UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/780,265	09/25/2015	Marie Noelle HORCAJADA	3712036-02509	9711

29157 7590 11/18/2019

K&L Gates LLP-Chicago
P.O. Box 1135
Chicago, IL 60690

EXAMINER
HENRY, MICHAEL C

ART UNIT	PAPER NUMBER
1623	

NOTIFICATION DATE	DELIVERY MODE
11/18/2019	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USpatentmail@klgates.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MARIE NOELLE HORCAJADA,
FANNY MEMBREZ, and ELIZABETH OFFORD CAVIN

Appeal 2019-005206
Application 14/780,265
Technology Center 1600

Before DONALD E. ADAMS, ERIC B. GRIMES, and
MICHAEL A. VALEK, *Administrative Patent Judges*.

ADAMS, *Administrative Patent Judge*.

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from Examiner's decision to reject claims 1, 3, 4, 6–11, 14–16, 18–23, and 26–28. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

[1] We use the word "Appellant" to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as "Nestec S.A." (Appellant's January 23, 2019 Appeal Brief (Appeal Br.) 2).

STATEMENT OF THE CASE

Appellant's disclosure "relates to use of a composition for maintenance of bone and/or cartilage health or prevention, alleviation and/or treatment of bone and/or cartilage disorders." (Spec.[2] 1: 3–5). Appellant's independent claims 1 and 18 are reproduced below:

> 1. A method for potentiating the effects of oleuropein on bone formation and/or cartilage anabolism, the method comprising administering a composition comprising 800 to 1200 IU of Vitamin D and further comprising the oleuropein to an individual in need of same.

(Appeal Br. 18.)

> 18. A method of treatment and/or alleviation of a disorder linked to an imbalance in bone and/or cartilage metabolism, the method comprising administering an effective amount of 800 to 1200 IU of Vitamin D in combination with oleuropein to an individual having the disorder.

(*Id.* at 19.)

Grounds of rejection before this Panel for review:

Claims 1, 3, 4, 6–11, 14–16, 18–23, and 26–28 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Coxam,[3] Cisale,[4] Delgado-Herrera,[5] and Evenstad.[6]

Claims 16 and 28 stand rejected under 35 U.S.C. § 103(a) as unpatentable over the combination of Coxam, Cisale, Delgado-Herrera, Evenstad, and Numano.[7]

---

[2] Appellant's September 25, 2015 Specification.
[3] Coxam et al., US 2006/0193931 A1, published Aug. 31, 2006.
[4] Cisale et al., WO 2009/121600 A2, published Oct. 8, 2009.
[5] Delgado-Herrera et al., US 2006/0009425 A1, published Jan. 12, 2006.
[6] Evenstad et al., US 2004/0162292 A1, published Aug. 19, 2004.
[7] Numano et al., US 2007/0020350 A1, published Jan. 25, 2007.

ISSUE

Does the preponderance of evidence relied upon by Examiner support a conclusion of obviousness?

FACTUAL FINDINGS (FF)

FF 1. Coxam "relates to the field aiming at maintaining or restoring the human or animal bone metabolism, especially for preventing or treating disorders associated with a bone metabolism imbalance" (Coxam ¶ 2; *see generally* Ans.[8] 4).

FF 2. Coxam discloses that osteoporosis is among the pathological disorders associated with bone metabolism imbalance (Coxam ¶ 16; *see generally* Ans. 4).

FF 3. Coxam discloses "factors that may increase bone loss leading to osteoporosis, such as . . . [V]itamin D deficiency" (Coxam ¶ 18; *see* Ans. 4).

FF 4. Coxam discloses "the use of the [polyphenol,] oleuropein[,] . . . or one derivative thereof for making a composition to be used for stimulating bone mineralization, in particular bone formation and/or for inhibiting bone resorption for humans or animals" (Coxam ¶ 41; *see* Ans. 4).

FF 5. Coxam discloses a pharmaceutical composition, suitable for daily administration to a human, comprising 0.01–200 mg oleuropein or one derivative thereof (Coxam ¶ 153; *see* Ans. 4).

FF 6. Examiner finds that Coxam does not explicitly disclose a method that comprises the administration of oleuropein in combination with Vitamin D, as required by Appellant's claimed invention (Ans. 4; *cf.* Coxam ¶ 135

[8] Examiner's May 2, 2019 Answer.

(Coxam discloses that its composition "may further comprise . . . [V]itamin D")).

FF 7. Cisale discloses formulations comprising the polyphenol, hydroxytyrosol, in combination with, *inter alia*, Vitamin D that are "useful as osteoporosis preventive agents for keeping bone density and solidity constant" (Cisale 2: 18–25; *see* Ans. 4).

