

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

PADAGIS US LLC,
Petitioner,

v.

NEURELIS, INC.,
Patent Owner.

IPR2025-00464
Patent 8,895,546 B2

Before GRACE KARAFFA OBERMANN, ANNETTE R. REIMERS, and
TIMOTHY G. MAJORS, *Administrative Patent Judges*.

REIMERS, *Administrative Patent Judge*.

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

I. INTRODUCTION

Padagis US LLC (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–22 of U.S. Patent No. 8,895,546 B2 (Ex. 1001, “the ’546 patent”). Pet. 1, 5. Neurelis, Inc. (“Patent Owner”) filed a Preliminary Response (Paper 11, “Prelim. Resp.”).

Under 35 U.S.C. § 314(a), an *inter partes* review may not be instituted unless it is determined that there is a reasonable likelihood that the petitioner will prevail with respect to at least one of the claims challenged in the petition. For reasons explained below, we conclude that Petitioner shows a reasonable likelihood that it will prevail with respect to at least one of the ’546 patent’s challenged claims.¹ We institute *inter partes* review on all challenged claims. *SAS Inst. Inc. v. Iancu*, 584 U.S. 357, 362–63 (2018); 37 C.F.R. § 42.108(a) (“When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”).

Findings and conclusions at this stage are preliminary and based on the current record. Any final decision will be based on a full trial record.

II. BACKGROUND

A. *Real Parties-in-Interest*

Petitioner identifies Padagis LLC, Padagis US LLC, and Padagis Israel Pharmaceuticals Ltd. as the real parties-in-interest. Pet. 3. Patent Owner identifies itself as the real party-in-interest. Paper 3, 1.

¹ In a separate decision, the Acting Director denied Patent Owner’s request for discretionary denial of the Petition. Paper 12.

B. Related Matters

The parties identify the following lawsuit as involving the '546 patent: *Neurelis, Inc. v. Padagis LLC et al.*, 1:24-cv-00562 (D. Del.). Pet. 3; Paper 3, 1.

Other related matters are pending before the Board. Those matters include IPR2025-00465, challenging claims of U.S. Patent No. 11,241,414, and IPR2025-00466, challenging claims of U.S. Patent No. 11,793,786. Paper 3, 1.

Petitioner also identifies IPR2019-00451 (“the 451 IPR”), which involved a different petitioner’s challenge to claims 1–36 of related U.S. Patent No. 9,763,876 (“the ’876 patent”). Pet. 3; Ex. 1003. The 451 IPR resulted in a Final Written Decision dated August 6, 2020, in which the Board determined that claims 1–36 of the ’876 were unpatentable. Ex. 1040, 2–3, 68–69. The U.S. Court of Appeals for the Federal Circuit affirmed the Board’s decision. Ex. 1068 (affirming under Fed. Cir. R. 36).

Patent Owner further identifies several pending patent applications as related to the '546 patent. Paper 3, 1.

C. The '546 Patent (Ex. 1001)

The '546 patent is titled “Administration of Benzodiazepine Compositions.” Ex. 1001, code (54). The patent issued November 25, 2014, from an application filed June 13, 2012. *Id.* at codes (22), (45). The '546 patent also claims the priority benefit of, among other applications, Non-Provisional Application No. 12/413,439, filed March 27, 2009 (“the '439 Application”) (Ex. 1039), Provisional Application No. 61/497,017, filed June 14, 2011 and Provisional Application No. 61/570,110, filed Dec. 13, 2011. Ex. 1001, codes (60), (63). The '546 patent also purports to claim

the priority benefit of Provisional Application No. 61/040,558, filed March 28, 2008 (“the ’558 Provisional” (Ex. 1008)). *Id.* at 1:7–15.

The ’546 patent is directed to nasally administered pharmaceutical solutions containing one or more benzodiazepine drugs. *Id.* at 8:62–65. The ’546 patent explains that solubility challenges associated with benzodiazepine drugs previously hindered the development of formulations intended for oral, rectal, or parenteral administration. *Id.* at 1:48–51.

