12, 122:18, 122:22, 123:13, 123:15, 127:9, 128:5, 129:22
agent
124:16
ago
11:21, 20:14, 22:12, 23:11, 27:18, 33:18, 58:20, 64:20, 70:16, 71:20
agree
69:18, 69:21, 70:2, 77:5, 77:20, 78:4, 78:12, 78:20, 79:16, 82:21, 87:22, 88:6, 88:11, 88:22, 92:18, 107:16, 108:1, 113:1, 120:10, 122:1, 123:5, 130:2
agreed
9:4
agreement
133:3
ahead
10:5, 11:5, 53:19, 74:12, 101:11, 101:22, 102:1, 119:14

alexandra
61:15
algorithm
29:3
alison
1:22, 2:6,
132:3, 133:19
all
9:18, 10:6,
13:9, 17:11,
28:18, 29:4,
29:11, 36:13,
41:7, 44:5,
47:16, 52:16,
54:10, 72:22,
80:1, 82:22,
87:2, 87:3,
99:13, 101:18,
102:22, 106:22,
110:5, 118:7,
120:22, 122:6,
124:18, 124:22,
126:1, 128:10,
133:3
allele
96:5, 98:11
alleviated
96:7
almost
46:4, 62:22,
130:11, 130:22
along
15:5
already
30:22
also
4:12, 12:1,
12:5, 12:6,
15:6, 16:12,
24:5, 34:17,
34:19, 35:20,
36:20, 37:1,
46:19, 50:14,
53:11, 55:8,
55:17, 59:8,
68:19, 78:12,
80:22, 104:14,
118:22
although
96:1
ambiguous
42:10, 45:2,
47:15, 48:19,
51:3, 77:10,
78:3, 94:19,
99:3, 99:12,
100:5, 105:5,
122:11
amino
25:11
amorese
97:17
amplicon
96:1
amplification
15:12, 30:6,
39:7, 50:22,
106:6, 121:15,
129:17
amplified
38:7, 51:13
amplify
121:12
amplifying
121:19
amplitaq
32:14, 32:17,
32:22
analyzed
87:14, 88:14
analyzing
85:18, 86:15
anchored
15:11, 96:22
andreas
4:13
anneal
42:14
annealing
28:13, 29:20,
30:11, 30:16,
31:1, 31:7,
33:5, 33:7,
33:16, 33:21,
39:9, 39:11,
40:7, 40:9,
40:15, 40:20,
109:12, 115:11,
115:14, 123:2
anneals
25:21, 85:17,
86:14
another
27:12, 47:2,
80:2, 103:9
answer
20:2, 20:10,
21:8, 28:11,
28:20, 35:9,
35:17, 46:14,
48:13, 58:16,
77:11, 77:15,
81:20, 82:9,
105:7, 122:16,
122:17, 123:17,
126:6, 129:7
answered
48:18, 79:6
answering
48:20
antibody
32:19
any
8:12, 8:16,
12:3, 18:6,
26:8, 27:22,
28:2, 38:10,
38:14, 46:10,
50:19, 52:16,
77:16, 78:8,
79:20, 92:19,
109:8, 109:10,
109:18, 117:13,
123:7, 133:7,
133:9, 134:8
anymore
124:13
anything
86:22, 100:16
apologize
62:9, 62:13
appeal
1:3, 84:13,
84:16, 85:3
appealed
83:20
appear
123:22, 134:9
appearance
8:16
appears
95:1
appellants
85:4
appendix
89:6
applicant
104:11, 118:19,
126:16
applicants
124:8, 124:21
application
100:20, 100:22,
103:5, 103:22,
104:6, 107:22,
111:9, 111:11,
113:20, 114:11,
115:3, 115:8,
118:2, 118:14,
121:6, 126:2,
126:4, 126:19,
126:21, 127:3
applications
110:8, 110:9,
124:8, 127:14
applied
32:14
applying
121:7
approach
76:15, 79:4
archer
53:8, 60:18,
62:22, 81:12,
97:11, 123:4
archer's
82:17
archerdx
52:3, 55:6,
56:5, 61:12,
66:20, 73:20,
80:16, 83:7,

83:17, 97:7, 122:7, 122:8
argue 19:13
argumentative 48:18
arguments 26:9
around 114:12
arrangement 8:12
array 41:2, 49:20, 50:11, 50:12
art 22:10, 26:12, 31:12, 41:22, 43:12, 44:8, 114:7, 114:20, 117:11, 121:19, 123:7, 124:9, 124:19, 124:22
article 7:5, 7:15, 29:2, 92:11, 92:13, 93:18, 96:22
articles 92:7
aside 67:5, 68:1, 124:14
asked 20:18, 21:3, 22:15, 22:17, 48:18, 70:1, 79:5, 79:18, 79:20, 102:5, 116:18
asking 13:20, 58:10, 58:11, 58:13, 63:20, 64:8, 119:16, 124:1, 124:13
assay 47:1, 47:9, 50:17, 51:16
asserted 53:4, 76:11, 76:12, 76:13, 79:1, 97:7
assume 130:15
assumes 41:5, 42:22, 70:22, 77:9, 81:17, 83:3, 97:8, 100:5, 114:8, 114:21, 125:18
attached 2:12, 5:10, 65:7, 65:22, 134:9
attachments 60:11, 61:7, 61:14, 71:15, 71:16, 71:17, 71:19, 72:11, 103:13
attention 12:11, 18:8, 31:20, 33:10, 43:7, 55:13, 55:21, 59:14, 68:8, 70:10, 75:11, 86:11, 95:19, 96:16, 104:18, 106:22, 117:18, 120:1
attorney 65:6, 65:10, 65:18, 133:9
attorneys 8:4
austin 3:14
author 81:11, 95:1, 95:5, 98:9
authored 81:15, 83:1
authoring 73:19
authors 94:21, 95:22, 97:19, 98:16, 98:17
available 23:22, 61:1, 72:17
avenue 4:8
aware 60:16, 60:21, 124:7, 124:10
away 10:1

B

b)(1)(ii 58:6
b1 7:12
b2 7:18
back 17:8, 17:12, 20:15, 33:10, 47:16, 54:2, 59:15, 61:4, 64:14, 65:1, 70:6, 70:8, 71:3, 71:7, 75:12, 86:11, 88:8, 99:20, 111:3, 113:17, 130:8, 130:18, 131:2, 131:5
background 11:6
barcode-aware 98:12
base 27:5, 46:3, 46:4, 48:9
based 29:10, 48:8, 71:17, 77:20, 96:6, 123:7, 123:8, 129:7
bases 29:5, 29:7, 35:7, 112:18
basics 117:12
bates 15:20
bear 114:1
bears 56:22, 71:21, 80:17, 107:3
because 20:6, 28:7, 37:16, 39:21, 45:17, 45:21, 46:4, 55:13, 58:13, 70:15, 74:3, 75:11, 83:20, 84:18, 86:2, 91:8, 92:20, 95:2, 98:2, 102:5, 105:7, 109:11, 121:17, 125:10, 125:22, 128:10, 129:13
been 9:8, 10:21, 11:10, 14:15, 34:2, 36:12, 41:10, 41:21, 52:14, 52:22, 53:15, 53:17, 63:9, 63:19, 64:1, 99:14
before 1:3, 2:6, 31:14, 37:1, 38:21, 50:22, 53:18, 55:3, 85:14, 91:22, 92:21, 93:1, 101:15, 113:2, 113:10, 119:11, 132:9, 132:11
beforehand 102:6
beginning 17:17, 21:14,

44:13, 66:11, 68:3, 69:10, 88:10, 104:7, 111:4
behalf 3:2, 4:2, 8:19, 51:22
being 9:3, 9:19, 10:2, 17:1, 18:4, 46:11, 51:13, 68:19, 78:8, 79:19, 109:18, 115:2, 124:2, 126:3
believe 26:10, 32:18, 37:5, 49:14, 53:7, 71:8, 83:15
belonging 127:15
belongs 86:20
below 77:13, 94:21
benefit 79:14, 111:10, 123:20
besides 27:22
best 85:9, 109:19
better 41:12
between 40:5, 40:17, 42:6, 51:10
beyond 19:1, 21:6, 21:17, 22:20, 23:15, 24:9, 25:5, 25:18, 26:7, 26:18, 28:5, 28:17, 30:1, 30:20, 31:10, 31:22, 34:11, 35:3, 58:4, 59:5, 59:10, 60:14, 65:13, 67:13, 71:1, 72:4, 78:7, 88:3, 88:17, 89:20, 105:20, 107:11, 109:21, 112:7, 113:12, 114:10, 115:1, 116:9, 117:3, 122:11, 123:12, 125:7, 125:19, 127:22, 129:11
big 103:4
billion 27:5
bind 41:16
binds 121:9
biolabs 24:1
biosystems 32:15
bit 11:5, 17:5, 41:9, 41:11, 41:12, 51:19, 119:15
blabbing 19:19
blocked 25:10
blood 133:7
board 1:3
body 95:8, 95:21
bot 82:11
both 22:8, 36:2, 50:6, 58:22, 63:13, 89:6, 128:4
bottom 25:9, 60:6, 94:2, 94:14
bound 121:11
box 68:12
bracket 110:14, 110:15
bracketed 110:16, 110:19
break 53:17, 53:19, 99:16, 102:2, 130:7, 130:20, 131:1, 131:4
breaks 23:6, 24:3
bridge 93:6
brief 7:3, 80:15, 81:2, 81:3, 81:8, 82:15, 84:13, 84:22, 85:2, 85:3, 85:4, 85:6, 85:14
briefly 115:7
bring 14:18
brotherton 129:16
brownie 42:1
buffer 24:22, 32:10, 32:11
build 29:12
building 4:7
bunch 92:6
bustamante 13:7, 14:8, 44:15, 69:7, 89:14, 97:21
bustamante's 13:10, 13:13, 14:3, 14:11, 45:15, 69:22
button 9:14
byproducts 42:21

C

california 3:5, 3:7
california) 2:8
call 41:19, 49:20, 50:14
called 10:20, 16:13, 25:15, 33:2, 41:22, 50:18, 109:13
caller 98:13
calling 50:12
calls 15:11
came 20:6
can't 78:7
cannot 40:4
capitalized 29:11
carefully 87:11, 88:6, 88:12
carried 32:6
case 5:12, 6:10, 6:13, 41:22, 53:9, 58:19, 58:20, 60:20, 63:8, 63:21,

64:11, 64:16, 66:20, 70:19, 80:16, 80:18, 81:12, 83:14, 87:20, 97:11, 110:1, 122:7
cause
2:4
celsius
30:10, 30:17, 31:4, 31:15, 31:17
certainly
27:16, 64:10, 77:1, 79:9, 86:6, 100:9, 118:8, 119:13, 126:8
certainty
77:16
certificate
132:1
certified
132:3
certify
132:5, 132:14, 132:18, 133:1, 133:6
challenges
115:11
chance
95:11
change
51:19
changes
12:20
chat
15:4, 54:22, 62:17, 62:20, 68:20, 69:1, 80:12, 84:9, 90:9, 101:5, 101:18
chloride
32:12
cipriano
4:5, 8:21
circuit
83:21, 84:14
citation
87:9, 87:10, 96:11, 113:2
cite
44:16, 44:21, 45:9, 46:16, 51:7, 51:9, 98:22, 99:9
cited
13:9, 15:13, 98:2, 108:20, 109:2, 109:4, 109:17, 127:5, 127:8
citing
60:15, 112:20
civil
2:11, 5:12, 64:16
claimed
121:18, 126:3
claims
12:21, 111:9, 128:14, 128:15
clarify
22:2, 22:16, 22:17, 23:10, 30:16, 129:6
clarity
121:5
clean
11:14
clear
47:18, 50:19, 73:9, 129:22
click
9:14, 17:14
closer
69:8, 69:19, 70:4
cofactor
117:13, 117:16
colleagues
8:21
column
17:6, 30:4
com
94:12
combination
115:16, 116:3, 116:20, 117:6, 128:8
combined
12:20, 42:8
come
131:2, 131:5
comes
126:1
coming
50:10, 91:15, 103:11
commencement
132:10
commencing
132:21
commercially
23:22
common
25:15, 26:1, 27:13, 27:19, 27:20, 28:2, 28:9, 29:5, 34:16, 36:12
communication
7:14, 117:22
company
94:16
compare
63:15, 112:2
compared
89:14
complement
34:18, 34:20, 36:4, 38:6, 38:16
complementary
34:8, 38:1, 121:11
complete
34:12, 50:1, 72:10, 74:4, 81:3, 134:7
completeness
32:3
completion
17:20
composition
32:11
compound
21:6
comprising
128:17
computer
55:16, 106:15
concentration
115:17, 116:3, 116:20, 117:2, 117:7, 128:7, 128:22
concentrations
116:7
concept
41:10
concerning
53:4
concerns
96:7
concluded
131:16
conclusion
12:20, 44:10
concordance
49:21, 50:17
conditions
24:22, 30:5
confidential
81:4
confirm
14:6, 46:14, 49:18, 63:7, 63:12, 64:9, 67:9, 74:2, 74:8, 89:16, 89:18
confusing
28:6
consent
8:11
consider
93:20
consortium
29:14
constitutes
27:5, 33:6

