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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FAMY CARE LIMITED,
Petitioner,

v.

ALLERGAN, INC.,
Patent Owner.

Case IPR2017-00568
Patent 8,633,162 B2

Before SHERIDAN K. SNEDDEN, TINA E. HULSE, and CHRISTOPHER G. PAULRAJ, *Administrative Patent Judges*.

HULSE, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review and Denying Motion for Joinder
35 U.S.C. § 315(c); 37 C.F.R. § 42.108

I. INTRODUCTION

Famy Care Limited ("Petitioner" or "Famy Care") filed a Petition requesting an *inter partes* review of claims 1–24 of U.S. Patent No. 8,633,162 B2 (Ex. 1001, "the '162 patent"). Paper 4 ("Pet."). Allergan, Inc. ("Patent Owner" or "Allergan") did not file a Preliminary Response to the Petition.

Petitioner also filed a Motion for Joinder pursuant to 35 U.S.C. § 315(c), seeking to join this proceeding with *Mylan Pharmaceuticals, Inc. v. Allergan, Inc.*, IPR2016-01130 ("Mylan IPR"). Paper 5. Patent Owner opposes Petitioner joinder motion. Paper 9.

For the reasons stated below, we deny Petitioner's motion for joinder.

As for the Petition, we have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted "unless . . . 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). Upon considering the Petition, we determine that Petitioner has established a reasonable likelihood that it would prevail in showing the unpatentability of claims 1–24. Accordingly, we institute an *inter partes* review of those claims.

A. Related Proceedings

The parties identify petitions for *inter partes* review previously filed by other petitioners that challenge the claims of the '162 patent and related patents. Pet. 4–5; Paper 8, 2–3. Certain petitions were terminated before

decisions on institution were entered. Pet. 5; Paper 8, 2. Other petitions have been granted and *inter partes* review has been instituted for the following U.S. Patents: U.S. Patent No. 8,633,162 (IPR2016-01130, IPR2017-00599, IPR2017-00583); U.S. Patent No. 8,685,930 (IPR2016-01127, IPR2017-00594, IPR2017-00576); U.S. Patent No. 8,629,111 (IPR2016-01128, IPR2017-00596, IPR2017-00578); U.S. Patent No. 8,642,556 (IPR2016-01129, IPR2017-00598, IPR2017-00579); U.S. Patent No. 8,648,048 (IPR2016-01131, IPR2017-00600, IPR2017-00585); and U.S. Patent No. 9,248,191 (IPR2016-01132, IPR2017-00601, IPR2017-00586). Paper 8, 2–3.

The parties also identify several district court cases that may affect or be affected by a decision in this proceeding: *Allergan, Inc. v. Teva Pharmaceuticals USA, Inc.*, No. 2:15-cv-01455 (E.D. Tex.); *Allergan, Inc., v. Innopharma, Inc.*, No. 2:15-cv-1504 (E.D. Tex.); *Allergan, Inc. v. Famy Care, Ltd.*, No. 2:16-cv-0401 (E.D. Tex.); and *Allergan, Inc. v. DEVA Holding AS*, No. 2:16-cv-1447 (E.D. Tex.). Pet. 5; Paper 8, 2.

Petitioner has also sought *inter partes* review for related patents in the following proceedings: IPR2017-00566 (U.S. Patent No. 8,648,048 B2), IPR2017-00567 (U.S. Patent No. 8,629,111 B2), IPR2017-00569 (U.S. Patent No. 9,248,191 B2), IPR2017-00570 (U.S. Patent No. 8,642,556 B2), and IPR2017-00571 (U.S. Patent No. 8,685,930 B2).

