

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BERKELEY LIGHTS, INC.,
Petitioner,

v.

THE UNIVERSITY OF BRITISH COLUMBIA,
Patent Owner.

IPR2021-01249
Patent 10,087,408 B2

Before KRISTINA M. KALAN, CHRISTOPHER M. KAISER, and
CHRISTOPHER L. OGDEN, *Administrative Patent Judges*.

OGDEN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Petitioner Berkeley Lights, Inc. (“Petitioner”)¹ filed a Petition (Paper 1, “Pet.”) under 35 U.S.C. §§ 311–319 requesting *inter partes* review of claims 1, 6, 11, 16, 19, 24, 26, 27, and 30 of U.S. Patent No. 10,087,408 B2 (Ex. 1001, “the ’408 patent”). Patent Owner The University of British Columbia (“Patent Owner”)² filed a Preliminary Response (Paper 7, “Prelim. Resp.”).

Under the authority delegated to us by the Director under 37 C.F.R. § 42.4(a), we may institute an *inter partes* review when “the information presented in the petition . . . and any response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a); *see also* 37 C.F.R. § 42.108(c) (2020). Applying that standard, we institute an *inter partes* review of all the challenged claims of the ’408 patent for the reasons explained below. This is a preliminary decision, and we will base our final written decision on the full trial record, including any timely response and evidence by Patent Owner.

II. BACKGROUND

A. RELATED PROCEEDINGS

As related matters, the parties identify the following three pending U.S. district court cases: *AbCellera Biologics, Inc. v. Berkeley Lights, Inc.*,

¹ Petitioner identifies itself as the real party in interest. Pet. 3.

² Patent Owner identifies itself and AbCellera Biologics Inc. as the real parties in interest. Paper 6, 1.

No. 5:20-cv-08627 (N.D. Cal. filed July 9, 2020); *AbCellera Biologics, Inc. v. Berkeley Lights, Inc.*, No. 5:20-cv-08626 (N.D. Cal. filed Aug. 25, 2020); *AbCellera Biologics, Inc. v. Berkeley Lights, Inc.*, No. 5:20-cv-08624 (N.D. Cal. filed Sept. 16, 2020) (collectively, “parallel district court proceedings”). Pet. 3–4; Paper 6, 1. The District Court has stayed these proceedings pending the outcome of this and two other *inter partes* review proceedings. See Ex. 1035.

We note that *inter partes* reviews IPR2021-01250 and IPR2021-01386 also involve the same parties and related technology.

B. THE '408 PATENT (EX. 1001)

The '408 patent issued from an application filed July 7, 2011, claiming priority from U.S. Provisional Application No. 61/362,213, filed July 7, 2010. Ex. 1001, codes (22), (60). It describes methods, in the context of microfluidic devices, “for perfusing a cell with perfusion fluid,” so that “the gravitational forces acting on the cell to keep the cell at or near . . . a retaining position exceed the hydrodynamic forces acting on the cell to move it toward an outlet.” Ex. 1001, code (57).

Figure 1 of the '408 patent, reproduced below, is a top view of the microfluidic device, with two expanded views at medium resolution (top left, with a 1 mm size reference bar) and high resolution (top right, with a 100 μ m size reference bar). Ex. 1001, 6:17–21.

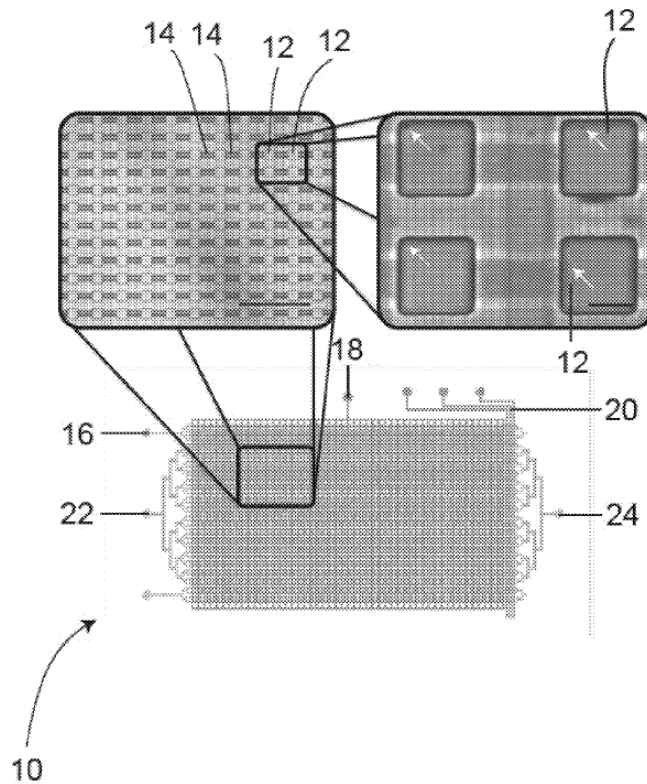
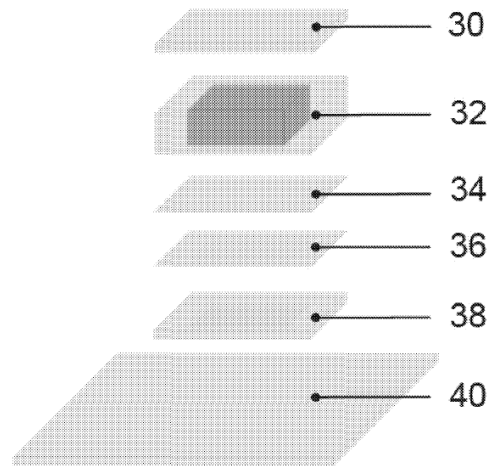


FIGURE 1

Device 10, as depicted in Figure 1 above, comprises an array of 1,600 chambers 12, each “with integrated microvalves to allow precise control and exchange of media.” Ex. 1001, 23:12–13. Fluid enters chambers 12 from array inlet 22 via flow channels 14, and fluid exits through array outlet 24. *Id.* at 23:13–14, 23:18–21. To control cell loading and perfusion rates, device 10 also includes control lines 18 (connected to an isolation valve) and 20 (connected to a peristaltic pump). *Id.* at 23:16–18. Hydration lines 16 are located on each side of the array to minimize edge effects. *Id.* at 23:14–15. In the high-resolution view (top right), arrows point to the location of single cells in each chamber 12. *Id.* at 12:21–22.

Figure 2, reproduced below, is an exploded view of device 10 showing the layers of the device as they are assembled during fabrication. Ex. 1001, 6:22–24, 23:44–46.



As shown above in Figure 2, device 10 includes the following layers (from bottom to top): glass slide 40; chamber layer 38 which includes chambers 12 (not shown); control layer 36 which includes control structures; a 150 μm -thick PDMS³ membrane 34; iso-osmotic bath layer 32 consisting of a large chamber “filled with medium to prevent evaporation and maintain constant osmolarity inside the chambers [12]”; and “gas-permeable PDMS cover layer 30 to keep the [iso-osmotic] bath sterile.” Ex. 1001, 23:46–63.

Figure 4 of the '408 patent, reproduced below, is a cross-sectional view of chamber 12 and channel 14 of microfluidic device 10 while chamber 12 is being perfused with a fluid. Ex. 1001, 6:28–32.

³ According to the '408 patent, PDMS is an abbreviation for polydimethylsiloxane, “a transparent and biocompatible silicone elastomer . . . widely used for cell-culture applications,” which “provide[s] high gas permeability for the efficient exchange of oxygen and carbon dioxide.” Ex. 1001, 2:38–42.

