United States Court of Appeals for the Federal Circuit

BIOGEN INTERNATIONAL GMBH,
Plaintiff-Appellant

v.

BANNER LIFE SCIENCES LLC,
Defendant-Appellee

2020-1373

Appeal from the United States District Court for the District of Delaware in No. 1:18-cv-02054-LPS, Chief Judge Leonard P. Stark.

Decided: April 21, 2020

JAMES B. MONROE, Finnegan, Henderson, Farabow, Garrett & Dunner, LLP, Washington, DC, for plaintiff-appellant. Also represented by PAUL WILLIAM BROWNING, J. MICHAEL JAKES, LAURA POLLARD MASUROVSKY, JASON LEE ROMRELL.

KYLE MUSGROVE, Parker Poe Adams & Bernstein LLP, Charlotte, NC, for defendant-appellee. Also represented by JOHN WORTHINGTON BATEMAN, ELIZABETH CROMPTON, SCOTT A. CUNNING, II, Washington, DC.

Before LOURIE, MOORE, and CHEN, *Circuit Judges*.

LOURIE, *Circuit Judge*.

Biogen International GmbH ("Biogen") appeals from a judgment of the United States District Court for the District of Delaware that Banner Life Sciences LLC ("Banner") does not infringe the extended portion of U.S. Patent 7,619,001 (the "'001 patent"), extended under the patent term restoration provisions of the Hatch-Waxman Act, Pub. L. No. 98-417, § 201, 98 Stat. 1585, 1598 (as codified at 35 U.S.C. § 156 (2018)). *Biogen Int'l GmbH v. Banner Life Scis. LLC*, No. 18-2054-LPS, 2020 WL 109499 (D. Del. Jan. 7, 2020) ("*Decision*").

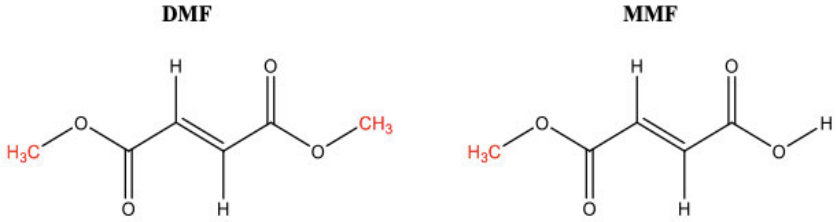
Because the scope of a patent term extension under 35 U.S.C. § 156 only includes the active ingredient of an approved product, or an ester or salt of that active ingredient, and the product at issue does not fall within one of those categories, we affirm the judgment of the district court.

BACKGROUND

Biogen holds the New Drug Application ("NDA") for the active ingredient dimethyl fumarate ("DMF"), which was approved by the Food and Drug Administration ("FDA") in 2013 as Tecfidera®, a twice-daily pill indicated "for the treatment of patients with relapsing forms of multiple sclerosis" at a daily dose of 480 mg. J.A. 1123. DMF is the dimethyl ester of fumaric acid. An ester is a compound derived from the combination of a carboxylic acid and an alcohol, minus a molecule of water.

DMF, a double ester, is the approved product in this appeal. Upon administration to a patient, one of DMF's methyl ester groups is readily metabolized to a carboxylic acid group, becoming monomethyl fumarate ("MMF") before the compound reaches its pharmacological site of action. J.A. 1131.

DMF and MMF are represented below. DMF contains two methyl groups (in red), which are part of the ester functional groups. MMF is virtually identical, except that it has only one methyl ester group; the other group is simply a carboxylic acid.



Banner Opening Br. at 6, *Biogen Int'l GmbH v. Banner Life Scis. LLC*, No. 18-2054-LPS (D. Del. Feb. 1, 2019), ECF No. 10.

The '001 patent, entitled "Utilization of Dialkylfumarates," ultimately claims priority from a German application filed in 1998. It discloses that dialkylfumarates may have therapeutic uses "in transplantation medicine and for the therapy of autoimmune diseases," '001 patent col. 3 ll. 44–45, including multiple sclerosis, *id.* col. 4 l. 57. Claim 1 is representative:

> 1. A method of treating multiple sclerosis comprising administering, to a patient in need of treatment for multiple sclerosis, an amount of a pharmaceutical preparation effective for treating multiple sclerosis, the pharmaceutical preparation comprising
>
> at least one excipient or at least one carrier or at least one combination thereof; and
>
> dimethyl fumarate, methyl hydrogen fumarate, or a combination thereof.