B. The ’162 Patent

The ’162 patent generally relates to methods of providing therapeutic effects using cyclosporin components, and more specifically to a

formulation containing cyclosporin-A ("CsA") and castor oil emulsions for treating dry eye syndrome (i.e., keratoconjunctivitis sicca). Ex. 1001, 1:18–20, 1:58–65, 2:63–64. According to the specification, the prior art recognized the use of emulsions containing CsA and CsA-derivatives to treat ophthalmic conditions. *Id.* at 1:26–65. The specification notes, however, that "[o]ver time, it has become apparent that cyclosporin A emulsions for ophthalmic use preferably have less than 0.2% by weight of cyclosporin A." *Id.* at 1:66–2:1. Moreover, if reduced amounts of cyclosporin are used, reduced amounts of castor oil are needed because one of the functions of castor oil is to solubilize CsA. *Id.* at 1:66–2:6.

Accordingly, the specification states that "[i]t has been found that the relatively increased amounts of hydrophobic component together with relatively reduced, yet therapeutically effective, amounts of cyclosporin component provide substantial and advantageous benefits." *Id.* at 2:36–39. The relatively high concentration of hydrophobic component provides for a more rapid breaking down of the emulsion in the eye, which reduces vision distortion and/or facilitates the therapeutic efficacy of the composition. *Id.* at 2:43–49. Furthermore, using reduced amounts of cyclosporin component mitigates against undesirable side effects or potential drug interactions. *Id.* at 2:49–52.

The patent identifies two particular compositions that were selected for further testing, as shown below:

	Composition I wt %	Composition II wt %
Cyclosporin A	0.1	0.05
Castor Oil	1.25	1.25
Polysorbate 80	1.00	1.00
Premulen ®	0.05	0.05
Glycerine	2.20	2.20
Sodium hydroxide	qs	qs
Purified Water	qs	qs
pH	7.2-7.6	7.2-7.6
Weight Ratio of Cyclosporin A to Castor Oil	0.08	0.04

Id. at 14:20–40. Based on the results of a Phase 3 clinical study, the specification concludes that "Composition II . . . provides overall efficacy in treating dry eye disease substantially equal to that of Composition I." *Id.* at 14:44–48. The patent indicates that "[t]his is surprising for a number of reasons." *Id.* at 14:49. According to the specification, a reduced concentration of CsA in Composition II would have been expected to result in reduced overall efficacy in treating dry eye disease. *Id.* at 14:49–52. Moreover, although the large amount of castor oil relative to the amount of CsA in Composition II might have been expected to cause increased eye irritation, it was found to be substantially non-irritating in use. *Id.* at 14:52–57. Accordingly, the specification states that physicians can prescribe Composition II "to more patients and/or with fewer restrictions and/or with reduced risk of the occurrence of adverse events, e.g., side effects, drug interactions and the like, relative to providing Composition I." *Id.* at 15:12–15.

C. Illustrative Claim

Petitioner challenges claims 1–24 of the '162 patent, of which claims 1, 18, and 23 are independent claims. Claim 23 is illustrative, and is reproduced below:

> 23. A method of treating dry eye disease, the method comprising the step of topically administering to an eye of a human in need thereof an emulsion at a frequency of twice a day, the emulsion comprising:
>
> cyclosporin A in an amount of about 0.05% by weight;
>
> castor oil in an amount of about 1.25% by weight;
>
> polysorbate 80 in an amount of about 1.0% by weight;
>
> acrylate/C10-30 alkyl acrylate cross-polymer in an amount of about 0.05% by weight;
>
> glycerine in an amount of about 2.2% by weight;
>
> sodium hydroxide; and
>
> water;
>
> wherein the emulsion is effective in treating dry eye disease.

Independent claim 1 also recites a method of treating dry eye disease with an emulsion comprising 0.05% by weight cyclosporin A and 1.25% by weight castor oil.

Independent claim 18 recites a method of reducing side effects in a human being treated for dry eye syndrome with an emulsion similar to that recited in claim 23.

