

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BIO-RAD LABORATORIES, INC.,
Petitioner,

v.

CALIFORNIA INSTITUTE OF TECHNOLOGY,
Patent Owner.

Case No. IPR2024-01451
U.S. Patent No. 11,827,921 B2

**PETITIONER’S OPENING SUPPLEMENTAL CLAIM CONSTRUCTION
BRIEF**

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PETITIONER'S UPDATED EXHIBIT LIST

Exhibit #	Description
EX1001	U.S. Patent No. 11,827,921 “the ’921 patent”
EX1002	Declaration of Carl A. Batt, Ph.D.
EX1003	Joint Claim Construction Statement, filed on June 18, 2024, Dkt No. 65, <i>ChromaCode, Inc. v. Bio-Rad Laboratories et al.</i> , Case No. 5:23-cv-06360, N.D. Cal.
EX1004	U.S. Patent Application Publication No. US 2013/0040841 A1 “Saxonov”
EX1005	Information Disclosure Statement noting Saxonov from Prosecution File History of U.S. Patent No. 10,068,051 filed on August 5, 2014
EX1006	Notice of Allowance from Prosecution File History of U.S. Patent No. 11,827,921 filed on August 10, 2023
EX1007	U.S. Patent Provisional Application No. 61/510,013 (filed July 20, 2011) (Serge Saxonov, Simant Dube, John F. Regan, applicants) (“the ’013 Provisional”)
EX1008	Intentionally Left Blank
EX1009	U.S. Patent Application Publication No. US 2011/0312704 A1 “Silverbrook”
EX1010	Intentionally Left Blank
EX1011	Intentionally Left Blank
EX1012	U.S. Patent No. 11,827,921 Infringement Claim Charts from Infringement Contentions, served on March 21, 2024, <i>ChromaCode, Inc. et al. v. Bio-Rad Laboratories, Inc.</i> , Case No. 5:23-cv-06360, N.D. Cal.
EX1013	Internet Archive WayBackMachine, Feb. 22, 2024, archived copy of Synbio Technologies, Precision and Accuracy with TaqMan Probes, https://synbio-tech.com/precision-and-accuracy-with-taqman-probes/ , https://web.archive.org/web/20240519044916/https://synbiotech.com/precision-and-accuracy-with-taqman-probes/ , accessed Sept. 12, 2024.
EX1014	Pamela M. Holland, et al., “Detection of specific polymerase chain reaction product by utilizing the 5’ → 3’ exonuclease activity of

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	<i>Thermus aquaticus</i> DNA polymerase,” <i>Proc. Natl. Acad. Sci. USA</i> , Vol. 88, pp. 7276-7280, August 1991 Biochemistry “TaqMan Paper”
EX1015	Information Disclosure Statement from Prosecution File History of U.S. Patent No. 10,770,170 filed on March 7, 2018
EX1016	Information Disclosure Statement from Prosecution File History of U.S. Patent No. 11,827,921 filed on May 1, 2020
EX1017	U.S. Patent Application Publication No. US 2011/0250597 A1 “Larson”
EX1018	Intentionally Left Blank
EX1019	Intentionally Left Blank
EX1020	Intentionally Left Blank
EX1021	Intentionally Left Blank
EX1022	U.S. Patent No. 9,366,632 “Link”
EX1023	Federal Judicial Caseload Statistics (2023), at https://www.uscourts.gov/statistics-reports/analysis-reports/federal-judicial-caseload-statistics
EX1024	Civil Minutes - General, filed on December 7, 2023, Dkt No. 34, <i>ChromaCode, Inc. et al. v. Bio-Rad Laboratories</i> , Case No. 2:23-cv-08417, C.D. Cal.
EX1025	PO's Response to Non-Final Office Action from Prosecution File History of U.S. Patent No. 11,827,921 filed on March 28, 2023
EX1026	Final Rejection from Prosecution File History of U.S. Patent No. 11,827,921 filed on May 10, 2023
EX1027	Joint Stipulation and Order Regarding Filing of Second Amended Complaint and Amended Case Schedule, filed on March 27, 2024, Dkt No. 53, <i>ChromaCode, Inc. v. Bio-Rad Laboratories et al.</i> , Case No. 5:23-cv-06360, N.D. Cal.
EX1028	Amended Complaint for Patent Infringement of U.S. Patent Nos. 10,068,051 and 10,770,170, filed on October 13, 2023, Dkt No. 12, <i>ChromaCode, Inc. et al. v. Bio-Rad Laboratories</i> , Case No. 2:23-cv-08417, C.D. Cal.
EX1029	PO's Response to Final Office Action from Prosecution File History of U.S. Patent No. 11,827,921 filed on July 10, 2023