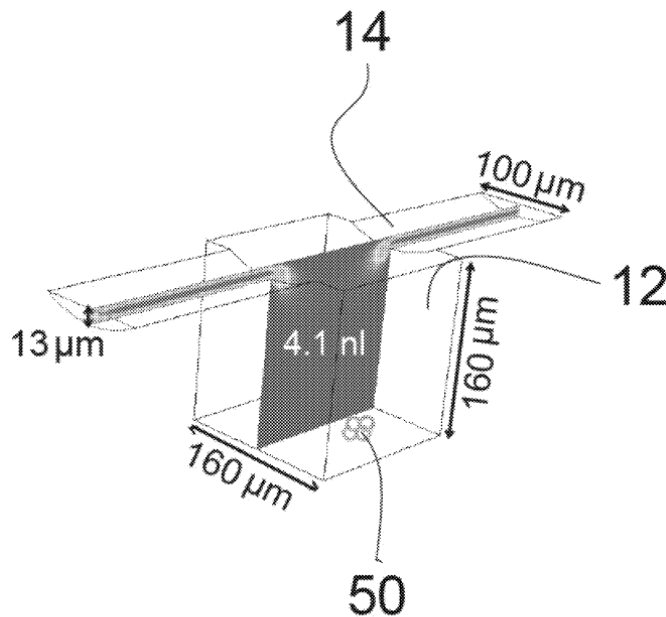


FIGURE 4

Figure 4, above, depicts culture chamber 12 (a cube of 160 μm on each side, forming a volume of about 4.1 nl) and flow channel 14 (100 μm wide and up to 13 μm deep). Ex. 1001, 24:39–40, 24:64–65, 26:20–22. Chamber 12 includes trapped cells 50. *Id.* at 24:36. The inventors discuss a numerical simulation that predicts a “sudden expansion when the fluid moves from the flow channel [14] to the chamber [12 that] creates a velocity drop,” and “minimal flow rates at the bottom 5/6 of the chamber.” *Id.* at 26:12–15, 26:23–24. “[T]he gravitational forces on the cells [are] greater than hydrodynamic forces and cells remain in the cell retaining region while the perfusion fluid exits the chamber through the flow channel outlet.” *Id.* at 26:24–28.

After culturing cells 50 in chambers 12, the user can recover them “by simply inverting the device, causing the cells to settle into the higher-flow rate regions of the chambers (as shown in FIG. 4) and then recovering the pooled population by flushing back through the input port.” *Id.* at 26:50–53.

Alternatively, “when selective recovery of the contents of specific individual wells is desired, the layer of PDMS [30 as shown in Fig. 2] covering the osmotic bath [32] can first be removed and a sterile micropipette then used to pierce the membrane [34] over any selected chamber followed by aspiration of its contents.” *Id.* at 26:57–62.

C. CHALLENGED CLAIMS AND ASSERTED GROUNDS OF
UNPATENTABILITY

Claim 1, representative of the challenged claims, reads as follows:

1. A method of culturing a cell, the method comprising:
 - [A] retaining the cell at a retaining position within an individual chamber of a microfabricated device;
 - [B] perfusing the cell with a perfusion fluid by flowing the perfusion fluid into the individual chamber through an inlet and out of the chamber through an outlet,
 - [C] wherein the outlet is positioned such that gravitational forces acting on the cell to keep it at or near the retaining position exceed hydrodynamic forces acting on the cell to move it toward the outlet;
 - [D] culturing the cell within the chamber and monitoring a response in the chamber; and
 - [E] selectively recovering the cell or a clonal population thereof from the individual chamber based on the response in the monitoring step.

Ex. 1001, 37:27–38:25 (Petitioner’s reference letters added).

Petitioner argues five grounds for *inter partes* review, as summarized in the following table:

Ground	Claims Challenged	35 U.S.C. § ⁴	Reference(s)/Basis
1	1, 6, 11, 19, 24, 26, 27, 30	102(a), (e)	Dimov ⁵
2	1, 6, 11, 19, 24, 26, 27, 30	103(a)	Dimov
3	1, 6, 11, 19, 24, 26, 27, 30	103(a)	Dimov, Kovac ⁶
4	1, 11, 16, 24, 26, 27, 30	103(a)	Park ⁷
5	1, 11, 16, 24, 26, 27, 30	103(a)	Park, Kovac

Pet. 8.

D. DECLARATORY TESTIMONY

Petitioner relies on the declaration of Dr. Carl Meinhart. Ex. 1002. Patent Owner does not challenge Dr. Meinhart's qualifications to provide expert testimony on the subject matter of his declaration, and does not submit rebuttal testimony at this stage.

⁴ 35 U.S.C. §§ 102, 103 (2006), *amended by* Leahy–Smith America Invents Act, Pub. L. No. 112-29 §§ 102, 103, sec. (n)(1), 125 Stat. 284, 287, 293 (2011) (effective Mar. 16, 2013). These versions of §§ 102 and 103 apply because the effective priority date of the '408 patent (no later than July 7, 2011) is before the effective date of the AIA amendments. *See supra* part II.B.

⁵ Dimov et al., US 8,906,669 B2 (issued Dec. 9, 2014 from application filed Oct. 9, 2009) (Ex. 1003). Petitioner also includes, within this ground, published international and US versions of the application which, according to Petitioner, contain the same text as all citations to Dimov in the Petition. Pet. 6 & n.1 (citing Exs. 1004, 1005). We refer to these publications, collectively, as “Dimov.”

⁶ J.R. Kovac & J. Voldman, *Intuitive, Image-Based Cell Sorting Using Optofluidic Cell Sorting*, 79 Anal. Chem. 9321 (2007) (“Kovac,” Ex. 1007).

⁷ Joong Yull Park et al., *Single Cell Trapping in Larger Microwells Capable of Supporting Cell Spreading and Proliferation*, 8 Microfluidics & Nanofluidics 263 (2010) (“Park,” Ex. 1006).

Petitioner also relies on the declaratory testimony of Dr. Ingrid Hsieh-Yee to establish the date of public availability for certain references.

Ex. 1020. Patent Owner does not contest Dr. Hsieh-Yee's testimony at this preliminary stage.

III. GROUNDS OF THE PETITION

For the reasons below, we determine that there is a reasonable likelihood that Petitioner would prevail in showing that at least one of claims 1, 6, 11, 16, 19, 24, 26, 27, and 30 of the '408 patent is unpatentable under the grounds raised in the Petition. Before analyzing those grounds in detail, we first address the level of ordinary skill in the art, and whether we need to construe any claim terms explicitly for our analysis.

A. LEVEL OF ORDINARY SKILL IN THE ART

The level of ordinary skill in the pertinent art at the time of the invention is relevant to how we construe the patent claims. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). It is also one of the factual considerations relevant to obviousness, *see Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966), and it is relevant when considering whether a reference anticipates a claimed invention, *see In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

To assess the level of ordinary skill, we construct a hypothetical “person of ordinary skill in the art,” from whose vantage point we assess obviousness and claim interpretation. *See In re Rouffet*, 149 F.3d 1350, 1357 (Fed. Cir. 1998). This legal construct “presumes that all prior art references

in the field of the invention are available to this hypothetical skilled artisan.” *Id.* (citing *In re Carlson*, 983 F.2d 1032, 1038 (Fed. Cir. 1993)).

Relying on Dr. Meinhart’s testimony, Petitioner argues that a person of ordinary skill in the art “would have had a bachelor’s degree in mechanical engineering, chemical engineering, biomedical engineering, molecular biology, (bio)chemistry, or an equivalent degree relevant to microfluidic biological cell analysis, and three to five years of experience with the construction of and application of microfluidic devices to cell culture and analysis.” Pet. 8–9 (citing Ex. 1002 ¶ 40).

Patent Owner does not dispute this proposed level of ordinary skill in its Preliminary Response. *See* Prelim. Resp. 7. Because it is supported by testimonial evidence and appears reasonable at this stage in light of the subject matter of the ’408 patent, we adopt Petitioner’s proposed level of ordinary skill in the art for this decision. If Patent Owner proposes a different articulation at trial, we will consider any evidence that Patent Owner submits, in light of the full trial record.