According to the ’546 patent, it was discovered, however, that vitamin E (which includes tocopherols and tocotrienols) is an effective carrier for benzodiazepine drugs, as these compounds are soluble, or at least partially soluble, in vitamin E. *Id.* at 32:25–41, 32:60–64. The ’546 patent also reports that vitamin E “can have the added benefit of either avoiding irritation of sensitive mucosal membranes and/or soothing irritated mucosal membranes.” *Id.* at 32:65–67. The ’546 patent discloses that one or more lower alcohols, such as ethanol and benzyl alcohol, may be used in the formulation. *Id.* at 33:1–10 (noting that to “avoid the drawbacks of emulsions,” the disclosed solutions contain vitamin E and “one or more lower alkyl alcohols”). In addition, an alkyl glycoside may be added to the formulation to act as a penetration enhancer. *Id.* at 33:20–24.

D. Illustrative Claims

Petitioner challenges claims 1–22. Claim 1 is illustrative and is reproduced below:

1. A pharmaceutical solution for nasal administration consisting of:
 - (a) a benzodiazepine drug;

- (b) one or more natural or synthetic tocopherols or tocotrienols, or any combinations thereof, in an amount from about 30% to about 95% (w/w);
- (c) ethanol and benzyl alcohol in a combined amount from about 10% to about 70% (w/w); and
- (d) an alkyl glycoside.

Ex. 1001, 61:23–31.

E. Prior Art and Asserted Ground

Petitioner challenges the patentability of claims 1–21 as follows:

Ground	Claims Challenged	35 U.S.C. § ²	References/Basis
1	1–22	103	Gwozdz, ³ Meezan ⁴

Petitioner also relies on testimony from Maureen Donovan, Ph.D. (Ex. 1062) in support of its challenge.

III. ANALYSIS

A. Legal Standards

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3)).

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284, 285–88 (2011), revised 35 U.S.C. §§ 102, 103 effective March 16, 2013.

³ Gwozdz et al., WO 2009/120933 A2, published Oct. 1, 2009 (Ex. 1009 (“Gwozdz”)).

⁴ Meezan et al., US 2006/0046962 A1, published Mar. 2, 2006 (Ex. 1010 (“Meezan”)).

A claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the relevant art. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations 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 ordinary skill in the art; and (4) secondary considerations (i.e., objective indicia) of nonobviousness when presented. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

To show unpatentability based on a combination of teachings, “[a]n obviousness determination [also] requires finding both that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.” *CRFD Rsch., Inc. v. Matal*, 876 F.3d 1330, 1340 (Fed. Cir. 2017) (internal quotation marks omitted).

B. Level of Ordinary Skill in the Art

Petitioner proposes that the person of ordinary skill in the art (“POSA”) at the earliest effective filing date of the ’546 patent would have had the following qualifications:

[A POSA] would have been a pharmaceutical scientist, chemist, or biologist involved in the research and development of pharmaceutical formulations and/or delivery, and would have at least a Bachelor’s degree with at least 5 years of experience, or a Master’s, Ph.D. or Pharm.D. degree with several years of experience. In addition, a POSA would have had knowledge of benzodiazepine structure and function, and would further have knowledge and practical experience working with intranasal and

transmembrane formulations, including knowledge of the physiology and anatomy of the nasal cavity, with relevant experience in developing intranasal formulations.

Pet. 23; Ex. 1062 ¶ 20. Patent Owner “does not dispute” Petitioner’s POSA definition at this stage. Prelim. Resp. 16.

We apply Petitioner’s proposed POSA definition for this Decision, which definition appears to be generally consistent with the cited prior art.

C. Claim Construction

In an *inter partes* review, we construe claims using the same claim construction standard used in a civil action before the courts under 35 U.S.C. § 282(b), including construing claim language in accordance with its ordinary and customary meaning as understood by the POSA, in view of the patent’s specification and considering the patent’s prosecution history. 37 C.F.R. § 42.100(b). We need only expressly construe terms to the extent needed to resolve the controversy before us. *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019).

Petitioner argues “the Board should construe ‘vitamin E’ as expressly defined to mean ‘any of the natural or synthetic tocopherols, tocotrienols, any isomers thereof, any esters thereof, any analogs or derivatives thereof, or any combinations thereof.’” Pet. 16 (quoting Ex. 1001, 32:26–41);⁵ *see also*