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EX1030	Non-Final Rejection from Prosecution File History of U.S. Patent No. 11,827,921 filed on December 28, 2022
EX1031	Intentionally Left Blank
EX1032	Intentionally Left Blank
EX1033	U.S. Patent No. 9,441,266 "Larson patent"
EX1034	Intentionally Left Blank
EX1035	Intentionally Left Blank
EX1036	Nucleic Acids, https://www.genome.gov/genetics-glossary/NucleicAcids , updated July 7, 2024
EX1037	Introduction of Molecular Beacons, https://molecular-beacons.org/MB_introduction.html (downloaded July 10, 2024)
EX1038	Shivaprasad H. Sathyanarayana and Lauren M. Wainman, "Chapter 2, Laboratory approaches in molecular pathology: the polymerase chain reaction," <i>Diagnostic Molecular Pathology</i> , 2024
EX1039	U.S. Patent No. 10,068,051 Infringement Claim Charts from Infringement Contentions, served on March 21, 2024, <i>ChromaCode, Inc. et al. v. Bio-Rad Laboratories</i> , Case No. 5:23-cv-06360, N.D. Cal.
EX1040	U.S. Patent No. 10,770,170 Infringement Claim Charts from Infringement Contentions, served on March 21, 2024, <i>ChromaCode, Inc. et al. v. Bio-Rad Laboratories</i> , Case No. 5:23-cv-06360, N.D. Cal.
EX1041	Order of Consolidation filed August 16, 2024, Dkt. No. 77, <i>ChromaCode, Inc. v. Bio-Rad Laboratories, Inc.</i> , Case No. 5:23-cv-04823, N.D. Cal.
EX1042	Order Reassigning Case filed August 20, 2024, Dkt. No. 78, <i>In re: ChromaCode Litigation</i> , Case No. 5:23-cv-04823, Dkt. No. 78, N.D. Cal.
EX1043	Declaration of Carl A. Batt, Ph.D. in Support of Petitioner's Reply to Patent Owner's Response
EX1044	Deposition of Kevin Struhl, Ph.D., <i>Bio-Rad Labs., Inc. v. Cal. Inst. Tech.</i> , IPR2024-01451 (July 24, 2025)

Exhibit #	Description
EX1045	Transcript of Proceedings held on September 16, 2025, Dkt. No. 150, <i>ChromaCode, Inc. v. Bio-Rad Laboratories, Inc.</i> , Case No. 5:23-cv-04823, N.D. Cal.
EX1046	Order Granting in Part and Denying in Part Chromacode's Motion for Leave to Amend Infringement Contentions filed October 9, 2025, Dkt. No. 154, <i>ChromaCode, Inc. v. Bio-Rad Laboratories, Inc.</i> , Case No. 5:23-cv-04823, N.D. Cal.

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Pursuant to the Board's October 17, 2025 e-mail, Petitioner submits this supplemental brief on the construction of "single sample volume." *See* EX3003. This term should be given its plain and ordinary meaning, and PO's untimely attempt to give it a narrowing gloss to avoid the prior art should be rejected.

In the parallel district court litigation, PO originally sought no limitations on the meaning of "single sample volume" or how it might be manipulated. Rather, PO accused Petitioner's products of infringement based on a natural interpretation of "single sample volume" that encompassed scenarios where "the detection is performed in a single *sample volume* that is *subsequently* partitioned into multiple droplets." Paper 1 at 30 (quoting EX1012 at 20). PO maintained this theory for months. After the strength of Petitioner's validity challenges became clear, however, PO belatedly sought to impose a narrowing spin on the term "single sample volume," and now, in a 180° turnabout, alleges that this term *excludes* volumes that are "subsequently partitioned into droplets...." Paper 17 at 26.

