UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CYANOTECH CORPORATION
Petitioner
v.
THE BOARD OF TRUSTEES OF THE UNIVERSITY OF ILLINOIS
Patent Owner

Case IPR2013-00401[1]

Patent 5,527,533

Before SCOTT E. KAMHOLZ, SHERIDAN K. SNEDDEN, and GEORGIANNA W. BRADEN, *Administrative Patent Judges.*

PETITIONER'S REQUEST FOR REHEARING UNDER 37 C.F.R. § 42.71

Submitted: January 2, 2014

[1] Consolidated with Case IPR2013-00404

On December 19, 2013, the Board issued a Decision under 35 U.S.C. § 311 *inter alia* instituting *inter partes* review, and consolidating, IPR2013-00401 ("Pet. '401") and IPR2013-00404 ("Pet. '404") (collectively, Pet. '401 and Pet. '404 are the "Petition" unless a specific petition is cited; collectively the Decisions in Pet. '401 and Pet. '404 are "the Decision" unless a specific decision is cited). Pet. '401 and Pet. '404 are both directed to Claims 1-27 of U.S. Patent No. 5,527,533 and share a common set of identically enumerated Exhibits.

I. Introduction. The foci of Petitioner's Request for Rehearing ("Request") are that: (i) all species claims of an instituted genus claim should be instituted; (ii) Massonet (Exh. 1004) is technically and substantively not redundant with Grangaud (Exh. 1002), especially as to Claims 16-20, 23-25, and 27, and (iii) there is an internal consistency in the Decision concerning the grounds and claims instituted that should be clarified.

II. Claim 16 is unpatentable as a species in view of genus Claim 26; Claims 23-25 are unpatentable as species in view of genus Claim 21.

A single disclosed species can anticipate an entire genus, *In re Berg*, 140 F.3d 1428 (Fed.Cir., 1998), *In re Goodman*, 11 F.3d 1046 (Fed.Cir., 1993), and a disclosed genus anticipates all species in that genus unless a given species has a critical range of operation different from that of the genus and a later patent application contains data that establish the critical range and its effect for the

claimed species. *ClearValue Inc. v. Pearl River Polymers Inc.*, 668 F.3d 1340 (Fed. Cir., 2012) ("The disclosure of 150 ppm or less is a genus disclosure as in *Atofina.* But unlike *Atofina* where there was a broad genus and evidence that different portions of the broad range would work differently, here, there is no allegation [in the patent application] of criticality or any evidence demonstrating any difference across the range."); *Osram Sylvania v. American Induction Technologies*, 701 F.3d 698 (Fed. Cir., 2012) ("In *ClearValue*, we explained that, in contrast to the patentee in *Atofina*, ClearValue did not argue that the 50 ppm limitation was critical, or that the claimed method worked differently at different points within the prior art range of 150 ppm or less. *Id* [668 F.3d 1340, 1344-45]. And, ClearValue did not allege that one of ordinary skill would not have recognized 50 ppm as an acceptable value for the range provided in the prior art. *Id.* at 1345."); *Atofina v. Great Lakes Chem. Corp.*, 441 F.3d 991 (Fed. Cir. 2006).

Claim 26 ("A method of treating an individual suffering from a **degenerative retinal disease,** said method comprising administering a therapeutically effective amount of astaxanthin to the individual to retard the progress of the disease.", emphasis added) has been instituted. Claim 26 covers the genus of "degenerative retinal disease". Claim 16 ("A method of treating an individual suffering from **age-related macular degeneration** . . .") is a species within the genus of "degenerative retinal disease". Age-related macular

degeneration ("ARMD") is one of the most common types of degenerative retinal disease. Claim 16 (unclear whether instituted, see Section IV below), as a species within the genus of Claim 26 (clearly instituted), should be instituted. The '533 patent does not disclose any critical range or other feature relevant to the administration of astaxanthin to treat ARMD, and claim 16 contains no additional limitation other than specifying ARMD as a species of degenerative retinal disease. The '533 patent "did not argue that [a] limitation was critical, or that the claimed method worked differently at different points within the prior art range … . And, [the '533 patent] did not allege that one of ordinary skill would not have recognized [the dosage disclosed in the '533 patent] as an acceptable value for the range provided in the prior art." *ClearValue*, 668 F.3d 1340, 1344-45. Moreover, rats do not have a macula (Exh. 1033, para. 78), so data that would distinguish species Claim 16 from genus Claim 26 *would be impossible to collect* using the rat model in the '533 patent.

Claims 23-25 all depend directly or indirectly from Claims 21 or 21/22. Claim 21 covers the genus of "free radical-induced injury to a central nervous system". Claims 22 to 25 are directed to species within the genus of "free radical-induced injury to a central nervous system". Claims 21 and 22 were clearly instituted. Claims 23-25, like claim 22, recite specific types of "free radical-induced injury to a central nervous system", which types of injury are species

within the scope of Claim 21. Under the analysis prescribed by the Federal Circuit in *ClearValue*, *Osram*, and *Atofina*, species Claims 23-25 should clearly be instituted just as species Claim 22 has been instituted.

III. Massonet is not redundant as to claims 16-25 and 27, and is not redundant as to preventive use of astaxanthin. Massonet searched for astaxanthin in tissues other than the retina, reported the organs and systems in which administered astaxanthin accumulated and did not accumulate, and reported the preventive and the curative effects of astaxanthin in the tissues in which astaxanthin accumulated. Astaxanthin is transported from the bloodstream into cells of a tissue only where there are membrane transport proteins that recognize and bind with xanthophylls such as astaxanthin, zeaxanthin, lutein, and canthaxanthin. Ex. 1033, ¶¶24-25. Astaxanthin is accumulated only in those tissues that have binding proteins that retain astaxanthin in the cells of that tissue (astaxanthin is expelled from cells that lack such proteins). Ex. 1033, ¶¶24-26. Massonet disclosed in Exh.1004 that administered astaxanthin accumulated in specific organs, but did not accumulate in the brain, spinal cord, or central nervous system (other than the retina):

> Animals treated using the **curative** method:
> Astaxanthin was regularly found (with no exception) in the retina, pituitary glands, thyroids, suprarenals, and ovaries. Both among the males and the females, minuscule traces were found in the liver tissue. In the pancreas, kidney, spleen, lung, blood, central nervous system, no trace of pigment was detected.

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