

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*.

JUDGMENT

Denying Petitioner's Request on Rehearing
35 U.S.C. § 314; 37 C.F.R. § 42.71

I. INTRODUCTION

Berkeley Lights, Inc. (“Petitioner”) filed a Request for Rehearing of the Final Written Decision (Paper 38, “Dec.” or “Decision”) determining that Petitioner had not shown that any 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”) were unpatentable. Paper 40 (“Req. Reh’g”).¹ Specifically, Petitioner requests rehearing on Grounds 2–5 asserting unpatentability under 35 U.S.C. § 103(a). *See id.* at 1. For the reasons that follow, the Request for Rehearing is *denied*.

II. STANDARD OF REVIEW

When a party requests rehearing on a final written decision, we “review the decision for an abuse of discretion.” 37 C.F.R. § 42.71(d) (2022). There is an abuse of discretion if we have made “a clear error of judgment in weighing relevant factors or in basing [our] decision on an error of law or on clearly erroneous factual findings.” *Bayer CropScience AG v. Dow AgroSciences LLC*, 851 F.3d 1302, 1306 (Fed. Cir. 2017) (quoting *Mentor Graphics Corp. v. Quickturn Design Sys., Inc.*, 150 F.3d 1374, 1377 (Fed. Cir. 1998)). In a request for rehearing, “[t]he burden of showing a

¹ We further refer to Patent Owner’s Response (Paper 18, “PO Resp.”), Petitioner’s Reply to the Patent Owner Response (Paper 22, “Pet. Reply”), and Patent Owner’s Sur-reply (Paper 29, “PO Sur-reply”).

decision should be modified lies with the party challenging the decision,” and “[t]he request must specifically identify all matters the party believes the Board misapprehended or overlooked, and the place where each matter was previously addressed” in the record. 37 C.F.R. § 42.71(d).

III. ANALYSIS

Petitioner’s arguments in the Request for Rehearing concern limitation 1E, which recites “selectively recovering the cell or a clonal population thereof from the individual chamber based on the response in the monitoring step.” Dec. 7; Ex. 1001, 32:7–9; *see generally* Req. Reh’g. We address Petitioner’s arguments below.

A. GROUND 2: CLAIMS 1, 6, 11, 19, 24, 26, 27, AND 30 AS OBVIOUS OVER DIMOV

1. *Motivation to Modify Dimov to Selectively Recover Cells of Interest*

As to the obviousness ground over Dimov, Petitioner asserts that we “misapprehended or overlooked Petitioner’s arguments by demanding that Dimov *alone* provide” the proposed motivation to selectively recover cells of interest for further analysis outside the device. Req. Reh’g 2–3. (citing Dec. 25, 30–31). Rather, Petitioner asserts that this ground “is based on Dimov *plus the knowledge of a [person of ordinary skill in the art]*.” *Id.* (citing Pet. Reply 8). Petitioner then reiterates its arguments relying the background knowledge in the art for the specific motivation to recover cells selectively. *Id.* at 3–4.

We disagree that we misapprehended Petitioner’s reliance, in part, on the background knowledge in the art. We characterized Petitioner’s

argument as “that claim 1 would have been obvious over Dimov, in view of the background knowledge of a person of ordinary skill in the art.” Dec. 24 (citing Pet. 34–35; Ex. 1002 ¶ 106). We also stated that “[t]he main issue in dispute for this ground is whether there was a sufficient motivation *and sufficient background knowledge in the art*, at the time of the claimed invention, that a person of ordinary skill in the art would have modified Dimov’s device to introduce selective recovery.” Dec. 25 (emphasis added).

In the Decision, we did not find Petitioner’s arguments persuasive in light of the background knowledge in the art. In particular, we found that Petitioner had not adequately shown that the background knowledge in the art would have been sufficient to inform a person of ordinary skill in the art how to apply the techniques such as “laser tweezers” that Dimov mentions briefly, in a way that would have allowed further analyses of cells outside Dimov’s device. *See* Dec. 29–31. We also found that Petitioner had not persuasively shown that modifying Dimov’s device to make its trenches accessible with a micropipette was within the background knowledge in the art at the time of the claimed invention. *See* Dec. 31–34.

Thus, we determine that Petitioner has not shown that we misapprehended or overlooked Petitioner’s asserted motivation to modify Dimov in view of the background knowledge in the art.

2. *Modifying Dimov to Recover a Cell from Dimov’s “Common Output” or “Common Waste”*

Petitioner argues that a person of ordinary skill in the art “would also be motivated to—and know how to—modify Dimov’s device to recover a cell of interest, even if it were true that ‘Dimov’s device is a “lab on a chip” designed in general to retain cells while performing multiple experiments.’”