From the moment PO hinted it might take this tack, Petitioner has opposed it, presenting extensive argument based on the intrinsic record in both its pre-institution reply and reply confirming that PO's narrowed interpretation is erroneous. *See* Paper No. 9 at 1-3; Paper No. 20 at 9-11. PO, however, has never responded to the merits of these arguments, which were supported by expert witness testimony. *See* EX1043 ¶¶ 12-16. Just the opposite, in a recent hearing before the district court, PO

affirmed that the claim language is indeed broad enough to encompass a “single sample volume” that is subsequently partitioned into droplets and further avowed that “*we’re not trying to narrow a claim construction in the IPR based on our infringement contentions.*” EX1045 at 12:20-23.

As documented herein, the broad interpretation for “single sample volume” that PO originally advanced is supported by the intrinsic evidence. PO should not be allowed to now belatedly change, particularly after failing to present substantive argument here and informing the district court that it would not seek to do so.

I. BACKGROUND

Up until recently, the parties agreed that the term “single sample volume” was not limited to individualized partitions of a sample volume (such as a droplet) and that it encompassed liquid samples *prior* to any partitioning. The Petition, for instance, expressly relied upon PO’s contentions to this effect from the district court, where PO asserted, for instance, that “the detection is performed in a single sample volume that is subsequently partitioned into multiple droplets,” *See, e.g.*, Paper No. 1 at 30 (quoting EX1012 at 20, EX1002 ¶ 137). Consistent with this, PO never sought any sort of narrowing construction for “single sample volume” during the district court claim construction phase.

As this case proceeded, however, PO apparently realized that the previously agreed-upon interpretation of “single sample volume” would lead to the invalidation

of its claims in view of the Larson reference. Thus, although PO never presented any substantive arguments based on the intrinsic record as to why this interpretation was incorrect, it argued that Petitioner erroneously relied upon PO's district court contentions and further suggested that it planned to officially amend those contentions. *See* Paper No. 8 at 28; Paper No. 17 at 25-26. Petitioner for, its part, responded with detailed argument based on intrinsic record as to why the originally agreed-upon interpretation was correct. *See* Paper No. 9 at 1-3; Paper No. 20 at 9-11. PO has never responded to these arguments on the merits, even though it has long known that the construction of "single sample volume" was an issue.

In the meantime, PO filed a motion in the district court seeking to withdraw its contentions as to the scope of "single sample volume." During the hearing on this motion, however, the district court expressed great concern that PO was, in fact, seeking a belated narrowing construction for the term "single sample volume." *See, e.g.,* EX1045 at 11:25-12:11, 13:18-14:13, 21:24-22:3, 59:11-19.

In response to these concerns, PO repeatedly affirmed that its proposed amendments were not intended to effectuate a new understanding of the claims, including in IPR proceedings before this tribunal. As PO stated, for instance, "the PTAB recognized that there are two different ways to read that claim. And we don't – *we're not trying to narrow a claim construction in the IPR based on our infringement contentions.*" *Id.* at 12:20-23; *see also id.* at 13: 2-4 ("So we're not

trying to narrow something – we're not trying to narrow construction."); *id.* at 15:2-3 ("we're not trying to reconstrue the claim or construe the claim."); *id.* at 20:13-16 ("We're not trying to undo something...that's been done in invalidity").

In view of PO's representations that it was not seeking to narrow its prior interpretation of "single sample volume," the district court permitted PO to amend its contentions to remove one of its infringement theories. *See* EX1046 at 6. In its order, however, the district court was clear that because PO "concedes that it does not advocate a narrower claim construction, but only a narrower infringement theory, the proposed amendments will not have any impact on claim construction in this action, nor should they have any impact on proceedings before the PTAB." *Id.* at 7. In fact, as the court noted, PO "conceded that the claim language can be interpreted to encompass both of its original theories of infringement, and it affirmed that it is not advocating a narrower construction." EX1046 at 6; *see also* EX1045 at 19:23-20:19 (PO answers affirmatively in response to the district court's question about whether the "two embodiments are within the scope" of the claims).

Following the submission of the district court order, the Board requested supplemental briefing on the construction of "single sample volume." *See* EX3003.