B. CLAIM CONSTRUCTION

In an *inter partes* review, we construe a patent claim “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b). This includes “construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.* The ordinary and customary meaning of a claim term “is its meaning to the ordinary artisan after reading the entire patent,” and “as of the effective filing date of the

patent application.” *Phillips*, 415 F.3d at 1313, 1321. We also consider “[a]ny prior claim construction determination concerning a term of the claim in a civil action . . . that is timely made of record” in this proceeding. 37 C.F.R. § 42.100(b).

Petitioner contends that “no terms require express construction for purposes of resolving the challenges in this proceeding.” Pet. 9; *accord* Pet. 12. But Petitioner notes that, in the parallel district court proceedings, Patent Owner proposed constructions for the terms “chamber” and “retaining position” that differ from Petitioner’s proposed constructions. Pet. 9–10 (citing Ex. 1013, 6, 8 (Patent Owner’s proposed constructions); Ex. 1021, 7, 8 (Petitioner’s proposed constructions); Ex. 1002 ¶ 44). Although Petitioner does not contend that its arguments rely on the choice of construction for these terms, Petitioner adopts Patent Owner’s constructions for its Petition. Pet. 11. In the parallel district court litigations, Patent Owner’s proposed construction for “chamber” is “an enclosed space within a microfluidic device,” and its proposed construction for “retaining position” is “a location in the chamber at which a cell is maintained during cell culture and media exchange.” Ex. 1013, 6, 8.

In its Preliminary Response, Patent Owner contends that, because Petitioner relies on proposed explicit constructions Petitioner does not agree with, Petitioner does not satisfy the requirement of 37 C.F.R. § 42.104(b)(3), which requires a petitioner to identify “[h]ow the challenged claim is to be construed.” Prelim. Resp. 7–8 (citing non-precedential PTAB decisions). Patent Owner also contends that the Petition is unclear as to which of Patent Owner’s alleged interpretations of “chamber” Petitioner applies in the Petition. *See* Prelim. Resp. 10–11.

Under the circumstances, we disagree with Patent Owner that the Petition is deficient under § 42.104(b)(3) because of how Petitioner addresses claim construction. Petitioner’s main argument is that we do not even need to construe “chamber” or “retaining position” explicitly in this proceeding. *See* Pet. 9, 12. We agree that neither term needs an explicit construction, at least for our decision to institute trial. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

That Petitioner alternatively offers two explicit constructions with which it does not agree—and which are, effectively, irrelevant at this stage because we do not need to construe these terms—does not render the Petition insufficient. We do not discern any substantial ambiguity or lack of clarity in how Petitioner applies the terms “chamber” and “retaining position” to the asserted prior art. To the extent that it may become necessary to construe any terms explicitly at trial, we will consider evidence on both sides, and as usual, Petitioner will have the burden of persuasion. 35 U.S.C. § 316(e).

C. GROUNDS BASED ON DIMOV ALONE (GROUNDS 1 AND 2)

In its first and second grounds, Petitioner contends that Dimov anticipates claims 1, 6, 11, 19, 24, 26, 27, and 30 or alternatively that the claims are obvious over Dimov. *See* Pet. 12–40. As we discuss below, we do not find Petitioner’s arguments, at this stage, to be persuasive on either ground.

1. Overview of Dimov

Dimov describes “a microfluidic device having a fluid path defined within a substrate between an input and an output,” such that “particles provided within a fluid flowing within the fluid path will preferentially collect within the capture chamber.” Ex. 1003, code (57).

Figure 4B, reproduced below, shows a capture chamber within this device:

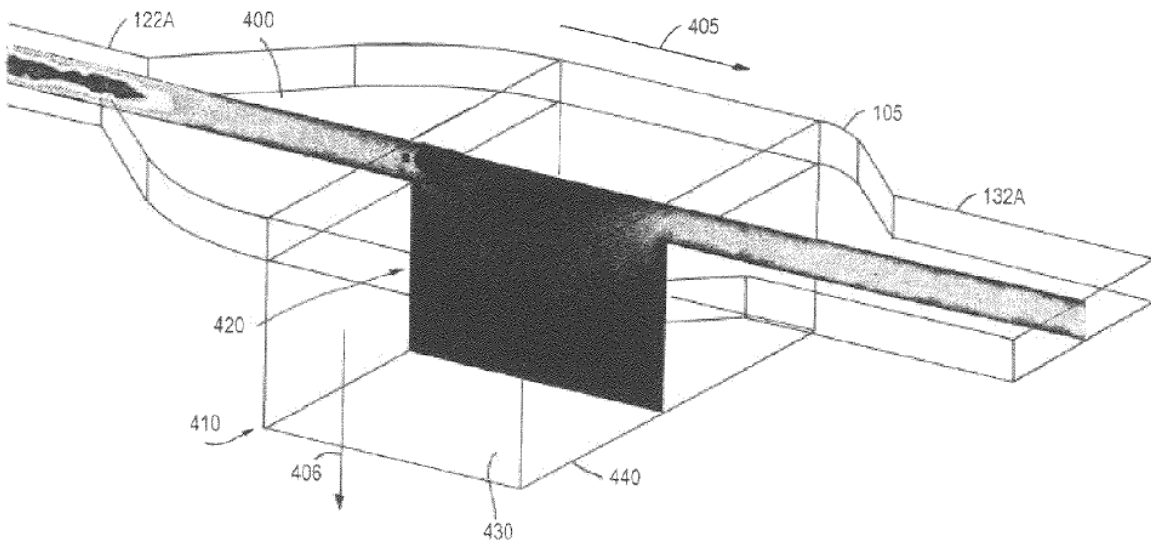


FIG. 4B

The chamber shown in Figure 4B, above, includes trench 410, formed within substrate 105, with mouth 420 in communication with fluid path 400, and sidewalls 430 that extend downward from mouth 420 to base 440, to a depth of approximately 300 μm . *Id.* at 5:27–32, 5:39–45.

Dimov’s trench 410 traps cells because “[a]s the fluid passes over the mouth of the trench it enters downwardly into the trench. This . . . causes a deceleration of the fluid,” which “causes particles within the fluid to be displaced from the fluid. Once displaced, they settle towards the base 440.” Ex. 1003, 6:37–43. Dimov teaches that “the trench is desirably dimensioned

relative to the flow rate of the operating conditions such that once displaced the particles will be retained within the trench.” *Id.* at 6:44–47.

2. *Whether Dimov Anticipates Claim 1*

(a) Limitations 1A–D

Petitioner contends that Dimov discloses the preamble and limitations 1A–D, and points to passages within Dimov describing retaining a cell in a chamber, perfusing the cell with fluid while the cell is retained in the chamber, and culturing the cell within the chamber while monitoring a response. Pet. 13–26 (citing Ex. 1003, 1:40–47, 1:52–53, 1:57–60, 2:25–27, 2:33–36, 3:37–41, 3:47–53, 5:10–24, 5:27–35, 6:37–47, 7:4–20, 7:24–28, 8:16–18, 8:40–42, 9:32–48, 10:10–11, 10:55–58, 12:13–19, 12:66–13:3, 13:11–18, 13:23–42, 13:59–67, 14:1–6, 14:8–10, 14:13–17, 14:26–56, 15:1–13, 15:20–26, 16:4–7, Figs. 4B, 6, 7, 24; Ex. 1002 ¶¶ 54–84).

At this stage, Patent Owner does not dispute Petitioner’s allegations regarding limitations 1A–D, and without taking a position on whether the preamble of claim 1 is limiting, we find Petitioner’s contentions sufficiently persuasive on the preliminary record.

