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## United States Court of Appeals for the Federal Circuit

02-1008

STEPHEN C. EDBERG, STEPHEN C. WARDLAW,  
and IDEXX LABORATORIES, INC.,

Plaintiffs-Appellants,

v.

CPI-THE ALTERNATIVE SUPPLIER, INC.,

Defendant-Appellee.

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DECIDED: July 15, 2002

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Before LOURIE, Circuit Judge, PLAGER, Senior Circuit Judge, and DYK, Circuit Judge.

LOURIE, Circuit Judge.

## DECISION

Stephen C. Edberg, Stephen C. Wardlaw, and Idexx Laboratories, Inc. (collectively, “Edberg”) appeal from the decision of the United States District Court for the District of Connecticut granting CPI-The Alternative Supplier, Inc.’s motion for summary judgment of noninfringement of Edberg’s U.S. Patents 5,780,259 and 5,429,933. Edberg v. CPI-The Alternative Supplier, Inc., No. 3:98cv716, slip op. (D. Conn. Aug. 16, 2001) (“Edberg II”). Because the district court did not err, we affirm.

## DISCUSSION

The ’259 and ’933 patents are both directed to a medium and method for detecting target bacteria in an environmental sample using a chemical “nutrient-indicator.” ’259 patent, col. 1, ll. 17-18; ’933 patent, col. 1, ll. 15-17. The nutrient-indicator, which cannot be consumed by non-target microbes in the sample, acts as both the primary nutrient for the targeted bacteria and, once metabolized, releases a moiety that alters a characteristic of the sample, such as its color. ’259 patent, col. 1, ll. 18-24; ’933 patent, col. 1, ll. 17-23. The medium, in addition to the nutrient-indicator, also contains varying amounts of amino acids, vitamins, and other ingredients.

Claim 9 of the ’259 patent and claim 10 of the ’933 patent are the only independent claims at issue in this appeal. Claim 9 reads as follows:

9. A method for detecting the presence or absence of a target microbe in an environmental or biological liquid sample, said method comprising the steps of:
  - a) mixing the liquid sample with a medium which includes an effective amount of vitamin, amino acid, element and salt ingredients operable to allow viability and log phase reproduction of said target microbe in the presence of a nutrient-indicator and to aid the target microbe through lag phase and into log phase of growth in the medium/sample mixture; and an effective amount of a nutrient-indicator which is provided in an amount sufficient to support log phase growth of said target microbe until a detectable characteristic signal is produced from said nutrient-indicator in the medium/sample mixture during said log phase growth; said nutrient-indicator being incapable of supporting continued logarithmic growth of any viable non-target microbes

in the sample to produce a detectable characteristic signal; and said nutrient-indicator being operable to alter a detectable characteristic of the medium/sample mixture when metabolized by the target microbe so as to confirm the presence or absence of the target microbe in the sample; wherein said medium lacks a gelling agent so that when said medium is mixed with a liquefied sample a liquid is formed, and wherein said ingredients and said nutrient-indicator are chosen such that growth of non-target microbes do not interfere with growth of said target microbe: and

b) thereafter evaluating the medium/sample mixture to determine whether said detectable characteristic has been altered, wherein the presence of said detectable characteristic indicates the presence of said target microbe in said sample and the absence of said detectable characteristic indicates the absence of said target microbe.

'259 patent, col. 8, l. 36 to col. 9, l. 3 (emphases added). Claim 10 is similar to claim 9 in all respects relevant to this appeal, '933 patent, col. 9, ll. 24-60, and thus we will focus our analysis on the language of claim 9.

Edberg sued CPI in the district court, alleging that CPI's Colitag™ testing medium infringed the '259 and '933 patents, as well as U.S. Patent 4,925,789, a related patent that is not at issue in the present appeal. Edberg v. CPI-The Alternative Supplier, Inc., 156 F. Supp. 2d 190, 192 (D. Conn. 2001). After holding a "Markman hearing," the district court interpreted the claims of the '789 patent to require that the medium used to detect target bacteria be a "specific medium," i.e., a medium that is capable of supporting log-phase, reproductive growth of only the target microbes. Id. at 197. The court also determined that limitation to be present in the relevant claims of both the '259 and '933 patents based on the specifications and prosecution histories of those patents, despite the fact that the word "specific" is not found in any of those claims. Id. at 199-200. Based on that claim construction, the court granted CPI's motion for summary judgment of noninfringement of all three patents because it determined that no reasonable juror could find that CPI's Colitag™ product is a specific medium that permits substantial, log-phase growth of only target microbes. Id. at 202.

Edberg thereafter filed a motion for reconsideration, requesting that the district court either: (1) restrict the scope of its decision to the '789 patent; or (2) modify that decision so as to indicate that genuine issues of material fact preclude the entry of summary judgment as to claim 9 of the '259 patent.