II. THE INTRINSIC RECORD CONFIRMS PETITIONER'S INTERPRETATION

As noted above, Petitioner has already presented extensive argument based on the intrinsic evidence that was supported by expert witness testimony. *See* Paper

No. 9 at 1-3; Paper No. 20 at 9-11; EX1043 ¶¶ 12-16. The arguments below are in line with Petitioner's previous arguments, albeit with additional evidentiary detail.

A. The Claim Language Confirms Petitioner's Interpretation

The claim language requires merely detecting "M analytes" in a "single sample volume," with amplification occurring in that same volume. EX1001 67:9–26, 68:19-48. There are no other requirements as to the "single sample volume" in any of the claims. Nothing in any of the claims, for instance, places any restrictions as to the form of the "single sample volume," including whether it be a tube, a droplet, a partitioned volume, or a non-partitioned volume. *See* EX1002 ¶¶ 13-14.

The lack of any limitation on the nature of the "single sample volume" in the claims is critical because the claim language is fundamental. As the Federal Circuit explained in *Phillips*, "the claims themselves provide substantial guidance as to the meaning of particular claim terms....To begin with, the context in which a term is used in the asserted claim can be highly instructive." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (internal citations omitted). Here, there are no contextual indicators in the claim language that would call for the narrowing construction that PO belatedly seeks.

B. The Specification Confirms Petitioner's Interpretation

While the claim language alone forecloses PO's new construction, the specification similarly establishes that a "single volume" is not limited to a droplet,

but may be any volume, such as a “tube or a bottle.” *See* EX1001 38:63–65; EX1002 ¶ 13.

Nothing in specification precludes the liquid in such volumes from *subsequently* being partitioned or separated—for example, using a common process known as “droplet-based microfluidics,” where a single sample volume is analyzed by creating uniform, picoliter-to-nanoliter-sized droplets that are suspended in an immiscible fluid. EX1043 ¶ 14. Just the opposite, the specification describes both separated and non-separated scenarios, stating, for instance, that “the invention *could* be used with separation ...if desired.” EX1001 at 36:4–6 (emphasis added). The specification could not be clearer that “[n]o separation is necessary,” *id.* at 36:2–3, emphasizing throughout that “separation” need not be used. *See id.* at 1:56–57 (contemplating embodiments using “a single sample volume *without* immobilization, *separation*, mass spectrometry, or melting curve analysis); *see also id.* at 5:6–9, 6:50–52, 7:3–5, 7:26–29 27:23–25, 27:34–36, 27:44–47.

As Petitioner's expert, Dr. Carl Batt, explained, this disclosure in the specification shows that the “single sample volume” need not be individual droplets but also encompasses collections of droplets “which are then suspended in an immiscible fluid and analyzed *en masse*.” *See* EX1043 ¶ 14. PO's attempt to exclude such embodiments from the claims should be rejected because a “claim construction that excludes a preferred embodiment is rarely, if ever correct and

would require highly persuasive evidentiary support.” *Kaufman v. Microsoft Corp.*, 34 F.4th 1360, 1372 (Fed. Cir. 2022).

C. The Prosecution History Confirms Petitioner's Interpretation

The prosecution history is in accord with claim language and specification. *See* EX1043 ¶ 15-16. During prosecution, PO amended the claims to remove a requirement that the sample volume not be separated and instead substituted broader language requiring only that the amplification be in a “single sample volume.” *See* EX1029 at 2. Thus, the inventors of the '921 patent contemplated requiring no separation of the “single sample volume,” but decided against it.

Claims of patents in the same family further undermine PO's interpretation. Claim 1 of U.S. Patent No. 10,068,051 recites that the analytes be detected “without...physical separation.” *See* IPR2024-01177, EX1001. Similarly, claim 1 of U.S. Patent No. 10,770,170 recites the use of “droplets.” *See* IPR2024-01178, EX1001. Thus, when the patentees wanted to exclude “separation” from the claims or limit them to “droplets,” they did so. But, in the '921 patent, they did neither.

