

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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RIMFROST AS,  
Petitioner,

v.

AKER BIOMARINE ANTARCTIC AS,  
Patent Owner.

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Case No. IPR2018-00295  
Patent 9,320,765 B2

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Before TINA E. HULSE, JACQUELINE T. HARLOW,  
and JOHN E. SCHNEIDER, *Administrative Patent Judges.*

SCHNEIDER, *Administrative Patent Judge.*

FINAL WRITTEN DECISION  
*35 U.S.C. § 318(a) and 37 C.F.R. § 42.73*

## I. INTRODUCTION

### A. Background

Rimfrost AS (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–48 of U.S. Patent No. 9,320,765 B2 (“the ’765 patent”). Paper 1, (“Pet.”). Aker Biomarine Antarctic AS (“Patent Owner”) did not file a Preliminary Response. We determined, based on the information contained in the Petition that there was a reasonable likelihood that Petitioner would prevail in challenging claims 1–48 as unpatentable under 35 U.S.C § 103(a). Pursuant to 35 U.S.C. § 314, the Board instituted trial on June 14, 2018. Paper 9 (“Dec.”).

Patent Owner filed a Response to the Petition on September 5, 2018. Paper 14 (“PO Resp.”). Petitioner filed a Reply on November 26, 2018. Paper 19 (“Reply”). Patent Owner filed a Sur-Reply on January 18, 2019.<sup>1</sup> Paper 27 (Sur-Reply”).

Patent Owner also filed a Motion to Amend on September 5, 2018. Paper 16 (“MTA”). Petitioner filed an Opposition to the Motion to Amend on November 26, 2018. Paper 20 (“MTA Opp.”). Patent Owner filed a Reply on December 27, 2018. Paper 22 (“MTA Reply”). Petitioner filed a Sur-Reply to the Motion to Amend on February 1, 2019. Paper 30 (“MTA Sur-Reply”).

On March 12, 2019, the parties presented arguments at an oral hearing. The hearing transcript has been entered in the record. Paper 34 (“Tr.”).

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<sup>1</sup> In an email to the Board dated January 3, 2019, the parties jointly requested authorization to file Sur-Replies in lieu of a Motion for Observations and Response to the Motion for Observations. The Board granted the request on February 4, 2019.

We have jurisdiction under 35 U.S.C. § 6. Petitioner bears the burden of proving unpatentability of the challenged claims, and that burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail, Petitioner must prove unpatentability by a preponderance of the evidence. *See* 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons that follow, we determine that Petitioner has shown by a preponderance of the evidence that claims 1–48 of the '765 patent are unpatentable. We also find that the proposed amended claims are also unpatentable for the reasons that follow. *See* 35 U.S.C. § 316(e).

#### *B. Additional Proceedings*

The '765 patent was the subject of a now-terminated investigation before the International Trade Commission: *Certain Krill Products and Krill Meal for Production of Krill Oil Products*, Investigation No. 337-TA-1019. Pet. 2; Paper 4, 1; Ex. 1054.

The following proceedings before the Board involve the same parties as the instant *inter partes* review, and concern patents related to the '765 patent: IPR2017-00745 (Paper 24) (finding claims 1–20 of U.S. Patent No. 9,078,905 B2 (“the '905 patent”) unpatentable); IPR2017-00746 (Paper 23) (finding claims 1–19 of U.S. Patent No. 9,028,877 B2 (“the '877 patent”) unpatentable);<sup>2</sup> IPR2017-00747 (Paper 24) (finding claims 1–20 of the '905 patent not shown to be unpatentable); IPR2017-00748 (Paper 23) (finding claims 1–19 of the '877 patent not shown to be unpatentable);

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<sup>2</sup> On October 12, 2018, Patent Owner filed Notices of Appeal seeking review of the final written decisions in IPR2017-000745 and IPR2017-000746. Paper 33, 5.

PGR2018-00033 (Paper 9) (declining to institute post grant review of claims 1–20 of U.S. Patent No. 9,644,170 B2); IPR2018-01178 (Paper 7) (instituting *inter partes* review of claims 1–32 of U.S. Patent No. 9,375,453 B2); IPR2018-01179 (Paper 7) (instituting *inter partes* review of claims 33–61 of U.S. Patent No. 9,375,453 B2); IPR2018-01730 (Paper 7) (instituting *inter partes* review of claims 1–20 of U.S. Patent No. 9,072,752 B1).

In addition, the '877 and '905 patents are at issue in *Aker Biomarine v. Olympic Holding AS*, Case No. 1:16-CV-00035 LPS-CJB (D. Del.), which has been stayed. Paper 33, 5.

### C. The '765 Patent (Ex 1001)

The '765 patent, titled “Bioeffective Krill Oil Compositions” issued on April 26, 2016, from U.S. Patent Application No. 14/020,155, filed on September 6, 2013. Ex. 1001, at [54], [45], [21], [22]. The '765 patent is a continuation of U.S. Patent Application No. 12/057,775, filed on March 28, 2008. The '765 patent claims priority to U.S. Provisional Application No. 60/920,483, filed on March 28, 2007; U.S. Provisional Application No. 60/975,058, filed on September 25, 2007; U.S. Provisional Application No. 60/983,446, filed on October 29, 2007; and U.S. Provisional Application No. 61/024,072, filed on January 28, 2008. *Id.* at col. 1, ll. 6–14.

The '765 patent describes extracts from Antarctic krill, small shrimp-like animals, that include bioactive fatty acids. Ex. 1001, col. 1, ll. 19–20. The '765 patent teaches krill oil compositions characterized by having “high amounts of phospholipids, astaxanthin esters and omega-3 contents.” Ex. 1001, Abstract. According to the Specification, the compositions disclosed in the '765 patent are effective “in a number of areas such as anti-inflammation, antioxidant effects, improving insulin resistances and improving blood lipid profile.” *Id.* In addition, the '765 patent recognizes

that a myriad of health benefits have been attributed to krill oil in the prior art. For example, the '765 patent states that “[k]rill oil compositions have been described as being effective for decreasing cholesterol, inhibiting platelet adhesion, inhibiting artery plaque formation, preventing hypertension, controlling arthritis symptoms, preventing skin cancer, enhancing transdermal transport, reducing the symptoms of premenstrual symptoms or controlling blood glucose levels in a patient.” *Id.* at col. 1, ll. 46–52.

The '765 patent acknowledges that krill oil compositions, including compositions having up to 60% w/w phospholipid content and as much as 35% w/w 5,8,11,14,17-eicosapentaenoic acid (EPA)/ 4,7,10,13,16,19-docosahexanoic acid (DHA) content, were known in the art at the time of the invention. *Id.* at col. 1, ll. 52–57. The '765 patent also indicates that supercritical fluid extraction with a solvent modifier was known to be a useful method for extracting marine phospholipids from salmon roe. *Id.* at col. 1, ll. 65–67.

According to the '765 patent, however, the solvent extraction methods used in the prior art to isolate krill oil from the krill “rely on the processing of frozen krill that are transported from the Southern Ocean to the processing site,” which transportation is expensive and may result in the degradation of the krill starting material. *Id.* at col. 2, ll. 3–6. Such methods have included steps of placing the starting material into a ketone solvent, such as acetone, to extract the lipid soluble fraction, and recovering the soluble lipid fraction from the solid contents using a solvent such as ethanol. *Id.* at col. 1, ll. 32–40.

To overcome the above limitations, the '765 patent discloses “methods for processing freshly caught krill at the site of capture and

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