construct
25:8
constructed
43:3, 87:12, 88:7, 88:13
contain
34:7, 34:18, 39:8
contained
25:1, 29:4, 72:1
containing
24:18, 32:7
contains
25:15, 27:19, 36:12, 65:5, 109:2, 109:3
contents
12:15, 75:12, 75:15, 75:18
context
26:22, 27:1, 55:2, 82:13, 120:21
continue
39:5, 91:22, 101:15
contrary
82:4
control
17:8, 17:12, 17:13, 55:17
convert
37:13
converted
38:11, 39:11
converting
39:1
converts
39:7
copied
34:2
copy
11:14, 15:6, 54:16, 54:21, 56:19, 66:1, 75:3, 77:19, 92:13
copying
82:15
corporation
61:13
correct
11:8, 11:9, 11:13, 11:19, 12:2, 14:13, 15:13, 17:21, 18:18, 20:22, 21:15, 24:7, 26:10, 31:8, 36:6, 37:5, 37:15, 38:4, 45:11, 48:16, 49:22, 52:1, 52:2, 61:7, 62:2, 66:1, 66:17, 68:7, 75:7, 83:15, 91:21, 93:1, 93:10, 93:14, 98:7, 98:18, 103:18, 104:2, 110:10, 110:15, 116:8, 129:10, 134:7
corrections
134:8
correctly
17:22, 76:1
correspondence
94:10
could
14:17, 17:4, 18:21, 21:3, 21:8, 22:8, 32:19, 38:7, 40:13, 52:22, 54:4, 60:19, 63:7, 64:6, 64:14, 68:11, 69:14, 78:12, 78:15, 84:17, 91:9, 101:5
couldn't
45:16, 74:18
counsel
8:11, 8:15, 8:17, 53:22, 91:21, 132:16
couple
63:2, 85:13
court
51:22, 52:5, 84:19, 87:20
cover
58:2, 64:3, 66:8, 66:15, 72:7, 80:14, 107:19, 118:17, 130:5
coverage
96:3
create
37:18, 38:6
created
46:11
creates
37:21
cross
93:5
crr
1:22, 2:6
crucial
121:17
csr
1:22, 2:7, 2:9, 133:19
cumulative
124:20
cut
48:7
cv
52:7
cycle
30:7, 30:10, 30:13, 30:17, 31:3, 31:7, 31:14, 33:8, 39:6
cycles
30:8, 31:1, 31:16, 33:6, 33:16, 33:21

D

d1
48:1
d2
48:4
damaged
129:18
damages
6:18, 6:20
dashed
34:1
data
41:2, 43:13, 44:9, 44:16, 44:19, 44:21, 45:9, 45:20, 45:21, 46:15, 48:14, 49:13, 49:18, 50:10, 53:4, 126:20
database
118:9
date
66:18, 66:22, 67:1, 104:9, 104:15, 104:17, 107:12, 107:14, 119:7, 126:13, 126:15, 134:22
dated
7:15, 66:16, 119:5
datp
32:9
david
3:3, 9:1, 19:2, 19:12, 20:1, 43:16, 51:4, 54:8, 58:7, 61:2, 63:2, 74:21, 91:3, 92:2, 101:9, 102:1, 102:10, 106:11, 122:14, 123:15, 130:17
dctp
32:9
dealing
47:5
december
1:16, 2:5, 8:2,

132:20, 133:14
declaration
6:3, 11:6, 11:10, 11:15, 11:18, 12:5, 12:12, 12:16, 13:6, 13:11, 14:7, 19:1, 24:9, 43:8, 44:1, 49:5, 50:20, 51:8, 60:10, 61:6, 61:12, 65:6, 65:14, 65:22, 71:2, 78:10, 79:15, 89:14, 89:21, 97:22, 98:2, 98:4
declarations
53:8
declared
65:18
default
37:17
defendants
6:16
defendants-appellants
7:3, 85:2
defined
47:19
degree
31:4, 31:15, 31:16
degrees
30:7, 30:8, 30:9, 30:10, 30:11, 30:17, 31:2, 32:21, 33:3, 33:4, 33:5
delaware
52:6
deletion
112:18
delseny
12:21
denaturation
33:7, 33:16
department
94:4
depends
43:2
depict
36:3
depicted
25:19, 34:21, 35:13
depiction
35:18
depicts
89:7
deponent
134:1
depos
9:6, 9:10, 14:19, 14:22, 17:7, 17:11, 54:5, 56:13, 61:22, 68:13, 80:6, 101:7
deposition
1:14, 2:1, 8:1, 8:5, 13:13, 14:4, 14:7, 14:12, 19:12, 66:2, 66:12, 66:19, 66:21, 67:2, 68:4, 70:1, 72:1, 72:8, 72:15, 72:20, 73:6, 79:11, 79:18, 131:13, 132:8, 132:10, 132:11, 132:16, 132:18, 133:2
derived
40:5
describe
18:6, 21:18, 22:13, 40:16, 115:20
described
17:1, 24:13, 29:16, 30:2, 33:4, 33:19, 34:5, 35:13, 35:17, 36:19, 36:21, 39:16, 41:21, 57:21, 114:4, 114:17, 115:2, 126:3, 128:13
describes
15:15, 16:7, 16:17, 23:11, 29:3, 33:14, 37:6, 98:5
describing
50:3, 50:11, 86:4, 112:17, 115:10
description
71:18, 108:20, 109:3, 109:4, 109:17
design
28:21, 47:1, 47:9
designated
28:10
designed
29:1, 29:9, 87:12, 88:6, 88:12
detail
17:1, 53:2, 76:20, 78:8
detailed
92:19
details
48:21, 52:16, 58:19, 82:6, 126:1
detecting
98:10
determine
82:7
dgtp
32:9
differ
129:2
difference
51:10, 121:17
different
21:21, 23:1, 31:19, 37:2, 48:12, 50:17, 81:14, 113:5, 121:8, 125:9, 128:17
differentiated
114:19
differentiates
114:6, 121:18
differentiating
123:6, 123:8
digest
21:13, 23:2, 23:5
digested
17:19, 18:13, 20:18, 24:19
digesting
21:19, 22:13, 23:12
digestion
18:3, 18:18, 20:19, 20:21, 24:6, 24:14, 39:1, 39:13, 39:15, 39:19, 39:22
dimer
41:19, 42:2, 42:4, 42:16
dimerize
41:15
dimers
41:11, 42:20, 45:14, 45:17, 46:3, 46:7, 46:10, 46:17, 47:5
dimon
97:16
direct
12:11, 18:8, 33:10, 43:7, 43:9, 49:10, 55:13, 55:20, 59:14, 64:6,

65:16, 65:20, 66:6, 68:8, 69:5, 70:10, 75:11, 77:1, 85:11, 86:11, 95:19, 96:16, 104:18, 106:22, 113:17, 117:18, 119:8, 119:22, 121:1
directed
22:8, 22:9, 57:16, 76:14, 116:7, 117:1, 121:14, 125:16
directing
74:22
direction
64:8, 119:15
disagree
51:5, 88:20, 89:2
disclose
27:12, 27:22, 124:9, 124:18, 124:22, 125:3, 125:14
disclosed
19:10
discloses
15:10, 17:18, 20:17, 24:5, 36:16, 38:22
discovery
60:16, 60:22
discriminate
40:5, 40:17
discrimination
50:3
discuss
73:5, 124:9
discussed
27:18, 33:17, 71:20, 80:19, 80:20, 83:2, 118:2
discussing
55:7, 63:10, 63:20, 64:1
display
68:11
dispute
19:11, 24:10, 85:16, 86:13
disputed
19:8
distance
48:2, 48:4
distinguishing
122:7
district
52:5, 87:20
dna
17:19, 18:13, 20:17, 21:13, 21:19, 22:14, 23:2, 23:5, 23:12, 24:4, 24:17, 24:20, 25:22, 29:7, 32:8, 32:16, 32:22, 34:3, 37:14, 37:22, 38:12, 39:2, 39:10, 40:6, 48:7, 59:2, 98:11, 105:9, 105:11, 117:13, 121:15, 129:18
dnase
24:2
dntp
32:9
docket
5:12, 55:2, 55:3, 55:6, 55:10, 55:14, 55:22, 56:3, 56:22, 57:2, 60:4, 62:11, 63:9, 63:19, 63:22, 64:16, 64:21, 65:2, 70:17, 70:20, 71:4, 71:6, 71:7, 71:22, 80:20, 84:16
doctor
19:6
document
6:10, 6:13, 7:14, 15:19, 16:3, 55:8, 55:9, 55:21, 56:22, 57:1, 57:3, 57:6, 57:14, 57:22, 58:22, 59:6, 59:12, 60:18, 61:10, 62:21, 62:22, 63:15, 63:16, 65:3, 65:4, 65:5, 65:11, 66:7, 66:18, 67:5, 67:8, 67:10, 67:14, 67:17, 67:20, 70:13, 71:21, 71:22, 75:8, 75:10, 76:21, 77:13, 77:14, 79:17, 80:2, 80:15, 84:12, 84:15, 85:10, 85:12, 86:2, 92:20, 92:21, 92:22, 93:2, 93:5, 93:7, 105:6, 108:17, 110:20, 111:6, 118:4, 118:5, 118:12, 119:19, 120:13
documents
12:3, 62:12, 63:13, 70:20, 80:18, 84:19, 101:10, 109:2, 109:17
doing
55:1, 91:11, 120:12
done
100:15
dossier
118:4
double
42:17
double-strand
39:14
double-stranded
25:7, 37:14, 37:22, 38:12, 39:2, 39:9, 39:12, 39:21
down
30:4, 43:4, 77:12, 90:1, 126:1
download
15:5, 54:22, 56:20, 80:12
downloaded
55:15
dr
10:7, 10:13, 10:17, 13:7, 13:10, 13:13, 14:1, 14:3, 14:8, 14:11, 15:3, 15:9, 19:17, 20:10, 21:8, 22:12, 26:22, 29:18, 35:9, 41:14, 43:8, 43:17, 44:15, 45:15, 46:13, 51:20, 54:15, 54:21, 56:19, 58:8, 58:16, 61:4, 62:9, 62:16, 63:7, 63:18, 65:17, 66:3, 66:12, 68:3, 69:7, 69:22, 72:8, 73:14, 75:3, 80:11, 89:14, 92:12, 92:16, 97:13, 97:21, 98:10, 99:22, 104:5,

106:20, 116:18, 120:15, 122:16, 123:17, 127:4, 129:3, 129:6, 131:8
draw
31:20
dropouts
96:5
ds
50:13
dttp
32:9
duly
2:3, 10:21, 132:9
duplex-umi
7:7, 90:12
during
69:22, 118:1, 124:10
duty
124:18

