Appeal Nos. 2019-2255, -2285

UNITED STATES COURT OF APPEALS
FEDERAL CIRCUIT

BIO-RAD LABORATORIES, INC., THE UNIVERSITY OF CHICAGO

Plaintiffs–Appellees,

v.

10X GENOMICS, INC.

Defendant-Appellant.

Appeal from the United States District Court for the District of Delaware, Case No. 1:15-cv-00152-RGA, Judge Richard G. Andrews

RESPONSE BRIEF FOR BIO-RAD LABORATORIES, INC. AND THE UNIVERSITY OF CHICAGO

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CERTIFICATE OF INTEREST

Counsel for Plaintiffs–Appellees Bio-Rad Laboratories, Inc. and The University of Chicago certify as follows:

1. The full name of every party or amicus represented by us is:

   Bio-Rad Laboratories, Inc.

   The University of Chicago

2. The name of the real party in interest represented by us is:

   Bio-Rad Laboratories, Inc.

   The University of Chicago

3. All parent corporations and any public companies that own 10 percent or more of the stock of the parties represented by us are:

   N/A

   N/A

4. The names of all law firms and the partners or associates that appeared for the parties now represented by us in the trial court or are expected to appear in this Court are:

   Weil, Gotshal & Manges LLP: Edward R. Reines, Derek C. Walter, Robert Vlasis, Christopher S. Lavin, Amanda Branch , Kathryn Culver;

   Farnan LLP: Joseph J. Farnan, Jr., Brian E. Farnan, Michael J. Farnan

5. The title and number of any case known to counsel to be pending in this or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal.

None

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TABLE OF ABBREVIATIONS AND CONVENTIONS

’083 Patent	U.S. Patent No. 8,889,083
’193 Patent	U.S. Patent No. 8,304,193
’407 Patent	U.S. Patent No. 8,329,407
10x	10x Genomics, Inc.
10x Br.	Defendant-Appellant 10x Genomics, Inc.’s Opening Brief
Bio-Rad	Bio-Rad Laboratories, Inc.
Broad	Broad Institute
Chicago	The University of Chicago
ddPCR	droplet digital polymerase chain reaction (PCR)
ddSEQ	droplet digital sequencing (SEQ)
IPR	*inter partes* review
PTAB	Patent Trial and Appeal Board
QuantaLife	QuantaLife Inc.
RainDance	RainDance Technologies, Inc.

STATEMENT OF RELATED CASES

No appeal in or from the same civil action was previously before this or any other appellate court.

Counsel is unaware of any case pending in this or any other court or agency that will directly affect or be directly affected by this Court's decision in the pending appeal.

STATEMENT OF JURISDICTION

The District Court exercised jurisdiction over Bio-Rad Laboratories, Inc. and The University of Chicago's (collectively, "Appellees") patent infringement claims under 28 U.S.C. §§ 1331 and 1338(a).

Defendant-Appellant 10x Genomics, Inc. appealed on August 15, 2019. This court has jurisdiction under 28 U.S.C. §§ 1292(c)(1) and 1295(a)(1).

INTRODUCTION

Professor Rustem Ismagilov and his team at The University of Chicago essentially created the droplet field by showing how biochemical reactions could be performed in thousands of droplets created on a chip with each droplet individually serving as a test tube. The tiny scale and commercial power of this biochemical factory is breathtaking. As a testament to the breadth of this innovation, 10x does not challenge the validity of the three willfully infringed patents— the '193, '407, and '083 Patents (collectively, the "Patents-in-Suit").

Bio-Rad saw the promise of droplets early and invested nearly half a billion dollars building its droplet business and acquiring key patent rights. The 10x founders defected from Bio-Rad to found 10x, promising they would not use droplets. After futilely trying other micro-containers, such as capsules and micro-wells, they had to return to droplets and willfully infringed the Patents-in-Suit. 10x does not challenge the jury's finding that its infringement was indeed willful.

10x's attempt to deny liability on appeal is weak. The jury correctly rejected 10x's arguments after hours of testimony and argument, and the experienced District Court correctly upheld the verdict in total after full consideration.

10x's lead appeal argument is that its mid-litigation addition of negligible fluorine to its non-fluorinated channels somehow converted them to fluorinated channels, thereby avoiding infringement of the '083 Patent. However, 10x ensured

that this modification was so minimal that the non-fluorinated channel would not act as a fluorinated channel. In fact, this tweak was undisputedly so trivial it had no technological effect at all on its non-fluorinated channel.

10x's argument about the '083 Patent, even if it had merit, does not address 10x's willful infringement of the '407 and '193 Patents. And, likewise, if the jury's finding that 10x infringed the '083 Patent is upheld, the judgment still stands regardless of 10x's arguments on the other two patents.

The District Court's remedies decisions must be evaluated in light of the District Court's unchallenged finding that the "patented droplet technology is the foundation of 10X's droplet products." Appx63-64. The evidence at trial established overwhelmingly that for foundational technology a 15% royalty rate is appropriate for competitors. 10x's argument that the jury was required to apply a 1% university license royalty ignores the trial record. The evidence showed that 20 different companies declined to take a license to the Chicago patents because they did not believe in this early-stage technology and apparently did not want to invest to create a droplet industry—creating great downward pressure on the royalty rate. A competitor license after the inventions are commercially proven is very different from an early-stage university license. The jury and District Court were correct to appreciate this. A 15% competitor royalty rate for this foundational technology is conservative and fully supported by the record.

Finally, 10x's primary argument about the permanent injunction is that its infringement does not irreparably harm Bio-Rad because the parties' droplet products do not compete. This is the opposite of 10x's trial theme and ignores the record. Appx29543 (10x: "of course 10X and Bio-Rad are competing head to head."); Appx29619 (10x: Bio-Rad's single cell product "competes directly with 10X's single cell product."). Moreover, 10x long ago introduced its redesign that is not enjoined. This explains why 10x's challenge to the District Court's injunction at the end of its brief is so short and half-hearted.

The judgment should be affirmed.

STATEMENT OF ISSUES

1. Whether the District Court correctly refused to overturn the jury's findings that the '083 Patent's "non-fluorinated microchannel" claim term was satisfied for the "Kynar" redesign of 10x's products given 10x added only meaningless fluorine?

2. Whether the District Court correctly refused to overturn the jury's finding that the '083 Patent's "interface" claim term was satisfied given the expert testimony of both sides' experts strongly supports that finding?

3. Whether the District Court correctly held that the entire preamble of the infringed claims of the '193 and '407 Patents is not claim limiting and whether the preamble is satisfied even if it were limiting?

4. Whether the District Court correctly refused to overturn the jury's damages award where there was substantial evidence supporting the conclusion that the parties were competitors and comparable licenses showed an applicable competitor royalty rate of 15%?

5. Whether the District Court abused its discretion in entering a permanent injunction where there was strong evidence of infringing competition and irreparable harm?

STATEMENT OF CASE

I. THE PARTIES

A. The University of Chicago

The University of Chicago is a leading research institution. Professor Ismagilov and his colleagues are the inventors of the Patents-in-Suit. Appx83-187; Appx188-293; Appx294-370. These patents protect droplet technology including methods of creating and manipulating microscopic droplets of fluids for performing biochemical reactions. *See* Appx83-187; Appx188-293; Appx294-370. Professor Ismagilov is recognized as one of the top chemists in the world largely based on his work related to the Patents-in-Suit. Appx30709-30710.

Chicago exclusively licenses the Patents-in-Suit to co-plaintiff Bio-Rad. Appx29573.

B. Bio-Rad Laboratories

Bio-Rad is a leading maker of life science products. Appx29564-29566. Bio-Rad recognized the great potential of droplet technology before there was a market for such products. Appx29568-29569. With this early vision, Bio-Rad invested heavily in droplets. In October 2011, Bio-Rad purchased QuantaLife for $162 million plus milestone payments. Appx29570. QuantaLife had been developing droplet technology in which PCR is performed within thousands of tiny water drops the diameter of a hair. Appx30107. Bio-Rad promptly turned that

technology into a very successful commercial product—the QX200 droplet digital PCR system. Appx29577-29583.

As a further commitment to droplet technology, Bio-Rad purchased RainDance for $87 million. Appx29573. With this acquisition, Bio-Rad gained RainDance's exclusive licenses to the Patents-in-Suit. Appx29573; Appx29589.

Bio-Rad also invested heavily in droplets internally, including launching its Digital Biology Center. Appx29573-29574. All told, Bio-Rad has invested over $500 million dollars in droplet technology. Appx29572-29573; Appx29576-29577. More recently, in addition to its ddPCR product, Bio-Rad has introduced ddSEQ–a droplet-based product for single-cell gene expression analysis. Appx29580-29581.

C. 10x Genomics

Drs. Ben Hindson, Kevin Ness, and Serge Saxonov left Bio-Rad to found 10x. Appx30155-30158. The 10x founders arrived at Bio-Rad because they were senior executives at QuantaLife where they gained their droplet expertise. Appx29570. They made millions from Bio-Rad's acquisition of that droplet company. Appx30211. Even though they arrived at Bio-Rad to help commercialize the QuantaLife droplet technology they had sold to Bio-Rad, they all left in a matter of months to found 10x. Appx29571. Their mass departure left Bio-Rad with very little droplet expertise. *See* Appx28498-28499.