Both the dimethyl ester and monomethyl ester forms are covered by this claim, monomethyl ester being an

alternative way to describe the claimed methyl hydrogen fumarate. The '001 patent was originally set to expire on April 1, 2018, but its term was extended by 811 days under the provisions of § 156 to compensate Biogen for the period during which the FDA reviewed its Tecfidera® NDA. The '001 patent is now set to expire on June 20, 2020. The question in this appeal is whether the monomethyl ester, covered by the claim, is covered by the extension. We conclude, consistent with the district court, that it is not.

In 2018, after the five-year data exclusivity period for Tecfidera® had expired, Banner submitted an application under 21 U.S.C. § 355(b)(2) (a § 505(b)(2) application or a "paper NDA") to market a twice-daily MMF pill at a daily dose of 380 mg. A paper NDA is a form of generic application used before the enactment of the Hatch-Waxman Act. Banner performed clinical studies to assess whether its proposed product was bioequivalent to Tecfidera®, *see* 21 C.F.R. § 314.3(b), but it relied on the clinical data Biogen submitted to the FDA in its Tecfidera® NDA to satisfy the safety and efficacy requirements.

In December 2018, Biogen asserted the '001 patent in an infringement action against Banner in the District of Delaware. Banner immediately moved for a judgment of noninfringement, arguing that § 156(b)(2) limits the scope of the '001 patent's extension to methods of using the approved product as defined in § 156(f)—in this case, DMF, its salts, or its esters—and that MMF is none of those things. Biogen responded that § 156(b)(2) does not limit extension of a method of treatment patent to uses of the approved product, but instead only to uses of any product within the original scope of the claims. Biogen further argued that, in any event, "product" in § 156 has a broader meaning encompassing any compound that shares with the approved product an "active moiety." *See* 21 C.F.R. § 314.3(b) (defining "active moiety" as "the molecule or ion, excluding those appended portions of the molecule that cause the drug to be an ester, salt[], or other noncovalent

derivative[] of the molecule, responsible for the physiological or pharmacological action of the drug substance"). Since DMF and MMF share an active moiety (MMF), Biogen contended that Banner's proposed MMF product infringes the '001 patent even as extended.

The district court agreed with Banner's interpretation of § 156 in both respects and rendered a judgment of non-infringement. It rejected Biogen's argument that extension of a method of treatment patent under § 156(b)(2) is not limited to uses of the approved product. *Decision*, 2020 WL 109499, at *4–5. The district court also reasoned that this court's interpretation of "product" in § 156 forecloses Biogen's argument that MMF is the same product as Tecfidera®. *Id.* at *9–10 (citing *Glaxo Ops. UK Ltd. v. Quigg*, 894 F.2d 392, 395 (Fed. Cir. 1990)).

Biogen appealed to this court. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

We review a district court's judgment on the pleadings under Federal Rule of Civil Procedure Rule 12(c) according to the law of the regional circuit. *Koninklijke KPN N.V. v. Gemalto M2M GmbH*, 942 F.3d 1143, 1149 (Fed. Cir. 2019) (citing *Allergan, Inc. v. Athena Cosmetics, Inc.*, 640 F.3d 1377, 1380 (Fed. Cir. 2011)). In the Third Circuit, judgment under Rule 12(c) is reviewed *de novo* and is appropriate when "no material issue of fact remains to be resolved," and the movant "is entitled to judgment as a matter of law." *Jablonski v. Pan Am. World Airways, Inc.*, 863 F.2d 289, 290–91 (3d Cir. 1988) (quoting *Society Hill Civic Ass'n v. Harris*, 632 F.2d 1045, 1054 (3d Cir. 1980)).

Infringement is a question of fact. *Amgen Inc. v. Sandoz Inc.*, 923 F.3d 1023, 1027 (Fed. Cir. 2019), *reh'g granted, opinion modified*, 776 F. App'x 707 (Fed. Cir. 2019) (citing *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1309 (Fed. Cir. 2009)). Statutory interpretation is a

question of law that we review *de novo*. *Power Integrations, Inc. v. Semiconductor Components Indus., LLC*, 926 F.3d 1306, 1313–14 (Fed. Cir. 2019) (citing *Unwired Planet, LLC v. Google Inc.*, 841 F.3d 1376, 1379 (Fed. Cir. 2016)).