E

e
111:10
each
31:2, 32:9, 32:12, 41:16, 42:14, 46:4, 62:14, 121:9, 129:2
earlier
77:18
easier
64:7
eastern
2:6
ed
39:13, 39:14
efficiencies
112:16, 114:14
efficiency
109:12, 115:12, 115:15, 123:2
eighth
4:8
either
50:8, 110:9, 127:15, 127:16
eligible
100:2, 100:12
elongation
30:12
else
100:16
email
90:18, 90:22, 91:1, 91:4, 91:9, 92:8, 94:12, 95:2, 101:2, 103:9
emailed
92:2, 102:13
emanuel
3:4, 3:11
employed
133:8
employee
95:2
employees
98:18
end
7:6, 9:11, 25:10, 26:1, 29:5, 29:9, 38:16, 48:3, 48:5, 74:6, 74:7, 86:9, 90:12, 111:21, 121:15, 121:16, 131:12
ending
115:3
endonucleases
21:11, 21:13, 21:22, 22:3, 22:18, 23:2, 23:20, 23:21, 24:14, 24:16, 47:11
ends
42:13, 112:22
engage
58:11, 58:13
england
24:1
enhanced
6:20
enough
77:11, 120:9, 125:22
enrich
87:13, 88:14
enriches
40:3
enrichment
7:6, 19:9, 37:6, 37:9, 82:19, 90:11, 96:2, 100:2, 100:12, 104:22, 105:3, 105:18, 106:2, 125:16
entered
61:15
entire
13:6, 55:10
entirety
13:4
entities
52:10
entitled
58:7
entry
55:22, 56:3, 57:1, 60:4, 60:9, 61:5, 64:21, 71:8, 71:22
enzymatic
24:6
enzyme
17:20, 18:7, 24:19
enzymes
18:2, 18:18, 20:19, 20:21, 23:5, 24:2, 48:6
ep
7:12
epc
7:15
eric
6:3, 65:17
errata
134:9
esquire
3:3, 3:10, 4:3, 4:5
est
1:17, 2:5
estimating
50:10
european
7:11, 107:4, 115:3, 115:8, 117:22, 118:11, 118:13, 118:17, 120:4, 124:12
even
38:14, 62:17, 66:22, 74:18, 86:4, 119:12, 123:20
ever
20:4
evidence
46:10, 71:1, 81:18, 100:6, 114:9, 114:22, 125:19
exact
80:17
exactly
46:22, 48:11, 124:5
examination
5:4, 11:3
examined
11:1, 134:5
examiner
122:4, 122:20, 123:19, 124:1
example
18:4, 46:21, 48:1, 51:11, 115:10, 129:15
excellent
15:8
except
51:17

exceptionally
49:15
excerpted
70:19, 72:15, 72:18, 74:3, 77:18, 80:1
excerpts
66:1
executed
75:6
exemplary
113:3
exhibit
4:14, 5:9, 5:11, 5:14, 6:2, 6:9, 6:12, 6:15, 7:2, 7:4, 7:8, 7:10, 7:13, 7:17, 11:11, 11:18, 12:5, 12:14, 13:16, 14:8, 14:16, 14:18, 15:14, 52:8, 54:4, 54:9, 54:18, 55:2, 56:12, 56:16, 57:3, 59:15, 59:18, 60:2, 60:9, 61:21, 63:4, 63:5, 63:8, 64:2, 64:10, 64:14, 65:1, 65:4, 65:8, 65:22, 66:8, 67:15, 67:21, 70:6, 70:8, 70:12, 71:10, 71:11, 71:21, 72:5, 72:6, 72:10, 73:3, 73:4, 73:7, 73:9, 73:12, 80:5, 80:8, 84:4, 84:6, 90:1, 90:3, 90:5, 91:4, 100:18, 100:21, 103:8, 103:18, 103:21, 104:5, 106:11, 106:17, 107:1, 107:3, 114:12, 117:19, 118:21, 125:9, 126:9, 128:3
exhibits
5:10, 13:9, 61:20, 62:3, 62:6, 62:10, 62:14, 80:19, 101:12, 101:17, 102:18, 102:20
existed
47:21
exonuclease
39:1, 39:12, 40:16
exonucleases
24:3
expect
42:5, 42:11
expected
46:1, 46:21, 48:9
experience
94:15
experiments
40:18, 41:1
expert
73:14, 73:15, 74:1, 76:9
explain
18:21, 21:4
extended
36:13, 42:15, 121:12
extending
128:17
extension
28:3, 33:7, 33:17, 33:22, 34:1, 34:6, 34:15, 35:12, 35:19, 36:3, 37:13, 38:2, 38:5, 38:14, 39:2, 46:22, 47:19, 47:20, 105:13, 108:6, 108:12, 115:14, 115:15, 117:14, 117:15, 119:2, 128:11, 128:16, 128:18, 129:1, 129:17
extent
93:4, 120:20

F

faced
115:10
fact
37:6, 62:13, 81:3
factor
82:15
facts
41:6, 43:1, 71:1, 77:10, 81:18, 83:4, 97:9, 100:5, 114:9, 114:22, 125:19
failed
125:3, 125:14
familiar
84:18, 97:14, 110:1, 110:4, 113:14, 120:18, 127:9, 127:15, 127:17, 130:3, 130:4
family
127:12
far
130:12
fast
74:19
february
66:2, 66:16
federal
2:10, 83:20, 84:14
feel
93:4, 120:21
feeling
130:12
female
103:7, 103:10, 103:14
field
93:21
fifth
98:8
figure
16:19, 16:21, 16:22, 17:1, 17:3, 17:5, 18:1, 18:7, 25:6, 25:13, 25:19, 28:7, 33:11, 33:19, 34:22, 35:14, 35:19, 36:21, 37:8, 39:17, 44:17, 44:18, 45:10, 45:13, 45:17, 46:9, 46:19, 47:6, 47:17, 48:10, 48:16, 48:22, 49:2, 51:10, 104:19, 104:20, 105:17, 106:1, 106:4
filed
6:11, 6:14, 62:11, 62:12, 62:15, 62:22, 70:19, 80:16, 104:14, 107:8, 107:16, 110:3, 111:12, 126:22, 127:11
filing
70:18, 74:4, 107:14
filling
49:1
final
36:7
financially
133:10

find
64:2
fine
102:9
finished
130:19, 130:22,
131:13
firm
65:18
first
10:21, 17:18,
17:22, 31:1,
35:13, 35:18,
36:19, 50:2,
51:20, 62:21,
64:15, 67:7,
69:6, 70:14,
71:20, 72:6,
82:12, 85:4,
86:4, 86:22,
93:7, 94:2,
95:10, 95:16,
110:13, 111:1,
111:20, 113:18,
124:6, 125:13
five
102:14, 113:5,
130:8
five-minute
102:2, 131:4
fix
126:8
flip
108:16, 111:3,
111:15
floor
3:6
focus
17:3, 129:19
follow
15:5
followed
29:7, 30:8,
76:17, 78:6
following
37:10, 63:14,
96:10, 96:12
follows
11:2, 30:7,
37:7
foregoing
134:6
form
13:19, 27:6,
42:13
formed
42:2, 42:4
forming
13:3
forms
85:13
formula
50:5
forth
132:9
forward
25:14, 26:4,
27:18, 28:14,
29:20, 36:8,
91:9, 121:20
found
83:16, 83:18
foundation
94:4
four
58:20, 102:15,
102:16, 102:17
fp
87:7, 87:15,
88:16
fraction
98:11
fragment
47:11
fragmentation
23:6
fragments
24:7, 38:10,
105:9
francisco
3:7
frederick
94:9
front
11:12, 11:15,
12:1, 12:3,
12:9, 15:6,
107:2
full
13:13, 77:19
full-length
34:1, 34:6,
37:13, 38:2,
38:7, 39:7, 40:3
further
131:9, 132:14,
132:18, 133:1,
133:6

G

gaps
49:1
gave
67:2, 122:7
geared
117:9
gears
51:19
gel
44:17, 45:10,
45:13, 45:14,
45:18, 46:15,
48:15, 49:2,
51:11
gels
46:7
gene
78:6, 85:19,
86:16
gene-specific
57:18, 76:16,
77:6, 78:1,
78:16
geneamp
32:10
general
33:6, 61:12,
125:10
generally
66:21
generate
129:1
generated
28:3, 34:7,
40:3
genome
27:3, 27:4,
27:6, 27:10,
29:13, 47:11
genomic
17:19, 18:13,
20:17, 21:13,
21:19, 22:14,
23:5, 23:12,
24:4, 24:17,
24:20, 25:22,
32:8, 34:3,
48:7, 48:12
genomics
1:8, 4:13,
8:19, 132:15
genotype
129:18
geographical
94:9
getting
87:1, 130:13
give
10:10, 17:12,
24:21, 91:21,
119:14
given
81:3, 132:12,
134:8
giving
66:19, 66:21
global
118:4
glycosylase
105:10
go
9:12, 10:1,
10:5, 11:5,
28:18, 47:16,
49:4, 53:19,
55:19, 60:1,
64:9, 64:14,
64:15, 65:1,
67:7, 70:6,
70:7, 70:8,
71:3, 71:7,
74:12, 88:8,
101:11, 101:22,

102:1, 119:14, 130:8, 130:18
goes
24:21, 40:2
going
9:5, 9:20, 17:3, 17:12, 18:10, 19:21, 28:18, 33:13, 35:5, 42:16, 49:10, 53:17, 55:5, 58:5, 60:1, 61:19, 70:10, 71:7, 71:11, 72:14, 80:22, 84:14, 90:8, 90:18, 91:6, 91:14, 92:7, 93:3, 96:17, 99:14, 101:1, 101:10, 101:11, 102:3, 111:2, 113:19, 117:21, 118:3, 118:8, 119:8, 119:10, 119:15, 122:12, 123:13, 130:15, 130:16
gold
32:10, 32:14, 32:17, 32:22
good
10:16, 50:10, 99:15, 102:22
goodwin
4:6
great
16:4, 44:6, 55:17, 75:16, 86:10, 92:14, 95:18, 104:3, 106:18, 108:15, 119:21
greater
50:4, 50:12, 50:13
greenfield
65:19
gsp
85:19, 86:16, 87:15, 88:15
gsps
87:12, 88:7, 88:13
guess
32:2, 49:6, 102:2
guys
19:8

H

half
31:3
hand
10:8, 133:14
haploid
27:6
happened
55:19
happy
76:21
hard
15:6, 92:13
head
20:5
hear
20:4, 89:17
heard
43:18
hearing
20:5
heat
24:15
help
80:3
helpful
64:6, 68:22, 73:8
here
11:6, 18:4, 19:20, 20:15, 30:16, 36:7, 40:16, 41:9, 41:11, 46:9, 49:10, 55:2, 55:19, 60:1, 62:10, 71:18, 77:21, 79:13, 80:3, 86:9, 87:22, 88:11, 98:9, 110:11, 111:9, 111:21, 119:15, 124:4, 128:13, 130:11
hereby
132:5, 134:4
herein
10:20
hereinbefore
132:8
hereof
133:13
hereto
2:12
hereunto
133:13
herron
4:4, 8:22
high
44:10, 78:15, 79:2
higher
115:17, 116:4, 116:7, 116:21, 117:2, 117:6
highly
108:5, 108:12, 119:1, 129:18
hit
9:20, 9:22
hold
19:7, 19:18, 58:3, 74:15, 90:16, 130:10
hospital
61:13
hot-start
33:2
hour
53:18
however
69:8, 121:9
huelga
97:16, 97:17
human
17:19, 27:4, 29:10, 29:13
hundreds
23:20
hunger
130:12
hungry
130:14
hybridization
41:2, 49:20, 112:16, 114:14
hypothetical
43:1, 81:19, 125:20

I

i5
106:6
i7
106:6
id
67:10
idea
60:19, 65:10, 71:16, 72:9, 81:9, 82:8, 85:22, 100:15, 115:6, 120:5, 120:6, 122:4, 122:17, 123:3, 123:21, 125:10
identification
5:15, 54:17, 56:4, 56:15, 57:7, 62:5, 80:7, 84:5, 90:4, 102:19
identified
82:14, 115:13
ii
25:19, 27:17, 47:18
iii
33:14, 33:20, 35:21
illinois)
2:8

illustrated
36:20
illustrates
16:21, 42:1,
104:21
immediately
34:22
impeach
58:8
improper
61:9
improvement
128:11
improvements
115:21
improving
109:12, 114:13,
115:15
inactive
32:18
inc
1:8, 132:15
include
113:4
included
51:18, 52:7,
77:14, 81:5,
85:13
includes
61:6, 87:7,
113:2
including
16:19, 25:8,
52:10
incomplete
39:10, 43:1,
61:8, 70:15,
81:18, 125:20
incorporated
8:19, 94:5
incorporating
105:9
incorrect
30:21
increased
30:12, 128:7
increasing
112:15, 115:14,
123:2
indels
96:4
indexing
106:6
indication
47:2
induced
96:5
information
46:19, 77:11,
81:4, 120:9,
125:22
infringe
53:12
infringed
83:17
infringement
52:11, 52:15,
59:2
infringing
52:20, 76:12
initially
83:18
injunction
6:17
insertion
112:18
inspection
133:1
instance
2:2
instructing
20:2
interest
6:19, 27:8,
27:11
interested
85:18, 86:15,
133:10
international
29:13, 107:21
interpret
120:12
interrupt
120:3
introduce
23:6, 24:3,
27:13, 28:1,
56:12, 61:20,
80:4, 90:2,
90:8, 100:18,
101:11, 101:14
introduction
95:17
invalidity
6:6, 53:4, 53:7
invention
112:14, 114:7,
114:12, 114:19,
115:2, 115:20,
115:22, 116:6,
117:1, 121:7,
122:22, 128:6,
129:4, 129:20
inventions
122:9
inventor
97:10
inventors
78:13, 79:1,
82:18, 97:6,
115:13
involved
84:1, 120:16
involves
33:21
ion
117:13, 117:16,
128:21
ipr-
1:11
iprp
120:5
issue
40:20, 41:11,
85:4
issued
110:12, 111:16
item
120:6
itself
28:7, 32:21,
61:11, 128:12
iv
34:22, 35:14