Req. Reh’g 4 (citing Dec. 29). Specifically, Petitioner argues that one of ordinary skill in the art, employing Dimov’s listed techniques to remove a cell from a trench, “would know that the cell could be recovered from Dimov’s ‘common output’ or ‘common waste,’ as they are convenient outlets for accessing cells.” *Id.* at 4–5 (citing Pet. 35, 44; Pet. Reply 5). According to Petitioner, the Decision misapprehends “this evidence and overlooks a [person of ordinary skill in the art]’s ability to collect a *single* cell exiting from a device.” *Id.* at 5 (citing Pet. 44; Ex. 1003, 3:2–26, Fig. 2; Ex. 1002 ¶ 128).

This argument is unpersuasive. In our Decision, we found that Petitioner had not shown that Dimov’s teaching that the device can be modified to allow removal of particles from a trench through techniques such as “laser tweezers” was sufficient to teach selective recovery of cells suitable for use in further investigations such as sequencing or culturing. *See* Dec. 29–31; *see also* Dec. 24 (crediting Dr. Gale’s testimony that there would have been substantial obstacles to recovering specific cells liberated from Dimov’s trenches). Even if Dimov were read to include a teaching in that regard, we found that Petitioner’s argument was missing any persuasive showing that the specifics of conducting such removal would have been within the ordinary level of skill and creativity in the art at the time of the claimed invention. *See* Dec. 29–31.

3. *Recovering Cells via Micropipette Techniques*

Petitioner next asserts that we failed to consider a modification of Dimov that involves “insert[ing] a micropipette into the trench and aspirat[ing] one or more cells . . . , for example, by piercing the top layer of PDMS (which is only 40 microns thick in Dimov’s device) with a

micropipette.” Req. Reh’g 5–6 (citing Ex. 1003, 5:37–39; Pet. 36–40; Pet. Reply 5, 8; Ex. 1038, 39:18–22). According to Petitioner, this is a different proposed modification than the one we considered in our Decision, which involved peeling back the top layer over a trench so that the trench could be accessed with the micropipette. *Id.* at 6 (citing Dec. 31–34).

Petitioner points to only one brief mention, in its Petition, of piercing the top layer of Dimov’s device to retrieve cells with a micropipette. *Id.* at 6 (citing Pet. 40). That argument was not backed by any evidence other than a conclusory statement by Dr. Meinhart repeating the argument in the Petition. Pet. 40; Ex. 1002 ¶ 120. We do not credit that testimony because it lacks factual support. *Xerox Corp v. Bytemark, Inc.*, IPR2022-00624, Paper 9 (PTAB Aug. 24, 2022) (precedential) (the testimony of a declarant that merely repeats, verbatim, conclusory assertions from a petition, without citing additional supporting evidence or providing technical reasoning to support the testimony, is entitled to little weight). In particular, to the extent that Petitioner argues on rehearing that Dimov’s top layer could have been pierced successfully by a micropipette because it was only 40 microns thick, Petitioner did not properly make this argument during trial or provide adequate evidentiary support.

Petitioner’s related argument is that it would have been obvious to make the top layer of Dimov’s device peelable. Req. Reh’g 6. This argument relies on Han as evidence of the purported state of knowledge in the art soon after the time of the claimed invention. *Id.*; Dec. 31–34. On rehearing, Petitioner argues that “[i]t was legal error for the Decision to discredit this probative evidence of a [person of ordinary skill in the art]’s motivation to selectively aspirate cells from a device by micropipette.” Req. Reh’g 6.

We did not disregard Han as potentially probative evidence. Rather, after noting that Han was not prior art, we found that “Petitioner has not shown that the peelable layer in Han’s device reflects the background knowledge of a person of ordinary skill in the art at the time of the claimed invention.” *Id.* at 33 (citing PO Sur-reply 7–8). Specifically, we agreed with Patent Owner that Han characterized its microfluidic device as “novel” and distinguished it from previous devices known in the art. *Id.* (citing PO Sur-reply 7–8; Ex. 1009, 2853).

For these reasons, we are not persuaded of any abuse of discretion in our determination that Petitioner failed to show that any of claims 1, 6, 11, 19, 24, 26, 27, and 30 would have been obvious over Dimov in view of the knowledge of one of ordinary skill in the art.