(b) Limitation 1E

Limitation 1E recites “selectively recovering the cell or a clonal population thereof from the individual chamber based on the response in the monitoring step.” Ex. 1003, 32:7–9. Petitioner contends that Dimov discloses this limitation by listing various techniques that can be used “within the trench to provide for mixing or the like, *or to effect removal of the particles out of the trench.*” Pet. 27 (quoting Ex. 1003, 11:21–26) (citing Ex. 1002 ¶ 85). Dimov then gives a list of examples including acoustic,

magnetic, inertial, electric, dielectrophoretic, and thermo-hydrodynamic techniques, as well as the use of laser tweezers, hydrodynamically induced agitation, and specific or unspecific attachment to a surface. Pet. 27 (citing Ex. 1003, 11:30–40).

Petitioner also argues that “Dimov refers to removal of the particles out of an individual trench (‘the trench’) Thus, Dimov discloses selectively recovering the individual cell, or a clonal population thereof, from the individual chamber.” Pet. 28 (citing Ex. ¶ 88). And according to Petitioner, a person of ordinary skill in the art “would have understood that at least some of the above techniques, such as laser tweezers, are techniques that, by their very natures and because of their technical limitations, would necessarily be directed to individual trenches.” Pet. 28 (citing Ex. 1002 ¶ 89).

Next, Petitioner argues that Dimov motivates “analysis or experimentation” after loading the cells into the device, and a person of ordinary skill in the art would have removed the cells from the device for later analysis of experimentation based on the same motivation. Pet. 29 (citing Ex. 1003, 11:29–30, 12:13–18; Ex. 1002 ¶ 90).

Finally, Petitioner asserts that a person of ordinary skill “would have at once envisaged basing the removal of the cell on the response in a monitoring step.” Pet. 29 (citing *Kennametal, Inc. v. Ingersoll Cutting Tool, Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015); Ex. 1002 ¶ 91); *see also* Pet. 29–30 (citing Ex. 1002 ¶¶ 92–92) (giving examples of reasons why a person of ordinary skill would have envisioned removing cells for further analysis).

In its Preliminary Response, Patent Owner argues that based on Petitioner’s arguments, “a person of skill in the art would need to look

beyond Dimov to find any *actual disclosure* of ‘selective recovery.’” Prelim. Resp. 25. According to Patent Owner, Petitioner’s analysis is an abuse of *Kennametal*, which “does not stand for the proposition that a reference missing a limitation can anticipate a claim if a skilled artisan viewing the reference would ‘at once envisage’ the missing limitation.” *Id.* at 29–30 (quoting *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 851 F.3d 1270, 1274 (Fed. Cir. 2017) (“*Nidec IP*”). Patent Owner also argues that Petitioner has not shown that Dimov enables any selective removal of cells, because Dimov provides no examples and gives no specifics about applying the listed techniques to recovering cells. *Id.* at 30–31.

To establish anticipation, a petitioner must find each and every element in a claim, arranged as recited in the claim, in a single prior art reference. *See Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008). The limitations may be present in the reference “either explicitly or inherently.” *In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997). Further, an anticipating prior art reference must be enabling and must describe the “claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the field of the invention.” *See Helifix Ltd. v. Blok-Lok, Ltd.*, 208 F.3d 1339, 1346 (Fed. Cir. 2000). We do, however, consider the reference “together with the knowledge of one of ordinary skill in the pertinent art.” *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (citing *In re Samour*, 571 F.2d 559, 562 (CCPA 1978)).

Based on these principles, we agree with Patent Owner that Petitioner has not identified within the four corners of Dimov a sufficient disclosure of selectively recovering a cell based on the response in the monitoring step. Although Dimov discloses non-selective recovery, and although Petitioner

has identified techniques that might theoretically be used for selective recovery, Dimov itself does not appear, based on the preliminary record, to disclose selective recovery based on a prior monitoring step. We also agree with Patent Owner that Petitioner's reliance on *Kennametal* is misplaced. "*Kennametal* does not permit the Board to fill in missing limitations simply because a skilled artisan would immediately envision them." *Nidec II*, 851 F.3d at 1274–75. Thus, on the present record, Petitioner has not shown sufficiently that Dimov anticipates claim 1.

3. *Whether Claim 1 Would Have Been Obvious Over Dimov*

Alternatively, in its second ground, Petitioner argues that claim 1 would have been obvious over Dimov, in view of the background knowledge of a person of ordinary skill in the art. Pet. 34–35 (citing Ex. 1002 ¶ 106). According to Petitioner, Dimov discloses both monitoring a response in the chamber and removing cells from the chamber, and teaches reasons why a skilled artisan would have wanted to further analyze cells cultured in the chamber (such as to further characterize a cell that exhibited particular surface proteins). Pet. 35–36 (citing Ex. 1002 ¶¶ 107–110).

According to Petitioner, Dimov discloses a two-layer device comprising two PDMS layers. Pet. 37 (citing Ex. 1003, 3:10–12, 5:37–39, 15:27–46, Fig. 25). Because Dimov "does not teach bonding the two layers together," Petitioner contends that a person of ordinary skill in the art "would have found it obvious to construct the device of Dimov in a way that would permit the top layer of the device to be peeled back so a trench could be accessed directly." Pet. 36–38 (citing Ex. 1003, 15:44–45, Ex. 1002

¶¶ 112–115).⁸ According to Petitioner, a person of ordinary skill in the art “would have been familiar with the use of micropipettes and would have found it obvious, for example, to simply insert a micropipette into a trench and aspirate one or more cells” after peeling back the top PDMS layer. Pet. 36 (citing Ex. 1002 ¶ 111).

Patent Owner counters that “nothing in Dimov teaches or suggests using a micropipette to selectively recover cells from the chambers, nor a top layer of the device that can be peeled back, as Petitioner proposes.” Prelim. Resp. 34. According to Patent Owner, a person of ordinary skill in the art “would have no motivation, outside of the impermissible use of hindsight, to make such a modification to Dimov’s devices.” *Id.* (citing *Cheese Sys., Inc. v. Tetra Pak Cheese & Powder Sys., Inc.*, 725 F.3d 1341, 1352 (Fed. Cir. 2013)).

A claim is unpatentable under § 103 for obviousness if the differences between the claimed subject matter and the prior art are “such that the subject matter as a whole would have been obvious at the time the invention

⁸ Petitioner also relies on Chao Han, et al., *Integration of Single Oocyte Trapping, In Vitro Fertilization and Embryo Culture in a Microwell-Structured Microfluidic Device*, 10 Lab on a Chip 2848 (2010) (“Han”). Pet. 38–40. According to Petitioner, Han discloses a similar procedure that involves peeling back an upper PDMS layer and aspirating oocyte cells using a micropipette. *Id.* But as Patent Owner correctly points out, Petitioner does not demonstrate (or even clearly allege) that Han is prior art to the ’408 patent, and does not rely on Han as prior art in any ground of the Petition. See Prelim. Resp. 36. Nor does Petitioner adequately explain how we could rely on Han in a supporting role such as to provide evidence of the meaning of a claim term, or of how one of ordinary skill might have understood Dimov. See *Yeda Research v. Mylan Pharm. Inc.*, 906 F.3d 1031, 1041 (Fed. Cir. 2018).

was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). For a combination of known elements that are not explicitly found together in the prior art, we consider “whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue.” *Id.* at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006)). A successful petition must “articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016) (citing *KSR*, 550 U.S. at 418); *see also* 35 U.S.C. § 322(a)(3); 37 C.F.R. §§ 42.22(a)(2), 42.104(b)(4) (2020).

We base our obviousness inquiry on factual considerations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) any objective indicia of obviousness or non-obviousness that may be in evidence.⁹ *See Graham*, 383 U.S. at 17–18.

Based on these factors, we conclude that Petitioner has not made a sufficient showing that claim 1 would have been obvious over Dimov. Petitioner’s proposed modification of Dimov, though remarkably similar to the process of aspirating cells disclosed in the ’408 patent, does not seem to appear expressly in Dimov (*see supra* part II.B), nor has Petitioner demonstrated persuasively that one of ordinary skill in the art would have been motivated to make the proposed modification with a reasonable

⁹ At this stage, the parties do not identify any objective indicia of obviousness or non-obviousness, so this does not factor into our decision to institute an *inter partes* review.

expectation of success based on Dimov alone. Thus, on the present record, Petitioner has not shown sufficiently that claim 1 would have been obvious over Dimov without combination with another prior art reference.