J

january
104:10
job
1:19
joined
8:20
joint
89:5
jones
99:1, 99:10,
109:9, 109:19,
110:2, 110:3,
125:4, 125:15,
127:7, 127:10,
127:15, 127:18,
127:21, 129:9,
130:1, 130:2,
130:3
journal
93:18, 94:1
joyce
61:15
judgment
6:5
july
29:10
june
7:16
jury
83:16, 83:18
jx
89:6

K

keep
74:18, 130:16
key
38:18
kind
32:19, 45:18,
93:17
kits
87:4, 105:11,
108:5, 108:11,
119:1
know
10:3, 31:18,

52:14, 55:12, 55:18, 70:13, 75:10, 75:13, 79:22, 85:8, 86:3, 86:8, 89:18, 90:14, 91:14, 92:16, 97:13, 98:19, 102:11, 103:4, 106:10, 106:12, 110:16, 115:7, 117:11, 118:7, 120:17, 120:22, 122:19, 124:3, 124:5, 126:5, 127:6, 129:7, 129:14, 130:11, 130:18, 130:19, 130:20
knowledge
125:1
knows
13:21

L

labeled
106:2, 110:20
lack
36:3, 38:11, 45:14, 47:5, 51:15
lacking
39:10
lader
7:9
landon
3:10
large
96:3
last
95:7, 95:9, 95:20, 108:16, 108:18, 108:19, 112:4
later
41:3
latter
49:11
law
65:18
lawrence
4:14, 14:17, 17:4, 54:3, 56:11, 61:19, 68:10, 90:2, 100:17, 101:5
lead
33:22
leads
44:9
least
95:1, 95:12, 128:17, 131:12
leave
54:14
leaves
48:21, 117:5
led
49:13
left
39:21
left-hand
17:5, 30:3
legal
124:17
legend
16:22, 18:1, 18:7, 33:19, 36:21, 37:8, 39:17
length
42:5, 42:6, 42:7, 42:12, 42:17
lennon
73:16
less
42:17
let's
32:3, 36:1, 49:4, 53:19, 62:19, 64:10, 71:6, 99:16, 101:22, 102:1, 111:15, 111:19, 126:8, 130:7, 130:8, 131:3, 131:4
letter
118:16, 119:5, 119:9, 119:10, 119:11, 119:12
libraries
105:11
library
15:10, 42:21, 43:2, 46:8, 47:12, 57:17, 123:3
license
2:7, 2:8
lieu
8:7
ligase
24:22
ligated
24:6, 24:17, 25:1
ligation
24:21, 96:6
light
80:3
limit
96:3
line
34:1, 89:5
lines
30:4
linnea
4:5, 8:21
list
94:20, 94:22, 130:1
listed
65:4, 67:14, 67:20, 94:16, 97:19, 107:19, 110:11, 118:16, 127:7, 127:14, 130:5
lists
57:10, 63:8, 107:5, 108:1, 118:13
literature
109:4, 109:8
litigation
52:4, 52:9, 52:20, 53:5, 55:7, 55:11, 73:20, 76:6, 81:14, 81:16, 83:7, 97:7
little
11:5, 17:5, 25:6, 30:4, 41:9, 41:10, 41:12, 51:19, 119:15, 130:13, 130:16
llc
1:5, 52:1, 56:5, 61:12, 104:12, 107:6, 118:20, 126:17
llp
3:4, 3:11, 4:6
location
94:9
locations
27:7
loci
28:15, 29:21, 34:19, 38:15, 51:13
locus
26:16, 27:2, 27:9, 47:22
locus-specific
26:5, 26:11, 27:14, 28:1, 28:14, 28:22, 29:8, 32:13, 96:2
long
47:20, 52:22, 53:15
longer
25:9
look
12:15, 27:17, 33:13, 47:17,

48:10, 50:5, 51:11, 59:17, 64:5, 64:10, 66:10, 67:6, 67:7, 71:6, 73:8, 73:12, 81:7, 84:18, 93:4, 94:2, 95:7, 96:21, 97:15, 98:8, 104:5, 104:20, 105:7, 106:1, 107:14, 107:21, 108:10, 109:7, 109:16, 111:1, 111:19, 111:20, 111:21, 115:9, 118:5, 118:12, 126:8, 126:19, 127:5, 127:20, 128:14, 129:14
looked
70:17, 115:7, 118:15, 120:14
looking
11:16, 11:22, 24:11, 25:13, 98:21
looks
70:15, 120:4, 128:2
loops
112:18
lost
20:11
lots
46:6
low
98:10, 115:11
lowered
31:3

M

made
82:17, 121:2
magnesium
32:12, 115:16, 116:3, 116:5, 116:20, 116:22, 117:7, 117:10, 117:12, 117:16, 128:7, 128:21
make
19:19, 47:8, 91:2, 120:22
making
60:21
manner
8:13, 8:17, 23:3
many
21:19, 124:4
mara
15:12, 15:15, 16:7, 16:11, 16:13, 16:15, 16:17, 16:21, 17:17, 18:12, 21:14, 24:13, 28:3, 30:6, 30:14, 32:5, 33:15, 33:20, 36:15, 37:9, 40:20, 44:10, 46:11, 48:6, 51:18
march
61:16, 126:14
marita
91:1
marked
11:10, 11:17, 14:15, 54:7, 54:17, 56:15, 62:2, 62:5, 80:7, 84:3, 84:5, 90:4, 100:18, 102:19
markers
45:22
marriage
133:8
maryland
94:10
matches
50:6
material
16:13
materials
18:11, 24:12, 28:19, 94:11, 118:10
matter
8:9, 10:10, 133:11
maybe
45:16, 45:17, 120:10
mean
13:18, 16:10, 20:5, 22:3, 22:18, 28:10, 37:15, 41:21, 45:19, 47:16, 56:8, 61:10, 83:22, 88:22, 93:17, 94:15, 105:12, 115:19, 116:5, 116:22, 120:8, 120:9
means
72:22, 118:7, 120:22
mediated
96:6
meeting
9:3, 9:19
mel
101:19
memory
13:21, 76:3, 76:7, 79:19
mentioned
11:21
mentions
121:6
method
2:9, 15:10, 15:15, 16:8, 16:21, 17:2, 19:9, 19:10, 47:12, 128:12
methods
16:12, 18:12, 24:12, 28:19, 57:17, 108:5, 108:11, 114:7, 114:20, 118:22, 121:18, 121:19
metzker
1:14, 2:1, 5:3, 8:1, 8:7, 10:7, 10:13, 10:17, 10:19, 14:1, 15:3, 15:9, 19:17, 20:10, 21:8, 22:12, 26:22, 29:18, 35:9, 41:14, 43:8, 43:17, 46:13, 51:20, 54:15, 54:21, 56:19, 58:8, 58:16, 61:4, 62:9, 62:16, 63:7, 63:18, 65:17, 66:3, 66:12, 68:3, 72:9, 73:15, 75:3, 80:11, 92:12, 92:16, 99:22, 104:5, 106:20, 116:18, 120:15, 122:16, 123:17, 127:4, 129:3, 129:6, 131:8, 132:7, 132:19, 134:4
michael
1:14, 2:1, 5:3, 8:1, 8:6, 10:19, 66:3, 66:12, 72:8, 73:14, 132:7, 132:19, 134:4
michigan
132:5
michigan)
2:7
microliter
24:18
microliters
32:7

micromolar
32:8, 32:12
middle
82:12, 95:13, 95:21, 120:1
mike
91:11
millimolar
32:11, 128:22
mind
54:4, 101:4, 114:1
minimum
128:22
minus
30:10
minute
22:12, 33:17, 64:20, 114:2
minutes
30:8, 30:9, 30:13, 30:18, 31:2, 31:15, 32:21, 99:17, 130:8, 131:1
misappropriation
52:12, 73:14, 74:1
mischaracterization
22:6, 22:20, 23:15, 41:6, 45:2, 57:20, 114:9, 114:22, 123:12, 125:7
mismatches
50:8, 112:17
mispriming
40:11
modified
32:17
module
53:18
molecular
45:22, 98:12
moment
14:5, 14:22, 17:8, 20:14, 23:11, 27:18, 45:3, 49:7, 61:22, 68:13, 69:14, 70:16, 71:20, 72:21, 80:6, 84:17, 91:21, 112:9, 127:5
more
16:22, 22:16, 26:19, 58:20, 63:3, 73:8, 79:7, 92:19, 103:20, 120:21, 123:1, 129:19
morning
10:16
mostly
23:22
motion
6:4, 6:17
mouth
20:7
msei
18:14, 18:17, 20:18, 20:21, 21:10, 22:22
multiple
33:16, 33:21, 62:13
multiplex
96:22, 108:6, 108:12, 119:1, 128:16
multiplexed
15:11
multiply
21:5
muts
109:13, 112:15, 112:22, 113:3, 113:4, 113:10, 113:13, 114:13, 115:18, 117:5, 117:7, 123:1, 123:7, 128:8, 128:21

N

name
60:8
named
61:5, 97:6, 97:10
nanograms
18:13, 20:17, 24:19, 32:7
native
16:1
nature's
93:12, 93:15
ncbi
29:11
nd
3:6
neb
18:14, 24:1
necessary
32:22
need
17:7, 54:13, 74:11, 91:17, 93:4, 101:1, 119:10, 120:21
nested
57:17, 76:14, 77:6, 78:16, 79:3
never
20:6, 50:19, 50:20, 81:11
new
4:7, 4:9, 23:22, 54:9, 62:3, 80:19, 124:15
newer
96:5
next
38:8, 38:17, 38:21, 53:18, 66:10, 67:8, 75:14, 89:4, 97:15, 102:12, 107:14
next-generation
97:1
niall
73:16
nicely
42:1
nine
48:12
non-specific
40:6, 40:9, 40:14, 40:19
none
126:4
noninfringement
73:13, 73:19, 73:22, 76:5, 76:8, 83:2, 83:13
nonpatent
109:4, 109:7
notary
132:4
note
9:2, 121:1
noted
19:14, 20:16, 70:12, 77:18
notes
18:12, 130:19
nothing
10:11, 10:22, 12:19, 88:20
noticed
31:14
novel
98:12
november
75:6
nucleic
15:19, 128:19
nugen's
98:5
number
11:13, 14:2, 14:20, 47:18, 56:1, 56:3, 57:1, 57:3, 60:4, 61:14, 63:8, 63:21, 64:16, 64:21, 65:2, 67:10, 70:11, 71:8,

71:10, 71:21, 71:22, 80:18, 107:4, 107:22, 108:3, 108:4, 111:11, 112:1, 112:3, 113:19, 113:20, 118:14, 126:10, 126:12, 126:20, 126:22, 127:3, 127:5
numbered
2:4
numbering
15:20, 15:21
numbers
57:13, 64:7, 64:9, 64:13, 109:18, 110:4, 110:9, 110:16, 110:19, 127:10
numerous
22:7, 23:7, 23:18