⁵ In Petitioner’s obviousness analysis, Petitioner suggests the transitional phrase “consisting of” means the claimed pharmaceutical solutions include only those components recited in the claims. *See, e.g.*, Pet. 41 (noting “consisting of” means “containing only”). Such interpretation tracks the conventional meaning of the “consisting of” transitional phrase in claim drafting. *See AFG Indus., Inc. v. Cardinal IG Co.*, 239 F.3d 1239, 1245 (Fed. Cir. 2001) (“[C]losed transition phrases such as ‘consisting of’ are understood to exclude any elements, steps, or ingredients not specified in the claim.”). It is also consistent with the ’546 patent’s definition of the “consisting of” phrase. Ex. 1001, 18:26–28 (“As used herein, the term

Ex. 1001, 62:37–38 (claim 17, which depends from claim 1 and adds: “[t]he solution of claim 1 consisting of diazepam, vitamin E, ethanol, benzyl alcohol, and dodecyl maltoside”). According to Patent Owner, “no construction is required, as this term has a plain and ordinary meaning to a person of ordinary skill in the art.”⁶ Prelim. Resp. 15.

The ’546 patent appears to define “vitamin E” consistent with Petitioner’s proposed construction. Ex. 1001, 32:38–41. There is, however, no issue at this stage that turns on a disputed meaning of “vitamin E” or any of the other claim terms. Accordingly, we need not at this time expressly construe the term “vitamin E.” *Realtime Data*, 912 F.3d at 1375.

D. Asserted References

Petitioner contends that Gwozdz is prior art to the ’546 patent under 35 U.S.C. § 102(e), and that Meezan is prior art under 35 U.S.C. § 102(b). Pet. 21–23.

Patent Owner does not dispute the prior art status of Meezan. As discussed below, Patent Owner contends that one portion of Gwozdz’s disclosure cited by Petitioner is not prior art. *See infra* Section III.F.1.

1. Gwozdz (Ex. 1009)

Gwozdz is a published PCT application, filed March 27, 2009, and published October 1, 2009. Ex. 1009, codes (22), (43). Gwozdz claims the

‘consisting of’ . . . indicate[s] that the claimed invention includes only those elements set forth in the claim.”).

⁶ The Preliminary Response attributes this “no construction” assertion as coming from “Petitioner.” Prelim. Resp. 15. In context, however, we understand this reference to “Petitioner” to be a typographical mistake and that Patent Owner was providing its own position about whether the term “vitamin E” requires construction.

priority benefit of U.S. Provisional Application No. 61/040,281, filed March 28, 2008 (“the Gwozdz Provisional” (Ex. 1064)). Ex. 1009, code (30).

Gwozdz is directed to the use of tocopherols and/or tocotrienols and one or more alcohols and/or glycols as pharmaceutically acceptable solvents for solubilizing hydrophobic or lipophilic therapeutic agents, in order to provide increased bioavailability. *Id.* at 4:29–33, 7:3–8. Such therapeutic agents include benzodiazepines, including diazepam. *Id.* at 8:6–10.

Specifically, Gwozdz discloses a “pharmaceutical solution comprising a therapeutic agent dissolved in one or more natural or synthetic tocopherols or tocotrienols, or any combination thereof and one or more alcohols or glycols, or any combinations thereof.” *Id.* at 4:14–17.

Gwozdz discloses that the combination of a tocopherol and an alcohol “is much less irritating to the skin and/or mucous membranes than pure alcohol solutions and generally provides higher loading of a therapeutic agent than emulsions, liposomes, encapsulations, or cyclodextrins.” *Id.* at 5:2–7. Gwozdz also recognizes that “diluting a tocopherol or tocotrienol with an alcohol or glycol dramatically reduces the inherent viscosity of the tocopherol or tocotrienol thereby allowing for generation of sprayable formulations.” *Id.* at 6:29–7:2. Gwozdz further discloses methods of treatment with these pharmaceutical solutions, including via intranasal administration, and states that such solutions are “particularly useful in formulations to be administered to mucosal membranes, i.e. the nasal mucosa.” *Id.* at 4:24–27, 9:2–8, 9:19–21.

Gwozdz discloses that, in embodiments of its pharmaceutical solutions, “the tocopherol(s) and/or tocotrienol(s) is in an amount from about 30% to about 99% (w/w) and the alcohol(s) and/or glycol(s) is in an amount from about 1% to about 70% (w/w).” *Id.* at 4:13–21; *see also id.* at 5:11–14

(disclosing that the therapeutic agent is dissolved in the tocopherol and/or tocotrienol and an alcohol and/or glycol as solvents), 7:20–28 (preferred amounts and ratios of solvent components). According to Gwozdz, tocopherols and tocotrienols include the family of natural and synthetic compounds “also known by the generic names tocols or vitamin E.” *Id.* at 5:33–6:2. Gwozdz further discloses that example alcohols for use in the solutions include, among others, “ethanol,” “propyl alcohol,” and “benzyl alcohol,” and “any combinations thereof.” *Id.* at 6:16–23.