D. The Asserted Grounds of Unpatentability

Petitioner challenges the patentability of claims 1–24 of the '162 patent on the following grounds:

References	Basis	Claim(s) challenged
Ding '979[1] and Sall[2]	§ 103(a)	1–24
Ding '979, Sall, and Acheampong[3]	§ 103(a)	11 and 21
Ding '979, Sall, and Glonek[4]	§ 103(a)	15

Petitioner also relies on the Declarations of Peter Kador, Ph.D. (Ex. 1002) and Michael Lemp, M.D. (Ex. 1003).

II. ANALYSIS

A. Motion for Joinder

Based on authority delegated to us by the Director, we have discretion to join an *inter partes* review to a previously instituted *inter partes* review. 35 U.S.C. § 315(c). Section 315(c) provides, in relevant part, that "[i]f the

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[1] Ding et al., US 5,474,979, issued Dec. 12, 1995 (Ex. 1006).
[2] Sall et al., *Two Multicenter, Randomized Studies of the Efficacy and Safety of Cyclosporine Ophthalmic Emulsion in Moderate to Severe Dry Eye Disease*, 107 OPHTHALMOLOGY 631–39 (2000) (Ex. 1007).
[3] Acheampong et al., *Cyclosporine Distribution into the Conjunctiva, Cornea, Lacrimal Gland, and Systemic Blood Following Topical Dosing of Cyclosporine to Rabbit, Dog, and Human Eyes*, LACRIMAL GLAND, TEAR FILM, AND DRY EYE SYNDROMES 2: BASIC SCIENCE AND CLINICAL RELEVANCE 1001–04 (David A. Sullivan et al. eds., 1998) (Ex. 1008).
[4] Glonek et al., US 5,578,586, issued Nov. 26, 1996 (Ex. 1009).

Director institutes an inter partes review, the Director, in his or her discretion, may join as a party to that inter partes review any person who properly files a petition under section 311." *Id.* When determining whether to grant a motion for joinder, we consider factors such as timing and impact of joinder on the trial schedule, cost, discovery, and potential simplification of briefing. *Kyocera Corp. v. SoftView, LLC*, Case IPR2013-00004, slip op. at 3–4 (PTAB Apr. 24, 2013) (Paper 15).

Although Famy Care's Petition is similar to Mylan's Petition in terms of the art relied on for each patentability challenge, it is not a "me-too" petition and differs significantly in its presentation of arguments. For example, Famy Care's Petition challenges claims 1–24 over Ding '979 and Sall, whereas Mylan's Petition challenges claims 1–10, 12–14, 16–20, and 22–24 over the same art. *Compare* Pet. 6 *with* Mylan Pet.[5] 13. Famy Care relies on the declarations of Dr. Peter Kador (Ex. 1002) and Dr. Michael A. Lemp (Ex. 1003) to support its Petition, whereas Mylan relies on the declaration of Mansoor Amiji, Ph.D. Moreover, although both Petitions include claim charts detailing where the respective Petitioner contends Ding '979 and Sall teach each limitation of the claims, the claim charts cite different (albeit overlapping) portions of the same art for the various claim limitations. *Compare, e.g.*, Pet. 22–26 *with* Mylan Pet. 32–36 (claim 23

[5] Mylan IPR, Petition for *Inter Partes* Review of U.S. Patent No. 8,633,162 Paper 3 (filed June 3, 2016) ("Mylan Pet.").

claim chart). Famy Care also presents extensive additional arguments and evidence regarding secondary considerations. Pet. 56–77.

Allergan asserts that there are "significant differences between Famy Care's petition and Mylan's petition." Paper 9, 1. Nevertheless, Allergan indicated that it will not oppose joinder if Famy Care agrees to participate in the joined proceedings under the following conditions:

> 1. Famy Care agrees to rely solely on Mylan's expert;
>
> 2. Famy Care agrees to consolidated briefing subject to the word count limits for a single party except for motions that involve only Famy Care;
>
> 3. Famy Care agrees that cross-examination of Patent Owner's witnesses will occur within the timeframe that the rules allot for one party; and
>
> 4. Famy Care agrees that Mylan will conduct the oral argument.