O

oath
8:7, 67:3
objection
13:19, 18:22, 19:8, 19:15, 19:20, 21:5, 21:16, 22:5, 22:19, 23:14, 24:8, 25:4, 25:17, 26:7, 26:17, 28:4, 28:16, 29:22, 30:19, 31:9, 31:21, 34:10, 35:2, 35:6, 35:16, 36:9, 36:18, 38:3, 38:13, 39:4, 40:1, 40:12, 41:5, 42:9, 42:22, 45:1, 47:14, 48:17, 51:2, 52:13, 53:6, 53:14, 56:7, 56:14, 57:12, 57:19, 58:3, 58:12, 59:4, 59:10, 60:13, 61:8, 63:11, 65:12, 67:12, 67:19, 70:22, 72:3, 74:10, 76:19, 77:9, 78:2, 78:19, 79:5, 81:17, 83:3, 88:2, 88:17, 89:20, 94:18, 97:8, 99:2, 99:11, 100:4, 105:4, 105:19, 107:10, 109:21, 112:7, 113:8, 113:11, 114:8, 114:21, 116:9, 117:3, 122:10, 123:11, 125:6, 125:18, 127:22, 129:11
objections
8:12, 8:16, 58:18, 82:5, 100:14, 107:18
obligation
124:20
obligations
58:5, 122:13, 123:14
obvious
12:22
occurred
132:19
october
14:7, 104:15, 107:9, 107:17, 111:12, 119:5, 119:7, 127:1
offered
53:11, 76:11, 83:13
offering
53:3, 76:18, 79:10
office
1:1, 114:4, 118:1, 121:3, 122:19, 124:10, 124:19, 125:4, 125:15
oh
11:16, 43:16, 43:18, 68:17, 88:7, 89:16, 89:17, 116:17
okay
9:20, 10:1, 12:18, 15:6, 15:8, 15:9, 16:4, 17:9, 17:13, 20:8, 31:6, 33:12, 33:13, 43:10, 43:11, 43:18, 44:6, 45:7, 49:6, 49:9, 53:20, 53:21, 55:15, 56:10, 59:14, 59:16, 60:3, 62:19, 63:4, 63:7, 65:5, 67:22, 69:2, 69:4, 69:14, 69:17, 69:18, 70:9, 71:12, 73:11, 75:16, 77:3, 80:21, 81:6, 83:7, 85:7, 86:10, 89:19, 89:22, 91:3, 91:12, 91:16, 92:1, 92:14, 92:22, 93:3, 93:19, 95:7, 95:11, 95:16, 95:18, 96:16, 96:20, 98:21, 103:3, 103:14, 103:17, 104:3, 104:18, 106:9, 108:15, 108:18, 109:1, 109:7, 110:7, 110:12, 110:18, 110:22, 111:8, 111:15, 112:13, 113:17, 114:1, 117:20, 117:21, 119:5, 119:8, 119:20, 119:21, 122:1, 124:16, 131:14
old
93:17
oligonucleotide
28:21, 32:13
oligonucleotides
29:1, 29:4
on-target
44:11, 46:20, 47:2, 50:16
once
54:14, 75:9
one
14:22, 17:8, 23:19, 31:3, 31:14, 35:5, 38:18, 39:6, 40:13, 42:6, 43:11, 44:7, 44:19, 48:5, 54:13, 59:21, 60:6, 61:22, 68:13, 76:10, 76:16, 76:17, 78:5, 78:7, 80:6, 82:19, 85:18, 86:14, 90:15, 90:19, 97:5, 103:8, 103:19, 109:1, 112:21, 121:9, 121:11, 121:16, 125:21, 128:20, 129:15
one-cycle
37:12
ones
103:16

ongoing
6:17
only
38:1, 38:6, 39:20, 46:15, 47:4, 72:16, 76:15, 77:22, 78:5, 82:19, 85:17, 86:13, 89:5, 91:5, 92:10, 103:7, 110:1, 121:9, 121:16, 127:9, 127:17
oops
55:18
open
63:5, 69:2, 90:21
opening
84:13, 84:22, 85:3, 85:6
opines
19:3
opinion
13:3, 76:18, 79:11
opinions
76:4, 81:15, 83:1, 83:13
opposite
44:11
opposition
6:16, 81:2
oral
66:11, 72:8
ordinary
26:12, 31:11, 43:12, 44:7, 117:11
oriented
75:9
other
12:3, 16:17, 23:4, 24:2, 27:13, 27:22, 35:19, 37:3, 40:18, 41:1, 41:16, 42:14, 46:19, 80:18, 87:3, 92:6, 103:16, 106:16, 109:3, 110:3, 121:15, 123:7, 123:21, 125:21, 127:20, 129:2, 129:9, 129:14
others
127:11, 127:18
otherwise
133:11
out
20:6, 32:6, 48:21, 54:11, 54:13, 54:14, 69:21, 90:19, 92:5, 101:3, 101:10, 103:16, 117:5, 127:18
outcome
133:11
outputs
49:20
ovation
98:6
over
30:4, 48:12, 130:18
overbroad
100:5
overturned
83:19
overview
75:21
own
113:15
owner
1:9, 2:3, 4:2, 8:20
owner's
12:19, 13:4, 13:10
owners
69:20

P

pacer
55:8
page
5:2, 5:9, 16:2, 16:10, 16:14, 16:19, 18:9, 21:18, 22:13, 24:11, 28:18, 30:3, 43:22, 49:10, 55:14, 55:21, 59:17, 59:19, 59:22, 60:1, 60:3, 62:22, 64:3, 64:15, 65:6, 65:7, 66:6, 66:10, 66:16, 68:9, 69:5, 70:11, 71:9, 71:13, 71:14, 72:6, 72:7, 74:22, 78:10, 79:15, 80:14, 85:11, 86:9, 86:12, 88:8, 89:10, 94:3, 94:14, 95:10, 96:17, 96:18, 107:19, 108:17, 108:18, 108:19, 111:5, 111:17, 112:4, 113:18, 118:17, 119:8, 119:17, 130:5
pages
1:20, 15:16, 16:8, 77:13, 81:7, 86:3, 86:4, 103:5
pagination
16:1
pair
87:14, 88:15, 114:6, 114:18, 123:10
pairs
27:5, 46:4, 46:5, 48:10
panels
59:2, 59:9
paper
54:16, 68:9, 68:11, 93:12, 97:20, 98:1, 98:4, 98:5
papers
19:14, 68:5, 94:20
paragraph
43:9, 43:10, 44:1, 44:15, 44:16, 44:22, 45:4, 45:10, 45:12, 46:2, 46:16, 47:4, 48:14, 48:22, 49:4, 49:11, 49:19, 65:16, 65:21, 69:6, 69:11, 69:12, 69:15, 69:17, 82:12, 85:15, 86:12, 86:17, 86:19, 86:21, 89:4, 95:8, 95:9, 95:13, 95:20, 95:21, 108:11, 110:14, 110:15, 111:3, 111:15, 111:19, 111:20, 111:22, 112:4, 112:10, 115:9, 116:11, 116:13, 119:16, 119:20, 120:1, 120:11, 121:5, 122:2, 123:6, 124:6
paragraphs
95:16, 110:19, 110:21
parentheses
61:13
parenthetical
31:6
part
30:16, 49:11, 50:20, 61:14,

61:15, 73:6, 127:11
partial 6:5, 36:3, 72:10
partially 25:7
participate 38:17
participating 8:5
particular 21:20, 27:4, 32:16, 45:13
parties 8:11, 89:6, 133:4, 133:7, 133:9
party 132:14
passage 21:20
patent 1:1, 1:3, 1:9, 1:12, 2:3, 4:2, 6:6, 7:11, 7:18, 8:20, 12:6, 12:7, 12:19, 13:4, 13:10, 19:10, 52:11, 52:15, 57:13, 68:18, 69:19, 78:14, 100:2, 100:12, 100:20, 100:22, 103:5, 103:16, 103:22, 104:6, 104:19, 104:21, 105:14, 107:4, 107:9, 107:17, 108:5, 109:2, 109:11, 109:16, 109:19, 110:8, 110:13, 110:14, 111:2, 111:17, 112:1, 112:3, 112:20, 112:21, 113:3, 114:4, 114:11, 115:3, 115:8, 116:14, 118:1, 118:2, 118:11, 118:14, 118:17, 120:17, 121:3, 124:7, 124:10, 124:16, 124:19, 125:4, 125:15, 126:1, 126:3, 126:10, 126:12, 126:13, 126:15, 127:10, 127:12, 128:2, 129:10, 131:12
patents 11:8, 11:20, 12:14, 12:22, 52:20, 53:5, 53:13, 57:10, 57:11, 57:16, 58:2, 59:1, 76:13, 76:14, 79:1, 83:17, 97:6, 97:11, 110:2, 110:3, 110:12, 124:13, 125:2, 125:11, 127:14, 131:10
pcr 32:10, 33:2, 33:8, 36:16, 37:12, 38:17, 38:21, 39:6, 76:14, 76:16, 76:17, 78:5, 78:7, 78:16, 79:3, 96:6, 97:1, 106:6, 115:17, 116:4, 116:6, 116:21, 116:22, 117:10, 117:14
pcrs 46:6
pct 104:14, 108:1, 128:5
pdf 15:3, 70:11
peer-reviewed 93:18, 93:19
penalty 8:10
pending 116:15
percent 50:12
perfect 17:10, 50:6, 69:4, 91:16, 91:17, 92:3, 96:20, 101:8
perform 33:1
performed 16:8, 51:16
performing 49:14, 128:15
periodical 93:16
perjury 8:10
person 8:8, 26:11, 31:11, 117:10
petitioner 1:6, 3:2, 9:2
petitioner's 11:7, 11:22, 12:7, 12:8
ph 1:14, 2:2, 4:4, 4:13, 5:3, 8:1, 8:7, 10:19, 91:1, 132:7, 132:19, 134:4
phone 91:6, 91:7
phrase 44:13
phrased 18:19, 20:20, 21:2
piece 44:19
pink 17:19
pivot 41:9
place 70:14, 121:16, 124:6
plaintiffs 5:15, 6:4, 6:16, 52:9, 52:19, 56:4, 57:7, 59:1, 70:18
planet 9:6, 9:10, 14:19, 14:22, 17:7, 17:11, 54:5, 56:13, 61:22, 68:13, 80:6, 101:7
plans 100:15
please 8:15, 10:7, 15:1, 21:8, 35:10, 45:6, 45:8, 49:8, 54:5, 68:14, 69:16, 72:22, 75:10, 75:13, 86:6, 95:15, 99:5, 100:7, 108:8, 119:18, 120:22, 127:6
plex 30:14, 32:5, 37:3, 37:10, 37:21, 38:22, 46:11
plurality 128:19
po's 69:9
point 20:16, 53:2, 93:6, 120:22, 123:8
pointed 69:21
points 89:5

polymerase
32:16, 32:18, 32:20, 33:1, 117:12, 117:14
polynucleotides
121:20
portfolio
127:12
portion
31:7, 72:1, 72:19
position
27:10, 81:14, 82:3, 100:1, 100:11
possible
45:19, 55:4, 60:19
post-judgment
6:19
potential
61:1
pre
6:18
preclude
6:7
prefer
54:16
preparation
15:10, 42:21, 47:12, 57:17
preparing
105:11
presence
37:17, 51:14, 128:20
present
4:12, 14:12, 38:1, 69:22, 115:12
presented
43:13, 44:9, 45:20, 45:21
previous
35:17
previously
14:15, 52:3, 54:7, 62:2
primary
30:6, 32:5, 33:15, 33:20, 36:15, 37:7, 37:10, 40:4
prime
25:10, 26:1, 29:5, 29:8, 38:16, 42:13, 48:2
primer
7:5, 25:14, 25:20, 26:4, 26:6, 26:11, 26:14, 27:14, 27:19, 28:1, 28:8, 28:14, 29:1, 29:3, 29:20, 33:21, 34:17, 36:8, 36:11, 37:12, 37:19, 38:5, 38:11, 39:7, 39:8, 39:11, 41:11, 41:19, 42:2, 42:4, 42:12, 42:16, 42:18, 42:20, 45:14, 45:16, 46:2, 46:4, 46:7, 46:10, 46:17, 47:5, 48:3, 76:16, 78:1, 78:6, 85:17, 85:20, 86:14, 86:16, 90:11, 96:5, 100:1, 100:11, 104:21, 105:3, 105:13, 108:6, 108:12, 109:12, 114:5, 114:6, 114:18, 115:11, 115:14, 115:15, 115:21, 117:15, 119:1, 121:9, 121:11, 121:14, 121:21, 123:10, 125:16, 128:11, 128:16, 128:18, 129:16
primer-primer
41:18
primer-target
40:6, 40:14, 40:19
primers
29:9, 29:16, 41:15, 42:3, 42:7, 42:14, 51:14, 51:17, 57:18, 77:7, 78:17, 87:3, 87:15, 88:15, 96:2, 114:14, 121:9, 121:10, 128:18, 129:1
print
54:11, 54:13, 54:14, 90:19, 101:3, 101:10, 101:14, 102:1
printed
91:22, 103:22, 106:11
printing
92:5, 103:16
printouts
103:1
prior
114:7, 114:20, 121:19, 123:6, 124:9, 124:19
probably
81:11, 92:5, 92:19, 103:10, 112:20
procedure
2:11
proceed
10:4, 10:15, 19:6, 19:17
proceeding
8:16, 8:20, 13:16, 16:1, 58:9, 68:5, 120:5, 120:18
proceedings
118:11, 131:16
process
17:17, 19:3, 21:14, 24:15, 39:22, 87:12, 87:13, 88:7, 88:12, 88:13, 125:8
procter
4:6
produce
82:18
produced
2:2, 29:12
product
34:1, 34:6, 34:15, 34:21, 35:12, 35:14, 36:2, 36:7, 36:10, 38:14, 39:12, 47:19, 47:20, 82:19, 89:13, 98:6
production
123:3
products
5:16, 28:3, 35:19, 36:1, 36:3, 37:14, 38:2, 38:7, 39:2, 39:8, 39:10, 39:13, 39:14, 39:21, 40:3, 40:5, 42:15, 46:22, 53:12, 56:5, 57:8, 75:22, 76:5, 76:12, 76:15, 77:6, 77:22, 78:5, 122:8, 129:1
prominent
46:7
promoter
29:6
prone
96:4

proprietor
107:5
prosecution
118:1, 118:10, 120:16, 124:11
protection
100:3, 100:13
protein
109:13, 112:15, 112:22, 113:10, 113:14, 115:18, 117:6, 117:8, 123:1, 123:7, 128:8, 128:21
proteins
113:4
provide
50:4, 53:7, 73:21, 76:8, 78:8
provided
51:21, 58:9, 76:4, 77:21, 78:12, 79:20, 82:4, 87:20, 126:4
provides
16:22, 29:6, 32:10, 50:9, 94:9
providing
78:22
provisional
111:11, 126:21, 127:3
provisions
2:11
proxy
50:15
ptab
60:17
pub
7:9
public
62:11, 70:18, 70:20, 72:17, 74:4, 74:5, 80:15, 81:1, 81:5, 84:16, 118:9, 132:4
publication
15:16, 16:9, 16:18, 27:1, 41:3, 45:11, 48:16, 90:10, 94:16, 96:17, 97:14, 98:14, 104:7, 104:9, 127:10, 130:3, 130:4
publications
127:20, 129:9, 129:15
publicly
62:15, 80:1
published
93:12, 97:2, 104:7
pull
54:4
pulled
55:8, 84:15
purpose
31:17, 38:4, 119:12, 124:5
pursuant
2:10, 7:15
put
54:21, 68:20, 80:11, 84:8, 90:8