FF 8. Cisale discloses that "[t]he hydroxytyrosol content in [its] formulations . . . may range from 0.1 to 10 mg per unit dose, while the dosages of the other components may range within wide limits, according to what is known for products comprising such active ingredients" (Cisale 3: 16–19; *see* Ans. 4).

FF 9. Examiner finds that Delgado-Herrera discloses "that [V]itamin D increases calcium absorption from the intestine and promote[s] normal bone formation and mineralization," "is required for the proper development and maintenance of bone," and "is essential for life in higher animals as it is an important regulator of calcium and phosphorus" (Ans. 4–5; *see* Delgado-Herrera ¶¶ 3 and 5).

FF 10. Evenstad discloses that "[u]seful multivitamins for treating or preventing degenerative diseases such as osteoporosis" can include "[V]itamin D (e.g., [V]itamin D_3), e.g., to provide a daily dosage in the range from about 5 to about 25 mcg [V]itamin D" (Evenstad ¶ 60; *see* Ans. 5).

FF 11. Examiner finds that "1mcg (microgram or µg) Vitamin D is . . . equal to 40 IU (i.e.; 1mcg = 40 IU) [V]itamin D" and, therefore, Evenstad's disclosed Vitamin D concentration of from about 5–25 mcg is equivalent to 200–1000 IU (Ans. 5).

FF 12. Examiner finds that the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad does not suggest the administration of a composition comprising oleuropein and Vitamin D to an individual "at least once per day, for a time period of at least 2 months" (Ans. 7).

FF 13. Numano discloses hydroxytyrosol rich "[c]ompositions obtained from vegetation water from olives and methods for treating patients suffering from an inflammatory skin disease" (Numano, Abstract; *see generally* Ans. 7).

FF 14. Numano discloses that the "composition may be administered at regular intervals, e.g., daily, two times daily, or three times daily . . . over a period of time, e.g. 1 to 12 months or more" (Numano ¶ 76; *see* Ans. 7).

ANALYSIS

The rejection over the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad:

Cisale discloses a composition for use as an osteoporosis preventive agent for keeping bone density and solidity constant, that comprises the polyphenol, hydroxytyrosol, in combination with Vitamin D (FF 7). According to Cisale "[t]he hydroxytyrosol content in [its] formulations . . . may range from 0.1 to 10 mg per unit dose, while the dosages of the other components may range within wide limits, according to what is known for products comprising such active ingredients" (FF 8).

Evenstad discloses that it is known to administer a daily dosage of Vitamin D in the range of from about 200–1000 IU, for treating or preventing degenerative diseases such as osteoporosis (FF 10–11; *see also* FF 9 (Vitamin D, *inter alia*, "promote[s] normal bone formation and mineralization" and "is required for the proper development and

maintenance of bone")). The range of from about 200–1000 IU of Vitamin D, disclosed by Evenstad, overlaps the Vitamin D concentration range set forth in Appellant's claims 1 and 18. Overlapping ranges support a prima facie case of obviousness. *See In re Geisler*, 116 F.3d 1465, 1468 (Fed. Cir. 1997).

The evidence of record further establishes that the polyphenol, oleuropein, like hydroxytyrosol, is useful in methods of treating osteoporosis (*see* FF 1–4; *see also* FF 5 ("Coxam discloses a pharmaceutical composition, suitable for daily administration to a human, comprising 0.01–200 mg oleuropein")). Thus, on this record, we find that it would have been prima facie obvious to substitute one polyphenol for another, i.e., oleuropein for the hydroxytyrosol, in Cisale's composition useful as an osteoporosis preventative agent and for keeping bone density and solidity constant (*see generally* Ans. 5–6; *see also* FF 1–11). *See generally In re Omeprazole Patent Litig.*, 483 F.3d 1364, 1374 (Fed. Cir. 2007) ("[T]his court finds no . . . error in [the] conclusion that it would have been obvious to one skilled in the art to substitute one ARC [alkaline reactive compound] for another.").

Thus, the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad makes obvious a method of treating and/or preventing osteoporosis, which is a disorder linked to an imbalance in bone and/or cartilage metabolism, and involves bone formation and/or cartilage anabolism (*see generally* FF 1–11; *cf.* Spec. 12: 31–37 (characterizing osteoporosis as a disorder in bone formation and/or cartilage anabolism)). The method suggested by the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad, therefore, necessarily potentiates the effect of the polyphenol, oleuropein (*see* Spec. 2: 26–27 (Appellant discloses that "[i]n

the context of this application, the effect of addition of Vitamin D is referred to as 'potentiating' the effect of polyphenols on bone formation and/or cartilage anabolism"); *see also id.* at 5: 24–25 (polyphenols within the scope of Appellant's disclosure "may be for example one or more of oleuropein and hydroxytyrosol")).