Edberg II at 1. The district court denied that motion, repeating its earlier conclusion that the intrinsic evidence of all three patents demonstrates that the “specific medium” limitation is “the essence of the ‘invention’” and thus is present in every claim at issue. Id. at 2. The court reconciled the absence of the term “specific” in claim 9 of the ’259 patent by recognizing the lack of inconsistency between the minor growth of non-target microbes during the initial lag phase, which claim 9 contemplates, and the log-phase, reproductive growth of those non-target microbes, which the specification and prosecution history of the ’259 patent expressly forbid. Id. at 4. Edberg appeals from the district court’s grant of summary judgment that CPI’s Colitag™ product does not infringe the ’259 and ’933 patents as a matter of law. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

Summary judgment is appropriate “if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law.” Fed. R. Civ. P. 56 (c). “The evidence of the nonmovant is to be believed, and all justifiable inferences are to be drawn in his favor.” Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255 (1986). We review a district court’s grant of a motion for summary judgment de novo. Ethicon Endo-Surgery, Inc. v. United States Surgical Corp., 149 F.3d 1309, 1315, 47 USPQ2d 1272, 1275 (Fed. Cir. 1998).

A determination of infringement requires a two-step analysis. “First, the court determines the scope and meaning of the patent claims asserted . . . and then the properly construed claims are compared to the allegedly infringing device.” Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1454, 46 USPQ2d 1169, 1172 (Fed. Cir. 1998) (en banc) (citations omitted). Claim construction is an issue of law, Markman v. Westview Instruments, Inc., 52 F.3d 967, 970-71, 34 USPQ2d 1321, 1322 (Fed. Cir. 1995) (en banc), aff’d, 517 U.S. 370 (1996), that we review de novo, Cybor, 138 F.3d at 1456, 46 USPQ2d at 1172. Determination of infringement, whether literal or under the doctrine of equivalents, is a question of fact. SRI Int’l v. Matsushita Elec. Corp. of Am., 775 F.2d 1107, 1125, 227 USPQ 577, 589 (Fed. Cir. 1985) (en banc).

Edberg argues that the district court erred in its claim construction, and that the claims at issue

are properly construed to cover media that permit log-phase growth of non-target microbes, but only to the extent that such growth does not interfere with the log-phase growth of target microbes. Edberg contends that the district court improperly read the “specific medium” limitation into the claims at issue because the term “specific” is not found in any of those claims, and that the court ignored the ordinary meaning of the word “medium,” which includes both general and specific media. Edberg further argues that because claim 9 explicitly requires that only the “nutrient-indicator,” which constitutes only a portion of the claimed “medium,” be incapable of supporting logarithmic growth of non-target microbes, the district court’s interpretation renders that language superfluous. Edberg also contends that because claim 9 expressly refers to “growth of non-target microbes,” and because all microbial growth is by definition logarithmic in nature, that claim must be construed to permit log-phase growth of non-target microbes. Finally, Edberg argues that it distinguished its invention from the prior art cited by the examiner during prosecution only on the basis that one chemical in the medium is used as both a nutrient and an indicator, and that it never stated that growth of non-target microbes is impermissible.

CPI responds that the district court correctly interpreted the term “medium” to mean a specific medium, as the written descriptions of both patents define that term as such. CPI further contends that the “growth” of non-target microbes referred to in claim 9 of the ’259 patent is not log-phase growth, but rather is the lag-phase growth caused by the addition of a growth accelerant. CPI also argues that the prosecution histories of the ’259 and ’933 patents make clear that Edberg disclaimed any interpretation of the term “medium” that permits log-phase growth of any non-target microbes.

We conclude that the district court did not err in interpreting the claims at issue and in granting summary judgment that CPI does not infringe either the ’259 or the ’933 patent as a matter of law. The term “medium,” while perhaps amenable to a broader interpretation under ordinary circumstances, was defined by the inventor of the patents at issue to be a specific medium, *i.e.*, one that supports log-phase, reproductive growth of only the target microbes. The written descriptions of both patents are replete with statements indicating that the claimed medium is a specific medium. In summarizing the invention, the written descriptions state that “[t]he medium is thus a ‘specific medium’ in that it will support

growth in log phase of only the target microbes, rather than a general medium which will also support growth in log phase of microbes other than the target microbes.” ’259 patent, col. 1, ll. 24-28; ’933 patent, col. 1, ll. 23-27 (emphases added). The written description of the ’259 patent goes on to state:

As previously noted, there is very little, or no, competition for food or nutrients among the microbes in the medium because the only nutrient present in the medium which can be metabolized to any significant extent can be metabolized solely by the target microbes. . . . Thus, only the presence of the target microbes in the specimen can result in sufficient metabolism of the nutrient to cause the color, or other characteristic change, in the sample. This is the crux of the invention.

’259 patent, col. 3, ll. 20-28 (emphases added).