Q

q&a
20:15
qiagen
1:5, 51:22, 52:4, 52:10, 52:19, 69:8, 69:18, 70:4, 75:21, 76:15, 77:22, 78:5, 78:15, 79:2, 80:16, 81:13, 82:17, 83:16, 83:20, 84:13, 87:2, 87:11, 88:6, 88:12, 89:7, 94:4, 95:2, 98:18, 98:22, 99:9, 99:22, 100:10, 100:15, 104:11, 105:3, 107:5, 107:8, 107:16, 114:3, 114:16, 115:6, 117:22, 118:20, 121:2, 121:4, 121:6, 123:5, 123:18, 125:2, 125:14, 126:16
qiagen's
53:12, 68:5, 69:7, 76:5, 77:5, 87:4, 87:22, 122:8
qiaseq
59:1, 59:8
question
16:5, 18:20, 20:3, 20:10, 20:11, 20:12, 21:2, 21:9, 27:15, 28:6, 28:11, 28:20, 29:19, 35:10, 45:8, 46:15, 48:13, 48:20, 48:21, 58:17, 61:4, 63:1, 73:2, 75:14, 77:12, 77:15, 81:21, 82:9, 85:8, 88:10, 99:4, 99:8, 100:7, 105:7, 105:21, 116:15, 117:5, 117:9, 122:18, 124:1, 125:13, 126:6
questioning
122:20
questions
63:3, 70:1, 73:10, 92:17, 92:19, 93:3, 119:16, 122:3, 131:9, 131:11, 131:14
quick
67:6, 91:4
quietly
19:20
quinn
3:4, 3:11
quite
42:1, 99:15

R

raise
10:7
raising
122:4
ran
45:18
random
23:6
randomly
22:8, 24:3
range
46:21, 48:9
rates
44:11, 49:20, 49:21, 50:15, 50:17
rather
49:12, 103:6, 114:5, 114:18, 130:20
rdr
1:22, 2:7
reaction
24:22, 33:15, 33:20, 36:15, 36:16, 37:3, 37:7, 37:11, 38:5, 40:4, 40:21, 46:12, 51:18, 82:8, 115:18, 116:4, 116:21, 117:14, 125:21, 128:11,

128:16, 128:19
reactions
24:18, 32:6, 37:4, 37:10, 116:6, 117:1
read
20:14, 30:5, 30:21, 32:1, 32:2, 39:5, 45:3, 45:10, 46:15, 49:7, 72:22, 74:11, 74:12, 76:1, 77:3, 82:14, 86:9, 86:21, 88:19, 91:6, 95:11, 95:16, 98:1, 112:21, 119:20, 134:5
reading
17:22, 43:14, 43:21, 61:9, 74:17, 74:19, 84:19, 98:19, 133:2
ready
10:3, 55:12, 75:14, 85:8, 86:8, 92:16, 102:11, 106:20
real
67:6, 91:4, 112:13
realize
37:16
really
36:7, 41:7, 45:12, 47:4, 70:13, 70:14, 88:22, 105:13, 114:12, 115:20, 126:5, 128:6, 128:10, 129:19
reason
45:16, 76:10, 88:20, 89:2
recall
53:3, 58:2, 63:18, 64:20, 66:19, 70:20, 71:9, 72:2, 73:19, 76:10, 76:18, 76:20, 78:22, 79:10, 83:8, 83:10, 83:12, 97:5, 97:10, 98:5
received
103:7
recognize
95:5, 97:20, 109:18
recollection
82:22, 87:19, 122:6
record
2:12, 30:22, 53:21, 54:1, 54:2, 91:13, 99:19, 99:20, 102:4, 102:7, 130:9, 131:6, 131:7, 132:12, 133:3
recorded
9:4, 9:5, 9:19, 9:21, 10:2, 112:4
recording
9:11, 9:12, 9:15
recording's
9:8
redacted
60:9, 61:5, 61:11, 81:1
refer
23:8, 36:10, 40:10, 41:18, 82:11, 110:19
reference
16:20, 18:9, 29:10, 41:22, 45:13, 50:7, 50:9, 96:21, 97:15, 97:16, 97:19, 98:8, 98:16, 98:20, 109:8, 109:10, 111:22, 127:7, 127:21, 129:8, 129:22, 130:2
references
96:13, 96:18, 98:21, 108:20, 127:5, 127:8
referencing
29:2
referred
21:10, 26:1, 27:8, 57:2
referring
15:18, 15:22, 21:21, 22:22, 23:13, 41:2, 41:7, 47:10, 48:15, 49:19, 50:2, 52:17, 60:17, 105:1, 116:11, 125:11
refers
25:2, 26:5, 26:10, 50:15
reflects
55:9
refresh
76:3, 82:22, 87:18, 122:5
refreshed
76:7
refuting
45:15
regarding
11:7
region
48:2
related
112:22, 123:1, 126:19, 133:6
relates
123:4
relation
47:21, 49:2
relationship
111:16
relative
50:21, 51:7
relevance
18:22, 21:6, 21:16, 22:21, 23:16, 24:8, 25:4, 25:17, 26:8, 26:17, 28:4, 28:16, 29:22, 30:19, 31:9, 31:21, 34:10, 35:2, 52:13, 53:6, 53:14, 56:7, 56:14, 57:12, 57:20, 58:4, 59:4, 59:11, 60:13, 60:19, 65:13, 67:12, 71:17, 72:3, 74:10, 76:19, 78:3, 78:19, 79:6, 81:9, 81:19, 83:4, 86:1, 88:2, 88:18, 105:19, 107:10, 109:22, 112:8, 113:8, 113:11, 114:10, 115:1, 116:10, 117:4, 122:11, 123:12, 125:8, 125:20, 128:1, 129:12
relevant
124:9, 124:19, 124:22
reliable
93:20
relied
44:19, 89:6
rely
50:14, 50:20
remember
52:16, 53:1, 58:19, 66:21, 93:2, 98:1, 98:3
remind
58:5, 122:12,

123:13
reminded
73:21
remote
66:11, 72:7
remotely
132:20
removes
39:13
renders
12:21
repeat
16:5, 20:12, 35:10, 45:8, 99:4, 100:7, 108:8
replies
12:8
reply
7:14, 11:7, 11:17, 11:22, 12:7, 12:12, 24:9, 68:5, 68:9, 68:16
report
55:2, 55:3, 55:6, 55:14, 57:2, 63:9, 63:19, 63:22, 70:17, 71:6, 73:14, 73:15, 73:20, 74:1, 74:8, 76:9, 77:19, 80:20, 83:2
reported
1:21, 2:9
reporter
132:3
reporter's
132:1
reporting
8:13
reports
41:3, 49:22, 93:13, 93:15, 93:22
represent
14:1, 55:5, 55:9, 56:21, 72:14, 74:2, 80:17, 80:22, 84:15, 85:5, 110:17, 110:18, 118:3, 118:8
represented
115:6, 132:15
representing
85:1
reproducible
48:11
reputable
94:1
requests
94:11
require
121:20
required
117:16, 124:8, 124:21
requires
117:12
research
15:20, 94:3
resistant
39:15
respect
12:13, 14:3, 14:11, 15:19, 26:9, 46:17, 48:14, 76:4, 79:12, 105:17, 131:10, 131:11
respectfully
30:13
respond
19:22
responding
44:14, 45:12, 58:14, 73:15, 120:7, 120:13, 122:3, 122:21, 123:18, 123:22
response
12:19, 13:4, 13:10, 120:4, 122:18
restriction
17:20, 18:2, 18:6, 21:11, 21:12, 21:21, 23:2, 23:19, 23:21, 24:14, 24:19, 48:6
result
35:21, 44:17
results
16:11, 16:15
resume
92:17, 106:20
retrieve
118:10
retrieved
118:3, 118:9
reverse
121:14, 121:21
review
13:3, 13:6, 13:9, 69:14, 76:21, 78:9, 82:6, 86:2, 92:20, 105:6, 112:9, 119:10
reviewed
12:8, 13:13, 68:4, 69:17, 81:11, 85:10, 90:15, 92:22
reviewing
79:14, 93:2, 119:18, 123:20
right
10:6, 10:8, 11:11, 12:1, 13:14, 13:17, 14:12, 15:12, 15:17, 16:9, 17:11, 18:3, 25:3, 25:16, 26:6, 28:15, 28:18, 30:18, 33:18, 33:19, 34:9, 35:1, 35:15, 36:5, 36:8, 36:17, 36:19, 37:4, 37:7, 37:14, 38:2, 38:12, 39:3, 39:22, 40:11, 41:4, 41:16, 41:20, 42:8, 42:21, 44:2, 44:3, 44:5, 44:13, 44:18, 44:22, 46:16, 47:8, 47:13, 52:6, 52:12, 52:21, 53:13, 54:10, 57:8, 57:11, 57:18, 59:9, 59:22, 64:2, 64:21, 64:22, 67:3, 68:6, 71:15, 73:1, 75:22, 83:17, 83:20, 83:21, 86:20, 89:15, 91:19, 92:5, 92:8, 93:13, 93:21, 94:21, 102:16, 104:22, 106:22, 107:17, 113:1, 114:20, 117:17, 118:15, 123:10, 124:11, 124:12, 130:1
rmr
1:22, 2:7
rna
59:9
romanette
25:14, 25:19, 27:17, 33:14, 33:20, 34:22, 35:14, 35:21, 36:20, 47:18
round
78:16
royalty
6:18
rozen
29:2

rpr
1:22, 2:6
rules
2:10, 60:17
ruling
83:19
run
46:6
runoff
15:11
rutt
6:3, 65:17