D. The Extrinsic Evidence Confirms Petitioner's Interpretation

Ultimately, the clearest proof that the claims do not exclude embodiments where the “sample volume” is further separated is PO's own district court position. As Petitioner explained, in district court, PO originally argued that Petitioner infringes through an approach wherein “the detection is performed in a single sample

volume that is *subsequently* partitioned into multiple droplets.” Petition at 30 (quoting EX1012 at 20). While PO encourages the Board to now disregard its prior admission, it never would have originally advanced this infringement theory if it truly believed the claims were as narrow as it now contends. In fact, as proven above, such a construction is contrary to the intrinsic record.

III. PO HAS WAIVED ANY NARROWING CONSTRUCTION

While the evidence laid out above establishes that Petitioner's interpretation—which was also PO's original interpretation—is correct, PO is also foreclosed from now seeking a narrower construction because it has waived its right to do so both before this tribunal and in the parallel district court proceedings.

Petitioner was clear in the Petition that it was relying upon the interpretation of “single sample volume” that was reflected in PO's infringement contentions. *See, e.g.,* Paper No. 1 at 30. After PO suggested that it *might* alter this interpretation, however, Petitioner used its pre-institution sur-reply to present detailed argument based on the intrinsic evidence as to the correct construction of “single sample volume.” *See* Paper No. 9 at 1-3. Thus, before submitting its POR, PO was on notice that the interpretation of “single sample volume” was an issue. PO, however, presented no substantive argument as to the proper construction of “single sample volume” in its POR, other than to contend that PO should not have relied upon

Petitioner's infringement contentions and to falsely assert that it was "entitled" to amend its contentions.¹ *See* POR at 24-26.

Having failed to present **any** substantive argument as to the meaning of "single sample volume" with its POR, PO has waived its right to now seek a narrower construction. *See, e.g., Chegg v. Netsoc LLC*, IPR2019-01165, Paper No. 33 at 51 (P.T.A.B. Dec. 2, 2020); *Samsung Elecs. v. Acorn Semi, LLC*, IPR2020-01204, Paper No. 48 at 30 (P.T.A.B. Jan. 12, 2022); *Samsung Elecs. v. Chien-Min Sung*, IPR2024-00535, Paper 41 at 79 n. 15 (P.T.A.B. Sept. 17, 2025).

While PO has waived its right to narrow its construction of "single sample volume" by virtue of its inaction here, its affirmative statements in the district court further reflects a waiver. In response to questioning from the district court judge, PO could not have been clearer that it would not seek to narrow its construction. PO affirmed, for instance, that "the PTAB recognized that there are two different ways

¹ In fact, PO was not "entitled" to amend its contentions. It could only do so "by order of the Court upon a timely showing of good cause." N.D. Cal Pat. L.R. 3-6 *available at* <https://cand.uscourts.gov/rules-forms-fees/local-rules/patent-local-rules>. While the district court ultimately allowed PO to amend its contentions, the district court was clear that this would not reflect any new claim interpretation. *See* EX1046 at 6-7; *supra* Part II.

to read that claim. And we don't – *we're not trying to narrow a claim construction in the IPR based on our infringement contentions.*" EX1045 at 12:20-23. Under pointed questioning from the district court, PO affirmed that it would not seek a narrower construction in this tribunal:

THE COURT: Is that your plan? That you get this amendment, and then you go to the PTAB, and you say, "Oh, our narrower interpretation and our narrower infringement theory has been blessed, and we've been allowed to proceed, so we no longer have this broader interpretation." Is that the plan?

MR. SALEN: No, your Honor, our – nothing has changed from how we're arguing in the IPR and nothing will change how we've been arguing in the IPR.

Id. at 56:14-21; *see also id.* at 13: 2-4 ("So we're not trying to narrow something – we're not trying to narrow construction."); *id.* at 15:2-3 ("we're not trying to reconstrue the claim or construe the claim."). Having made these unambiguous representations, PO has waived its right to now narrow its interpretation of "single sample volume."

IV. CONCLUSION

The term "single sample volume" should be given its plain and ordinary meaning and PO's belated narrowing spin should be rejected.

Dated: October 24, 2025

Respectfully submitted,

/Derek C. Walter/

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of **PETITIONER'S OPENING SUPPLEMENTAL CLAIM CONSTRUCTION BRIEF** is being served on October 24, 2025, via electronic mail pursuant to 37 C.F.R. § 42.6(e) to the counsel for PO at the addresses below:

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