B. GROUND 3: CLAIMS 1, 6, 11, 19, 24, 26, 27, AND 30 AS OBVIOUS OVER DIMOV AND KOVAC

Petitioner asserts that we misapprehended its argument for combining Dimov and Kovac. According to Petitioner, our decision only considered “select[ing] Dimov’s microfluidic device for use in Kovac’s cell levitation method,” whereas Petitioner’s true argument was that a person of ordinary skill in the art would have modified Dimov’s device to incorporate Kovac’s laser levitation teachings. Req. Reh’g 9–10 (quoting Dec. 49); *see also id.* at 7–9 (reiterating Petitioner’s argument in the Petition and Reply).

We disagree that we misapprehended Petitioner’s argument by reversing the order of the references. Although we agreed with Patent Owner that Petitioner had failed to show that Dimov’s microfluidic device was a suitable starting point for use with Kovac’s cell levitation method (*see* Dec. 49), we summarized Petitioner’s position as follows: “Petitioner asserts

that the motivation to modify Dimov’s microfluidic device in view of Kovac’s levitation method would have been to allow a user to selectively recover cells of interest for later analysis outside the device.” Dec. 48 (citing Pet. 43); *see* Req. Reh’g 8–10. We also held that Petitioner had not shown evidence in Dimov “that a person of ordinary skill in the art would have selected Kovac’s *specific* laser levitation method for use in Dimov’s device to recover cells of interest for further analysis.” Dec. 49. We further found that Kovac’s laser levitation method was highly dependent on a number of parameters, and Petitioner had not persuasively shown that a person of ordinary skill in the art would have had the specific motivation or ability to discover those parameters to levitate cells in Dimov’s device in a way that avoided unacceptable cell damage and thus destroyed the very motivation that Petitioner asserts for using Kovac’s levitation method. *See* Dec. 49–51. We also found, as with the obviousness ground based on Dimov alone, that Petitioner had not shown it would have been feasible to successfully recover any liberated cells from Dimov’s device. Dec. 52.

Next, Petitioner argues that, by focusing on the difficulties a person of ordinary skill in the art would have faced in combining Dimov with Kovac, our analysis confuses “motivation to combine” with “reasonable expectation of success.” Req. Reh’g 11–12. We disagree. As Petitioner acknowledges, our Decision did not rely on whether Petitioner had shown a reasonable expectation of success. *See id.* at 7 (citing Dec. 51 n.15). In determining whether there would have been a motivation to combine Dimov with Kovac, we must consider “the background knowledge possessed by a person having ordinary skill in the art” and “the inferences and creative steps that a person of ordinary skill in the art would employ.” *KSR Int’l Co. v. Teleflex Inc.*, 550

U.S. 398, 418 (2007). In light of these considerations, we found that Petitioner failed to show that a person of ordinary skill in the art (as Petitioner articulated it) would have had the background necessary to adapt Kovac’s laser parameters for use in Dimov’s device to successfully recover usable cells from Dimov’s output or waste streams. *See* Dec. 50–52.

For these reasons, we are not persuaded of any abuse of discretion in our determination that Petitioner failed to show that any of claims 1, 6, 11, 19, 24, 26, 27, and 30 would have been obvious over Dimov in view of Kovac.

C. GROUND 4: CLAIMS 1, 11, 16, 24, 26, 27, AND 30 AS OBVIOUS OVER PARK

For the obviousness ground based on Park, Petitioner argues that our statement that “Petitioner has not pointed to anything in Park that teaches selectively recovering cells” is in error because “[t]hat may be relevant to anticipation, but not obviousness.” Req. Reh’g 12 (quoting Dec. 58). We disagree. That Petitioner has not identified any teaching about selective recovery in Park, itself, means that Petitioner must rely on the background knowledge in the art to establish limitation 1E.

In that regard, Petitioner reiterates its arguments that we found unpersuasive, without identifying any error of law or clear factual error in our Decision. *See* Req. Reh’g 12–13 (citing Pet. 57–59). Thus, we are not persuaded of abuse of discretion in our determination that Petitioner failed to show that claims 1, 11, 16, 24, 26, 27, or 30 would have been obvious over Park.

D. GROUND 5: CLAIMS 1, 11, 16, 24, 26, 27, AND 30 AS OBVIOUS
OVER PARK AND KOVAC

For the ground based on the combination of Park and Kovac, Petitioner contends that “the Decision’s analysis does not separately address either motivation to combine them or the reasonable expectation of success of doing so; indeed, it does not even mention either.” Req. Reh’g 13–14 (citing Dec. 68–70).