2. *Meezan (Ex. 1010)*

Meezan is a published U.S. patent application, which was published March 2, 2006. Ex. 1010, code (43).

Meezan is titled “Absorption Enhancers for Drug Administration.” *Id.* at code (54). As background, Meezan discloses that therapeutic agents are often combined with various surfactants but surfactants can be irritating to mucosal tissues, such as found in the nose, mouth, or eyes. *Id.* ¶ 3. According to Meezan, “an ideal enhancing surfactant” will stabilize the therapeutic agent, be non-toxic and non-irritable, and “enhance the passage or absorption of the therapeutic agent through various membrane barriers without damaging the structural integrity and biological function of the membrane and increase bioavailability of the agent.” *Id.*

As stated by Meezan, the surfactant of the invention preferably “consists of at least one suitable alkyl glycoside.” *Id.* ¶ 54. Meezan discloses that a “‘suitable’ alkyl glycoside means one that fulfills the limiting characteristics of the invention, i.e., . . . that it increases the absorption of a compound when it is administered with the compound via the ocular, nasal, nasolacrimal, inhalation or pulmonary, oral cavity (sublingual or Buccal cell), or CSF delivery route.” *Id.*

E. Collateral Estoppel

“It is well established that collateral estoppel, also known as issue preclusion, applies in the administrative context.” *Nestlé USA, Inc. v. Steuben Foods, Inc.*, 884 F.3d 1350, 1351–52 (Fed. Cir. 2018) (quoting *MaxLinear, Inc. v. CF CRESPE LLC*, 880 F.3d 1373, 1376 (Fed. Cir. 2018) and applying collateral estoppel to vacate a claim construction in an underlying IPR). In an IPR, “a party seeking to invoke collateral estoppel must show: ‘(1) the issue is identical to one decided in the first action; (2) the issue was actually litigated in the first action; (3) resolution of the issue was essential to a final judgment in the first action; and (4) [the party against whom collateral estoppel is being asserted] had a full and fair opportunity to litigate the issue in the first action.’” *Google LLC v. Hammond Development Int’l, Inc.*, 54 F.4th 1377, 1381 (Fed. Cir. 2022) (quoting *In re Freeman*, 30 F.3d 1459, 1465 (Fed. Cir. 1994)) (alteration in original).⁷

“It is [also] well established that patent claims need not be identical for collateral estoppel to apply.” *Id.* at 1381. Instead, “collateral estoppel requires the *issues of patentability* be identical.” *Id.* If “the differences between the unadjudicated patent claims and adjudicated patent claims do not materially alter the question of invalidity, collateral estoppel applies.” *Ohio Willow Wood Co. v. Alps South, LLC*, 735 F.3d 1333, 1342–43 (Fed. Cir. 2013) (affirming application of collateral estoppel where claims adjudicated as obvious required a “polymeric” gel whereas similar,

⁷ Some precedents use slightly different phrasing for parts of the collateral estoppel test. For example, in *VirnetX Inc. v. Apple, Inc.*, 909 F.3d 1375, 1377 (Fed. Cir. 2018), the court described part (2) as follows: “(2) the prior action actually litigated and adjudged that issue.”

unadjudicated claims required a “block copolymer” gel). “Collateral estoppel also applies to common issues in actions involving different but related patents.” *Mycogen Plant Sci., Inc. v. Monsanto Co.*, 252 F.3d 1306, 1310 (Fed. Cir. 2001), *vacated on other grounds*, 353 U.S. 1109 (2002).

According to Petitioner, “the issues presented in this Petition are substantially the same as the issues the Board previously considered in IPR2019-00451” when the Board held that the claims of the related ’876 patent were unpatentable. Pet. 1, 6. Petitioner argues that Patent Owner is precluded from contesting the following “materially identical” issues that were raised and fully resolved by the Board in IPR2019-00451. *Id.* at 8–10.