Paper 9, 1.

In its Reply in support of the Motion for Joinder, Famy Care indicates that it only agrees to one of Allergan's conditions—to conduct the cross-examination of Patent Owner's witnesses within the timeframe allotted for one party. Paper 10, 1. Famy Care, however, states that it cannot agree to forgo reliance on its expert declarants because its experts "include a distinguished clinician who can provide the Board a valuable perspective on the secondary considerations arguments Allergan leans heavily on." *Id.* at 2. Famy Care also asserts that it cannot agree to limit its briefing in the joined proceeding on the basis that it "believes additional briefing, including on its

secondary considerations arguments, will give [Famy Care] a fair chance to present its own arguments and aid the Board in considering the instituted grounds." *Id.* at 4. Famy Care only agrees to "consolidate its briefing with Mylan if permitted separate briefing of up to seven pages (including but not limited to arguments on which Mylan lacks standing, or [Famy Care] and Mylan disagree)." *Id.* Finally, with respect to oral arguments, Famy Care agrees to have Mylan argue first, but asserts a right to "present its own arguments (if necessary) only on issues where the Petitioners disagree, or where Mylan has no standing to address, all within the allotted time for one party." *Id.* at 3.

Under the circumstances, we determine that joinder of Famy Care to IPR2016-01130 is not appropriate. Famy Care argues that if an *inter partes* review is instituted based on its Petition, "but joinder denied, Allergan would be compelled to go through duplicative discovery to defend against two IPR petitions, and the Board would be required to consider similar arguments on the same grounds twice." *Id.* at 4. As noted above, however, Famy Care does not concede to simply taking a "silent understudy" role with respect to Mylan, and instead seeks the opportunity to present additional arguments, briefing, and evidence, including two additional expert declarations, beyond what is being considered based on Mylan's Petition in IPR2016-01130. Moreover, to the extent that a denial of joinder would result in duplicative proceedings for Allergan, we note that Allergan has opposed joinder in this instance. Accordingly, we determine that joinder under these conditions would not "secure the just, speedy, and inexpensive

resolution" of the proceeding. *See* 37 C.F.R. § 42.1(b). Thus, Famy Care's Motion for Joinder is denied.

Having determined that joinder is not appropriate, we now consider Famy Care's Petition on the merits.

B. Person of Ordinary Skill in the Art

Petitioner asserts that as of September 15, 2003, a person of ordinary skill in the art would likely have had "some combination of: (a) knowledge regarding designing and preparing products intended for ocular administration; and/or (b) the ability to understand results and findings presented or published by others in the field." Pet. 11 (citing Ex. 1002 ¶ 60, Ex. 1003 ¶ 76). Petitioner further contends that this person typically would have an advanced degree, such as a medical degree, or a Ph.D. in organic chemistry, pharmaceutical chemistry, medicinal chemistry, pharmaceutics, physical pharmacy, or a related field, or less education but considerable professional experience in these fields. *Id.*

On this record, we adopt Petitioner's definition of the level of ordinary skill in the art. We further note that the prior art itself demonstrates the level of skill in the art at the time of the invention. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (explaining that specific findings regarding ordinary skill level are not required "where the prior art itself reflects an appropriate level and a need for testimony is not shown") (quoting *Litton Indus. Prods., Inc. v. Solid State Sys. Corp.*, 755 F.2d 158, 163 (Fed. Cir. 1985)).

C. Claim Construction

In an *inter partes* review, the Board interprets claim terms in an unexpired patent according to the broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2142 (2016) (affirming applicability of broadest reasonable construction standard to *inter partes* review proceedings). Under that standard, and absent any special definitions, we generally give claim terms their ordinary and customary meaning, as would be understood by one of ordinary skill in the art at the time of the invention. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definitions for claim terms must be set forth with reasonable clarity, deliberateness, and precision. *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994).

1. "effective in treating dry eye disease" and "therapeutically effective"

Claims 1–17 and 22–24 recite treatment methods utilizing a topical ophthalmic emulsion that is "effective in treating dry eye disease." Petitioner asserts that the '162 patent teaches that cyclosporin A "enhance[s] or restore[s] lacrimal gland tearing in providing the desired therapeutic effect." Pet. 18 (quoting Ex. 1001, 9:14–17). Petitioner also asserts that "therapeutic" includes palliative and curative treatments. *Id.* Petitioner then argues that in the context of the '162 patent, "an emulsion effective to increase tear production or reduce symptoms is an example of one therapeutically effective in enhancing and restoring lactrimal gland tearing

and in treating dry eye disease." *Id.* (citing Ex. 1002 ¶¶ 69–73; Ex. 1003 ¶¶ 83–84).

Claims 13 and 14 recite an emulsion that is as "therapeutically effective" and achieves as much "therapeutic effectiveness" as a second emulsion, respectively. Petitioner asserts that because the plain meaning of the word "therapeutic" includes palliative as well as curative treatments, the broadest reasonable interpretation of the terms includes palliative and curative treatments. Pet. 19 (citing Ex. 1002 ¶¶ 69–73; Ex. 1003 ¶¶ 82–86).

At this stage of the proceeding, we are persuaded that Petitioner's arguments and evidence support the broadest reasonable interpretation in light of the specification, and find that "effective in treating dry eye disease," "therapeutically effective," and similar terms encompass both palliative and curative treatments of dry eye disease.

2. Remaining Claim Terms

Petitioner proposes constructions for a number of additional claim terms. At this stage of the proceeding, we determine it is unnecessary to expressly construe any other claim terms for purposes of this Decision. *See Wellman, Inc. v. Eastman Chem. Co.*, 642 F.3d 1355, 1361 (Fed. Cir. 2011) ("[C]laim terms need only be construed '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)).

D. Obviousness over Ding '979 and Sall

Petitioner argues that claims 1–24 are unpatentable as obvious over the combination of Ding '979 and Sall. Pet. 21–52. Based on the current

record, we determine that Petitioner has established a reasonable likelihood that it would prevail in showing claims 1–24 are unpatentable over the cited prior art.

1. Ding '979 (Ex. 1006)

Ding '979, assigned to Patent Owner, relates to ophthalmic emulsions including cyclosporin, castor oil, and polysorbate 80 that have a high comfort level and low irritation potential. Ex. 1006, cover, 1:4–9. Ding '979 explains that cyclosporins have "known immunosuppressant activity" and have been found "effective in treating immune medicated keratoconjunctivitis sicca (KCS or dry eye disease) in a patient suffering therefrom." *Id.* at 1:10–16. Although the solubility of cyclosporins in water is extremely low, cyclosporins have some solubility in oily preparations containing higher fatty acid glycerides such as castor oil. *Id.* at 1:40–41, 2:39–42. Ding '979 notes, however, that formulations with a high concentration of oils have several drawbacks, including exacerbation of the symptoms of dry eyes and low thermodynamic activity of cyclosporin, which leads to poorer drug bioavailability. *Id.* at 2:42–57. Accordingly, Ding '979 "is directed to an emulsion system which utilizes higher fatty acid glycerides but in combination with polysorbate 80 which results in an emulsion with a high comfort level and low irritation potential suitable for delivery of medications to sensitive areas such as ocular tissues." *Id.* at 2:65–3:3.

Ding '979 discloses that the preferable weight ratio of cyclosporin to castor oil is below 0.16, and more preferably between 0.12 and 0.02. *Id.* at

3:15–20. Specifically, Ding '979 discloses several compositions as Example 1, shown below:

Example 1

	A	B	C	D	E
Cyclosporin A	0.40%	0.20%	0.20%	0.10%	0.05%
Castor oil	5.00%	5.00%	2.50%	1.25%	0.625%
Polysorbate 80	1.00%	1.00%	1.00%	1.00%	1.00%
Pemulen ®	0.05%	0.05%	0.05%	0.05%	0.05%
Glycerine	2.20%	2.20%	2.20%	2.20%	2.20%
NaOH	qs	qs	qs	qs	qs
Purified water	qs	qs	qs	qs	qs
pH	7.2–7.6	7.2–7.6	7.2–7.6	7.2–7.6	7.2–7.6

Id. at 4:32–43. Example 1 identifies compositions A through E, which contain varying amounts of cyclosporin A, castor oil, polysorbate 80, Pemulen® (an acrylate/C10-30 alkyl acrylate cross-polymer), glycerine, sodium hydroxide, and purified water at a pH range of 7.2–7.6. *Id.* According to Ding '979, the formulations of Example 1 were "made for treatment of keratoconjunctivitis sicca (dry eye) syndrome." *Id.* at 5:10–12.

2. Sall (Ex. 1007)

Sall describes the results of two identical clinical trials—supported by a grant from Patent Owner—in which patients were treated twice daily with either cyclosporin A 0.05% or 0.1% ophthalmic emulsions or vehicle for six months. Ex. 1007, Abstract. The study sought to compare the efficacy and safety of cyclosporin A 0.05% and 0.1% to vehicle in patients with moderate to severe dry eye disease. *Id.* Sall found that topical treatment with either cyclosporin A 0.05% or 0.1% resulted in significantly greater improvements

than vehicle treatment in two objective signs of dry eye disease. *Id.* at 637. Sall also found that treatment with cyclosporin A 0.05% resulted in significantly greater improvements in several subjective parameters. *Id.* Sall also found that trough blood concentrations of cyclosporin A were undetectable in all samples of cyclosporin A 0.05%, whereas cyclosporin A was quantifiable in only six samples for six different patients in the cyclosporin 0.1% group. *Id.*

Sall notes that the only treatments available for dry eye disease are palliative in nature. *Id.* at 638. In light of the results of the study, Sall states that it "represents the first therapeutic treatment specifically for dry eye disease and a significant breakthrough in the management of this common and frustrating condition." *Id.*

3. Analysis

Petitioner argues that the combination of Ding '979 and Sall teaches each limitation of claims 1–24 of the '162 patent. Pet. 21–28. For example, regarding independent claim 23, Ding '979 teaches emulsions that are "made for treatment of keratoconjunctivitis sicca (dry eye) syndrome." Ex. 1006, 5:9–11. Ding '979 also teaches that cyclosporins act in the "enhancement or restoring of lacrimal gland tearing." *Id.* at 1:37–39. Thus, we are persuaded by Petitioner's assertion that Ding '979 teaches the "emulsion is effective in treating dry eye disease," as recited by the claim.

Regarding the specific ingredients of the claimed emulsion, as Petitioner notes, the emulsion of Ding '979's claim 8 recites ranges of 0.05% to 0.40% CsA; 0.625%–5.0% castor oil; and the other claimed

ingredients and pH. Ex. 1006, 6:35–42. Dr. Kador testifies that a person of ordinary skill in the art would understand that Ding '979 claim 8 "discloses a fully operational invention, and that an emulsion having 0.05% CsA and 1.25% castor oil is squarely within Ding '979's teachings." Ex. 1002 ¶¶ 159–160.