We disagree that we failed to address whether there was a motivation to combine Park and Kovac the way that Petitioner proposes. For example, as with Ground 3, we found that Petitioner had not persuasively shown that a person of ordinary skill in the art would have had the background necessary to determine suitable laser parameters to achieve Petitioner’s proposed combination. *See* Dec. 68. We also found that Petitioner failed to persuasively explain how a person of ordinary skill in the art would have been motivated to address the problems identified by Patent Owner’s expert Dr. Gale, which would have worked against the ability to levitate and recover individual cells from Park’s device. Dec. 68–70.

Petitioner also argues that, by “merely cit[ing] to [our] earlier discussion of laser parameters in Ground 3 (Decision at 68), [we] overlooked two important facts” suggesting “that Kovac’s techniques could recover a *single* cell from Park’s microwell”: (1) that “Kovac demonstrated that it is possible to ‘remove a single targeted cell residing in a doubly loaded well,’” and (2) that “Park’s microwells have a ‘depth of 20 μm ,’ whereas Kovac’s microwells are ‘35 μm in depth.’” Req. Reh’g 14 (quoting Ex. 1006, 266; and then quoting Ex. 1007, 9326) (citing Ex. 1007, 9326, Fig. 3; Pet. 63). According to Petitioner, “[t]he Decision errs in concluding

that it would require ‘additional inventive steps’ to ‘adapt[] Kovac’s levitation method for use in Park’s device’” *Id.* (citing Dec. 68).

We disagree. The question is not whether Kovac’s techniques “could” recover a single cell from Park’s microwell, but whether a person of ordinary skill in the art would have been motivated to make that combination in a predictable way, in light of their background knowledge. *See KSR*, 550 U.S. at 417 (“The mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art.”). Although Kovac discusses the removal of single cells from Kovac’s microwells, our Decision found that Petitioner failed to show that a person of skill in the art would have been able to apply Kovac’s teachings predictably within Park’s substantially different device. *See* Dec. 68–70 & nn.21–23.

In particular, Petitioner argues that “the Decision overlooks the fact that the lateral gradient force of Kovac’s laser column counteracts lateral flows in Park’s device.” Req. Reh’g. 15 (citing Pet. Reply 24; Ex. 1039 ¶¶ 191, 194; Ex. 1007, 9325). Similarly, Petitioner contends that “the Decision overlooked Kovac’s teaching that wall effects can be overcome by slightly increasing the power of the laser, so any resistance to vertical movement would not be problematic to a” person of ordinary skill in the art. *Id.* (citing Pet. Reply 24; Ex. 1039 ¶ 195). These arguments concern Petitioner’s response to Patent Owner’s argument (supported by testimony by Dr. Gale) that lateral flow and wall effects would hamper the ability to levitate cells in Park’s microwells. Pet. Reply 24 (citing PO Resp. 49; Ex. 2012 ¶ 161); PO Resp. 46–50 & nn.18–19 (citing Ex. 2012 ¶¶ 161–166).

Petitioner had argued that “Patent Owner fails to explain how resisting lateral movement would affect selective recovery by levitation, and does not establish that any resistance to vertical movement would be problematic either.” Pet. Reply 24 (citing Ex. 1039 ¶¶ 190–196). Petitioner’s support for this rebuttal argument was five pages of expert declaration testimony that Petitioner did not explain and did not otherwise discuss. *See* 37 CFR 42.6(a)(3) (“Arguments must not be incorporated by reference from one document into another document.”). We stated in our Decision that this argument “improperly shifts the burden of persuasion to Patent Owner.” Dec. 65 n.19. In any event, we did not find Petitioner’s argument or Dr. Meinhart’s testimony persuasive, and instead, “we credit[ed] Dr. Gale’s testimony that [lateral flow effects] would have worked against any laser levitation.” Dec. 69 (citing Ex. 2012 ¶¶ 163–164; Ex. 1006, 266, Fig. 2a). We also “credit[ed] Dr. Gale’s testimony that wall effects, or adhesion between cells and walls or other cells, would likely occur after culturing the cells in Park’s microwells, and would have been complicating factors for which neither Park nor Kovac provide solutions.” *Id.* (footnote omitted).

Petitioner also argues on rehearing that, if the asserted lateral gradient force of Kovac’s laser were insufficient to counteract lateral flow forces, “an increased laser spot size the size of Park’s microwell would be [a sufficient solution], which requires only a simple change of lens, not any substantial experimentation, which the Decision (at 68) overlooks as well.” Req. Reh’g 15 (citing Pet. Reply 24; Ex. 1039 ¶¶ 107–108, 192).

Although Dr. Meinhart briefly mentions this in his declaration (*see* Ex. 1039 ¶ 192), Petitioner has not shown that it made this argument during trial, except to the extent that Petitioner improperly incorporated it by

reference from Dr. Meinhart's declaration. *See* Reply 24 (citing Ex. 1039 ¶¶ 190–196); 37 CFR § 42.6(a)(3).

In any event, we do not credit Dr. Meinhart's testimony on this point because he provides no factual support. *See* Ex. 1039 ¶ 192; 37 C.F.R. § 42.65(a) ("Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight."). As Patent Owner pointed out in its Sur-Reply, Dr. Meinhart acknowledged at deposition that increasing the spot size would have reduced the lateral gradient force of the levitation laser. PO Sur-reply 23 (citing Ex. 2013, 344:18–345:5). We agree with Patent Owner that "Dr. Meinhart . . . did not consider how this reduction in force would have affected the laser's ability to levitate a cell in Park's well successfully (especially with cultured cells through Park's recirculation pattern)." *Id.*

Finally, Petitioner contends that "[t]he Decision recognizes that Kovac's laser is applied for up to about 30 seconds . . . but overlooks . . . the fact that a [person of ordinary skill in the art] would simply turn on the flow in Park's device after this amount of time, because a [person of ordinary skill] would know from Kovac that this was sufficient time to levitate a cell out of Park's shallower, 20-µm-deep microwells." Req. Reh'g 14 (citing Dec. 37, 70 n.23). According to Petitioner, a person of ordinary skill in the art "is not an uncreative automaton." *Id.* at 14–15 (citing *KSR*, 550 U.S. at 421).

As we stated in our Decision, Petitioner's theory that a person of ordinary skill would have begun Kovac's levitation procedure with fluid flow turned off, and then turned the fluid on during the levitation, was a new argument first made in the Reply. *See* Dec. 69. Nevertheless, we also found

that theory unpersuasive because “Petitioner does not point to anything in the prior art that would have suggested this further modification to Kovac’s method, and does not explain how a person of ordinary skill in the art would have known when to turn on the fluid flow,” especially considering that a user would have been observing the microwells from above. Dec. 69–70 & n.23.

On rehearing, Petitioner proposes for the first time that a person of ordinary skill in the art would have had reason to select “about 30 seconds” as the duration to perform levitation before turning the flow back on in Park’s device. Req. Reh’g 14. Petitioner does not support that argument with any citations other than to our Decision, and in any event, it is untimely.

For these reasons, we are not persuaded of abuse of discretion in our determination that Petitioner failed to show that any of claims 1, 11, 16, 24, 26, 27, and 30 would have been obvious over Park in view of Kovac.

IV. CONCLUSION

For the above reasons, Petitioner has not shown abuse of discretion in our determination that Petitioner had not shown that any of claims 1, 6, 11, 16, 19, 24, 26, 27, and 30 of the ’408 patent are unpatentable under the grounds of the Petition.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner’s Request for Rehearing is *denied*.

Outcome of Decision on Rehearing:

Claim(s)	35 U.S.C. §	Reference(s)/ Basis	Denied	Granted
1, 6, 11, 19, 24, 26, 27, 30	103(a)	Dimov	1, 6, 11, 19, 24, 26, 27, 30	
1, 6, 11, 19, 24, 26, 27, 30	103(a)	Dimov, Kovac	1, 6, 11, 19, 24, 26, 27, 30	
1, 11, 16, 24, 26, 27, 30	103(a)	Park	1, 11, 16, 24, 26, 27, 30	
1, 11, 16, 24, 26, 27, 30	103(a)	Park, Kovac	1, 11, 16, 24, 26, 27, 30	
Overall Outcome			1, 6, 11, 16, 19, 24, 26, 27, 30	

Final Outcome of Final Written Decision after Rehearing:

Claim(s)	35 U.S.C. §	Reference(s)/ Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1, 6, 11, 19, 24, 26, 27, 30	102(a), (e)	Dimov		1, 6, 11, 19, 24, 26, 27, 30
1, 6, 11, 19, 24, 26, 27, 30	103(a)	Dimov		1, 6, 11, 19, 24, 26, 27, 30
1, 6, 11, 19, 24, 26, 27, 30	103(a)	Dimov, Kovac		1, 6, 11, 19, 24, 26, 27, 30
1, 11, 16, 24, 26, 27, 30	103(a)	Park		1, 11, 16, 24, 26, 27, 30
1, 11, 16, 24, 26, 27, 30	103(a)	Park, Kovac		1, 11, 16, 24, 26, 27, 30
Overall Outcome				1, 6, 11, 16, 19, 24, 26, 27, 30

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