4. *Claims 6, 11, 19, 24, 26, 27, and 30*

Claims 6, 11, 19, 24, 26, 27, and 30 depend, directly or indirectly, from claim 1, and thus incorporate limitation 1E and its requirement of “selectively recovering the cell or a clonal population thereof from the individual chamber based on the response in the monitoring step.” *See* Ex. 1001, 32:7–9, 32:23–25, 32:35–38, 32:58–61, 33:6–7, 33:10–14, 33:19–20. Petitioner’s analysis of these claims addresses only the added limitations of each dependent claim and does not provide further argument that would remedy the deficiency in Petitioner’s analysis comparing claim 1 to Dimov. *See* Pet. 30–34.

Thus, for the reasons given above as to claim 1, Petitioner has not shown sufficiently that Dimov anticipates claims 6, 11, 19, 24, 26, 27, and 30, or that the claims are obvious over Dimov alone. *See In re Fine*, 837 F.2d 1071, 1076 (Fed. Cir. 1988) (“Dependent claims are nonobvious under section 103 if the independent claims from which they depend are nonobvious.”).

D. GROUND BASED ON DIMOV AND KOVAC

In its third ground, Petitioner contends that claims 1, 6, 11, 19, 24, 26, 27, and 30 are unpatentable as obvious over Dimov in view of Kovac. *See* Pet. 40–45. For the reasons below, we determine that Petitioner is reasonably likely to prevail on its ground relying on both Dimov and Kovac.

1. Overview of Kovac

Kovac describes a microfluidic cell-sorting device that uses “the scattering force from a focused infrared laser to levitate cells of interest from their wells into a flow field for collection.” Ex. 1007, 9321. According to Kovac, such “sorting can be a way to select a desired starting population of cells of known characteristics or can be a tool to analyze the results of an experiment and isolate particularly interesting cells for further investigation.” *Id.* (footnote omitted).

Figure 1 of Kovac, which illustrates this cell sorting process, is reproduced below:

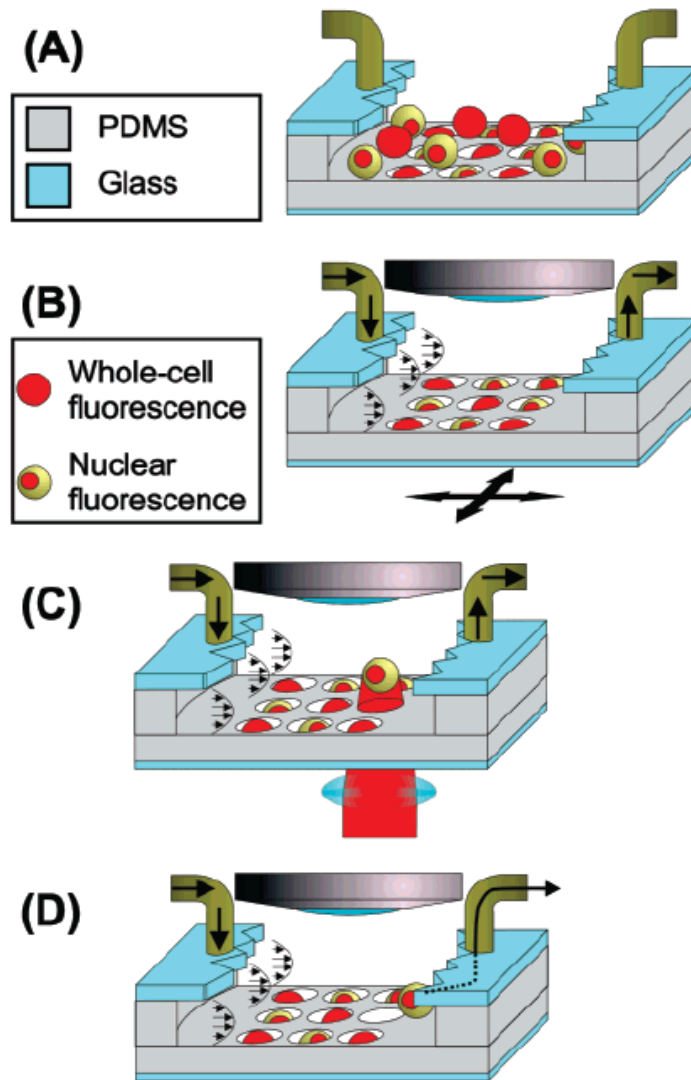


Figure 1, above, depicts a device with two glass layers between which is sandwiched a PDMS layer containing microwells, and above the microwells is a flow field in communication with a fluid inlet and a fluid outlet. As depicted in step (A), cells are injected into the device, and the cells sediment into the array while the fluid is stationary. Ex. 1007, 9322. In step (B), “[c]ells remaining outside wells flow away after flow resumes.” *Id.* In step (C), “[a]fter locating cells of interest, we focus an infrared (IR) laser beam onto target cells, levitating the cells into the flow field with the optical scattering force.” *Id.* Finally, in step (D), “[f]luid drag overcomes lateral

optical forces, releasing the cell and washing it downstream for fractionation.” *Id.*

2. *Claim 1*

For this ground, Petitioner relies on Dimov as teaching limitations 1A–D, as discussed above in the context of the Dimov-only grounds, and in this case relies on Kovac for teaching limitation 1E. *See* Pet. 40–41.

According to Petitioner, Kovac’s method selectively recovers cells by levitating them with a laser so that they “flow to a reservoir of the microfluidic device, where they are removed from the device by micropipette.” Pet. 42 (citing Ex. 1007, 9322; Ex. 1002 ¶ 125). Petitioner argues that, according to Kovac, this technique “was straightforward, user-friendly, and conceivably automatable,” and that it “was simple to implement in a standard microscope with minimal modification.” Pet. 43 (citing Ex. 1007, 9325). Thus, Petitioner argues that a person of ordinary skill in the art “would have been motivated to modify Dimov to add the selective recovery method described in Kovac.” Pet. 43 (citing Ex. 1002 ¶ 126).

More particularly, Petitioner argues that an ordinarily skilled artisan would have used a microscope to inspect the trenches of Dimov’s device, and then would have “focus[ed] an infrared (IR) laser beam onto target cells from below through the glass substrate and bottom PDMS layer, as described in Kovac, levitating the cells into the flow field with the optical scattering force.” Pet. 43 (citing Ex. 1007, 9322; Ex. 1002 ¶¶ 127–128). Petitioner notes that both the upper and lower layers of Dimov’s device are transparent, and the chambers would have been visible in either direction

using a microscope. *See* Pet. 44 (citing Ex. 1003, 5:38–39, 6:6–14, 9:13–20, 9:23–27, Figs. 11, 13; Ex. 1002 ¶ 128).

Petitioner contends that, “after levitating a cell of interest from a [chamber] in the Dimov device, the levitated cell could then be flowed down ‘a fluid path 103 defined within a substrate 105’ to ‘an output 130’ . . . where it could then be removed from the device by micropipette.” Pet. 44 (quoting Ex. 1003, 3:22–26) (citing Ex. 1002 ¶ 128).

Petitioner argues that a person of ordinary skill in the art “would additionally have been motivated to combine Dimov with Kovac as described above because Dimov expressly discloses removing particles, such as cells, from trenches using ‘[d]ielectrophoretic’ and ‘[l]aser tweezers’ techniques, . . . and Kovac uses similar techniques to accomplish its ‘selective levitation.’” Pet. 44 (citation omitted) (citing Ex. 1003, 11:36, 38; Ex. 1002 ¶ 130).

