

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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IPR2020-01534  
Patent 10,010,567 B2

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Before ERICA A. FRANKLIN, SUSAN L. C. MITCHELL, and  
JON B. TORNQUIST, *Administrative Patent Judges*.

MITCHELL, *Administrative Patent Judge*.

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

## I. INTRODUCTION

### *A. Background*

Rimfrost AS (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting an *inter partes* review of claims 1–20 of U.S. Patent No. 10,010,567 B2 (Ex. 1001, “the ’567 patent”). Aker Biomarine Antarctic AS (“Patent Owner”) did not file a Preliminary Response to the Petition.

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314 (2018); 37 C.F.R. § 42.4(a) (2020). The standard for institution is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted “unless the Director determines . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

After considering Petitioner’s arguments and evidence, and for the reasons set forth below, we determine that Petitioner has demonstrated a reasonable likelihood of prevailing with respect to at least one claim challenged in the Petition. Accordingly, we institute an *inter partes* review of all claims and grounds set forth in the Petition.

### *B. Real Parties in Interest*

Petitioner identifies itself, Olympic Holding AS, Emerald Fisheries AS, Rimfrost USA, LLC, Rimfrost New Zealand Limited, and Bioriginal Food and Science Corp. as real parties in interest. Pet. 3. Based on various ownership interests, and out of “an abundance of caution,” Petitioner also identifies Stig Remøy, SRR Invest AS, Rimfrost Holdings AS, and Omega Protein Corporation as real parties in interest. *Id.*

Patent Owner identifies itself as a real party in interest in this proceeding. Paper 4, 1.

*C. Related Proceedings*

Petitioner and Patent Owner identify several related matters. Specifically, the parties identify *Aker Biomarine Antarctic AS v. Olympic Holding AS*, Case No. 1:16-CV-00035-LPS-CJB (D. Del.), which involved U.S. Patent Nos. 9,028,877 B2 (“the ’877 patent”) and 9,078,905 B2 (“the ’905 patent”). Pet. 3; Paper 4, 1. The parties further identify Investigation No. 337-TA-1019 by the United States International Trade Commission, which involved the ’877 and ’905 patents, as well as U.S. Patent No. 9,320,765 (“the ’765 patent”), U.S. Patent No. 9,375,453 (“the ’453 patent”), and U.S. Patent No. 9,072,752 (“the ’752 patent”). Pet. 3–4; Paper 4, 1–2.

The parties also identify the following Board proceedings as related matters:

- IPR2017-00745 and IPR2017-00747, which requested review of the ’905 patent (all challenged claims found unpatentable (Ex. 1103), decision affirmed on appeal (Ex. 1154));
- IPR2017-00746 and IPR2017-00748, which requested review of the ’877 patent (all challenged claims found unpatentable (Ex. 1104), decision affirmed on appeal (Ex. 1154));
- IPR2018-00295, which requested review of the ’765 patent (all challenged claims found unpatentable (Ex. 1129));
- PGR2018-00033, which requested review of U.S. Patent No. 9,644,170 (institution denied because the challenged patent was not eligible for post grant review);
- IPR2018-01178 and IPR2018-01179, which requested review of the ’453 patent (all challenged claims found unpatentable (Exs. 1157, 1158));

- IPR2018-01730, which requested review of the '752 patent (all challenged claims found unpatentable (Ex. 1159)); and
- IPR2020-01532 and IPR2020-01533, which requested review of U.S. Patent Nos. 9,644,169 B2 and 9,816,046 B2, respectively, and which have been instituted.

Pet. 4–7; Paper 4, 2–4.

*D. The '567 Patent (Ex. 1001)*

The '567 patent discloses extracts from Antarctic krill that include bioactive fatty acids. Ex. 1001, 1:24–25. The '567 patent explains that krill oil compositions, including compositions having up to 60% w/w phospholipid content and as much as 35% w/w EPA/DHA<sup>1</sup> content, were known in the art. *Id.* at 1:59–62. The '567 patent further explains 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 1:51–57.

According to the '567 patent, frozen krill are typically transported from the Southern Ocean to a processing site, but lipases and phospholipases within the krill can result in the decomposition of glycerides and phospholipids during transport. *Id.* at 2:8–18, 9:64–10:13. To avoid the problem of enzymatic decomposition of krill products, the '567 patent describes a method of thermally denaturing the lipases and

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<sup>1</sup> According to the '567 patent, “EPA” is 5,8,11,14,17-eicosapentaenoic acid and “DHA” is 4,7,10,13,16,19-docosahexanoic acid. Ex. 1001, 9:15–19.

phospholipases in fresh-caught krill prior to storage and processing. *Id.* at 9:64–10:13, 10:46–55. The '567 patent reports that these denaturing steps allow for the storage of krill material “for from about 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, or 12 months to about 24 to 36 months prior to processing.” *Id.* at 10:39–45.

After denaturation, the krill can be subject to extraction processes either on board the ship or at a remote location. *Id.* at 10:39–41. In one embodiment, krill oils are extracted from krill meal in two stages. *Id.* at 9:57–60. In the first stage, a neutral fraction is extracted using either neat supercritical CO<sub>2</sub> or such CO<sub>2</sub> in combination with 5% ethanol. *Id.* In the second stage, polar lipids (phospholipids) are extracted by adding at least 20% ethanol to the supercritical CO<sub>2</sub> extraction medium. *Id.* at 9:61–63.

The '567 patent reports that “[k]rill oil extracted from denatured krill meal by supercritical fluid extraction even 19 months after the production of the meal contained virtually no decomposed phospholipids.” *Id.* at 11:3–6. The '567 patent further reports that the novel krill oil compositions of the invention are “characterized by containing high levels of astaxanthin, phospholipids, includ[ing] enriched quantities of ether phospholipids, and omega-3 fatty acids.” *Id.* at 9:49–52.

#### *E. Challenged Claims*

Petitioner challenges claims 1 through 20 of the '567 patent. Of those claims, claims 1 and 15 are independent. Both independent claims 1 and 15 are directed to encapsulated krill oil that is suitable for oral administration. *See* Ex. 1001, 35:44–48, 36:38–44. Claims 2 through 14 depend directly or indirectly from claim 1, and claims 16–20 depend directly from claim 15.

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