When the 10x founders left Bio-Rad, they assured Bio-Rad that they did not intend to use droplets for their new "single cell" technology. *Id.* As it turned out, after long and expensive efforts trying alternatives such as capsules and microwells to contain reactions, the 10x founders had to return to droplets to develop a successful product. Appx64. When they did so, the 10x founders were well aware of the foundational Patents-in-Suit covering the performance of reactions in droplets. Appx30205-30206; Appx30209-30210; Appx30237-30238; Appx30305 (Court: "There's no doubt they were aware of the patents."). At QuantaLife, they had attempted to recruit Professor Ismagilov for the company's scientific advisory board given his leading stature as a droplet pioneer. Appx29677. Later, at 10x, they again tried to recruit Professor Ismagilov as a consultant to help them with the development of the 10x droplet products. Appx29677-29678. And the 10x founders' attorneys later attempted to recruit Professor Ismagilov to try to help them invalidate the Patents-in-Suit during the District Court litigation. *Id.*

II. PROCEDURAL HISTORY

This case was filed in early 2015. Appx482-501. 10x responded with collateral attacks on the Patents-in-Suit. First, 10x filed IPRs against the Patents-in-Suit. Appx21568-21569. The PTAB found that 10x had not established a *prima facie* case of obviousness for the '193 or '407 Patents. Appx21568. Although the PTAB instituted a proceeding on the '083 Patent, it upheld the

claims. Appx21569. Following its failed IPRs, 10x pursued reexamination proceedings against the '193 and '407 Patents. Appx22688. Once again, the patents were upheld. *Id.*

Trial was in November 2018. Appx464-468. The jury found for Appellees on 100 of 101 special verdict questions. Appx371-379. The jury found 10x willfully infringed the Patents-in-Suit and rejected all of 10x's validity challenges. Appx374-378. It awarded Appellees around $24 million—the full requested damages—representing a 15% royalty. Appx378; Appx30092.

The District Court denied 10x's post-trial motions. Appx29414-29447. The District Court permanently enjoined 10x's sale of infringing instruments but protected 10x's installed base by allowing the purchase of consumables for such systems. Appx41-47.

Before this Court, 10x moved for a stay of the permanent injunction. App. Dkt. 9, No. 19-2285. This Court denied the stay with the exception of a limited stay for 10x's Linked Read and CNV products. App. Dkt. 23. 10x has had no significant sales of those two products and did not bother to create a redesign for them.

SUMMARY OF ARGUMENT

10x's appeal recycles arguments that were repeatedly rejected by the unanimous jury and experienced District Court judge. They have not improved with age.

The jury found that all of 10x's products willfully infringed three different patents protecting Chicago's droplet inventions. The District Court found that the "patented droplet technology is the foundation of 10X's droplet products." Appx63-64. 10x does not challenge the validity of any of the patents.

10x's lead argument concerns only the '083 Patent and only the second version of its products. 10x argues that the "non-fluorinated microchannel" claim element of that patent is unsatisfied because in the middle of this case it added a negligible amount fluorine to its non-fluorinated microchannel. It is undisputed that this trivial modification was technologically meaningless because it did not—and was not intended to—change the behavior of 10x's non-fluorinated microchannels. This addition of negligible fluorine does not avoid infringement and 10x's non-infringement argument should be rejected.

10x's second argument also relates only to the '083 Patent. 10x argues that its products do not have a fluorinated surfactant at a "concentration such that surface tension at the plug-fluid/microchannel wall interface" is "higher than surface tension at the plug-fluid/carrier fluid interface," which is required by the

claims of the ’083 Patent. When the fluorinated surfactant creates these conditions that helps the droplets (plugs) avoid touching the walls. 10x’s expert testified that if the droplets are ***not*** touching the walls that means the claimed surface tension relationship is present. Yet, 10x’s appeal argument is literally the opposite. 10x argues that the claims cannot be satisfied unless the droplets ***do*** touch the walls to create an interface. All the evidence including its own expert’s square admission establishes to the contrary. This non-infringement argument fails.

10x’s last liability argument is that the entire preamble of the claims of the ’193 and ’407 Patents is a limitation requiring that reactions in the droplets to be conducted while the droplet is in a “microfluidic system.” This argument is meaningless unless 10x prevails on its arguments relating to the ’083 Patent. Regardless, the District Court correctly found that only part of the preamble is limiting, which was supported by a thoughtful decision both before and after trial. Moreover, the record before the jury established that the reactions occur while the droplet is in 10x’s thermal cycler, which is part of its “microfluidic system.” On top of that, there are also reactions involving biochemical molecules that take place on the ***chips*** in the middle of 10x’s microfluidic system. Consequently, there are multiple independent reasons why 10x’s third argument fails.

10x’s damages arguments repeat the factual arguments it lost before the jury. Most prominently, 10x argues it would not have been viewed as a competitor at the

hypothetical negotiation table. The evidence overwhelmingly proves to the contrary and is surely substantial evidence supporting the verdict. 10x did not even think to make this argument in its post-trial briefing. 10x also argues that the benchmark licenses supporting the jury's 15% royalty award are not comparable. There are multiple comparable licenses that each constitute substantial evidence supporting the verdict. 10x's factual disagreements are insufficient to overturn the damages award, as the District Court correctly concluded.

10x's primary appeal argument challenging the permanent injunction is that Bio-Rad is not being irreparably harmed because the parties do not compete. 10x's trial theme, however, was that the parties were "head-to-head competitors" so its attempt to reverse course now should be rejected. Moreover, there is detailed evidence establishing competition and irreparable harm that 10x simply ignores. The District Court did not abuse its discretion and the permanent injunction should be affirmed.

ARGUMENT

I. The Jury And District Court Correctly Rejected 10x's Attempt To Avoid Infringement Of The '083 Patent By Adding Meaningless Fluorine

A. 10x's Original Product Undisputedly Employs The '083 Patent's Claimed "Non-Fluorinated Microchannel"

10x's original product undisputedly employs the "non-fluorinated microchannel" of the '083 Patent's Claims 1 and 9. Thus, 10x's lead appeal argument applies only to its "Kynar" redesign introduced in 2017, two years after the case started.

Chicago's fundamental droplet patents teach a host of innovations including the use of fluorinated oils and fluorinated surfactants in non-fluorinated microchannels. Appx342-343. The '083 Patent explains that this contrast of fluorinated chemistry with non-fluorinated channel walls renders these features of the microfluidic system "substantially different chemically" so as to help to avoid droplets that "stick to the channel walls." *Id.*

With the '083 Patent in front of the 10x founders, they adopted the combination taught in the patent—including an undisputedly non-fluorinated channel. 10x tried many others combinations of chemistries but they did not work. Appx30244-30246.

B. 10x Added Negligible Fluorine To Its Chip

Mid-litigation, in a decision made in law offices, not a laboratory, 10x added negligible fluorine to the microfluidic chips it had been using commercially for all its products. Appx30058 (the "decision was made at the Irell meeting to add fluorine"). 10x added 0.02% "Kynar," which is a compound that includes some fluorine atoms, to its undisputedly non-fluorinated microchannel. Appx30049.

10x does not deny that 0.02% Kynar is technologically meaningless. 10x's decision to add a meaningless substance was not intended to change the behavior of its products. Appx30056 ("I just needed it to be intentional from an intellectual property standpoint and make sure that it didn't cause any harm"). The decision was "championed" by 10x's Chairman of the Board John Stuelpnagel, a venture capitalist, who does not claim to be skilled in the art. Appx30243.

Ben Hindson, 10x's Chief Scientific Officer, explained that the 0.02% Kynar was insignificant:

> Q: You were not aware of any technological reason why 0.02% Kynar was added to the channel walls, correct, as chief science officer?
>
> A: I know that it didn't do any harm. I'm not sure whether it did any benefits.
>
> Q: At the time that the decision was made, you were the chief science officer and you didn't know of any technological benefits? Kind of a simpler question.
>
> A: Well, yeah, that's true.

Appx30242.

10x's technical expert pled ignorance about whether the 0.02% Kynar had any effect. Appx30551-30552 ("I don't know. I wasn't thinking about the effect."). He did not argue that the addition of the 0.02% Kynar made a substantial difference relative to 10x's original non-fluorinated channel. Appx30552 ("I didn't look at whether there's a technological different [sic] between them.").

C. 10x's Microchannel Is Non-Fluorinated

The District Court's claim construction of "non-fluorinated microchannel" includes a microchannel with fluorine that is an "impurity or contaminant." Appx8848-8849. As a matter of law, the jury was required to find that the negligible fluorine 10x added is an impurity or contaminant that would not somehow transmogrify a non-fluorinated microchannel to a fluorinated microchannel in the eyes of a person skilled in the art.[1] As explained below, its failure to do so resulted from 10x's invitation to error.

Professor Sam Sia, Appellees' technical expert, explained that the negligible Kynar added by 10x does not change a non-fluorinated microchannel into a fluorinated microchannel:

[1] This element is satisfied both literally and under the doctrine of equivalents (as established in this brief). For logical flow, literal infringement is addressed first. Moreover, the fact of literal infringement underlines the correctness of the jury's doctrine of equivalents verdict. Each ground independently supports the judgment.

> Q: Why do you say it's nothing more than an impurity or contaminant?
>
> A: So the percentage of that is very low, first of all. But then I also asked myself, does it change anything in how the -- how the system works.

Appx29821; *see also* Appx29827 ("this Kynar compound is really just an impurity"); Appx29828 (There is "no difference with this very small amount of Kynar, so that convinced me that the Kynar was really nothing more than an impurity"); Appx29820 ("they're sprinkling a miniscule amount of Kynar into otherwise non-fluorinated material"). Professor Sia explained that the 0.02% Kynar does not change how 10x's system works. Appx29821-29822.

To support his opinion, Professor Sia relied on 10x internal documents and also the testimony of 10x scientist Dr. Adam Lowe. *Id.* Dr. Lowe admitted that 10x's testing showed the microchannels behave the same both before and after the addition of Kynar. *Id.*

As Professor Sia explained in the cited testimony, technologists would not reclassify a microchannel based on the addition of negligible material that is meaningless. Thus, literal infringement is an independent ground to support the infringement verdict.

10x argued the jury to error on literal infringement. 10x argued that, to be an impurity or contaminant, a chemical by definition cannot be ***intentionally*** included. *See* Appx30981 ("if you specify it, that's not an impurity or

contaminant."); *see also* Appx30543-30544 (10x's Expert: "So the amount is not important. It's whether you deliberately add it or whether it's there, and you can't get rid of it.").

10x's intent argument is not a valid basis to support the no literal infringement jury finding. *Amazon.com, Inc. v. Barnesandnoble.com, Inc.*, 239 F.3d 1343, 1353 (Fed. Cir. 2001) ("We are not prepared to assign a meaning to a patent claim that depends on the state of mind of the accused infringer."); *see also Commil USA, LLC v. Cisco Sys., Inc.*, 135 S. Ct. 1920, 1926 (2015) ("a defendant's mental state is irrelevant").