S

sacks
65:19
said
22:7, 22:12, 22:16, 23:17, 23:18, 72:19, 82:18, 98:3, 123:19, 129:8, 133:2
same
19:9, 26:13, 35:5, 35:6, 35:16, 36:9, 36:18, 38:3, 38:13, 39:4, 40:1, 40:12, 51:16, 56:22, 57:1, 58:18, 63:8, 63:22, 67:19, 80:18, 82:5, 87:3, 89:13, 100:14, 107:18, 112:3, 118:13, 128:2, 128:5, 134:6
sample
28:15, 29:21
samples
48:12
samuel
4:4, 8:22
san
3:7
sanctions
61:1
sau3a1
21:10, 22:22
sau3ai
18:14, 18:17, 20:18, 20:21
save
101:9
say
16:16, 22:2, 22:17, 35:5, 35:6, 41:1, 44:2, 46:1, 47:7, 84:21, 99:16, 103:19, 120:3, 124:14, 130:8
saying
23:4, 82:2, 101:20
says
9:2, 9:18, 9:19, 28:22, 30:5, 32:5, 37:8, 39:6, 40:2, 61:11, 75:8, 75:22, 78:4, 78:20, 79:17, 82:21, 89:1, 92:18, 116:2, 116:19
scan
59:9
scheduling
8:17
schild
4:13
scholar
124:17
sciences
1:5, 52:1, 52:4, 52:11, 94:4, 104:12, 107:6, 118:20, 126:17
scientific
92:7, 92:11, 93:13, 93:15, 93:22, 94:20
scolnick
97:16
scope
19:1, 21:6, 21:17, 22:20, 23:15, 24:9, 25:5, 25:18, 26:8, 26:18, 28:5, 28:17, 30:1, 30:20, 31:10, 31:22, 34:11, 35:3, 58:4, 59:5, 59:11, 60:14, 65:13, 67:13, 71:1, 72:4, 88:3, 88:18, 89:21, 105:20, 107:11, 109:22, 112:8, 112:14, 113:12, 114:10, 114:13, 115:1, 116:10, 117:4, 122:11, 123:13, 125:7, 125:19, 128:1, 129:12
score
50:13
scores
50:3
screen
9:3, 9:12, 9:13, 17:14, 18:10, 55:17, 68:11, 96:13, 104:1
scroll
74:6
scrolled
77:12
scrolling
74:16, 74:19
second
11:21, 23:12, 25:13, 28:13, 29:19, 36:2, 37:18, 59:21, 62:19, 69:11, 69:13, 78:16, 90:17, 95:8, 95:20, 109:15, 110:14, 119:17, 130:11
secondary
36:16
seconds
30:9, 30:11, 31:17, 33:4, 33:6
secret
52:12, 73:13, 73:22, 76:9
secretary
91:1, 92:2, 101:3
secretary's
91:9
secrets
52:17
sect
92:9
section
12:18, 16:13, 16:15, 24:12, 28:19, 32:1, 58:6, 60:15, 71:3, 75:18, 77:4, 111:10, 121:5, 129:9
sections
16:17
seems
122:22
seen
55:3, 92:21, 119:11
send
92:9, 102:5
sending
102:12
senior
95:1, 95:5, 98:9
sent
101:16, 101:19, 102:13, 106:15

sentence
18:1, 32:2, 49:12, 49:17, 66:14, 69:12, 69:13, 82:21, 86:18, 86:19, 86:22, 87:6, 87:8, 87:9, 87:11, 87:17, 87:18, 88:19, 95:8, 95:20, 96:8, 96:9, 96:10, 111:14, 113:1
separately
26:5
sequence
23:3, 25:2, 25:15, 26:1, 27:13, 27:19, 27:20, 28:2, 28:9, 29:5, 29:7, 29:8, 29:10, 34:3, 34:8, 34:9, 34:16, 34:17, 34:20, 36:4, 38:1, 85:18, 86:14, 87:14, 88:14, 121:13
sequences
50:22
sequencing
7:6, 29:13, 57:16, 90:11, 97:1, 98:12, 117:15
set
11:5, 67:5, 67:22, 132:8, 133:13
setting
124:14
seven
127:13
several
53:11
severely
96:3
shapero
12:20, 14:15, 15:9, 15:15, 16:7, 16:16, 17:18, 18:2, 19:9, 20:16, 21:12, 23:11, 24:5, 25:2, 25:14, 26:4, 26:10, 27:12, 27:22, 28:8, 28:13, 29:16, 29:20, 30:3, 33:14, 35:18, 35:20, 36:16, 37:1, 37:6, 37:21, 38:10, 38:18, 38:22, 39:16, 39:19, 40:18, 41:3, 43:5, 44:9, 47:18, 49:13, 49:21, 50:15, 69:9, 69:19, 70:4, 99:1, 99:10, 109:9, 109:19, 125:3, 125:14, 127:7, 127:21, 129:8, 130:1, 130:4
shapiro
24:13
shed
80:3
sheet
66:8, 134:9
short
130:20, 131:1
shorter
25:9
shorthand
35:4
should
15:3, 94:11, 124:14
show
18:9, 40:18, 46:10, 72:18, 74:6, 74:7, 84:3, 117:21
showed
40:19
showing
28:8, 35:20
shown
18:4, 35:18, 70:3, 73:7
shows
106:14
sic
30:13
side
70:3
signal
51:15
signature
74:9, 74:22, 75:4, 75:5, 134:17
signature-mig2k
133:17
signed
134:9
signing
133:2
since
74:5
single
7:5, 7:6, 38:5, 39:13, 42:12, 42:18, 78:1, 87:14, 88:15, 90:11, 90:12, 96:5, 100:1, 100:11, 104:21, 105:3, 105:13, 108:6, 108:12, 114:5, 114:17, 115:21, 117:15, 119:1, 123:9, 125:16, 128:16, 128:18, 129:16
single-stranded
25:21
sip
87:7
sir
9:6
sit
19:20
site
22:8, 38:11, 39:9, 39:11
sitting
10:17, 74:17, 87:22, 88:11
size
46:21, 48:9
skill
26:12, 31:11, 43:12, 44:8, 117:11
slightly
42:17, 46:3
small
42:12
smith
3:10
snp
47:21, 48:3, 48:5, 96:4
snps
50:13
solution
36:8, 115:13
some
32:19, 73:9, 80:3, 81:4, 86:1, 93:3, 99:15, 120:19, 121:2
somebody
90:19
something
9:18, 37:2, 40:10, 54:6, 81:10, 120:13, 123:19
somewhere
42:6
sorry
11:16, 14:5, 16:12, 20:11, 22:4, 26:22,

28:6, 43:14, 43:16, 43:18, 43:20, 59:19, 62:17, 63:4, 68:17, 69:10, 71:10, 84:17, 88:8, 89:17, 95:13, 95:14, 97:17, 103:19, 105:1, 105:21, 107:12, 118:7, 120:3
sought
125:2
source
93:20
sp
125:2
spe
105:18, 106:2
speaker
103:7, 103:10, 103:14
speaking
46:9
speaks
28:7, 46:20, 47:7, 61:10
species
113:5
specific
18:2, 18:6, 23:3, 26:19, 27:7, 28:15, 29:21, 40:6, 47:10, 55:14, 66:22, 67:1, 78:6, 79:7, 85:19, 86:16, 120:20, 121:8
specifically
25:20, 98:3
specification
7:11, 118:17
specificity
46:20, 47:3, 50:16, 78:15, 79:3, 115:12, 115:16
spex
129:17
stand
54:5, 56:13
standard
114:7, 114:19, 121:19
start
14:14, 19:19, 32:4, 55:10, 69:10, 88:9, 103:15
started
44:1, 44:3
starting
8:17, 65:6, 65:7, 78:9, 79:15, 110:9
starts
31:1, 85:16, 86:12
state
8:15, 43:11, 132:4
stated
2:11, 58:12
statement
69:7, 79:12, 82:13, 82:16, 86:5, 88:1, 88:4, 89:2, 94:3, 108:19, 111:9, 121:22, 122:5
statements
120:20, 121:2
states
1:1, 24:17, 49:12, 52:5, 60:10, 65:22, 78:13, 94:10, 104:14, 113:3
stay
91:13, 102:3
staying
102:4, 102:7
stenographer
8:4, 9:8, 9:22, 10:6, 10:14, 53:21
stenographic
2:9
stenographically
1:21
step
17:18, 28:13, 29:20, 31:1, 31:8, 31:12, 35:21, 37:6, 37:9, 37:12, 37:16, 37:20, 38:8, 38:17, 38:21, 39:19, 40:2, 40:16, 76:16, 76:17, 78:6, 78:7, 82:19, 105:18, 106:2, 106:5
steps
70:2
still
9:2, 9:11, 103:2
stop
9:14
stopped
9:9, 9:11
strand
25:8, 25:9, 39:13
street
3:5, 3:12
strike
6:7
string
37:18, 113:2
structural
32:20
structure
41:19
submitted
11:6, 12:13, 13:7, 60:18, 84:13
subparts
77:1
subsection
18:12, 24:13, 77:4
subsections
109:1
subsequent
106:5
subtitle
28:20
suggestion
45:15
suit
52:15
suite
3:13
sullivan
3:4, 3:11
summary
6:5
supplemental
6:18
support
6:4, 11:7
supposed
63:12
sure
14:19, 47:8, 91:2, 94:1, 99:18, 119:12
surprise
81:13, 98:22, 99:13, 99:22, 100:10, 114:3, 125:5, 125:13
surprised
78:14, 79:2, 82:1, 82:3, 82:7, 99:9, 109:11, 114:16, 128:10
surprising
112:19
swear
10:9
swearing
10:4
sworn
2:3, 10:21,

51:21, 132:9
synthesis
28:21
synthesize
117:13
system
15:20, 15:21

T

t3
29:6
table
12:15, 75:12, 75:15, 75:18
tail
27:20, 36:12
take
12:15, 17:7, 43:4, 53:16, 53:19, 72:12, 72:21, 82:3, 86:6, 89:22, 95:15, 99:16, 102:2, 111:1, 119:18, 127:4, 130:7, 130:20, 131:1
taken
2:3, 81:13, 86:3, 100:1, 100:11, 132:11
takes
121:16
taking
73:2
talk
41:10, 101:12, 109:14
talking
14:14, 27:3, 46:18, 49:1, 64:21, 70:17, 124:12, 128:3
talks
38:18
target
50:21, 85:19, 86:16, 106:2, 121:8, 121:10, 121:12, 128:19
target-primer
40:9
target-specific
25:20, 26:13, 28:8, 34:17, 34:18, 36:11, 38:15, 48:3, 51:13, 51:14, 51:17, 114:5, 114:17, 123:9
targeted
7:5, 59:2, 59:9, 90:10, 97:1, 98:11, 105:17
targeting
37:22
targets
27:7
tecan
1:8, 4:13, 8:19, 70:5, 132:15
tech
9:6, 9:10, 14:19, 14:22, 17:7, 17:11, 54:5, 56:13, 61:22, 80:6, 101:7
technician
4:14, 68:13
technologies
96:6
technology
100:2, 100:12, 125:3, 125:17
tell
59:21
telling
39:20
tells
37:1, 38:10
temperature
31:3
temperatures
31:18
template
34:4
templates
128:20, 129:18
ten
30:4, 99:16
ten-minute
53:19
ten-page
92:13
term
26:13, 93:17
test
13:21
testified
11:1, 21:1, 23:10, 52:3, 68:4, 76:7, 97:21, 128:6
testify
10:21
testifying
83:10, 83:12
testimony
6:8, 8:9, 10:9, 51:21, 53:3, 53:8, 53:11, 58:8, 66:19, 77:22, 78:22, 79:7, 79:11, 79:12, 79:21, 82:4, 87:19, 122:6, 132:12, 134:6, 134:8
texas
2:9, 3:14
th
75:6, 107:9, 119:7, 127:1
thank
10:14, 10:17, 14:10, 15:22, 16:4, 17:15, 29:18, 44:5, 45:7, 46:13, 49:9, 51:4, 57:5, 61:2, 61:18, 76:2, 80:13, 84:10, 86:7, 103:17, 106:13, 122:14, 123:15, 129:3, 130:6, 131:8, 131:15
thereupon
10:20
thermostable
113:3
thing
72:16, 74:12
things
20:5, 112:17, 112:19
think
9:22, 11:12, 23:17, 37:15, 40:15, 42:11, 43:2, 52:7, 52:8, 61:10, 64:22, 73:3, 73:9, 80:2, 83:18, 85:9, 93:22, 98:7, 99:15, 105:14, 112:13, 113:13, 113:15, 114:11, 115:19, 115:22, 123:18, 124:2, 128:6, 129:6, 129:13, 129:19, 130:19, 130:21
thinking
40:14
third
36:2
thought
22:4, 22:7, 23:18
thousand
70:7
three
35:6, 61:20, 62:10, 95:16, 102:13, 103:12, 110:8
through
17:2, 23:22,

27:14, 36:1, 45:3, 49:7, 55:11, 72:22, 74:7, 74:11, 74:12, 74:16, 85:12, 86:9, 93:5, 96:13, 98:21, 102:18, 119:20
time
2:6, 51:21, 52:22, 53:15, 86:1, 86:6, 95:15, 99:15, 99:16, 101:9, 101:13, 102:7, 103:20, 119:10, 119:18, 131:9
times
4:7, 30:12, 31:19
timothy
4:3, 8:18
title
16:11, 76:1, 78:4, 78:13, 78:20, 79:16, 90:14, 92:18, 94:21, 108:14, 118:22, 119:4
titled
12:19, 16:15, 57:7, 72:7, 73:13, 90:10, 96:22, 98:10, 108:5, 129:16
titles
77:3
today
10:18, 80:19, 80:20, 87:22, 88:11, 131:13
took
72:5, 72:6
top
9:13, 15:18, 25:8, 63:22, 64:16, 65:2, 104:9
topic
124:15
total
32:6, 102:14
toward
120:1
towards
117:10
track
20:11
trade
52:11, 52:16, 73:13, 73:22, 76:9
trademark
1:1
traditional
96:1
tranches
62:12
transcript
5:10, 8:14, 13:14, 66:2, 66:11, 66:15, 72:2, 72:16, 72:20
transcription
134:7
translocations
96:4
treating
105:10
treatment
24:15
trial
1:3, 79:12, 79:19, 83:8, 83:10
tribunal
51:22
tried
58:20
true
53:1, 66:1, 132:11, 134:6
truth
10:11, 10:12, 10:22, 11:1
trying
23:7, 40:15, 55:15, 72:12, 115:20, 124:2
turn
43:22
twenty
63:4
two
8:21, 21:18, 21:21, 22:2, 22:3, 22:13, 22:18, 23:1, 23:11, 23:17, 40:17, 42:2, 42:7, 52:20, 57:10, 57:13, 70:6, 77:3, 96:2, 109:1, 110:2, 110:12, 127:9, 127:17, 128:21
type
50:8
typical
115:17, 116:4, 116:21
typically
42:13, 42:16