Appellant provides separate arguments for claims 1, 3, 4, 6, 18, and 21 (*see generally* Appeal Br. 6–14). We address each separately argued claim below in addition to Appellant's claims 16 and 28.

Claim 1:

Appellant's independent claim 1 is reproduced above.

For the foregoing reasons, we find no error in Examiner's conclusion that the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad, makes obvious Appellant's claim 1.

For the foregoing reasons, we are not persuaded by Appellant's contention that "none of the cited references teaches or suggests that addition of Vitamin D potentiates the bone formation and cartilage anabolism response elicited by oleuropein" (Appeal Br. 7).

We are also not persuaded by Appellant's contention that the method of claim 1 achieves unexpected results, wherein the "addition of Vitamin D [to oleuropein] leads to an earlier response and a stronger response than the additive effects of either component on its own, which is unexpected" (Appeal Br. 7 (emphasis omitted); Reply Br. 2–9). Appellant directs attention to Example 2 and Figures 2–6 of the Specification to support the

asserted unexpected results (*see id.* at 6; *see also* Horcajada Decl.[9] ¶¶ 5–13 (relying upon the evidence provided in Example 2 and Figures 2–6 of Appellant's Specification)).

As Example 2 of Appellant's Specification makes clear, however, the results illustrated in Appellant's Figures are based on a single concentration of Vitamin D, specifically 10^{-9} M 1,25 dihydroxyvitamin D3 (1,25(OH)2D3) (*see* Spec. 19: 11 and 30–31). Appellant's claim 1, however, is not limited to a single concentration of Vitamin D, but instead encompasses a range of 800 to 1200 IU Vitamin D (*see* Appellant's claim 1). Thus, on this record, the evidence of unexpected results is not commensurate in scope with Appellant's claimed invention. *In re Huai-Hung Kao*, 639 F.3d 1057, 1068 (Fed. Cir. 2011) ("Evidence of secondary considerations must be reasonably commensurate with the scope of the claims.").

Appellant does not show how, if at all, this concentration equates to a dosage within the claimed range. Thus, Appellant has not demonstrated a nexus between these results and claim 1. *See In re GPAC Inc.*, 57 F.3d 1573, 1580 (Fed. Cir. 1995) ("For objective evidence [of nonobviousness] to be accorded substantial weight, its proponent must establish a nexus between the evidence and the merits of the claimed invention.").

For the foregoing reasons, we find no error in Examiner's conclusion that the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad, makes obvious Appellant's claim 1. We further find that Appellant's evidence of unexpected results is not commensurate in scope with Appellant's claimed invention.

[9] Declaration of Marie Noelle Horcajada, signed March 20, 2018.

Claim 3:

Appellant's claim 3 depends from and further limits the composition of Appellant's claim 1 to comprise 850 to 1000 IU of Vitamin D (*see* Appeal Br. 18).

As discussed above, the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad makes obvious a method, within the scope of Appellant's claimed method, comprising administering, to an individual, a composition comprising oleuropein in combination with another component, such as Vitamin D, wherein "the dosages of the other components may range within wide limits, according to what is known for products comprising such active ingredients" (*see* FF 7–8). On this record, Evenstad discloses that it is known to administer a daily dosage of Vitamin D in the range of about 200–1000 IU, for treating or preventing degenerative diseases such as osteoporosis (FF 10–11).

Appellant's claimed range of 850 to 1000 IU of Vitamin D falls within the Vitamin D range suggested by the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad. "[W]here there is a range disclosed in the prior art, and the claimed invention falls within that range, there is a presumption of obviousness." *Iron Grip Barbell Co. v. USA Sports, Inc.*, 392 F.3d 1317, 1322 (Fed. Cir. 2004).

For the foregoing reasons, we are not persuaded by Appellant's contention that "[t]he cited references do not render obvious the composition comprising the combination of . . . 850 to 1000 IU of Vitamin D and oleuropein [as] recited in dependent Claim 3" (Appeal Br. 11).

Claim 4:

Appellant's claim 4 depends from and further limits the composition of Appellant's claim 1 to comprise 900 to 950 IU of Vitamin D (*see* Appeal Br. 18).

As discussed above, the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad makes obvious a method, within the scope of Appellant's claimed method, comprising administering, to an individual, a composition comprising oleuropein and 200–1000 IU Vitamin D (FF 1–11).

Appellant's claimed range of 900 to 950 IU of Vitamin D falls within the Vitamin D range suggested by the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad. "[W]here there is a range disclosed in the prior art, and the claimed invention falls within that range, there is a presumption of obviousness." *Iron Grip Barbell*, 392 F.3d at 1322.

For the foregoing reasons, we are not persuaded by Appellant's contention that "[t]he cited references do not render obvious the composition comprising the combination of . . . 900-950 IU of Vitamin D and . . . oleuropein recited in dependent Claim 4" (Appeal Br. 12). Appellant's claim 4 does not require administration of 0.01 mg – 1 g of oleuropein, therefore, we are not persuaded by Appellant's contention to the contrary (*see id.*).