The negligible fluorine at-issue here is not disqualified from being deemed an "impurity or contaminant" merely because it was intentionally added. If the District Court's construction of non-fluorinated microchannel were somehow understood to possibly exclude a microchannel with only meaningless fluorine, even though intentionally added, that would be an unsustainable construction. What matters for the invention is the chemical behavior of the microchannel in the context of the claimed droplet system. That has to be the benchmark of what qualifies as a non-fluorinated microchannel based on the technological context established throughout the patent.

All these grounds are valid bases to support the judgment.

D. The Court Should Reject 10x's Challenges To The Jury's DOE Verdict

1. 10x Does Not Challenge That Substantial Evidence Supports The Verdict

10x does not challenge that "substantial evidence" supports the jury's DOE verdict. The District Court correctly rejected 10x's "substantial evidence" argument on JMOL. *See* Appx29423 ("By testifying on how the addition of Kynar had no effect on the microchannels in 10X's products, Dr. Sia gave sufficiently particularized testimony to support the jury's verdict.").

10x's abandonment of this argument makes sense because Professor Sia established beyond legitimate debate the insubstantiality of 10x's meaningless addition of negligible fluorine. Appx29821-29829. 10x's expert did not even attempt to deny the insubstantiality of that difference.

2. 10x's Prosecution History Estoppel Argument Is Meritless

10x attempts to overturn the jury verdict by invoking prosecution history estoppel. 10x argues that Appellees are estopped from arguing that a non-fluorinated microchannel with negligible fluorine is insubstantially different from a non-fluorinated microchannel.

The District Court rejected 10x's prosecution history estoppel argument at least five times. Appx22265-22268 (denying summary judgment); Appx30351 (sustaining trial objection); Appx26464 (denying Rule 50(a) motion); Appx29423 (denying Rule 50(b) motion); Appx69 (denying stay of injunction).

10x's argument is based on the addition of the claim term "non-fluorinated" to describe the microchannel. 10x Br. at 33-34. The patentee explained that this term was added because, to help prevent droplets from sticking on the channel wall, the fluorinated surfactant should be chemically similar to the fluorinated oil in the channels, but "chemically different from the channel walls." Appx16640. To wit, truly non-fluorinated channel walls are chemically different from fluorinated surfactants and fluorinated oils to help avoid droplets sticking to the walls.

10x mistreats prosecution history estoppel as a blunt-instrument punishment for amending claims. Not so. In *Festo Corp. v. Shoketsu Co.*, the Supreme Court stated that by "amending the application, the inventor is deemed to concede that the patent does not extend as far as the original claim. It does not follow, however, that the amended claim becomes so perfect in its description that no one could devise an equivalent." 535 U.S. 722, 738 (2002). If "the rationale underlying the narrowing amendment [bore] no more than a tangential relation to the equivalent in question" than the equivalent is not surrendered. *Id.* at 740-41. The question is whether the "reason for the narrowing amendment was peripheral, or not directly relevant, to the alleged equivalent." *Festo Corp. v. Shoketsu Co.*, 344 F.3d 1359, 1369 (Fed. Cir. 2003).

Here, because 10x added only negligible fluorine the analysis is straightforward. The claim amendment had nothing to do with 10x's litigation-tweak to its product. The amendment distinguished the *Quake* prior art, which included ***truly*** fluorinated walls, with traditional fluorinated wall coatings such as Teflon ***that matter*** chemically. This purpose for the amendment is undisputed. 10x Br. at 35 (*Quake* "disclosed microchannels made from a material with 'suitable surface properties' such as Teflon, a fluorinated polymer"). The District Court acknowledged this as well. Appx22267 ("the patentee, by amending the claims to require 'a non-fluorinated microchannel,' sought to distinguish the 'microchannel' in its system from the channels described in Quake, which may be 'coated with …surfactants, TEFLON, or fluorinated oils'") (alterations in original).

As the District Court correctly explained, "what Plaintiffs surrendered through their amendment are 'microchannel[s]' 'coated' with fluorine for a purpose—not those containing *de minimis* amounts of fluorine that have no effect on how the 'microchannel' functions in the system." *Id.*; *see also* Appx29422. This is exactly right. Chicago did not surrender the use of a non-fluorinated channel with a meaningless amount of fluorine. Because the equivalent is a non-fluorinated microchannel with negligible fluorine, the reason for the amendment (to distinguish the use of channel walls that truly behave as fluorinated walls) is not directly related to the equivalent and that equivalent is not surrendered.

10x argues that the District Court erred because the "Quake patent unambiguously contained the accused equivalent" by disclosing Teflon (fluorinated) wall coatings. 10x Br. at 34-35. 10x disregards the unbridgeable gulf between the use of a fluorine coating that ensures the walls behave as fluorinated walls and 0.02% Kynar that has no effect at all.

10x also argues the District Court erred because it found that the disclaimer only extended to the use of "fluorine ***for a purpose.***" 10x Br. at 35 (emphasis in original). 10x's argument defies common sense and the technological context. The '083 Patent is about the chemistry of a droplet system and the use of chemicals ***for a purpose***. The patentee did not disclaim channel walls with negligible fluorine that has no purpose.

3. 10x's Vitiation Argument Is Meritless

10x contends that the District Court committed legal error because the jury's infringement verdict "vitiated" the claim term "non-fluorinated microchannel." 10x Br. at 36-40. The District Court soundly rejected 10x's argument that a non-fluorinated microchannel with negligible fluorine is the "antithesis" of the claimed non-fluorinated microchannel. Appx29422-29423. In addition, the District Court held the expert testimony supported the jury's verdict. *Id.* ("a reasonable juror could find that a 0.02% Kynar microchannel is 'insubstantially different' from a 'non-fluorinated microchannel,' because the Kynar microchannel contains

negligible amounts of fluorine and 'matches the function, way, and result' of a non-fluorinated microchannel.").

"'Vitiation' is not an exception to DOE, but instead a legal determination that 'the evidence is such that no reasonable jury could determine two elements to be equivalent.'" *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1356 (Fed. Cir. 2012) (quoting *Warner-Jenkinson Co. v. Hilton Davis Chemical Co.*, 520 U.S. 17, 39 n.8 (1997)). The inquiry is not "a 'binary' choice in which an element is either present or 'not present,'" but rather "whether an asserted equivalent represents an 'insubstantial difference' from the claimed element." *Id.*

Because 10x does not contest the substantial evidence supporting the insubstantiality finding of the jury, it instead relies on superficial labels. 10x argues that a non-fluorinated microchannel with meaningless Kynar is the "antithesis," "diametric opposite," and "binary opposite" of a non-fluorinated microchannel. 10x Br. at 38-39. That is empty rhetoric. The opposite of a non-fluorinated microchannel is a microchannel with enough fluorine to behave like a fluorinated microchannel—such as those coated with Teflon in the prior art.

II. 10x Fails In Its Attempt To Overturn The Jury's Verdict Of Infringement Of The '083 Patent Based On The "Interface" Term

The jury rejected 10x's argument that its products do not infringe the '083 Patent because they supposedly do not have a fluorinated surfactant at a "concentration such that surface tension at the plug-fluid/microchannel wall

interface" is "higher than surface tension at the plug-fluid/carrier fluid interface." Appx374. The District Court has repeatedly rejected 10x's argument. Appx22268-22269 (denying summary judgment); Appx29423-29425 (denying Rule 50(b) motion).

10x argues that there is not substantial evidence to support the jury's verdict. 10x Br. at 40-42. Wrong. Professor Sia explained in detail with experimental support how 10x's products have fluorinated surfactant present at sufficient concentration that the claimed surface tension is higher at the plug-fluid/microchannel wall interface than the plug-fluid/carrier fluid interface. *See* Appx29836-29844.

In the District Court, 10x nitpicked some of Professor Sia's scientific work alleging that there were differences in surface roughness and contaminants that he did not take into account. Appx29424. 10x has abandoned these arguments.

10x argues instead that, because its droplets do not touch the walls, it cannot infringe. This is an attempt to confuse the Court through questionable advocacy. The claims do ***not*** require the plug-fluid to be in actual physical contact with the microchannel walls. The claims merely recite that a "fluorinated surfactant" be present at a high enough concentration so that the "surface tension at the plug-fluid/microchannel wall interface is higher than surface tension at the plug-fluid/carrier fluid interface." Whatever the surface tension is at the interface

between the plug-fluid and microchannel wall (which can be measured even though no interface actually exists in the system as-used), it must be higher than the surface tension at the interface between the plug-fluid and carrier-fluid. The claims make clear that an actual physical interface between the plug-fluid and channel walls (of the type 10x appears to contend is required), should ***not*** exist because the claims expressly require the plugs to be "substantially encased by the carrier-fluid" such that the fluid inside the plugs would ***not*** touch the channel wall.

The District Court understood this, concluding that "the claims require only that the fluorinated surfactant is present at a concentration such that surface tension at the plug-fluid/microchannel wall interface is higher than surface tension at the plug-fluid/carrier fluid interface." Appx22268-22269. "[T]he focus in the claims is on the difference between the surface tensions at the two interfaces, not on any physical contact between the plug-fluid and microchannel wall." *Id.*

The specification teaches that the very reason for using a surfactant concentration sufficient to achieve the claimed surface tension relationship is to ***prevent*** the formation of an actual interface between the plug fluid and channel walls involving physical contact thereby avoiding adhesion of the plugs to the wall. As the specification states, when the claimed surface tension relationship is achieved, the carrier-fluid—not the plug-fluid—will wet the channel wall such that there will ***not*** be a plug-fluid/channel wall interface. Appx342 at 20:47-63.

10x's expert, Dr. Huck, at trial took the opposite position from the one 10x is advocating on appeal. Dr. Huck read into the record his IPR declaration stating that he could tell prior art met this exact claim term if the droplets did ***not*** contact the channel walls:

> POSA knows that if a sufficient concentration of surfactant is present such that the plugs flows smoothly without adhering to the channel walls, then the is surface tension of the plug fluid interface will be higher than at the plug carrier interface.
>
> ***
>
> POSA would understand that the claim term surface tension at the plug fluid microchannel wall interface is higher than the surface tension at the plug fluid carrier flued interface. So merely representations a condition achieved when sufficient fluorinated surfactant is present in the carrier fluid such that the plugs do not adhere to the wall -- channel wall.

Appx30549-30550; *see also id.* ("So when you know the surfactant is present and you don't see the droplet touching the wall, then you know that the relationship is met."). The District Court relied on Dr. Huck's admission to deny 10x's JMOL motion. Appx29424 ("Dr. Huck agreed that 'if a sufficient concentration of surfactant is present such that the plug flowed smoothly without adhering to the channel walls[,] then the surface tension at the plug[/]wall interface will be higher than at the plug[/]carrier interface.'") (alterations in original).

10x's deceptive argument that the droplets have to contact the channel walls is irreconcilable with the claims, the specification, Professor Sia's analysis, and its own technical expert's sworn and repeated testimony to the contrary.

III. 10x Fails In Its Attempt To Overturn The Jury's Infringement Verdict For The '193 And '407 Patents Based On The "Microfluidic System" Preamble

10x challenges the jury verdict finding willful infringement of the '193 and '407 Patents on only one ground. And, if this Court upholds the infringement finding for the '083 Patent, this argument does not affect the remedies awarded and is superfluous.

10x alleges that the District Court supposedly misconstrued the claims of these patents by refusing to find that the preamble requires the chemical reaction to take place in the droplets while the droplets are in the microfluidic system. 10x Br. at 43-51. 10x alleges that, if the claims are construed on appeal to add such a requirement, it prevails as a matter of law and no remand is warranted. 10x Br. at 51-53. 10x's arguments are unpersuasive.

A. The District Court Correctly Construed The Preambles

10x contends that the preambles require the reaction in the droplets to take place while the droplets are still in the microfluidic system. 10x Br. at 43-51. The District Court carefully considered 10x's argument before instructing the jury and rejected it in both its claim construction ruling and its JMOL ruling. Appx8845-8846; Appx29426. The District Court's analysis is spot-on.

The District Court stated that, while the terms "reaction" and "microfluidic system" in the preamble are the antecedent basis for the repetition of those terms in the body of the claims, that does not automatically convert the entire preamble into a claim limitation. Appx29428 ("That 'reaction' and 'microfluidic system' provide antecedent basis for the use of those terms in the body of the claim does not necessarily convert the entire preamble into a limitation." (citing *TomTom, Inc. v. Adolph*, 790 F.3d 1315, 1323 (Fed. Cir. 2015)); Appx8845 ("While portions of a preamble may be limiting where those portions provide an antecedent basis for terms appearing in the body of the claim, it is inappropriate to construe an entire preamble as limiting if the rest of the preamble language is not limiting.").

The District Court recognized that the body of the claims is complete. Appx8845 ("the invention as claimed is 'structurally complete' without the remaining preamble language."); Appx29427 (same). Indeed, the body of the claims identifies the location of the reaction by stating that the reactions occur in

the plugs (droplets) and the microfluidic system creates the plugs (droplets). Appx8845 ("The claim elements are duplicative of the preamble in that it is clear that the reaction in question takes place 'in the at least one plug'"); Appx29427 (same).

The District Court correctly found that the disputed language is a non-limiting statement of intended use or purpose. Appx29428 ("Specifically, the portion of the preamble that states 'conducting a reaction in plugs in a microfluidic system' is not limiting. Like the generating language in *TomTom*, the conducting language does not provide an antecedent basis for the rest of the claim and follows the standard pattern of 'a method for a purpose or intended use comprising'"); Appx8845 ("Here, the preamble language states an intended use for the invention, 'followed by the body of the claim, in which the claim limitations describing the invention are recited.'" (quoting *TomTom,* 790 F.3d at 1323)).

10x's primary argument is that, because the preamble uses terms later included in the body, the entire preamble is a limitation. 10x Br. at 46. 10x accuses the District Court of misapplying this Court's *TomTom* decision by refusing to treat the ***entire*** preamble as a limitation. *Id.* 10x argues that in *TomTom* the presence of the antecedent "at least one mobile unit" in the preamble converted all its "particular attributes recited in the preamble" into limitations. *Id.*

10x misreads *TomTom*. There, this Court explained that the district court "erred in determining that it had to construe the entire preamble if it construed a portion of it." *TomTom*, 790 F.3d at 1323. This Court correctly found that the body was structurally complete and the statement of purpose in the preamble was not a limitation merely because another part of the preamble served as an antecedent basis. *Id.* That teaching applies directly to the facts of this case.

10x also gets the details of *TomTom* wrong. This Court found that the preamble language a "method for generating and updating data for use in a destination tracking station" was ***not*** a limitation requiring "using data ***in***" the destination tracking station — even though the destination tracking system of the preamble was undisputedly limiting. *Id.* at 1322-1323. This Court found that the generated data did ***not*** need to be used in the destination tracking station notwithstanding the preamble text. *Id.* at 1324 ("Though the collected data could at some point be used in the context of a navigation system, this is not required of claim 1, and does not convert it into a claim limitation.").

In the end, the heart of 10x's *TomTom* argument is that the District Court "overlooked the crucial point" that "*TomTom* actually found a portion of a preamble limiting because the body of the claim directed the reader back to the preamble with words like 'the' and 'such,' just as these claims do." 10x Br. at 50. 10x's argument is unfair to the District Court and, frankly, unfair to this appeal,

because it is so wrong. The District Court explained to 10x before trial that it understood this aspect of *TomTom*:

> The Federal Circuit agreed with the district court that the phrase "destination tracking system of at least one mobile unit" in the preamble was limiting, because it provides an antecedent basis for the later use of "mobile unit" in the body of the claim. *Id.* at 1323. However, the Federal Circuit went on to find the phrase "[a] method for generating and updating data for use in" generating ("the generating language") was not limiting and did not provide an antecedent basis for any of the claims. *See id.* at 1323-24.

Appx29427-29428.

Second, 10x argues that the patents teaches that the reaction in the droplet should happen while the droplet is still "in microfluidic chips." 10x Br. at 47. For this, 10x relies on statements in the Abstract that the invention includes "methods of conducting reactions ***within*** [microfabricated] substrates." *Id.* (emphasis in original).

10x's theory that the Patents-in-Suit do not teach off-chip reactions was debunked at trial. 10x's now-abandoned enablement theory depended on 10x's erroneous assertion that the patents do not teach off-chip reactions. In fact, the patents have a host of examples of off-chip droplet reactions:

> Q: Okay. Now, in your direct testimony you said that the Chicago patents don't describe the performance of a reaction in droplets off chip. Do you recall that?
>
> A: Yes.

***

Q: And you -- will you acknowledge that the -- that the Chicago patents actually disclose collecting the droplets, putting them in the tube and performing reactions off chip?

A: For protein crystallization, yes.

***

Q: So just to be clear, you acknowledge that Chicago [patents] shows a variety of different types of reactions that can be performed off chip in droplets, right, teaches people how to do it?

A: Only with that capillary tube --

Q: Okay.

A: -- method.

Appx30504; Appx30505-30506.

10x argues that the prosecution history shows that the performance of reactions in droplets while still in the microfluidic system was significant for allowance of the patents. Nonsense. 10x's theory at trial was that, while the Patents-in-Suit enabled on-chip chemical reactions in droplets, it was so difficult to perform reactions in droplets off-chip that the patents were not enabled because this was ***not*** known in the prior art. *See* Appx30503 ("Q: Let's turn to enablement. Now, if I understand your enablement argument, it relates to this concept of off chip on chip; is that correct? A: Correct, yes."). There is no prior art showing off-chip droplet reactions.

The District Court's thoughtful treatment of the preamble should be upheld.

B. Even If The Entire Preamble Were Somehow Limiting, The Jury's Infringement Verdict For The '193 And '407 Patents Would Stand

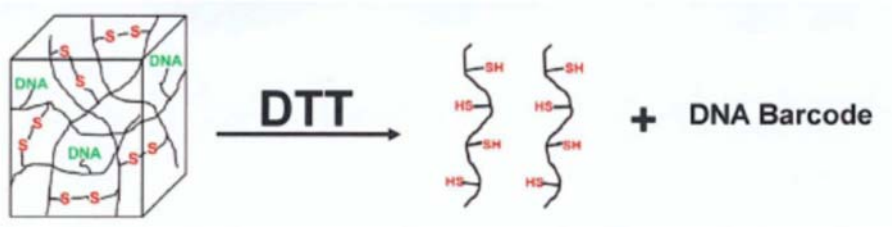
10x argues that, if the claims of the '193 and '407 Patents were construed to require the reactions to take place while the droplets are in the microfluidic systems, it automatically would not infringe. To the contrary, the record establishes that 10x infringes even under its narrower construction.

First, even though the Court's construction precluded 10x's "microfluidic system" defense, 10x presented it to the jury anyhow. 10x argued that its droplets are in a thermal cycler when the reactions take place and that this is supposedly not part of the microfluidic system because it is not on the chip. *See* Appx30523-30524; Appx30984-30985. But the District Court precluded 10x from trying to limit the microfluidic system to the chip during claim construction. Appx8840 ("Defendant is prohibited from arguing that a 'microfluidic system' is limited to or the equivalent of a 'substrate.'"). 10x did not appeal this claim construction ruling.

Regardless, the thermal cycler is indeed part of the "microfluidic system." 10x's Ben Hindson explained that the thermal cycler is the machine into which microfluidic droplets are loaded so that reactions can occur on the 10x platform. *See* Appx30169-30170; Appx30160-30162. 10x's own documents describe its "[p]latform" as a "microfluidic system." Appx32513. This "[p]latform" encompasses the thermal cycler where the barcoding happens. *See, e.g.,*

Appx32511; Appx33111. 10x's appeal brief and own documents depict the thermal cycler as being part of 10x's protocol and workflows. 10x Br. at 14; Appx32742; Appx33149; Appx33156. All this evidence supports the jury verdict even under 10x's argument that the droplet must be in the microfluidic system when the reaction takes place. Appx29699 ("A chip is definitely a part of the microfluidic system"); Appx29809-29810 ("Reactions start taking place in the chip.").

Second, even if 10x's construction were adopted, there was overwhelming evidence at trial that a chemical reaction involving a biological molecule nonetheless occurs on the 10x ***chip***, which is an early stage of the microfluidic system. Specifically, in 10x's system, the chemical reaction to dissolve gel beads by DTT takes place in the droplets while they are ***on the chip***. *See* Appx29847-29849. 10x's own documents show that its on-chip DTT reaction involves a ***biological*** molecule (DNA):



Appx32550; Appx29848 ("And so what you see here is that the gel bead is polychromed with DNA attached to it. It's a biological molecule. And when that molecule reacts with the DTT, releases the DNA, the synthetic DNA going to react with your sample.").

10x responds that the gel bead dissolution reaction does not happen on the chip. 10x Br. at 49-50. Yet, 10x's own internal documents show that the reaction completes within five minutes. Appx32550. The instrument run time far exceeds this such that the reaction must happen on the chip. *See* Appx32411; Appx32466; Appx32756. 10x denied that its own documents describe its products. Appx30376-30378. Yet, 10x's own expert relied upon this very document in his non-infringement expert report to describe how 10x's products work. Appx30590-30591.

10x's argument that it would prevail as a matter of law if the construction of the preamble were different ignores the evidence discussed above, which proves to the contrary. 10x's products perform biological reactions on chip and its thermal cycler is part of its microfluidic system anyway.

IV. 10x's Challenge To The Damage Award Should Be Rejected

10x's challenge to the damage award is a garrulous re-argument of the damages case it lost before the jury. 10x mentions legal principles at a few points, but the actual arguments are fact-intensive—and no more persuasive now than they

were at trial. 10x confusedly mixes in arguments about admissibility, new trial, and substantial evidence. But 10x never analyzes the pre-trial admissibility record for the District Court's *Daubert* ruling, and thus it has no appeal of that evidentiary decision preserved, much less developed. Regardless, whatever the legal rubric, 10x's arguments fail.

By accepting Appellees' damages analysis, the jury agreed that the 15% royalty rate was supported by benchmark competitor licenses. Importantly, the District Court correctly found that the "patented droplet technology is the foundation of 10X's droplet products." Appx63-64. 10x has not challenged that factual finding. The jury rejected 10x's argument that Bio-Rad's university license for 1% was the better measure. Compelling evidence supports the verdict.

A. The Record Establishes That RainDance Would Have Viewed 10x As A Competitor At The Hypothetical Negotiation

10x blindly insists that Bio-Rad's predecessor RainDance would not have viewed 10x as a competitor at the hypothetical negotiation. This issue was ***not*** preserved in 10x's post-trial motions and is waived. Regardless, substantial evidence supports the jury finding that RainDance would have considered 10x as a competitor.

Appellees' damages expert James Malackowski explained that RainDance and 10x would have seen themselves as competitors in 2015 based on a rich record of proof. Appx30102 ("everybody was focused on the same market and competing

in the hypothetical"); Appx30087 ("Each of those documents are business records that talk specifically about either direct competition between RainDance and 10X or the fact that RainDance was going to enter into that my microfluidic marketplace which would imply or note competition"); Appx33059 ("Product pipeline includes: synthetic long read sequencing, ***single cell*** analysis (genomics and proteomics), high throughput dPCR, and a high-throughput, ***low-cost platform to universally 'dropletize' all biological experiments***."); Appx32877 ("***Competitor Updates:10X Genomics***"); Appx32884 ("Enabling ***single molecule*** technology. Diverse applications and pipeline"); Appx32953 ("***Single-Cell Program***"); Appx32982 (***Competitor: "Single Molecule: 10X Genomics***"); Appx33032 ("Key Applications:..Long Read NGS; ***Single Cell*** (Genomics/Proteomics)"). 10x's criticism appears to be that RainDance did not release a single cell product before Bio-Rad acquired it. But all of 10x's applications were proven to be on RainDance's product plan, as the citations above establish, so it clearly did consider 10x as a competitor.

The jury correctly found RainDance and 10x were competitors at the hypothetical negotiating table.

B. The RainDance/Chicago University License Is Not Comparable

10x's lead argument is that the jury was wrong to reject 10x's argument that the RainDance/Chicago license was comparable and the key royalty benchmark.

10x Br. at 56. 10x did not preserve this argument in its post-trial motions. It is waived. Regardless, the jury was correct to reject it.

Eric Ginsburg, the licensing professional at Chicago, explained that it was difficult to license the Patents-in-Suit because there was no droplet industry, there was great skepticism about whether droplets would work well, they required the licensee to diligently invest in the technology, and a massive commitment was required to commercialize it. Appx30016 ("we were looking for somebody who would appreciate there was this diamond in the rough there and somebody who had the capability to actually get it to the market."). Dr. Ginsburg explained that it took six years (from 2002 to 2008) to license the Patents-in-Suit and he identified 20 companies that declined in 2004 alone. Appx30018-30019; Appx35181-35184.

Dr. Ginsburg explained that he agreed to a 1% royalty because there was so much downward pressure on the royalty rate due to early-stage disinterest:

> So because it was such an early stage. It was just an experiment coming out of a university lab. There's a huge market risk. Technical risk. It's early stage that puts downward pressure on the royalty rate that universities typically get.

***

> Also, because just like there's a market risk and technical risk, so you file a patent, it takes many years before the Patent Office examines it and tells you exactly what claims they're going to grant in the patent. So in those early days, we had one patent, but we had no idea what else we'd get after that. So there's also a intellectual property risk built in those rates.

Appx30022-30023.

Mr. Malackowski explained that this 1% university license from 2008 is not comparable to the competitor license of the hypothetical negotiation so many years later after successful droplet products are thriving on the market. Appx30069-30071 ("The university was willing to take a lot less to get that first company to go to market and do all of the work that was required to prove that this would actually work. Then you could imagine if you were sitting down with a competitor after you did all that work, and now they want to piggyback off of that. No, you've got to pay more at that point.").

10x argues that, because the university license was for the same patents, the jury was required to find it the most significant license. 10x Br. at 56-57 (citing *ResQNet.com, Inc. v. Lansa, Inc.*, 594 F.3d 860 (Fed. Cir. 2010) and *LaserDynamics, Inc. v. Quanta Comput., Inc.*, 693 F.3d 51 (Fed. Cir. 2012)). But 10x's cases do not require that licenses for the patents-in-suit control regardless of the circumstances. Neither *ResQNet* nor *LaserDynamics* involved a university

license, much less the fact-intensive record supporting the verdict here such as Dr. Ginsburg's compelling testimony.

10x vaguely references "many other licenses" with single digit royalties that the jury supposedly ignored. 10x Br. at 57. 10x does not develop this argument and it should be rejected for that reason. There is, in fact, no good reason to treat those licenses as important precedents.

C. The District Court Did Not Abuse Its Discretion By Allowing The Jury To Consider The Comparable Competitor Licenses And Those Licenses Properly Support The Jury's Damages Award

10x challenges whether the Caliper/RainDance, Applera/Bio-Rad, and Applied BioSystems/QuantaLife licenses are sufficient support for the damages award. 10x Br. at 58-64. 10x accepts that the jury was properly instructed in setting a royalty including very specific instructions on both comparable licenses and apportionment. Appx415-416; *see, e.g.*, Appx415 ("if you choose to rely upon evidence from any other license agreements, you must account for any differences between those licenses and the hypothetically negotiated licenses between the parties to the negotiation in terms of the technologies and economic circumstances of the contracting parties").

The District Court reviewed the trial record and correctly held that both the Caliper/RainDance and Applied BioSystems/QuantaLife licenses were sufficient support for Mr. Malackowski's reasonable royalty opinions and the jury verdict.

In *VirnetX, Inc. v. Cisco Sys., Inc.*, this Court explained that comparable licenses will not be identical and the import of the inevitable differences is best weighed by fact-finders. 767 F.3d 1308, 1330 (Fed. Cir. 2014). This Court affirmed the verdict there because all of the "differences that Apple complains of were presented to the jury, allowing the jury to fully evaluate the relevance of the licenses." *Id.* at 1330-1331; *see also Finjan, Inc. v. Secure Comput. Corp.,* 626 F.3d 1197, 1211-12 (Fed. Cir. 2010) ("These differences permitted the jury to properly discount the Microsoft license."); *ActiveVideo Networks, Inc. v. Verizon Comm'ns, Inc.,* 694 F.3d 1312, 1333 (Fed. Cir. 2012). (the "degree of comparability" of the license agreements was a "factual issue[] best addressed by cross examination and not by exclusion.").

10x relies on *ResQNet* and *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301 (Fed. Cir. 2009) to argue that the licenses are not sufficiently comparable. 10x Br. at 64-65. In *VirnetX*, this Court faced arguments based on those same two cases. *See VirnetX*, 767 F.3d at 1330. This Court explained that in *ResQNet* and *Lucent* there was a total failure to show comparability, not just debatable differences that experts could be examined upon. *Id.* at 1330. In *ResQNet,* this Court found "no relationship to the claimed invention," nor even a "discernible link to the claimed technology." 594 F.3d at 870. In *Lucent*, this Court rejected

reliance on licenses from "vastly different situation[s]" or where the subject matter was not even ascertainable. 580 F.3d at 1327-28.

Although the District Court definitively upheld the verdict, it found a shortfall of evidence in the technical comparability prong for one of the three comparable licenses. Appx29441. But even if the District Court were correct on that limited point (and Appellees respectfully disagree for the reasons below), the District Court is correct that the other two comparable licenses and related testimony are substantial evidence supporting the verdict. Appx29442.

In *Summit 6, LLC v. Samsung Elecs. Co., Ltd.*, this Court affirmed the verdict, even though it rejected one of the two licenses relied upon to support the verdict as non-comparable because there was no proof of comparability presented at all. 802 F.3d 1283, 1299 (Fed. Cir. 2015). "Summit failed to present evidence that the Facebook license was comparable or relevant to calculating a reasonable royalty" so it could not support the verdict. *Id.*

Likewise, any of the three licenses is substantial evidence supporting the verdict. As explained below, this Court should reject 10x's comparable license complaints for each.

1. Caliper/RainDance Agreement

10x argues that no reasonable juror could find that Appellees established the technical comparability of the Caliper patents. 10x Br. at 61-63. The District Court correctly rejected this argument. Appx29442-29443.

Numerous witnesses described the technical comparability of the Caliper patents and the relatively small value of those patents to RainDance's products. Professor Sia testified that "'the Caliper patents dealt with microfluidics and all sorts of ways to control fluids really accurately and so forth,'" and the asserted patents dealt with the "'same subject matter, but with droplets'" in microfluidics. Appx29442 (quoting Appx29892 at 441:12-18). Professor Sia described a few of the Caliper patents to the jury, explaining they "'dealt with manipulating tiny amounts of fluids, mixing, performing nucleic acid reactions, a whole tool box of reactions and things you can do on a chip.'" Appx29442-29443 (quoting Appx29893).

Ms. Tumolo, who was familiar with the Caliper portfolio having licensed it herself, and having inherited it for Bio-Rad, testified that RainDance's droplet technology was "the big idea," whereas Caliper's patents were only "a small part of the product story." Appx29592. She specifically confirmed the Caliper patents were "a small part of those [RainDance] products." *Id.* 10x never meaningfully challenged this testimony. Ms. Tumolo explained that Caliper demanded a 15%

royalty regardless of the number of patents used. *See* Appx29591; Appx30690. Mr. Malackowski explained that, because RainDance agreed to 15% for patents of moderate value from Caliper, the 15% rate for the foundational Patents-in-Suit was conservative. *See* Appx30081-30082; Appx30086-30087; Appx30091-30092.

In its post-trial brief, 10x did not preserve its argument that the large number of Caliper patents in the licensed portfolio is disproportionate to the three infringed Patents-in-Suit. But the argument fails anyway. RainDance only used two of the Caliper patents. *See, e.g.,* Appx30077-30078 (Malackowski testifying that "although there was a large portfolio of patents, the focus of this agreement was on a very limited set of technologies. Two patents."). Mr. Malackowski explained the role of the technical comparability of the two Caliper patents that were actually used. *See* Appx30076-30079; Appx30135.

Second, 10x argues that the 15% competitor rate is "pure fiction." 10x Br. at 63. But 10x does not dispute that RainDance and Caliper negotiated at arms-length to arrive at a 15% royalty for competitive applications. *See* Appx32631-32712. As both Mr. Malackowski and Ms. Tumolo explained, for any sales of competitor products, RainDance agreed to pay Caliper a 15% royalty rate—without any suggestion that this rate was somehow phony. *See* Appx29591. 10x did not challenge this testimony.

Third, 10x argues that the Caliper agreement is a license on consumables whereas the hypothetical negotiation is about instruments and consumables. 10x Br. at 62. 10x did not preserve this argument in its Rule 50(a) JMOL motion or in its post-trial challenges to consideration of the Caliper license—or include in its *Daubert* motions for this license. *See* Appx17013; Appx22877-22878; Appx26451-26452; Appx27649. 10x waived this argument and correctly treated it as unworthy for inclusion. It failed to pursue an entire market value rule challenge or any other legal challenge to the proper royalty base. The jury was properly instructed on comparability and 10x had a full ability to try to distinguish royalties on reagents versus those on instruments in this industry. This is not surprising because many of the licenses that 10x argued were comparable do ***not*** differentiate between instruments and consumables. *See, e.g.,* Appx33795; Appx34433; Appx34474; Appx34512.

10x's appeal argument for a differential royalty rate also ignores that 75% of its revenues are from consumables, making instrument sales the distinct minority. Appx28494. This issue only relates to 25% of 10x's sales and 10x never asked the jury to break the damage award down this way.

The District Court correctly rejected 10x's challenge to the Caliper/RainDance license. 10x had the ability at trial to make all the factual arguments it makes now. The Caliper/RainDance license and associated testimony is substantial evidence supporting the verdict.

2. Applied BioSystems/QuantaLife Agreement

10x merely reargues the facts and fails to meet the legal standard for attacking a verdict. 10x Br. at 59-60.

10x argues that the improved Taq enzyme of the Applied BioSystems/QuantaLife license is incomparable to the droplet technology protected by the Patents-in-Suit. However, to try to prove this, 10x cites to self-serving testimony of its own experts even though the jury found those experts lacked credibility by rejecting so many of their positions.

10x contended that the Applied BioSystems' Taq enzyme was different from Chicago's droplet inventions because it is so ubiquitous that it "enabled modern molecular biology." 10x Br. at 59-60. The jury did not have to believe this assertion—and would have been foolish to do so. For example, even though 10x contends that its products are important to understanding modern biology, 10x denied its products use the Applied BioSystems Taq enzyme that supposedly "enabled modern molecular biology" instead choosing the popular 529 enzyme. Appx30578 ("10X Genomics doesn't have to raise and lower temperatures the

same way, so they use another polymerase called 529 polymerase."). No wonder the jury did not believe 10x's story.

Likewise, in line with the District Court, the jury correctly concluded that Chicago's droplet patents are fundamental for droplet products. Indeed, the technology in the Patents-in-Suit created the droplet field by teaching how chemical reactions could be performed in droplets. Appx30703 ("there was no data presented for any working system until the Chicago inventions."); Appx30710-30711 ("And so I think certainly the Dr. Ismagilov's inventions here were enabling others, not only himself, to have a series of embodiments that actually work, but also enabling other people to perform reactions successfully in droplets.").

The jury was entitled to rely on the measured testimony of Appellees' technical expert Professor Sia. He explained that the Applied BioSystems/QuantaLife license covered "reagents that would help you to do PCR in an improved manner." Appx29894. Likewise, the droplet technology at-issue in this case enabled the improved performance of PCR and other autocatalytic reactions in water drops in a microfluidic device, creating an entirely new field. *Id.* ("the Chicago patents also deal with the subject trying to do PCR and trying to do it better using the droplet technologies"); Appx29895 ("the subject matter is definitely similar").

Ms. Tumolo also compared the two technologies, concluding that "the majority–I would say by far the value in my mind was the QuantaLife" compared to the Applied BioSystems patents. Appx29604-29605; *see also* Appx29596-29598; Appx29602-29604; Appx30080-30082 (Malackowski comparing the Applied BioSystems and QuantaLife contributions). Ms. Tumolo also explained that the 12 cents per unit 10x identifies resulted in an effective royalty rate approaching 20%, making application of the 15% rate conservative. *See* Appx29597-29598. The Applied BioSystems' patent did not cover instruments because it covered an enzyme. That does not make the 15% royalty rate inapplicable as described above for the Caliper/RainDance license. The Chicago patents cover improvements in the instruments and reagents.

The Applied BioSystems/QuantaLife license and related testimony is substantial evidence supporting the verdict.

3. Applera/Bio-Rad Agreement

The District Court found that a reasonable juror could find the Applera/Bio-Rad license economically comparable but the evidence of technical comparability for this particular license was insufficient to support the reasonable royalty verdict. Appx29444-29445. The District Court's finding of a lack of technical comparability demanded too much – especially given the economic comparability. Although the Applera/Bio-Rad agreement is not needed to support the verdict

because the other evidence in the record was correctly found sufficient, the Applera/Bio-Rad license is properly appreciated as substantial evidence too.

10x's central argument regarding the Applera/Bio-Rad agreement has been that it was for the invention of PCR, "a Nobel prize-winning invention that 'launched the human genome project.'" 10x Br. at 58; *see also* Appx27649-27650 ("The Applera license covers Nobel Prize-winning technology, licensed for over $2 billion, related to real-time PCR and thermal cycler instruments, including the 'foundational' Higuchi patent."). This is false. PCR was invented in the mid-1980s by Kary Mullis and is not the subject of the Applera/Bio-Rad license. *See* Appx30447 ("PCR was invented in the mid-1980s by Kary Mullis").

As the District Court correctly found, "there was no evidence that any of the Mullis patents were licensed as part of the Applera agreement." Appx29443-29444 ("10x conflates early PCR patents and the Higuchi patent licensed in the Applera/Bio-Rad agreement.").

Ms. Tumolo, the President of Bio-Rad, who entered into the Applera/Bio-Rad license, explained that this license was for the Higuchi patent. Appx29605. She testified that the Higuchi patent "enabled monitoring" of a PCR reaction for Bio-Rad's real time PCR product. *Id.* Ms. Tumolo described the real time PCR product and all the contributions that Bio-Rad made to that platform. Appx29606. The District Court recognized Ms. Tumolo's testimony that, even with the Higuchi

technology, Bio-Rad "had to do a lot of heavy lifting" and "ended up with a lot of patents [itself] around the product that [it] had developed using this license." *Id.*

The District Court correctly concluded that "there was sufficient evidence for the jury to find the Applera/Bio-Rad agreement economically comparable to the hypothetical license." Appx29444. Nevertheless, the District Court concluded that there was not substantial evidence of technical comparability. Appx29444-29445. But not only is there Ms. Tumolo's testimony, Professor Sia testified that "real time PCR" and the asserted patents "allow you to do a lot of reactions" such as PCR. Appx29893-29894. He further explained that the class of autocatalytic reactions that benefit from the droplet platform enabled by the Patents-in-Suit is even broader than the PCR platform licensed in the Applera/Bio-Rad agreement. Appx29935 ("autocatalytic reactions is actually broader than PCR…you're getting PCR plus").

The District Court's finding that, even though there was economic comparability, there was not technical comparability, fails to credit the evidence in the record. The Higuchi patent and the Patents-in-Suit all relate to improved nucleic acid analysis on an improved platform. Real time PCR is an improved platform for flexible nucleic acid analysis with greater control and so is the droplet technology protected by the Patents-in-Suit. 10x had full opportunity to cross-

examine Ms. Tumolo and Professor Sia on the differences in the technology and licenses. The jury was not persuaded.

10x argues that the District Court admitted evidentiary error in allowing Mr. Malackowsi to testify regarding the Applera/Bio-Rad license. But this argument misses the mark. The District Court found that the Applera/Bio-Rad license itself was not substantial evidence supporting the damages award under Rule 50(b). 10x confuses admissibility with sufficiency. In applying the *Daubert* test as a threshold evidentiary ruling, the District Court is finding that the testimony is appropriate for the jury to hear. That is different from finding that it is sufficient itself to support a verdict.

10x never applies the *Daubert* admissibility test or evaluates the *Daubert* record before the District Court so any attempt to argue evidentiary error on appeal must fail—for all the comparable licenses and related testimony. However, even if admitting the Applera/Bio-Rad license were an error, it does not require the verdict to be overturned. Federal Rule of Civil Procedure 61 provides that "the court must disregard all errors and defects that do not affect any party's substantial rights." Fed. R. Civ. P. 61; *see also U.S. v. Lee*, 612 F.3d 170, 189 (3d Cir. 2010) ("[F]ederal appellate courts are more willing to find harmless error in the area of evidentiary rulings than they are in other areas of procedure.").

Here, the jury was instructed correctly, and at length, on comparable licenses and royalties. 10x was able to make all its comparability attacks at trial it wished. There was substantial evidence of a 15% royalty from the other licenses. Even if the Applera/Bio-Rad license was not presented to the jury, it is improbable the jury would have reached a different result and this is not a basis for vacating the judgment.

D. 10x's Apportionment Argument Fails

10x argues that, even if the comparable licenses are technically and economically comparable, there was supposedly inadequate apportionment. 10x Br. at 65-72. 10x demands an unrealistic ***quantitative*** analysis for every comparable license requiring the parsing of the value of each contribution to the licensed products. *See, e.g., id.* at 66 (Malackowski "never provided any numerical values to support his analysis."); *id.* at 67 ("He gave no actual numbers").

10x's unattainable quantitative "apportionment" standard is not the law. In *Elbit Sys. Land v. Hughes Network Sys., LLC*, this Court applied well-established precedent that the comparable license analysis can "incorporate the required apportionment" and have "already built in apportionment." 927 F.3d 1292, 1301 (Fed. Cir. 2019). "Mr. Martinez's testimony allowed the jury to find that the components at issue, for purposes of apportionment to the value of a larger product

or service, were comparable to the components at issue in the Gilat-Hughes agreement, and Hughes introduced no evidence that precluded such a finding." *Id.*

The District Court approved of Mr. Malackowski's methodology both before trial and after trial. Appx29446 ("As a methodology, I see no problem with using comparable licenses to establish a reasonable royalty rate, without performing a separate apportionment analysis, where there is a logical basis for doing so."); Appx25652 ("Mr. Malackowski found the relative value of the licensed technology to the licensed products comparable to the relative value of the asserted patent to the accused product."). The District Court refused to require a quantitative analysis. *Id.* (rejecting 10x's argument that Mr. Malackowski's opinion "should be excluded simply because it applies qualitative, rather than quantitative, analyses.").

As the District Court recognized before and after trial, "Mr. Malackowski compared the unpatented features of the accused product with what he considered to be the unlicensed features of the products in the [prior] licenses." Appx29446; Appx25652. Mr. Malackowski explained that his analysis started "by looking at what are comparable license agreements in this case between competitors for similar technologies." Appx30064-30066. He further testified that he assessed whether "the importance of that technology to that license [is] in proportion similar to what's relevant to this case." Appx30066-30067. He went on to explain that the

central question was whether "the royalty rate, that 15 percent which was for a given technology for a certain set of products, was that in about the same proportion as all the other technologies that the licensee brought to the table? Would it be comparable to what we want to do here?" Appx30074-30075.

Mr. Malackowski then explained to the jury, on a license-by-license basis, why the 15% rates in the competitor agreements did not need adjustment for technical comparability. Appx30075-30076 (comparing the relative contribution of the thermocycling technology in the Applera/Bio-Rad agreement with the contribution of the droplet patents to the 10x products); Appx30077-30078 (discussing Caliper/RainDance agreement); Appx30081 (discussing Applied BioSystems/QuantaLife agreement). In addition to Dr. Sia's trial testimony, Mr. Malackowski considered Dr. Sia's expert reports, Ms. Tumolo's testimony concerning each comparable license, deposition testimony, discussions with Bio-Rad licensing personnel, and the evidence identified by Dr. Sullivan, among other sources. *See, e.g.,* Appx30067-30068; Appx30077-30078; Appx30078; Appx30082; Appx30108; Appx30118; Appx30131-30132; Appx30135.

10x's factual debates on appeal are off-base. 10x argues that the bases for Mr. Malackowski's opinion regarding the Applied BioSystems/QuantaLife license were too "sparse" and that Mr. Malackowski did not discuss the technology expressly enough. 10x Br. at 69-70. Ms. Tumolo plainly compared the two

technologies, concluding that "the majority — I would say by far the value in my mind was the QuantaLife." Appx29604-29605; *see* also Appx29596-29598; Appx29602-29604; Appx30080-30082 (Malackowski comparing the Applied BioSystems and QuantaLife contributions).

The factual foundation for Mr. Malackowski's testimony regarding the Applera/Bio-Rad agreement was also substantial. For example, Ms. Tumolo explained that Bio-Rad had to develop the "optical bench," and "the right kind of assays" for the product Bio-Rad licensed from Applera, establishing a large contribution from the licensee. Appx29606. She explained that Bio-Rad did the "heavy lifting and frankly ended up with a lot of patents ourselves around the product that we developed using this license." *Id.*

Likewise, the factual foundation for Mr. Malackowski's testimony regarding the Caliper/RainDance agreement was substantial. Ms. Tumolo explained that the "big idea" for the licensed RainDance product was "around droplets and the chemistries and the surfactants" and "everything they innovated on top of it." Appx29592. 10x argues that Mr. Malackowski did not identify the unlicensed features of the RainDance product using the Caliper/RainDance license even though they were listed on a demonstrative. 10x Br. at 69. But Mr. Malackowski was explicit that he heard and relied upon Ms. Tumolo's testimony regarding the Caliper/RainDance license. Appx30078-30080.

10x had a full opportunity to cross-examine Mr. Malackowski on the bases for his opinion (and Professor Sia and Ms. Tumolo as well) and to present competing evidence. It did so unpersuasively. The District Court correctly concluded that Mr. Malackowski's expert testimony, viewed in the light most favorable to Appellees, is substantial evidence supporting the verdict. Appx29446.

V. 10x's Challenge To The District Court's Permanent Injunction Should Be Rejected

10x's challenge to the District Court's permanent injunction does not acknowledge the deferential standard of review. A permanent injunction is reviewed for an abuse of discretion. *eBay Inc. v. MercExchange, L.L.C.,* 547 U.S. 388, 391 (2006). "Factual findings made in support of the injunction are reviewed for clear error; the district court's conclusion as to each *eBay* factor is reviewed for abuse of discretion." *i4i Ltd. Partnership v. Microsoft Corp.*, 598 F.3d 831, 861 (Fed. Cir. 2010).

10x does not argue with the scope of the injunction. 10x's main argument is that there is supposedly "no evidence" of irreparable harm. 10x Br. at 74. 10x also spends a few sentences on the other factors. 10x's arguments fail to establish that the District Court abused its discretion.

A. The District Court Did Not Abuse Its Discretion In Finding Irreparable Harm

10x's challenge to the District Court's "irreparable harm" finding is premised on 10x's assertion that Bio-Rad supposedly does not compete with 10x's droplet products. Competition normally establishes irreparable harm. *See Edwards Lifesciences AG v. CoreValve, Inc.*, 699 F.3d 1305, 1314 (Fed. Cir. 2012) ("Absent adverse equitable considerations, the winner of a judgment of validity and infringement may normally expect to regain the exclusivity that was lost with the infringement."); *Broadcom Corp. v. Emulex Corp.*, 732 F.3d 1325, 1338 (Fed. Cir. 2013) ("The courts have a long history of remedying trespass on property rights—including patent rights—by removing the trespasser."); *Presidio Components, Inc. v. Am. Tech. Ceramics Corp.*, 702 F.3d 1351, 1362 (Fed. Cir. 2012) (holding that a proper *eBay* analysis "proceeds with an eye to the 'long tradition of equity practice' granting 'injunctive relief upon a finding of infringement in the vast majority of patent cases,'" and noting that "the axiomatic remedy for trespass on property rights is removal of the trespasser").

10x's position is weak. The District Court found that "10X's single cell product accounts for over 80% of 10X's sales." Appx62. 10x does not challenge this factual finding and the evidence fully supports it. Appx29316; Appx28484-28485.

The District Court correctly found that 10x ***admitted*** its infringing single cell droplet product (over 80% of its revenue) directly competes with Bio-Rad's single cell (ddSEQ) droplet product. Appx62. Although on appeal 10x calls it "purported" competition, 10x acknowledged this competition squarely to the District Court: "of course 10X and Bio-Rad are competing head to head." Appx29543; Appx30970 (same); *see also* Appx29619 (Bio-Rad's single cell product "competes directly with 10X's single cell product.").

Even though 10x admitted to the District Court that the parties' single-cell droplet competition was "head to head" and "direct," it accuses the District Court of "clear error" for finding exactly such competition. 10x now argues that Bio-Rad's competition is not meaningful because 10x's product works better. 10x Br. at 74.

10x's argument that its earlier-released infringing single-cell product is commercially and technically ahead of Bio-Rad's directly competitive product ***proves*** the irreparable harm inflicted by 10x's infringement. Bio-Rad was forced to bring a single-cell product to market early in view of the head start 10x had introducing its product due to its willful infringement. Appx29581 ("we felt a lot of pressure to get that product on the market because 10X had a really, really big head start, frankly we felt using our technology"). Recall that Bio-Rad fell behind 10x in the droplet field because the 10x founders left Bio-Rad to start 10x with

much of Bio-Rad's droplet expertise and hired away even more droplet-experienced technologists. Appx29506. This set back Bio-Rad's droplet program profoundly. This was all part of its willful infringement where the 10x founders stated that they would not use droplets for their new product and then were forced to infringe because they could not get alternative technologies to work. Appx28498-28499; Appx64 ("In fact, 10x tried and failed with other methods of partitioning such as capsules and wells before moving to droplets."). It was not an abuse of discretion to find irreparable harm.