Finally, Petitioner contends that there would have been a reasonable expectation of success in combining Dimov with Kovac because “Kovac discloses that experimental results confirmed that the selective levitation technique yielded the ‘expected viability given our optical parameters,’ and that ‘[c]ell retrieval from the device requires a simple pipetting step, which is standard lab practice and unlikely to damage cells.” Pet. 45 (alteration in original) (quoting Ex. 1007, 9327–28) (citing Ex. 1007, 9328; Ex. 1002 ¶ 131).

In response, Patent Owner contends that Dimov’s trenches are too deep for a person of ordinary skill in the art to have expected to successfully use the optical levitation method disclosed in Kovac. *See* Prelim. Resp. 38–40. According to Patent Owner, Dimov’s trenches have a preferred depth of

300 microns, and “[b]y contrast, in Kovac, the most effective trenches were approximately 1/10 of Dimov’s preferred depth, i.e., 35 microns.” *Id.* at 38 (citing Ex. 1003, 5:39–45; Ex. 1007, 9326). According to Patent Owner, “Kovac itself suggests multiple problems with the combination Petitioner proposes” because “[a]s the cell is levitated away from the laser focus, the local intensity and lateral gradient force drop due to beam divergence.” *Id.* (alteration in original) (quoting Ex. 1007, 9326). Yet, according to Patent Owner, “the cells in Dimov must be levitated to a height about ten times that in Kovac before they can exit the trenches.” *Id.*

Also, Patent Owner suggests that this prolonged exposure to lasers would likely damage the cells, as evidenced by Kovac’s discussion on the topic of possible cellular damage. Prelim. Resp. 38–39 (citing Ex. 1007, 9327; Ex. 2004, Table S-1 (supporting information for the Kovac article); Ex. 2005, 1529 (journal article, cited in Kovac, reporting that the duration of laser exposure generally decreases clonal growth); Ex. 2006, 2856 (journal article, cited in Kovac, reporting that the usefulness of optical tweezers has been limited by the potential for damaging specimens); Ex. 2007, 378, 382 (reporting that DNA damages increases with increasing near-infrared exposure time)).

Thus, Patent Owner contends that “Petitioner has not shown motivation to combine with a reasonable expectation of success and therefore fails to show obviousness over Dimov in view of Kovac.” Prelim. Resp. 40.

For the reasons outlined in the Petition, we find sufficiently persuasive, at this preliminary stage, Petitioner’s argument that a person of ordinary skill in the art would have been motivated to modify Dimov by

using Kovac's laser levitation method, and would have had a reasonable expectation of success. *See* Pet. 40–45. But Patent Owner has raised a substantial technical question about whether a person of ordinary skill in the art would have expected that modifying Dimov's device in this way would have been feasible in view of the potential risk of cell damage posed by prolonged laser exposure. This highly factual, technical question is best resolved at trial.

3. *Claims 6, 11, 19, 24, 26, 27, and 30*

For the specific additional limitations of dependent claims 6, 11, 19, 24, 26, 27, and 30, Petitioner relies on the teachings of Dimov and adds no further argument beyond the contentions in its anticipation ground. *See* Pet. 30–34, 40. Patent Owner does not contest these arguments in its Preliminary Response, and we find them sufficiently persuasive at this stage.

For the above reasons, we determine that Petitioner has shown that there is a reasonable likelihood that it would prevail with respect to at least one claim based on its ground alleging obviousness over Dimov in view of Kovac.

E. GROUND BASED ON PARK ALONE (GROUND 4)

In its fourth ground, Petitioner contends that claims 1, 11, 16, 24, 26, 27, and 30 are obvious over Park. *See* Pet. 45–61. As we discuss below, we do not find Petitioner's arguments sufficiently persuasive on the preliminary record.

1. Overview of Park

Park is a journal article describing “a flow method that enables single cell trapping in microwells with dimensions of 50 μm , a size sufficient to allow attachment and division of captured cells.” Ex. 1006, 263. According to Park, prior studies described methods for trapping multiple cells in each well, but “[s]ingle cell trapping is necessary to allow identification of differing cell phenotypes within a population of cells” and “enables observation of the direct descendants of single cells cultured under controlled biological conditions . . . , the analysis of intracellular compounds . . . , and the measurement of electrical functionality of cells.” *Id.* Thus, Park designed a triangular microwell array configured so that, “[o]nce a cell is captured, the cell presence in the microwell changes the flow pattern, thereby preventing trapping of other cells.” *Id.*

Figure 1a–c of Park are reproduced below:

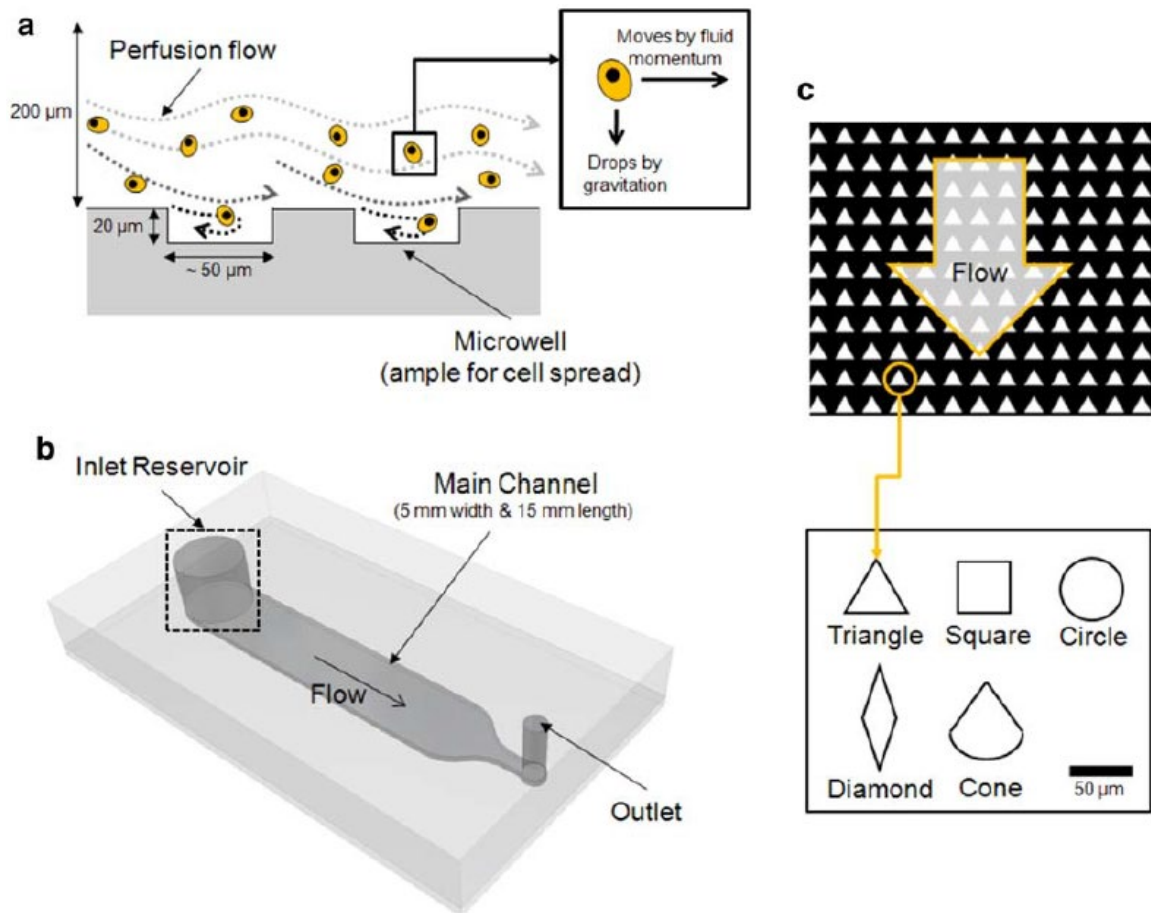


Figure 1b, above, shows the overall system, which includes an “inlet reservoir where the cell suspension is introduced, [a] main channel, microwells (not shown in the figure) patterned on the bottom surface of the main channel, and the outlet which is connected to a pulling syringe pump.” Ex. 1006, 264. Figure 1a, above, is a cross-sectional view of the microwells (20 μm deep and 50 μm wide) and the main channel (200 μm deep). “During the perfusion of cell suspension in the channel, the cells sink gradually due to gravity, and some cells are caught in microwells while others pass and are carried away by flow.” *Id.* Figure 1c, above, shows various microwell shapes

that the authors tested in simulation, and shows the orientation of triangular microwells compared to the flow direction. *Id.*