Section 156 was enacted as part of the Hatch-Waxman Act, otherwise intended to provide for approval of generic products, to restore part of a patent's term consumed during clinical testing and FDA review of an NDA relating to a compound covered by the patent. As the Supreme Court has noted, the ordinary term of a pharmaceutical patent is diminished by the time spent in the FDA approval process. *See Eli Lilly & Co. v. Medtronic, Inc.*, 496 U.S. 661, 669–71 (1990). While the patent's term is running, the NDA applicant may not commercialize its product until it receives FDA approval. The Hatch-Waxman Act provided for patent term extensions in § 156 to partially compensate NDA applicants for this loss of patent life. *Id.*

Under § 156, an NDA holder is entitled to extend the term of only one patent for the corresponding approved product. *Id.* § 156(c)(4). Subsection (a) places several conditions on term extension for an NDA holder, including that the applicant's approved NDA must be "the first permitted commercial marketing or use of the product." § 156(a)(5)(A). Subsection (b) limits the scope of the patent extension to "any use approved for the product," and further, for method of treatment patents, to uses also "claimed by the patent." § 156(b)(2). Critically, for the purposes of this appeal, subsection (f) defines "product" as "the active ingredient of . . . a new drug . . . including any salt or ester of the active ingredient." § 156(f)(2)(A).

Biogen primarily argues that the district court misinterpreted "product" in § 156(f) as not encompassing a deesterified form of an approved product. Biogen maintains that this court decided in *Pfizer Inc. v. Dr. Reddy's Labs., Ltd.*, 359 F.3d 1361 (Fed. Cir. 2004), that "product" has a different meaning under § 156(b), encompassing the de-

esterified form, particularly where "a later applicant's patentably indistinct drug product . . . relies on the patentee's clinical data." Appellant Br. 17. In that circumstance, Biogen contends, "active ingredient" means "active moiety," and our holdings in *Glaxo* and *PhotoCure ASA v. Kappos*, 603 F.3d 1372 (Fed. Cir. 2004), are thus inapposite because they ultimately concerned the availability of separate extension under § 156(a).

Banner responds that § 156(f) provides a consistent definition of "product" for the entire statute, a definition that this court expressly held in *Glaxo* excludes a de-esterified form of the active ingredient. It further argues that Biogen has misinterpreted the holding of *Pfizer*.

We agree with Banner that the extended portion of Biogen's patent does not encompass its MMF product.

The parties here argue that either *Glaxo or Pfizer* helps their case. But this case is neither a *Glaxo* case nor a *Pfizer* case. It is governed by the statute. *Glaxo* involved the question whether a separate ester compound, not the same active ingredient as its previously approved carboxylic acid, was entitled to its own extension under § 156(a). We held that it was so entitled because the ester compound was not the same product as the previously approved carboxylic acid within the meaning of § 156(f). "Active ingredient" is a term of art, defined by the FDA as "any component that is intended to furnish pharmacological activity or other direct effect," 21 C.F.R. § 210.3(b)(7), and it "must be present in the drug product when administered." *Hoechst-Roussel Pharm., Inc. v. Lehman*, 109 F.3d 756, 759 n.3 (Fed. Cir. 1997) (citation omitted). The active ingredient of a given drug product is defined by what is approved and is specified on the drug's label. *See* 21 U.S.C. § 352(e)(1)(A)(ii); 21 C.F.R. § 201.100(b)(4). MMF is not the approved product, nor is it specified as the active ingredient on the Tecfidera® label. Esters are included in the statutory definition of what can be extended, but MMF is the

de-esterified form of DMF, not an ester of DMF. Thus, it is not the same product under § 156(f) and does not fall within the scope of the '001 patent's term extension under § 156(b)(2).

As this court held in *Glaxo*, "product" is plainly defined in § 156(f)—not as the active moiety—but as the active ingredient or an ester or salt of the active ingredient. We concluded in that case that a product whose active ingredient, cerufoxime axetil, was an ester of a previously approved active ingredient, cerufoxime, was eligible for its own separate extension under § 156(a) because neither cerufoxime axetil, nor salts or esters of that compound, had previously been approved. 894 F.2d at 395–96. This case is not directly governed by *Glaxo*, as it does not involve an issue of a separate extension.