10x relies heavily on its customers' preference for its products. 10x's "stickiness" for its single-cell droplet customers, such as its large and vocal customer Broad, is also vivid evidence of the irreparable harm that supports the District Court's exercise of discretion. It does not undermine it. Ms. Tumolo explained how 10x's unfair infringing head-start has created irreparable harm to Bio-Rad:

> First to market entrants in new technology areas in the bio-tools space obtain a significant advantage, including an entrenched competitive lead that is very hard, if not impossible, to overcome. 10X obtained such a lead in the single cell market. 10X's first to market position allows 10X to engage with most of the important early adopters and key opinion leaders. Collaboration with these key opinion leaders is driving early publications and therefore is creating a strong bias towards 10X's single cell product in the market. The influence on market choice by these early adopters and key opinion leaders is substantial.

***

> 10X's early position in the emerging droplet market is allowing it to develop customer relationships that are hard to overcome. Customers of tools such as the droplet systems at issue in this ease routinely make subsequent purchases from a vendor with whom it is already familiar. What's worse, such on-going "sticky" customer-relationships in our field also have a multiplier effect because they are used to attract new customers based on a growing installed base and word of mouth. Once a vendor such as 10X is "in the door" of a customer it is expensive to displace them with a competing product. Our sales and marketing team has to work much harder to do so, increasing costs. Successful displacement often requires price-cutting that is hard to quantify and difficult to recoup for subsequent sales to that customer and in the marketplace more generally.
>
> ***
>
> 10X's infringing competition irreparably harms Bio-Rad because 10X is creating thought-leader advocacy and customer relationships that are resulting in a long term loss in market share that is hard to trace, difficult to quantify and tough to recoup. 10X's infringement is increasing our marketing and sales costs because it is expensive to sell head-to-head given 10X's infringement allowed it a head start in the market and to use similar technology. Such direct competition also is depressing pricing in the market-place in an ongoing way that is hard to calculate. Bio-Rad's good reputation as an industry leader and innovator is also tarnished by 10X's infringement through the use of its patented droplet technology without permission.

Appx28498-28499; Appx28501.

10x brags on appeal that it has benefited from the "sticky customer relationships" it captured with its willful infringement and has soiled Bio-Rad's

reputation for quality products. Indeed, it criticizes the District Court's measured decision to allow 10x to continue to sell consumables for its installed base of instruments allowing 10x to profit from those sticky relationships.[2] 10x Br. at 77 ("By allowing scientists to continue buying consumables for existing instruments, the court acceded to allowing the 'sticky' customer relationships to continue."). Bio-Rad has invested over a half-billion dollars in its droplet business, including $20-25 million a year in research and development and the creation of a digital biology center to house its droplet business. Appx66; Appx29572-29573; Appx29576-29577. 10x's position that there is no evidence of irreparable harm is meritless.

10x argues essentially that Bio-Rad has not been harmed because Bio-Rad's single-cell product would never have been purchased if 10x could have avoided infringement. This is inconsistent with 10x's argument that the parties' products are sold "head to head." It is also unsupported by the evidentiary record. "Despite entering the single cell market after 10X, Bio-Rad has placed many single cell systems with hundreds of "single cell" customers." Appx28499. 10x's infringement and head start made it much harder for Bio-Rad to sell its single cell

[2] 10x loses sight of the equitable balance struck by the District Court. Allowing 10x to continue to sell consumables to its installed base of instruments protects 10x's customers while preventing 10x from expanding its infringement.

products, but with "increased marketing costs and softened pricing" it is able to do so. Appx28500. "Bio-Rad's system can generate similar data with similar sensitivity as the 10X system." *Id.* "10x's primary market argument is one of efficiency and throughput." *Id.*

As for the products that make up the small amount of 10x's business that is not single cell, the District Court found that those processes are "variants of those same infringing droplet processes." Appx62. As the District Court recognized, Bio-Rad and 10x are competitors in the market for products that perform genetic analysis on a droplet platform. As Ms. Tumolo explained, "we look at our droplet business as one. I mean, we formed this technology center around droplets, not around one product or another." Appx29583; *see also* Appx29645-29646 ("I think what's at issue in this case is our droplet business."). Ms. Tumolo further explained, without challenge, that Bio-Rad's 2019 droplet products will flexibly support a variety of different applications. Specifically, she testified that Bio-Rad will introduce its "next generation platform that will actually be quite flexible about what the droplet applications you do." Appx29586. 10x disrupted Bio-Rad's roadmap for its droplet product line, which has been in place since its 2011 acquisition of QuantaLife. *See* Appx28498.

The District Court properly exercised its discretion in finding irreparable harm. The record is loaded with evidence of such irreparable harm as set forth in this brief.

B. The District Court Did Not Abuse Its Discretion In Finding The Balance Of Harms Supports The Permanent Injunction

Weeks after the District Court issued its permanent injunction, 10x went public raising over $300 million dollars and promising a bright future. *See* App. Dkt. 18 at 1; App. Dkt. 19 at Add2081. Given the District Court's unchallenged finding that the "patented droplet technology is the foundation of 10x's droplet products" (Appx64), 10x has profited handsomely from its willful infringement, building a big business.

Stripped of its recitations of what the District Court found, 10x's irreparable harm argument is two sentences. 10x argues that the District Court ignored that 10x did not have a redesign for "two of its product lines." 10x Br. at 78. 10x does not bother to name those products but it is apparently referring to its Linked Read and CNV droplet products.

As an initial matter, the District Court correctly reasoned that 10x's willful choice to infringe to get a head start on Bio-Rad does not and should not insulate it from an injunction. Appx66 ("The fact that 10x has gained commercial success from its infringing products and thus risks losing that success does not shield 10x from injunctive relief." (citations omitted)).

In addition, 10x's Linked Read and CNV droplet products are trivial to 10x's economics; not a source of counter-balancing harm. In its IPO prospectus, 10x admitted that these infringing products "have not significantly contributed to our revenue." App. Dkt. 19 at Add2082; *id.* at Add2085. 10x does not argue that it plans to sell a meaningful amount of such systems and failed to identify any evidence of harm specific to these unsuccessful products.

Beyond that, the District Court concluded that it gave 10x ample time to design around the Patents-in-Suit. Appx66. In September 2018 (months before trial), and in view of 10x's weak defenses in this case, the District Court questioned 10x as to whether it had finished its redesign. Appx22445-22446 (District Court: "so you said the design is complete; right?"). 10x confirmed to the District Court that the redesign was complete in September 2018. Appx22441 (10x's Counsel: "I believe a design is set."); *see also* Appx22446. 10x did not inform the District Court that it had decided to redesign only its successful products. As the District Court found, 10x's witness on the status of its Next GEM redesign, Dr. Schnall-Levin, testified in January after the infringement verdict that 10x intended to have its redesign on sale in April 2019. Appx65. That was already 7 months after it represented to the District Court that the design was final. 10x's witness also testified that 10x was "confident that the chip will work as well" as the infringing product. *Id.* As the District Court put it: "His only caveat about

an April launch was that 10X might not have 'all the training materials' and 'quite as much rigor around having naive users try [the product] out.'" *Id.*

Based on this uncontested fact-finding, the District Court concluded that it had given 10x a very fair amount of time to transition out of the infringing products in view of 10x's representations. *Id.* The equities weigh heavily in favor of the injunction.

The District Court was within its discretion in finding that the balance of harms did not favor 10x. Appx66.

C. The District Court Did Not Abuse Its Discretion In Finding The Public Interest Supports The Permanent Injunction

10x's public interest argument is four sentences long. It only argues that researchers need 10x's products to conduct scientific research. 10x Br. at 78-79.

The District Court's decision explains thoughtfully why this argument fails. Appx66-67. Because the District Court structured its injunction to allow continued use of the installed base of infringing instruments with consumables, no on-going scientific research would be enjoined. Appx67 ("10x's current customers will not be enjoined from using their installed systems").

10x introduced a redesign for virtually all of 10x's products even before the injunction was entered and 10x has repeatedly stated that its redesign (which is not enjoined) will be at least as good as the original design. Appx67 ("10x's design-around is largely complete and expected to work as well as its existing products.").

10x has never argued that its redesign is not as good as the enjoined products. It does not even acknowledge its redesign in its appeal brief.

As explained above, 10x's Linked Read and CNV products have been unsuccessful and thus 10x has not bothered to introduce its redesign for those products. 10x has not attempted to show that they are widely used. The evidence of harm 10x identifies is about its ***single-cell*** product, which has been redesigned. None of that "public interest" materials mentions 10x's infringing Linked Read or CNV products, much less establishes with particularity that on-going infringement with those products is necessary to protect the public interest. Moreover, the materials are deficient. 10x relies on a declaration summarizing old letters from early 2019. But 10x had apparently not told the letter-writers that it had a redesign that it believed would work as well as the enjoined design. *See* Appx29361. 10x also apparently did not explain to the academics that the supply of consumables to their instruments is not enjoined. Without such knowledge, its inadmissible summary of those letters is unhelpful.

10x's major customer, Broad, filed an *amicus* brief arguing that injunctions for publicly funded research are unwarranted as a rule. App. Dkt. 31. This argument should be rejected. 10x did not raise these arguments below and they have been waived. Although Broad submitted a brief in the District Court, it did not raise this argument below confirming the wisdom of finding this argument waived.

Addressing the substance, Broad does not submit any evidence of what, if any, public funding went into the Patents-in-Suit. This issue was not developed because any such argument was waived. Additionally, Broad's submission is unhelpful because it does not even mention Linked Read or CNV—the enjoined products that have not been replaced—or take into account the redesign for the remaining products.

In the end, Broad's concerns are unfounded because the government is capable of conditioning its grant money when it is awarded to the extent that makes sense. The Bayh-Dole Act addresses government research funding and patenting. *See* 35 U.S.C. § 203. Broad's attempt to add conditions on federal funding after-the-fact via judicial pronouncement of a new anti-injunction rule should be rejected for all these reasons.

CONCLUSION

For the foregoing reasons, this Court should affirm the judgment of infringement, the damages award, and the permanent injunction.

Respecfully submitted,

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BIO-RAD LABORATORIES, INC., THE UNIVERSITY OF CHICAGO, Appellees

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