2. *Limitations 1A–D*

Petitioner contends that Park discloses the preamble and limitations 1A–D, and points to passages within Park describing retaining a cell in a chamber, perfusing the cell with fluid while the cell is retained in the chamber, and culturing the cell within the chamber while monitoring a response. Pet. 45–57 (citing Ex. 1006, 264–68, Figs. 1–3; Ex. 1002 ¶¶ 132–159).

At this stage, Patent Owner does not dispute Petitioner’s allegations regarding limitations 1A–D, and without taking a position on whether the preamble of claim 1 is limiting, we find the contentions sufficiently persuasive on the preliminary record.

3. *Limitation 1E*

For the selective recovery step of limitation 1E, Petitioner argues that because Park discloses culturing cells and monitoring responses in the triangular microwells, “[i]t would have been obvious to a [person of ordinary skill in the art] to make use of this monitoring by selectively removing one or more cells from an individual microwell based on a response—e.g., a long-term cell response or an instantaneous cell reaction—observed through such monitoring.” Pet. 57 (citing Ex. 1002 ¶ 160).

In order to accomplish this, Petitioner contends that a skilled artisan “would have found it obvious to construct the device of Park in a known way that would permit the top layer of the device to be removed or peeled back so a microwell could be accessed directly by micropipette.” Pet. 57

(citing Ex. 1002 ¶ 161). Petitioner contends that Park’s device has two layers, and although Park does not disclose what materials the layers are made of, “it would have been obvious to a [person of ordinary skill in the art] to make such layers from PDMS.” Pet. 57 (citing Ex. 1002 ¶ 162). Because “Park does not state that the two layers of its device are bonded together,” Petitioner contends that this “suggest[s] that the top layer may actually be removable,” but even if Park’s top layer is not removable, according to Petitioner, an ordinarily skilled artisan “would have found it obvious to construct the device so that it would be removable or to partially bond the top layer to the bottom layer so the top layer could be peeled back to expose the microwell array.” Pet. 58 (citing Ex. 1002 ¶¶ 163–164).¹⁰

Patent Owner counters that “Park is entirely silent with respect to selectively recovering material from the microwells,” and focuses instead on ensuring that the microwells “have space for subsequent cell division *within the microwells*.” Prelim. Resp. 40 (citing Ex. 1006, 268). Patent Owner also disputes that Park’s cover layer is removable or partially bonded to the lower layer, because “Park specifically states ‘that a cover is required to create the channel, restricting access to the microwells during cell seeding.’” *Id.* at 41 (citing Ex. 1006, 268).

Based on the preliminary record, Park itself does not appear to motivate making the top layer removable and aspirating cells from

¹⁰ As with its second ground asserting obviousness based on Dimov, Petitioner relies on Han to support its proposed modification of Park’s device. *See* Pet. 58 (citing Ex. 1009, 2849; Ex. 1002 ¶¶ 164–165). Again, Patent Owner notes that Petitioner has not asserted Han as prior art with respect to this ground. *See* Prelim. Resp. 41. As discussed above, we do not find Petitioner’s use of Han persuasive at this stage. *See supra* note 8.

microwells using a micropipette. At most, Petitioner has only shown why an ordinarily skilled artisan *could have* modified Park, not that there would have been actual motivation to make the proposed modifications. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“obviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention”). Thus, on the present record, we find Petitioner has not shown a reasonable likelihood of prevailing on its arguments that claim 1 would have been obvious over Park without combination with any other prior art reference.

4. *Claims 11, 16, 24, 26, 27, and 30*

Claims 11, 16, 24, 26, 27, and 30 depend, directly or indirectly, from claim 1, and thus incorporate limitation 1E. *See* Ex. 1001, 32:35–38, 32:52–53, 33:6–7, 33:10–14, 33:19–20. Petitioner’s analysis of these claims addresses only the added limitations of each dependent claim and does not provide further argument that would remedy the deficiency in Petitioner’s analysis comparing claim 1 to Park. *See* Pet. 59–61.

Thus, for the same reasons given above as to claim 1, we are not persuaded that claims 11, 16, 24, 26, 27, and 30 are obvious over Park without the combined teachings of any other prior art reference. *See Fine*, 837 F.2d at 1076.

F. GROUND BASED ON PARK AND KOVAC (GROUND 5)

In its fifth and final ground, Petitioner contends that claims 1, 11, 16, 24, 26, 27, and 30 are unpatentable as obvious over Park in view of Kovac. *See* Pet. 42–44. For the reasons below, we determine that Petitioner is

reasonably likely to prevail on its ground relying on the combination of Park and Kovac.

1. Claim 1

For this ground, Petitioner relies on Park for teaching limitations 1A–D, as discussed above in the context of the Park-only ground (Ground 4), and relies on Kovac for teaching limitation 1E. *See* Pet. 62. According to Petitioner, a person of ordinary skill in the art “would have been motivated to add the ‘selective levitation’ technique of Kovac, as described in [Petitioner’s third ground], to the methods disclosed in Park.” *Id.*

In particular, Petitioner contends that an ordinarily skilled artisan would have used a microscope to inspect Park’s microwells, and then would have “focus[ed] an infrared (IR) laser beam onto target cells from below, as described in Kovac, levitating the cells into the flow field with the optical scattering force.” Pet. 62 (citing Ex. 1007, 9322; Ex. 1002 ¶ 180). Petitioner contends that it would have been “obvious to use a transparent or semi-transparent material, such as PDMS, to construct the top layer of the Park device so as to permit visual observation of microwells from above.” Pet. 63 (citing Ex. 1002 ¶ 181). After levitating a cell, Petitioner argues that an ordinarily skilled artisan would then allow the cell to “flow[] down the ‘main channel’ to the existing ‘outlet,’ ‘which is connected to a pulling syringe pump’ to evacuate the cell from the device.” *Id.* (quoting Ex. 1006, 264) (citing Ex. 1002 ¶ 181).

In response, Patent Owner contends that Petitioner’s argument for this ground is too brief, “seeking to invalidate seven claims based on two pages of conclusory assertions.” Prelim. Resp. 43. We disagree. Although Petitioner’s analysis is brief, it refers back to Petitioner’s previous analysis

of Kovac in its third ground, and its analysis of Park’s disclosures of limitations 1A–D and the dependent claims in its fourth ground. *See* Pet. 62–63. Under these circumstances, Petitioner appears to have met its obligation to “articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness.” *Magnum Oil Tools*, 829 F.3d at 1380.

Patent Owner also contends that Petitioner has failed to adequately explain “why a [person of ordinary skill in the art] would have made the proposed modification with a reasonable expectation of success.” Prelim. Resp. 43. According to Patent Owner, “Park’s trenches [are] arrayed in multiple parallel rows with a common outlet. . . . As a result, the vast majority of particles levitated out of the microwells must pass over other microwells before reaching the outlet to be recovered.” *Id.* (citation omitted) (citing Ex. 1006, 264). But “Park reports only ‘62% of microwells were filled’ during the ‘loading procedure.’” *Id.* (quoting Ex. 1006, 263). Patent Owner contends that “[t]his leaves approximately 40% of the microwells open and in which the levitated cells could be recaptured—a number which would only increase if cells were removed.” *Id.* Thus, according to Patent Owner, “Petitioner has not explained why a [person of ordinary skill in the art] would be motivated to adopt such a cumbersome procedure for removal.” *Id.* at 43–44 (citing *Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017)).