U

uh-huh
52:19, 101:21, 105:16, 109:14, 127:20
ultimately
83:16
unable
82:18
under
8:10, 16:11, 16:12, 16:15, 18:11, 24:11, 24:12, 25:13, 28:20, 34:22, 35:14, 46:3, 58:5, 60:16, 67:3, 111:10, 122:13, 123:14
understand
18:17, 22:16, 26:12, 27:15, 70:16, 72:11, 79:22, 98:17, 116:2, 116:5, 116:19, 120:15
understanding
41:13, 41:17, 83:22, 84:2, 124:17
understands
20:20
understood
20:13, 31:6, 31:12, 43:13, 44:8, 111:18, 118:18
undesirable
42:20
unfamiliar
127:19
unintelligible
51:3
unique
85:17, 86:14
united
1:1, 52:5
units
32:14
universal
76:17, 78:7, 106:5
unknowns
124:4
unnecessary
37:16
unpaired
112:18
uploading
101:7
uracil-dna
105:10
urquhart
3:4, 3:11
usa
94:10

use
24:2, 27:14, 47:10, 77:6, 77:22, 78:5, 112:14, 114:4, 114:13, 114:17, 123:1
uses
18:2, 21:12, 25:14, 37:12, 113:14
using
18:5, 23:5, 23:19, 28:1, 29:1, 29:9, 50:18, 78:16, 79:3, 96:2, 98:11, 109:13, 123:9, 128:19
usually
94:20
utps
105:9

V

vague
42:9, 45:2, 47:14, 48:18, 51:2, 77:10, 78:2, 94:18, 99:2, 99:11, 100:4, 105:4, 122:10
variant
32:20, 50:7, 50:9, 98:13
variants
98:11
various
52:10
verified
8:6
version
15:4, 60:9, 61:5, 61:11, 72:15, 72:18, 74:5, 80:15, 81:1, 81:5, 128:4
versions
70:19
versus
52:4
via
1:15, 2:10, 115:16, 116:2, 116:19
videoconference
1:15, 2:10
videotaped
2:1, 66:12, 72:8
view
41:13
viii
120:6
visually
8:9
voice
43:18
void
43:19
volume
32:6, 66:3
vs
1:7

W

wait
62:19
waiting
103:2
waive
8:12
waived
26:8, 28:5, 28:17, 30:1, 30:20, 31:10, 31:22, 34:11, 35:3, 133:3
walk
17:2, 36:1
wallace
4:14
wang
7:18, 97:17, 98:10
wang@qiagen
94:12
want
17:2, 18:8, 41:9, 41:12, 43:7, 51:19, 59:20, 63:1, 63:15, 64:5, 64:9, 65:20, 66:6, 67:5, 67:9, 69:5, 82:11, 85:11, 92:18, 95:7, 95:19, 96:16, 101:13, 104:18, 113:17, 114:1, 119:22, 120:19, 121:1, 130:18
wasting
102:6
way
15:5, 18:19, 19:21, 21:2, 23:12, 23:19, 27:12, 27:22, 40:13, 42:13, 43:2, 45:19, 47:1, 47:9, 50:9, 77:15, 81:20, 90:22, 120:11, 125:21, 133:10
ways
21:18, 21:19, 22:3, 22:7, 22:13, 22:18, 23:1, 23:5, 23:7, 23:11, 23:17, 23:18
we'll
15:22, 56:19, 63:3, 64:15, 66:10, 67:6, 67:17, 80:11, 84:8, 85:12, 90:8, 91:21, 97:16, 98:9, 101:12, 109:14, 111:3, 130:8, 131:1
we're
27:3, 55:1, 61:19, 71:7, 87:1, 102:3, 102:4, 102:7, 103:2, 103:16, 124:12, 124:14, 130:15, 131:12
we've
33:4, 53:17, 63:9, 63:19, 64:1, 80:19, 80:20, 99:14
webster
1:22, 2:6, 132:3, 133:19
wednesday
1:16, 2:4, 8:2, 132:20
weight
45:22
well-known
22:9
went
83:8
west
3:12
wgsa
50:18
whatever
124:3
whatsoever
46:10
whenever
75:13
whether
20:19, 29:19, 54:15, 63:20, 65:10, 72:9, 79:10, 79:20, 82:1, 82:7, 99:8, 123:9
whoever
91:10
whole
10:11, 10:22,

32:2, 38:4, 69:15, 74:12
wild 50:8
wild-type 50:6
within 27:6, 32:20, 62:14, 110:20, 130:22, 132:4
without 78:8, 78:15, 79:3
witness 2:2, 5:2, 8:6, 8:8, 10:20, 20:2, 53:20, 84:10, 90:20, 91:18, 92:1, 101:16, 101:21, 102:12, 102:15, 103:4, 106:14, 130:13, 132:8, 132:12, 133:13
wolf 65:19
word 89:1
words 20:6, 56:8, 57:9, 59:6, 59:12, 66:5, 106:4, 106:8, 120:10, 122:1
work 19:21, 113:15
workflow 69:8, 69:9, 69:18, 69:19, 70:4, 70:5, 89:10, 89:12, 89:13, 98:6, 104:22, 105:1, 105:3
workflow: 89:7
works 15:16
worries 67:1
wouldn't 36:10, 98:19, 102:6, 128:9
writing 123:21
written 78:9, 79:11
wrote 44:7, 79:16, 87:2, 87:11, 88:21, 96:1

Y

yeah 9:10, 14:6, 16:6, 23:17, 35:11, 41:21, 43:20, 43:22, 45:9, 62:19, 71:6, 85:1, 90:20, 91:5, 93:22, 106:14, 114:11, 120:15, 123:18, 130:10
year 104:8
years 58:20
yep 93:10
yesterday 55:11
yexun 94:12
york 4:7, 4:9
yourself 75:10

Z

zheng 96:22, 97:5, 97:10, 97:13
zoom 9:12, 17:4, 96:12

.

.2016 107:15
.6100 3:15
.6600 3:8
.8800 4:10

0

0.025 32:12
0.08 50:4, 50:13
0.5 30:10
00 130:11
00026 1:11
00027 1:11
00028 1:11
00029 1:11
0002900 7:9
01019 5:13, 6:10, 6:13, 64:12, 64:17
012 11:8, 11:20, 12:13, 12:21, 68:18, 131:10
03 2:5, 6:11, 6:14, 131:7, 131:16, 132:21
04 67:7
057073 108:1, 128:5
08 6:11, 6:14
084.004953 2:8
09 99:20

1

1 6:10, 54:1, 54:2, 54:19, 56:17, 62:7, 66:3, 67:10, 67:14, 71:12, 82:15, 130:11
1,000 128:17
1.1 119:16, 119:20
1.25 32:13
10 43:22, 86:4
10,036,012 1:12
10,450,597 6:7
10,941,438 7:18, 126:10
100 18:13, 20:17, 24:18, 46:3
1000 121:8
10018 4:9
1004 52:8
1006 14:16, 14:21, 15:14
102 7:8, 7:10, 7:13, 7:17
1035 12:5
108 11:8, 11:20, 12:13, 12:22, 131:10

11
5:5, 85:11, 86:3, 86:12
1111
118:16
1120
13:16, 13:18, 14:8
1121
11:11, 11:18, 12:14
119
111:10
12
1:17, 2:5, 89:10, 132:21
12432
2:9
13
44:15, 102:21
134
1:20
14
43:9, 43:10, 44:1, 45:12, 46:2, 47:4, 48:14, 48:22, 107:9, 107:17
14.10
107:15
14559
2:7
15
49:10, 104:15
150
48:9
16
111:12, 127:1
16784755.7
113:21, 118:15
17
49:4, 49:11, 49:19, 70:12, 73:4, 73:9
18
5:13, 6:10, 6:13, 7:16, 30:8, 30:22, 31:16, 64:12, 64:17
1997
42:1
1:-cv--mn
5:13, 6:10, 6:13, 64:12, 64:17
1a
47:17
1x
32:9

2

2
6:13, 67:17, 67:20, 80:9, 84:7, 90:6, 99:19
2.5
30:9, 30:17, 31:2, 32:11
20
24:18, 30:9, 31:17, 33:3, 75:6
2000
29:2
2004
44:9, 49:13
2009
110:10
2010
3:13, 110:10
2014
97:2
2015
98:7, 111:12, 127:1
2016
107:9, 107:17, 108:1, 128:5
2017
98:13
2019
90:10
2020
7:16, 75:6, 119:6, 119:7
2021
61:16, 66:2, 66:16, 104:15, 126:14
2023
29:10
2025
1:11, 1:16, 2:5, 7:9, 8:2, 14:7, 104:10, 132:20, 133:14
21
6:11, 6:14, 113:19
212.813
4:10
22
3:6, 68:12, 80:9, 107:14
2201
5:11, 54:4, 54:18, 59:15, 63:18, 64:2, 64:14, 71:11
2202
5:14, 56:12, 56:16, 57:3
2203
6:2, 61:21, 62:6, 63:5, 63:8, 63:22, 64:10, 65:1, 65:4, 71:21, 72:6
2204
6:9, 61:21, 67:6, 67:15
2205
6:12, 61:21, 62:6, 67:6, 67:17, 67:21, 70:8, 73:3
2206
6:15, 80:5, 80:8
2207
7:2, 84:4, 84:6
2208
7:4, 90:3, 90:5, 91:18, 91:20, 93:8
2209
7:8, 100:18, 101:16, 102:18, 102:20, 103:18, 103:21
2210
7:10, 101:12, 106:11, 107:1, 114:12, 128:3
2211
7:13, 101:12, 117:19, 118:21
2212
7:17, 101:12, 102:18, 102:20, 126:9
23
29:4, 59:17, 103:5, 111:17
232
61:11
24
68:9, 69:5
242,766
111:12, 126:22
25
29:7, 81:7, 130:22
250
32:8, 37:3, 37:10, 37:21, 38:22, 46:11
26
81:7, 82:12, 84:7, 119:5, 119:7
280
112:22
29
77:13, 78:10
2a
44:17, 44:18, 45:10, 45:13, 45:17, 46:9,

46:19, 47:6, 48:10, 48:16, 49:2, 51:10
2b
51:10
2nd
104:10

3

3
7:15, 29:2, 99:20, 102:21, 131:6
3,362,577
107:4
30
130:22
300
3:12, 62:22
31
115:9, 116:13
32
77:13, 79:15
323
60:10, 61:6
338
6:10, 6:13, 60:4, 64:21, 65:3, 65:4, 67:10, 67:14, 67:17, 67:20, 71:8, 71:22
34
29:12
348
127:16
35
111:10
357
12:6, 131:12
362
7:12
37
58:6, 60:14, 60:22, 122:13
39
54:1

4

4
2:5, 131:7, 131:16, 132:21
41
90:6
415.875
3:8
42
71:9
42.12
60:14, 60:22, 122:13, 123:14
42.51
58:6
4365
32:5
451
56:1, 57:1, 57:4
4565
30:14
46
1:17, 2:5, 60:1, 60:3, 71:9, 71:14, 132:21
47
60:21
48
46:4
49
54:2

5

5,877,280
112:2
50
3:5, 54:19
52
56:17
54
5:11, 66:6, 108:4, 108:11
550
48:9
56
5:14, 127:6
57
55:21, 131:6
577
7:12, 115:3, 127:16
58
99:19
59
62:7
597
57:10, 78:14

6

60
30:11, 32:7, 33:5, 126:20
61
110:15, 111:15, 111:19, 111:20, 112:5, 112:10
610711
1:19
62
6:2, 6:9, 6:12, 111:12, 126:22
620
4:8
6266
1:22, 2:7, 133:19
65
70:11
68
30:9, 30:17, 31:2, 33:4
6th
3:12

7

72
30:10, 33:5
73
107:5
737.667
3:15
78701
3:14
7th
14:7

8

8.12
89:6
80
6:15
810
57:10, 78:13
84
7:2
86
107:22, 108:3
8th
61:16

9

90
7:4
94
7:15
94111
3:7
95
30:7, 30:8, 31:15, 31:16, 32:21, 33:3
99
50:12
9th
66:16, 126:14