Moreover, Example 1D of Ding '979 teaches every ingredient of the emulsion in claim 23, except 0.05% cyclosporin A. Ex. 1006, 4:32–43. That is, Example 1D teaches an emulsion with 1.25% castor oil, 1.0% polysorbate 80, 0.05% Pemulen (i.e., acrylate/C10-30 alkyl acrylate cross-polymer), 2.2% glycerine, sodium hydroxide, and water. *Id.* Example 1E of Ding '979 teaches an emulsion with 0.05% cyclosporin A. *Id.* According to Dr. Kador, Ding '979's teaching that too much CsA in the blood can cause unwanted side effects due to systemic circulation would have led a person of ordinary skill in the art to use 0.05% CsA and 1.25% castor oil in light of the preferred CsA to castor oil ratio taught by Ding '979. Ex. 1002 ¶¶ 162–164.

Alternatively, Petitioner asserts that Sall would have motivated a person of ordinary skill in the art to use the 0.05% CsA emulsion with 1.25% castor oil taught by Ding '979. Pet. 33–36. Sall teaches treating patients twice daily with an emulsion containing 0.05% cyclosporin A. Ex. 1007, 631. Sall concludes that both the 0.05% and the 0.10% cyclosporin A emulsions "were safe and effective in the treatment of moderate to severe dry eye disease . . . yielding improvements in both objective and subjective measures." *Id.* As such, Petitioner asserts that one of ordinary skill in the art would have selected the lowest effective dose (0.05% CsA) given Sall's

teaching that there was no dose response effect and because such a person would have been motivated to keep blood CsA levels as low as possible while maintaining efficacy given CsA's known immunosuppressant activities. Pet. 35–36 (citing Ex. 1006, 1:67–2:4; Ex. 1007, 1, 6, 7; Ex. 1002 ¶ 169). Moreover, Petitioner asserts that a person of ordinary skill in the art would prefer a 0.05% CsA emulsion with 1.25% castor oil rather than 0.625% castor oil because Sall taught that castor oil itself provides "substantial palliative benefits." Pet. 36 (citing Ex. 1007, 8; Ex. 1002 ¶¶ 169–170).

Petitioner also addresses four declarations alleging secondary considerations that Patent Owner submitted during prosecution of the '162 patent application. Pet. 56–77. Patent Owner argues that the evidence of unexpected results is "fundamentally flawed." *Id.* at 58. Patent Owner also asserts that other patents demonstrate near-simultaneous invention using 1.25% castor oil, including ophthalmic emulsions comprising 1.25% castor oil and 0.05% CsA. *Id.* at 76–77. We have considered Petitioner's arguments and will be able to assess them more fully on a complete trial record.

Upon considering the arguments set forth in the Petition, we determine that Petitioner has shown a reasonable likelihood that it would prevail in showing claim 23 is unpatentable as obvious over the combination of Ding '979 and Sall. We have considered Petitioner's arguments and evidence with respect to claims 1–22 and 24, and we determine that Petitioner has made a sufficient showing as to those claims, as well.

E. Obviousness over Ding '979, Sall, and Acheampong

Petitioner also asserts that claims 11 and 21 are unpatentable as obvious over Ding '979, Sall, and Acheampong. Pet. 53–54. We incorporate here our findings and discussion above regarding the disclosure of Ding '979 and Sall.

1. Acheampong (Ex. 1008)

Acheampong describes a study by Patent Owner as part of its evaluation of the clinical efficacy of 0.05%–0.4% cyclosporin emulsion for the treatment of immuno-inflammatory eye diseases such as dry eye syndrome. Ex. 1008, 3. Acheampong describes the results of its research to determine the ocular tissue distribution of cyclosporin in rabbits and dogs, and to compare tissue concentrations in rabbits, dogs, and humans after topical administration. *Id.*

In the study of humans, the subjects with dry eye disease received an eyedrop of vehicle or 0.05%, 0.1%, 0.2%, or 0.4% cyclosporin emulsions twice daily for 12 weeks. *Id.* at 4. Blood samples were collected from all subjects at morning troughs after 1, 4, and 12 weeks of dosing, and from certain subjects at 1, 2, and 4 hours after the last dose at week 12. *Id.* Acheampong found that the human blood cyclosporin A concentrations were less than 0.2 ng/ml for each emulsion, which is lower than the 20–100 ng/ml blood trough concentration used for monitoring the safety of patients receiving systemic cyclosporin therapy. *Id.* at 6.