For the reasons outlined in the Petition, we find sufficiently persuasive, at this preliminary stage, Petitioner’s argument that a person of ordinary skill in the art would have had reason to modify Park by using Kovac’s optical levitation method, and would have had a reasonable expectation of success. But Patent Owner has raised a significant question of

whether the proposed modification would have been achievable without the use of extraordinary skill or creativity in light of the possibility that cells liberated from Parks microwells might be recaptured by other microwells before they could be recovered using a micropipette. This highly factual, technical question is best resolved at trial.

2. *Claims 11, 16, 24, 26, 27, and 30*

For dependent claims 11, 16, 24, 26, 27, and 30, Petitioner relies on the teachings of Park and adds no further argument beyond the contentions in its obviousness ground based on Park alone (Ground 4). *See* Pet. 59–62. Patent Owner does not contest these arguments in its Preliminary Response, and we find them sufficiently persuasive at this stage.

For the above reasons, we determine that Petitioner has shown that there is a reasonable likelihood that it would prevail with respect to at least one claim based on its ground alleging obviousness over Park in view of Kovac.

IV. DISCRETIONARY DENIAL

Patent Owner argues that we should deny institution under the discretion afforded by 35 U.S.C. § 325(d) because the Patent Office has previously addressed substantially the same prior art or arguments as those found in the Petition. Prelim. Resp. 13–23.

Section 325(d) provides that the Director (and thus the Board acting on the Director’s behalf, *see* 37 C.F.R. § 42.4(a)) may elect not to institute a trial if the petition challenges a patent based on matters previously presented to the Office: “In determining whether to institute or order a proceeding under this chapter, chapter 30, or chapter 31, the Director may take into

account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” The Board uses a two-part framework for this determination:

- (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office;
- and (2) if either condition of [the] first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential).

Relevant to this analysis are six factors outlined in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017) (precedential as to § III.C.5, first paragraph):

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination;
- (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;
- (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art;
- (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and
- (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson, Paper 8 at 17–18 (formatting added). “[T]he *Becton, Dickinson* factors provide useful insight into how to apply the framework under 35 U.S.C. § 325(d).” *Advanced Bionics*, Paper 6 at 8 (footnote

omitted). Factors (a), (b), and (d) pertain to the first part of the *Advanced Bionics* framework, while factors (c), (e), and (f) pertain to the second part of that framework. *Id.* at 10.

As we discuss below, Petitioner’s first two grounds, based on Dimov alone, present the same or substantially the same arguments that the Examiner considered during prosecution, and Petitioner has not shown that the Examiner was in error as to those grounds. But the remaining three grounds of the Petition present issues that the Examiner did not consider. Thus, we decline to deny institution on this basis.

A. WHETHER THE SAME OR SUBSTANTIALLY THE SAME ART OR
ARGUMENTS WERE PRESENTED DURING PROSECUTION

The parties appear to agree that during prosecution of the ’408 patent, the Examiner considered Dimov (Ex. 1005), but did not consider Park or Kovac. Pet. 66–67; *see* Prelim. Resp. 15–16; *see also* Ex. 1015, 129 (applicant’s information disclosure statement citing Dimov), 430 (Examiner rejecting claims under § 102(e) as anticipated by Dimov), 440 (Examiner indicating that the Examiner considered Dimov), 459 (applicant responding to rejection), 471 (Examiner rejecting claims under § 103 as obvious over Dimov and Felder,¹¹ a secondary reference not relied on in the Petition), 494 (applicant responding to rejection), 535 (withdrawing rejection based on Dimov after finding arguments persuasive).

As Patent Owner correctly notes, the Examiner considered the question of whether Dimov explicitly discloses limitation 1E, “selectively

¹¹ Felder et al., US 2005/0054101 A1 (published Mar. 10, 2005) (“Felder,” Ex. 1028).

recovering the cell or a clonal population thereof from the individual chamber based on the response in the monitoring step.” Prelim. Resp. 15–16 (citing Ex. 1015, 471–72). Thus, at least with respect to the first two grounds of the Petition involving Dimov alone, the Examiner considered substantially the same art and arguments during prosecution.

But Petitioner argues that the Examiner’s consideration of Dimov in combination with Felder (Ex. 1028) did not present the same or substantially the same issues as Petitioner’s asserted combination of Dimov and Kovac, because “Felder was far afield, describing ‘functionalized and/or engineered hydrogel microcarriers’ and cell growth in traditional bioreactors.” Pet. 68. Patent Owner does not specifically address the similarities between this Dimov–Felder combination and any of the grounds asserted in the Petition. *See* Prelim. Resp. 13–23. For example, Patent Owner does not argue that Kovac is cumulative to or overlaps with the arguments made during examination. *See id.*

We agree with Petitioner that by considering Dimov alone or in combination with Felder, the Examiner did not consider the same or substantially the same issues as presented by the combination of Dimov and Kovac, or the issues presented by the combination of Park and Kovac. Thus, we determine that during prosecution, the Examiner considered the same or substantially the same art and arguments as the two grounds in the Petition involving Dimov alone, but the Examiner did not consider the same or substantially the same art and arguments raised in the remaining grounds.

B. WHETHER PETITIONER SUFFICIENTLY DEMONSTRATES THAT THE
OFFICE ERRED IN A MANNER MATERIAL TO PATENTABILITY

If the Examiner considered the same or substantially the same arguments as presented in the Petition, we consider in the second part of the *Advanced Bionics* framework whether Petitioner has sufficiently shown that the Office erred in a manner material to the patentability of the challenged claims. Examples of such errors may include misapprehending or overlooking specific material teachings of the relevant prior art or misapplying the law in a material way. *See Advanced Bionics*, Paper 6 at 8–9 n.9. For this analysis, *Becton*, *Dickinson* factors (c), (e), and (f) are particularly relevant. *See id.* at 10.

In arguing that the Examiner erred, Petitioner relies on its substantive arguments, made in the Petition, that Dimov alone discloses or teaches all the limitations of claim 1. *See* Pet. 67–71. As we discuss above, we do not find Petitioner’s arguments persuasive based on the preliminary record, and thus, we do not find them convincing in the context of § 325(d). *See supra* part III.C.

However, Patent Owner’s arguments under § 325(d) are directed only to Grounds 1 and 2. Ground 3 asserts Dimov in combination with Kovac, a reference that the Examiner did not consider, and Grounds 4 and 5 do not involve Dimov at all. Because Patent Owner’s arguments for discretionary denial of the Petition under § 325(d) address only two of the five asserted grounds, we determine that § 325(d) is not sufficiently implicated such that its statutory purpose would be undermined by instituting on all grounds. *See* SAS Q&As D1 (June 5, 2018), <https://go.usa.gov/x7Hzb>. Accordingly, we decline to deny institution under § 325(d).

V. CONCLUSION

Based on the evidence available on the preliminary record, Petitioner has demonstrated a reasonable likelihood of success in showing that at least one of the challenged claims of the '408 patent is unpatentable on at least one of the grounds raised in the Petition. Thus, as directed by *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348 (2018), we institute an *inter partes* review on all grounds raised in the Petition. And under the circumstances, we decline to exercise our discretion to deny institution under § 325(d).

VI. ORDER

In consideration of the foregoing, it is

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1, 6, 11, 16, 19, 24, 26, 27, and 30 of the '408 patent is instituted with respect to all the grounds set forth in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, *inter partes* review of the '408 patent commences on the entry date of this Order, and notice is hereby given of the institution of a trial.

IPR2021-01249
Patent 10,087,408 B2

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