This case is also not a *Pfizer* case. In *Pfizer*, we considered whether an extension for amlodipine encompassed a § 505(b)(2) applicant's amlodipine maleate product under § 156(b)(2). We held that it did because amlodipine maleate is a salt of the active ingredient, amlodipine, and was therefore the same product under § 156(f). *Pfizer*, 359 F.3d at 1366 ("We conclude that the active ingredient is amlodipine . . . ."). *Pfizer* does not govern this case because MMF is not a salt of DMF. Biogen's assertion that *Pfizer* endorsed an "active moiety" interpretation of § 156(f) finds little support in our opinion. Instead, *Pfizer* noted the follow-on applicant's reliance on the patentee's clinical data in its own application and the FDA's construction of similar phrases in the Hatch-Waxman Act. But these statements simply illuminated the purpose of the statute and gave context to our holding that amlodipine maleate is a salt of amlodipine and therefore the same product under § 156(f), as expressly provided by the language of the statute. *Id.* ("including any salt or ester of the active ingredient"); *see PhotoCure ASA v. Kappos*, 603 F.3d 1372, 1376 (Fed. Cir. 2010).

While Biogen highlights a dictum of *PhotoCure,* our observation that the new ester in that case was separately patentable, 603 F.3d at 1376, *PhotoCure* presented a situation virtually identical to that in *Glaxo*—a new ester's eligibility for term extension under § 156(a)—and was thus decided according to the holding of *Glaxo*, *id.* at 1375–76 (rejecting argument for an "active moiety" interpretation of § 156(f) as contrary to the holding of *Glaxo*).

All these precedents, and now this case, rest on the same holding: the term "product," defined in § 156(f) as the "active ingredient . . . including any salt or ester of the active ingredient," has a plain and ordinary meaning that is not coextensive with "active moiety." It encompasses the active ingredient that exists in the product as administered and as approved—as specified by the FDA and designated on the product's label—or changes to that active ingredient which serve only to make it a salt or an ester. It does not encompass a metabolite of the active ingredient or its de-esterified form. This case is unlike *Glaxo* or *Pfizer* in that it concerns a de-esterified compound, not an ester or salt.

Biogen makes two other arguments, neither of which has merit. Biogen first contends that, unlike the provision for product patents under § 156(b)(1), § 156(b)(2) does not limit extension for method of treatment patents to approved uses of the *approved* product, but only to approved uses of *any* approved product. Otherwise, Biogen maintains, the additional clause in subsection (b)(2), further limiting extension to "any use claimed by the patent," would be superfluous.[1] Banner responds that the relevant

---

[1] As Biogen points out, this clause in § 156(b)(2) is somewhat redundant because a method of treatment claim is already limited by its own terms to the uses it claims. Nevertheless, this slight redundancy certainly does not reverse the limitation imposed by the "any use . . . approved for the product" clause.

language of § 156(b) is identical for product patents and method of treatment patents, limiting extension for each to "any use approved for the product." *Id.*

Like Banner, we see no basis for Biogen's interpretation of § 156(b)(2). As an initial matter, subsection (b)(2) is limited to "use[s] approved for *the* product," *id.* (emphasis added), which is defined in § 156(f), and an indication of use is obviously inseparable from a specific product. *See, e.g.*, 21 C.F.R. § 201.57(a)(6) (requiring "[a] concise statement of each of *the product's* indications" (emphasis added)). The approved product here is DMF, not MMF. And the statute uses the word "limited," which runs contra to Biogen's argument for extension. Patent term extension exists to compensate an NDA holder for time consumed during regulatory review of the product. But it would make little sense for an extension—whether for a product patent or a method of treatment patent—to apply to a different product for which the NDA holder was never subjected to a regulatory review period. *See Merck & Co., Inc. v. Kessler*, 80 F.3d 1543, 1547 (Fed. Cir. 1996) (concluding for product patents that "the restoration period of the patent does not extend to all products protected by the patent but only to the product on which the extension was based").

Finally, Biogen argues that the district court erred in rejecting its claim for infringement under the doctrine of equivalents because "*all provisions of the patent law apply* to the patent during the period of extension." Appellant Br. 28 (quoting *Genetics Inst., LLC v. Novartis Vaccines & Diagnostics, Inc.*, 655 F.3d 1291 (Fed. Cir. 2011) (emphasis in Biogen's brief)).

We disagree. To infringe a patent claim extended under § 156, an accused product or process must meet, either literally or through equivalence, each individual element of the claim. *See Johnson & Johnston Assocs. Inc. v. R.E. Serv. Co.*, 285 F.3d 1046, 1052 (Fed. Cir. 2002) (en banc). But such a product or process cannot logically infringe an

extended patent claim under equivalence if it is statutorily not included in the extension under § 156. That would make judge-made law prevail over statute.

CONCLUSION

We have considered Biogen's further arguments but find them unpersuasive. For the foregoing reasons, the judgment of the district court is

AFFIRMED