2. Analysis

Claims 11 and 21 depend from independent claims 1 and 18, respectively, and further recite that "when the emulsion is administered to an eye of a human, the blood of the human has substantially no detectable concentration of cyclosporin A." Petitioner asserts that Acheampong teaches that an emulsion with 0.05% CsA resulted in no detectable CsA in the blood at both peak and trough levels. Pet. 53–54 (citing Ex. 1008, Table 1). Petitioner further asserts that Acheampong and Sall together would give a person of ordinary skill in the art a reasonable expectation of success that twice daily administration of 0.05% CsA yields "substantially no detectable concentration of cyclosporin A" in the blood. *Id.* at 54 (citing Ex. 1002 ¶¶ 231–232; Ex. 1003 ¶ 162). According to Petitioner, a skilled artisan would have had good reason to combine Acheampong with Ding '979 and Sall's teachings, as Acheampong additionally teaches the safety of topically administering CsA emulsions to the eye. *Id.*

On the current record, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in its assertion that claims 11 and 21 are unpatentable as obvious over the combination of Ding '979, Sall, and Acheampong.

F. Obviousness over Ding '979, Sall, and Glonek

Petitioner asserts that claim 15 is unpatentable as obvious over Ding '979, Sall, and Glonek. Pet. 55–56. We incorporate here our findings and discussion above regarding the disclosure of Ding '979 and Sall.

1. Glonek (Ex. 1009)

Glonek relates to a composition for augmenting and maintaining a stable tear film over the ocular surface and delivering a medicine to the eye without causing substantial blurring of vision. Ex. 1009, 1:21–29. Glonek explains that an emulsion over the surface of the eye is expected to cause blurring, which is likely to occur until the emulsion differentiates. *Id.* at 6:37–42. If the emulsion is too stable, excess emulsion will be discharged from the eye. *Id.* at 6:42–44. Thus, Glonek states that it is preferred that an emulsion be stable for long term storage, but rapidly differentiate in the eye. *Id.* at 6:48–50.

2. Analysis

Claim 15 depends from claim 1, and further recites that "the emulsion breaks down more quickly in the eye of a human, . . . thereby reducing vision distortion in the eye of the human as compared to a second emulsion that contains only 50% as much castor oil." Glonek teaches that "[t]he duration of [the blurring] is dependent upon the time required for the emulsion to differentiate and form separate layers." Ex. 1009, 6:37–40. Moreover, Glonek teaches that "it is preferred that the emulsion be stable for long term storage, but rapidly differentiate in the eye." *Id.* at 6:48–50. Accordingly, Petitioner asserts that a skilled artisan would have understood that increasing the oil concentration in an emulsion, while holding the surfactant concentration constant, results in an increased rate of differentiation. Pet. 55–56 (citing Ex. 1009, 10:66–11:3; Ex. 1002 ¶ 238).

We are persuaded, on the current record, that Petitioner has demonstrated a reasonable likelihood that it would prevail in its assertion that claim 15 is unpatentable as obvious over the combination of Ding ’979, Sall, and Glonek.

III. CONCLUSION

We conclude that Petitioner has established a reasonable likelihood of prevailing on its assertions that claims 1–24 of the ’162 patent are unpatentable as obvious.

At this stage of the proceeding, the Board has not made a final determination as to the patentability of any challenged claim or the construction of any claim term.

IV. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that Petitioner’s Motion for Joinder is *denied*;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is hereby instituted on the following grounds:

A. Claims 1–24 as obvious over Ding ’979 and Sall;

B. Claims 11 and 21 as obvious over Ding ’979, Sall, and Acheampong; and

C. Claim 15 as obvious over Ding ’979, Sall, and Glonek.

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

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