Edberg argues that construing the term “medium” to mean a specific medium renders superfluous the language “said nutrient-indicator being incapable of supporting continued logarithmic growth of any viable non-target microbes in the sample to produce a detectable characteristic signal” in claim 9 of the ’259 patent because there is no need to state that the nutrient-indicator is incapable of supporting log-phase growth of non-target microbes if none of the other ingredients in the medium has that capability. That argument, however, is belied by the following passage found in the written description of the ’259 patent:

Th[e] specific nutrient is the only ingredient in the medium which will allow substantial growth, i.e., growth which will allow microbial reproduction at logarithmic rates (log phase) of any microbes in the sample. Thus, the medium will only support reproductive growth of the target microbes. For this reason the population of non-target microbes in the sample will not substantially increase, and will actually begin to decline during the log phase.

Id. at col. 7, ll. 21-29 (emphases added); see also ’933 patent, col. 7, ll. 33-41. Therefore, although claim 9 indicates only that the nutrient-indicator is incapable of supporting logarithmic growth of non-target microbes, the written description makes clear that no other ingredients in the medium can support such growth, and Edberg has not pointed to any teaching in either written description to the contrary.

Furthermore, Edberg’s argument regarding the phrase “growth of non-target microbes” in claim 9 is similarly unavailing. First, Edberg’s contention that all growth is logarithmic in nature is belied by the reference to lag-phase microbial growth in the written descriptions of the ’259 and ’933 patents. See ’259 patent, col. 2, ll. 48-50 (“In the lag phase, none of the microbes will significantly multiply and grow until they adjust to the new environment.”); ’933 patent, col. 2, ll. 51-53 (same). Second, the written descriptions provide an explanation for the presence of the phrase “growth of non-target microbes” in the claims at issue that is consistent with the repeated teaching in both patents that the medium cannot support log-phase growth of non-target microbes: “The testing medium also includes a

minor amount of a growth accelerant which will boost the target microbes and all of the other viable microbes in the sample through lag phase towards log phase of growth in the testing procedure.” ’259 patent, col. 2, ll. 39-42; ’933 patent, col. 2, ll. 41-45 (emphases added). That statement, when read in conjunction with the other portions of the written descriptions cited above, makes clear that the growth accelerant causes all microbes, both target and non-target, to engage in lag-phase growth for a period of time before the log phase is reached, at which time only the target microbes can grow. Consequently, the “growth of non-target microbes” language is properly interpreted to refer to the lag-phase growth of non-target microbes resulting from the nutrients present in the growth accelerant.

That interpretation is supported by statements made by Edberg during prosecution of the ’259 patent. In an attempt to avoid a double patenting rejection over the ’789 patent that ultimately resulted in the filing of a terminal disclaimer, Edberg explained that

[t]he difference between the subject matter of the claims of the ’789 patent and the claims of this application is that the latter include the “accelerant,” or the step of “accelerating,” to speed the growth of the target microbes through the lag phase of growth and into the log phase of growth. . . . In view of this fact, the inventions claimed in the two cases are not “the same.”

Edberg does not dispute that the “medium” of the ’789 patent is a specific medium that permits logarithmic growth of only target microbes, and therefore the addition of a minor amount of growth accelerant that affects only lag-phase microbial growth does not alter the definition of that term for purposes of the ’259 and ’933 patents. We therefore reject Edberg’s argument that the language of the claims at issue requires that the term “medium” be interpreted to allow log-phase growth of non-target microbes.

Moreover, other excerpts from the prosecution histories of the ’259 and ’933 patents clearly demonstrate that Edberg disclaimed coverage of a medium that is not specific to the target microbes. “The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution.” Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576, 34 USPQ2d 1673, 1676 (Fed. Cir. 1995) (citations omitted). During prosecution of an earlier application that eventually led to both the ’259 and ’933 patents, Edberg stated that “[t]he Damare et al article thus describes a general bacteriological growth medium that will support reproductive growth of target and non-target microbes, and therefore is not specific to any particular microbes, contrary to the subject matter claimed in this application.” (Second emphasis added.) Although Edberg also attempted to distinguish its invention from the prior art on the basis that one chemical in the medium is used as both a nutrient and an indicator, those statements are unrelated to Edberg’s clear disclaimer of media that permit logarithmic growth of non-target microbes. Accordingly, we conclude that the district court did not err in interpreting the term “medium” in the claims at issue to mean a specific medium that is capable of supporting log-phase growth of only the target microbes.

Finally, because Edberg does not dispute that CPI’s Colitag™ product does not infringe the ’259 and ’933 patents either literally or under the doctrine of equivalents under the district court’s claim construction, which we have affirmed, we conclude that the district court did not err in granting summary judgment that CPI does not infringe those patents as a matter of law.

We have considered Edberg's remaining arguments and find them to be unpersuasive. Because the district court did not err in granting summary judgment of noninfringement, we affirm.