1. ’558 Provisional Priority

Petitioner argues that collateral estoppel applies on the issue of whether the ’558 Provisional provides written description support for similar claims challenged in the subject patent. Pet. 1–3, 8, 12–13 (arguing collateral estoppel applies based on the Board’s finding that the ’558 Provisional “does not provide adequate written description support for the ‘alkyl glycoside’ limitation” (citing Ex. 1040, 23)); *see also id.* at 13 (“Patent Owner is collaterally estopped from contesting this [written description] finding” from the 451 IPR). Petitioner provides a side-by-side comparison of the challenged claims of the ’546 patent versus claims held unpatentable in the 451 IPR. *Id.* at 1–2 (citing Ex. 1069 (chart comparing claims 1–22 of the ’546 patent to claims 1–16 and 24–36 of the ’876 patent)). Petitioner points out that “[t]he ’876 Patent is a continuation of the ’546 Patent and recites substantially the same limitations as the ’546 Patent” and that “[t]he present IPR relies on the same prior art and

substantially same arguments that the Board considered already in IPR2019-00451 to find the claims there were unpatentable.” *Id.* at 1–2, 6.

Petitioner argues that the “primary difference” between the adjudicated and unadjudicated claims is the former are directed to a method of treatment using a pharmaceutical solution while the latter are directed to the pharmaceutical solution itself. *Id.* at 1–2. As that difference is allegedly immaterial, Petitioner contends collateral estoppel bars Patent Owner from arguing that the challenged claims are entitled to priority to the filing date of the ’558 Provisional. *Id.* at 1–3, 6–10, 13.

Patent Owner does not counter Petitioner’s collateral estoppel argument regarding priority to the filing date of the ’558 Provisional. *See* Prelim. Resp. *passim*. Rather, Patent Owner takes the position that “[t]he ’546 patent claims priority to the ’439 Application, filed on [March 27, 2009].” *Id.* at 22.⁸

On the present record, Petitioner persuades us that collateral estoppel applies to the priority issue raised here for the ’546 patent. Comparing the pharmaceutical solution recited in claim 1 of the ’876 patent to the pharmaceutical solution of claim 1 of the ’546 patent, each claim requires “an alkyl glycoside.” *See* Ex. 1069, 1 (gray-colored limitations). In the 451 IPR, the same question was at issue, namely, whether the “alkyl glycoside” limitation present in the claims of the ’876 Patent was supported by the ’558 Provisional. Ex. 1040, 14; *see also* Pet. 12. In the 451 IPR, the Board found that “the ’558 provisional does not provide adequate written description support for the ‘alkyl glycoside’ limitation. Therefore, the

⁸ Petitioner argues that “[t]he claims of the ’546 Patent are entitled to an earliest effective filing date of no earlier than the filing date of the parent ’439 Application on March 27, 2009.” Pet. 12.

claims of the '876 patent are not entitled to the benefit of priority to the '558 provisional.” Ex. 1040, 23; *see also* Pet. 8.

As the Board’s decision in the 451 IPR *explicitly* found written description inadequate for the “alkyl glycoside” limitation in the '558 Provisional, which is the same issue raised here for the '546 patent, Petitioner has shown that issue was actually litigated and decided in the 451 IPR. Where the same issue is actually litigated and decided as part of a final adjudication in an earlier action, the test for invoking collateral estoppel in a later action is met. On this record and for the reasons above, we are persuaded that collateral estoppel bars Patent Owner from arguing the challenged claims are entitled to the priority date of the '558 Provisional.

2. *Gwozdz’s Prior-Art Status*

Petitioner argues that collateral estoppel applies on the issue of whether Gwozdz is entitled to the filing date of the '281 Provisional. Pet. 9, 21. In particular, Petitioner argues that “Gwozdz qualifies as prior art based on the filing date of the '281 Provisional, because the thirteen claims recited in Gwozdz are identical to the thirteen claims in the '281 Provisional and thus at least one claim in Gwozdz is supported by the '281 Provisional.” *Id.* at 21 (citing Ex. 1062 ¶¶ 81–82). In the 451 IPR, the Board found that “Petitioner has shown that the claims of Gwozdz are supported by the Gwozdz provisional, ‘at least because Gwozdz’s claims are literally identical to the claims filed in [the] Gwozdz provisional.’” Ex. 1040, 14(alteration in original); *see also* Pet. 9.

Patent Owner counters that collateral estoppel does not apply because the priority date of Gwozdz was not actually litigated in the 451 IPR. Prelim. Resp. 18–19. Patent Owner contends that the Board’s Final Written

Decision in the 451 IPR “explicitly states that the issue of Gwozdz’s applicable priority date was not disputed.” *Id.* at 18; Ex. 1040, 14.

On the present record, we agree with Patent Owner that collateral estoppel does not bar Patent Owner from challenging Gwozdz’s prior-art status in this case. Patent Owner’s apparent concession that Gwozdz was prior art during the 451 IPR does not equate to the issue being actually litigated. Prelim. Resp. 18–19; Ex. 1040, 14 (“Patent Owner does not contest that Gwozdz is entitled to this filing date” of the Gwozdz Provisional). Failure to contest an issue – or even stipulating to an issue – does not comprise litigating that issue for collateral estoppel purposes. *See Purdue Pharma L.P. v. Iancu*, 767 F. App’x. 918, 922 (Fed. Cir. 2019).

3. *Motivation to Combine and Reasonable Expectation of Success*

Petitioner argues that collateral estoppel applies on the issues of motivation to combine the teachings of Gwozdz and Meezan and reasonable expectation of success in combining the teachings of Gwozdz and Meezan to achieve the claimed invention. Pet. 9. According to Petitioner, “in IPR2019-00451, the Board has already previously determined the combination of Gwozdz and Meezan teaches the subject matter of the pharmaceutical solution recited in the claims of the ’546 Patent with a motivation to combine and a reasonable expectation of success to do so.” *Id.* at 24.

Patent Owner does not present substantive arguments about the motivation to combine the teachings of Gwozdz and Meezan or reasonable expectation of success in combining the teachings of Gwozdz and Meezan to achieve the claimed invention. Prelim. Resp. 16–22. Instead, Patent Owner argues that “the Gwozdz . . . disclosure on which the Petition relies to support the motivation to combine was not present in the Gwozdz

Provisional application to which Gwozdz . . . claims priority. That subject matter, thus, is not available as prior art.” *Id.* at 17.

On the present record, as noted above, collateral estoppel does not bar Patent Owner from challenging Gwozdz’s prior-art status in this case. However, as far as the motivation to combine the teachings of Gwozdz and Meezan and reasonable expectation of success in combining the teachings of Gwozdz and Meezan to achieve the claimed invention, those issues were litigated at length and decided in the 451 IPR. *See, e.g.*, Ex. 1040, 37–47 (finding, *inter alia*, “a person of ordinary skill in the art would have had reason to add alkyl glycoside as a penetration enhancer, as disclosed in Meezan ’962, with a formulation of benzodiazepine, tocopherol, ethanol, and benzyl alcohol, as disclosed in Gwozdz”); *id.* at 47–50 (finding, “[u]pon review of the record as a whole, . . . one of ordinary skill in the art would have had a reasonable likelihood of success in combining the disclosures of Gwozdz and Meezan ’962 to achieve the claimed invention.”). On this record and for the reasons above, we are persuaded that collateral estoppel bars Patent Owner from relitigating whether the POSA would have been motivated to combine Gwozdz and Meezan with a reasonable expectation of success in arriving at the claimed subject matter here.

4. *Conclusions on Collateral Estoppel*

At this time, we determine that collateral estoppel applies to the issues of priority of the subject patent to the filing date of the ’558 Provisional, the motivation to combine the teachings of Gwozdz and Meezan, and reasonable expectation of success in combining the teachings of Gwozdz and Meezan to achieve the claimed invention. At this time, we further determine that collateral estoppel does not apply to the issue of challenging Gwozdz’s prior-art status.

F. Obviousness over Gwozdz and Meezan (Ground 1)

On the present record, Patent Owner is collaterally estopped from contesting obviousness of the claimed pharmaceutical solution recited in claims 1–22 of the ’546 Patent based on materially identical issues that were already adjudicated in IPR2019-00451 as discussed above. However, Patent Owner is not collaterally estopped from challenging Gwozdz’s prior-art status. We address this issue and some additional issues raised by Patent Owner below.

1. Gwozdz’s Prior-Art Status

Petitioner contends that Gwozdz is prior art as of the March 28, 2008, filing date of the Gwozdz Provisional. Pet. 9, 21–22. In support, Petitioner argues Gwozdz’s claims match the claims in the Gwozdz Provisional, and Petitioner maps the relied-upon disclosures in Gwozdz to corresponding disclosures in the Gwozdz Provisional. *Id.* at 21–22. Thus, Petitioner argues that, applying the framework in *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375 (Fed. Cir. 2015), Gwozdz qualifies as § 102(e) prior art with an effective date of March 28, 2008. *Id.*

Patent Owner counters that because Petitioner’s motivation-to-combine analysis relies on a “single statement” in Gwozdz that is *not prior art*, the motivation for combining Gwozdz and Meezan is defective and institution should be denied. Prelim. Resp. 16–22. More specifically, Patent Owner argues the Gwozdz Provisional’s listing of optional additives has a key omission compared to the corresponding listing in Gwozdz cited by Petitioner. *Id.* at 19–21. Patent Owner points out that Gwozdz lists “penetration enhancers” among its additives but that phrase is missing in the Gwozdz Provisional and, thus, Gwozdz’s mention of “penetration

enhancers” is not prior art.⁹ *Id.* (comparing Ex. 1009, 10:9–16, with Ex. 1064, 10:10–17). According to Patent Owner, because this missing phrase “provides the sole support the Petition advances for a motivation to combine,” the rationale for combining Gwozdz and Meezan fails. *Id.* at 21–22.¹⁰

We agree with parts of Patent Owner’s argument but, on this preliminary record, not the conclusion Patent Owner asks us to reach.

We agree that at least one portion of Gwozdz is not prior art. To establish that the cited disclosures in Gwozdz are prior art, Petitioner must show support for those disclosures in the Gwozdz Provisional. *In re Riggs*, 131 F.4th 1377, 1384 (Fed. Cir. 2025) (explaining that “the portion of the application relied on . . . as prior art must be supported by the provisional application”). Petitioner did not establish that Gwozdz’s disclosure of “penetration enhancers” finds support in the Gwozdz Provisional. Pet. 22. Conversely, Patent Owner shows that the phrase is absent in the Gwozdz

⁹ Patent Owner argues that as the ’546 Patent claims priority to the ’439 Application, the “penetration enhancers” disclosure in Gwozdz is not prior art because Gwozdz and the ’439 Application were filed on the same day (March 27, 2009). Prelim. Resp. 21–22.

¹⁰ Patent Owner argues that the passage in Gwozdz concerning “penetration enhancers” is relevant solely to “a pharmaceutical composition for injection,” not for intranasal administration as required by the ’546 Patent. Prelim. Resp. 22. First, as noted above, based on the record presented, we determine that Gwozdz’s mention of “penetration enhancers” is not prior art to the challenged claims. Second, we disagree, however, that Gwozdz’s non-prior art mention of penetration enhancers is relevant solely to a pharmaceutical composition for injection as argued by Patent Owner. Gwozdz discloses that “[the] pharmaceutical compositions of the present invention” can be administered by a number of “nonlimiting” routes including intranasal administration. See Ex. 1009, 9:2–11.

Provisional. Prelim. Resp. 20–21. Based on this record, we determine that Gwozdz’s mention of “penetration enhancers” is not prior art to the challenged claims. The phrase cannot, therefore, be used to establish a motivation to combine the asserted references.

We disagree, however, that Gwozdz’s non-prior art mention of penetration enhancers is the “sole support” provided by Petitioner for combining Gwozdz and Meezan to arrive at the claimed subject matter. *Id.* at 21–22; *see also id.* at 17 (“The Petition relies solely on a disclosure in Gwozdz . . . concerning ‘penetration enhancers’ to argue that a skilled artisan would have been motivated to combine Gwozdz with Meezan.”). To the contrary, Petitioner provides additional reasoning that does not appear to turn on Gwozdz’s disclosure of “penetration enhancers” among a list of additives. Petitioner cites, *inter alia*, known solubility issues with diazepam limiting delivery of sufficient drug to the tissues desired, Meezan’s teachings about increasing bioavailability of drugs meant for nasal administration by the addition of absorption-enhancing alkyl glycosides, and Meezan’s suggestion that its formulations are compatible with non-aqueous solvent systems (such as Gwozdz’s solvents for intranasal delivery) and suitable for use with small-molecule drugs (like diazepam). *See, e.g.*, Pet. 25–32. We recognize Dr. Donovan’s (and by extension Petitioner’s) reference to Gwozdz’s listing of “penetration enhancers” in support of the asserted motivation to combine. *See e.g.*, Ex. 1062 ¶¶ 103, 135. But, for reasons noted above, Patent Owner may be overstating the extent and criticality of Petitioner’s reliance on this non-prior-art evidence, which we determine is best judged on a fully-developed record.

Even assuming, *arguendo*, that Petitioner relies on Gwozdz’s disclosure concerning “penetration enhancers” to support a skilled artisan’s

motivation to combine the teachings of Gwozdz and Meezan as argued by Patent Owner, the Board's discussion in the 451 IPR regarding a skilled artisan's reasons to combine the teachings of Gwozdz and Meezan does not turn on the disclosure of "penetration enhancers" in the Gwozdz reference. *See, e.g.*, Ex. 1040, 38–47.¹¹ Instead, the Board's discussion of Gwozdz in the 451 IPR focuses on intranasal administration of low-solubility drugs and the use of solvents to increase drug solubility. *See id.* At this time, although we have determined that Gwozdz's mention of "penetration enhancers" is not prior art to the challenged claims, we otherwise find that Petitioner provides additional reasoning that does not appear to turn on Gwozdz's disclosure of "penetration enhancers" in support of the asserted motivation to combine and that Petitioner has made a threshold showing that Gwozdz's effective date is March 28, 2008. In addition, we find Petitioner provides evidence and argument, sufficient at this stage, to show that the combination of Gwozdz and Meezan teaches or suggests the subject matter of claim 1. *See* Pet. 40–45; *see also* Ex. 1062 ¶¶ 135–156.

2. *Additional Assertions made by Patent Owner*

Patent Owner argues that the work described in the '558 Provisional and the Gwozdz Provisional "was conducted – by explicit prior agreement – as a joint research project" of Questcor Pharmaceuticals and Particle Sciences. Prelim. Resp. 24. In particular, Patent Owner asserts:

Under 35 U.S.C. §102(e), the disclosures relied upon as prior art in a patent application must reflect the work of "another" and not the work of the inventors of the challenged claims. But here, the work in both the '558 Provisional and the Gwozdz Provisional

¹¹ Based on the preliminary record, Petitioner has established that collateral estoppel also should apply on the question of motivation and reasonable expectation of success as discussed above.

was conducted by the same group of individuals working on a common project.

Id.

Patent Owner further asserts that “[f]or similar reasons, Gwozdz . . . should not be available as a reference under pre-AIA Section 103 because it and the challenged claims reflect the product of a joint research agreement between Questcor and Particle Sciences.” *Id.* Patent Owner provides no evidence in support of these assertions. Whether the work described in the ’558 Provisional and the Gwozdz Provisional “was conducted – by explicit prior agreement – as a joint research project” of Questcor Pharmaceuticals and Particle Sciences is best judged on a fully-developed record (and if Patent Owner preserves the argument by raising it explicitly in its Patent Owner Response). We will revisit this issue, if needed, on a complete record.

3. Conclusion

For the reasons discussed above and based on the present record, we find that Petitioner has made an adequate threshold showing that the issues presented in this Petition are substantially the same as the issues the Board previously considered in IPR2019-00451 and that Gwozdz’s effective date is March 28, 2008. We therefore determine that Petitioner has shown that it is reasonably likely to prevail in establishing that at least claim 1 would have been obvious over Gwozdz and Meezan.

IV. CONCLUSION

Petitioner has shown a reasonable likelihood that it will prevail in establishing the unpatentability of at least one of the claims challenged in the Petition. We institute trial on all challenged claims under the grounds raised in the Petition. *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed.

Cir. 2018) (explaining that institution of *inter partes* review “require[s] a simple yes-or-no institution choice . . . embracing all challenges included in the petition”); 37 C.F.R. § 42.108(a).

Any argument not raised in a Patent Owner Response to the Petition, or as permitted in another manner during trial, shall be deemed forfeited and/or waived even if asserted in the Preliminary Response. *In re Google Tech. Holdings LLC*, 980 F.3d 858, 862–64 (Fed. Cir. 2020) (holding an argument forfeited when not timely raised before the Board); *In re NuVasive, Inc.*, 842 F.3d 1376, 1380–81 (Fed. Cir. 2016) (holding Patent Owner waived an argument addressed in the Preliminary Response by not raising the same argument in the Patent Owner Response).

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), *inter partes* review of all challenged claims of the ’546 patent is instituted on the grounds of unpatentability set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(a) and 37 C.F.R. § 42.4, notice is given of institution of trial commencing on the entry date of this Decision.

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