Claims 6 and 21:

Appellant's claims 6 and 21 depend from and further limit the composition of Appellant's claims 1 and 18, respectively, to comprise from 0.01 mg to 1 g of oleuropein (*see* Appeal Br. 18 and 19, respectively).

As discussed above, the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad discloses a method, within the scope of Appellant's claimed method, comprising the administration of a polyphenol, such as hydroxytyrosol or oleuropein, at a concentration of from 0.1–10 mg per unit dose (FF 7–8; *see generally* FF 1–11).

Appellant's claimed range of 0.01 mg – 1 g of the polyphenol, oleuropein, overlaps the range suggested by the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad. Overlapping ranges support a prima facie case of obviousness. *See In re Geisler*, 116 F.3d at 1468.

For the foregoing reasons, we are not persuaded by Appellant's contention that "[t]he cited references do not render obvious the composition comprising the combination of 800-1200 IU of Vitamin D and . . . 0.01 mg - 1 g of oleuropein recited in dependent Claim 6" (Appeal Br. 12; *see also id.* at 14).

Claims 16 and 28:

Appellant's claims 16 and 28 depend from and further limit Appellant's claims 1 and 18, respectively, to require that the composition is administered at least once per day, for a time period of at least 2 months (*see* Appeal Br. 19 and 20, respectively).

Examiner concedes that the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad does not suggest the administration of a composition comprising oleuropein and vitamin D to an individual "at least once per day, for a time period of at least 2 months" (FF 12).

Therefore, the rejection of claims 16 and 28 over the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad is reversed.

Claim 18:

Appellant's independent claim 18 is reproduced above.

For the reasons set forth above, with respect to Appellant's claim 1, we are not persuaded by Appellant's contention that "the unexpected results regarding the potentiation effects of Vitamin D on responses elicited by oleuropein rebut any *prima facie* case of obviousness for independent Claim 18" (Appeal Br. 14; *see generally id.* at 13–14 (providing an overview of the evidence of unexpected results discussed above)).

The rejection over the combination of Coxam, Cisale, Delgado-Herrera, Evenstad, and Numano:

Based on the combination of Coxam, Cisale, Delgado-Herrera, Evenstad, and Numano, Examiner concludes that, at the time Appellant's invention was made, it would have been prima facie obvious to treat osteoporosis and stimulate or promote bone formation in an individual by administering the composition suggested by the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad "at least once per day, for a time period of at least 2 months," as suggested by Numano (*see* Ans. 7; *see* FF 1–14). We are not persuaded.

As Appellant explains, "*Numano* is entirely directed to a composition obtained from vegetation water from olives for treating patients with skin inflammation conditions" (Appeal Br. 15; *see also* FF 13–14). Examiner failed to establish an evidentiary basis on this record to support a conclusion that a person of ordinary skill in this art would have found it prima facie obvious to utilize a dosage regimen for the treatment of patients with skin inflammation conditions in a method of treating osteoporosis or other bone

related disorders as suggested by the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad (*see* FF 1–11).

Therefore, the rejection of claims 16 and 28 over the combination of Coxam, Cisale, Delgado-Herrera, Evenstad, and Numano is reversed.

CONCLUSION

The preponderance of evidence relied upon by Examiner supports a conclusion of obviousness with respect to claims 1, 3, 4, 6, 18, and 21.

The rejection of claims 1, 3, 4, 6, 18, and 21 under 35 U.S.C. § 103(a) as unpatentable over the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad is affirmed. Claims 7–11, 14, and 15 are not separately argued and fall with claim 1. Claims 19, 20, 22, 23, 26, and 27 are not separately argued and fall with claim 18.

The preponderance of evidence relied upon by Examiner fails to support a conclusion of obviousness with respect to claims 16 and 28.

The rejection of claims 16 and 28 under 35 U.S.C. § 103(a) as unpatentable over the combination of Coxam, Cisale, Delgado-Herrera, and Evenstad is reversed.

The rejection of claims 16 and 28 under 35 U.S.C. § 103(a) as unpatentable over the combination of Coxam, Cisale, Delgado-Herrera, Evenstad, and Numano is reversed.

DECISION SUMMARY

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 3, 4, 6–11, 14–16, 18–23, 26–28	103	Coxam, Cisale, Delgado-Herrera, Evenstad	1, 3, 4, 6–11, 14, 15, 18–23, 26, 27	16, 28
16, 28	103	Coxam, Cisale, Delgado-Herrera, Evenstad, Numano		16, 28
Overall Outcome			1, 3, 4, 6–11, 14, 15, 18–23, 26, 27	16, 28

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART