

United States Court of Appeals for the Federal Circuit

02-1014

ABBOTT LABORATORIES,

Plaintiff-Appellee,

v.

TORPHARM, INC., APOTEX, INC., and APOTEX CORP.,

Defendants-Appellants.

Daniel E. Reidy, Jones, Day, Reavis & Pogue, of Chicago, Illinois, argued for plaintiff-appellee. With him on the brief were James R. Daly, Robert C. Micheletto, and Jason G. Winchester, of Chicago, Illinois, and Gregory A. Castanias, of Washington, DC.

Scott B. Feder, Lord, Bissell & Brook, of Chicago, Illinois, argued for defendants-appellants. With him on the brief were Hugh L. Moore, Keith D. Parr, Hugh S. Balsam, and William A. Rakoczy.

Appealed from: United States District Court for the Northern District of Illinois

Judge Charles R. Norgle, Sr.

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DECIDED: August 13, 2002

Before CLEVINGER, Circuit Judge, PLAGER, Senior Circuit Judge, and BRYSON, Circuit Judge.

CLEVINGER, Circuit Judge.

TorPharm, Inc., Apotex, Inc., and Apotex Corporation ("TorPharm") appeal the judgment of the United States District Court for the Northern District of Illinois, granting summary judgment of infringement of U.S. Patents No. 4,988,731 and No. 5,212,326 to Abbott Laboratories ("Abbott"). See Abbott Labs. v. TorPharm, Inc., 156 F. Supp. 2d 738 (N.D. Ill. 2001). Because we find genuine disputes of material fact remain concerning the nature of TorPharm's accused product, we vacate the grant of summary judgment of infringement to Abbott. We affirm, however, the district court's judgment that the patents in suit are not invalid for lack of novelty or enablement, and that the patents in suit are not unenforceable for inequitable conduct during their prosecution.

BACKGROUND

This appeal arises from TorPharm's attempt to introduce a generic version of Abbott's Depakote, an anticonvulsant medication approved for treatment of epilepsy as well as migraine headaches and bipolar disorder. Abbott has listed the two patents in suit under Depakote's entry in the "Orange Book," the Food and Drug Administration's roster of approved drugs in which a manufacturer must list those patents that the manufacturer believes cover the drug. Depakote consists of an equimolar mixture of the acid and sodium salt derivatives of its active species, the valproate ion. According to the patent specifications, while both the acid (valproic acid) and the salt (sodium valproate) were known to have anticonvulsant properties, both the acid and the salt have significant drawbacks as pharmaceutical preparations. Valproic acid is a liquid, which is inconvenient for the preparation of an oral formulation; sodium valproate is a solid, but its hygroscopicity (tendency to absorb moisture) poses problems for stability and storage.

In the late 1970s, Abbott chemists discovered that by mixing sodium valproate and valproic acid in a 1:1 molar ratio (that is, one molecule of sodium valproate for every molecule of valproic acid), they could obtain a substance that was solid but not hygroscopic, making it much more suitable for pharmaceutical formulations than either sodium valproate or valproic acid. This new substance was designated divalproex sodium, or, alternatively, sodium hydrogen divalproate. Although Abbott chemists knew that their divalproex sodium consisted of equal parts sodium valproate and valproic acid, they were not certain exactly how those molecules were arranged in the solid form. At first, Abbott's chemists believed that the sodium valproate salt and the valproic acid were simply paired with each other. Eventually, however, Abbott came to believe

that divalproex sodium existed in the form of several acid/salt pairs (or subunits) associated into a longer chain.

Abbott obtained two patents, U.S. Patents No. 4,988,731 and No. 5,212,326, on this "oligomeric" form of divalproex sodium. The '731 patent claims an oligomer having "about 4" acid/salt subunits, while '326 recites oligomers with "about 6" or "about 4 to 6" acid/salt subunits. The '326 patent also includes one claim, claim 5, which does not recite a particular number of subunits. Although like the other claims, '326 claim 5 requires an "oligomer having a 1:1 molar ratio of sodium valproate and valproic acid," claim 5 recites three physical properties of the oligomer (its appearance, melting point, and characteristic bands in its infrared absorption spectrum) instead of a particular number of subunits.

Abbott's original application did not include the "about 4," "about 6", or "about 4 to 6" limitations. To avoid a new matter rejection when it added claims reciting oligomers of these particular lengths, Abbott submitted test data to the Patent Office measuring the molecular weight of its divalproex sodium by several different methods. Each technique showed that the molecular weight of divalproex sodium was higher than would be expected from a single sodium valproate / valproic acid pair. Based on these test results, Abbott argued that the original disclosure of divalproex sodium inherently disclosed the numerical limitations. Abbott's inherency argument eventually succeeded in securing the claims in suit, although not until after the Board of Patent Appeals and Interferences had affirmed the rejections of the "about 6" and "about 4 to 6" claims.

Abbott brought suit against TorPharm after TorPharm filed with the FDA an Abbreviated New Drug Application (ANDA) seeking approval for a generic version of Depakote, an act giving rise to an infringement suit under 35 U.S.C. § 271(e)(2). See

Bayer AG v. Elan Pharm. Research Corp., 212 F.3d 1241, 1244-45, 54 USPQ2d 1710, 1712-13 (Fed. Cir. 2000). The district court granted summary judgment of infringement to Abbott, based on the description of TorPharm's product in its package insert (part of the ANDA submission) and on Abbott's test data showing that TorPharm's biobatch material had a high molecular weight similar to material prepared according to the '326 and '731 patents. Rejecting TorPharm's arguments that evidence of a high molecular weight cannot prove a particular oligomeric structure, the district court also rejected TorPharm's defenses that (i) the patents are nonenabled because the claimed oligomeric structure does not actually exist, (ii) the '326 patent was anticipated by Abbott's prior sales of Depakote, and (iii) the patents are unenforceable by Abbott's failure to disclose to the Patent and Trademark Office a contradictory result about divalproex sodium's structure during prosecution. TorPharm appeals the grant of summary judgment to Abbott, and we exercise jurisdiction over TorPharm's appeal in accordance with 28 U.S.C. § 1295(a)(1).

I

TorPharm first takes issue with the district court's claim construction, a question of law that we review de novo. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456, 46 USPQ2d 1169, 1174 (Fed. Cir. 1998) (en banc). Neither Abbott nor TorPharm questions the district court's definition of "oligomer" as "a composition made up of a relatively small number of repeating units joined end to end." TorPharm, however, contends that the district court erred by refusing to exclude from the definition of "oligomer" any material described as a "complex," "ionic complex," "dimer," "derivative," "mixed salt," or "salt," asserting that Abbott abandoned all these terms as representative of the claimed oligomers during prosecution of the patents in suit. We note that

although TorPharm disclaims any intent to limit the claims to covalently¹ associated oligomers only, little but covalent oligomers would seem to remain if the claims were so constricted. We further note that TorPharm has neither defined these terms nor demonstrated their applicability to any species appearing in this suit, rendering the alleged error of questionable significance.

We need not muse on these questions, however, because we find no error in the district court's claim construction. Of course, prosecution history may limit claim scope if the patentee disclaimed or disavowed a particular interpretation of the claims during prosecution. Standard Oil Co. v. Am. Cyanamid Co., 774 F.2d 448, 452, 227 USPQ 293, 296 (Fed. Cir. 1985). This principle does not, however, mean that any words appearing in the prosecution history but not in the issued claims are forever banished. The prosecution history inquiry asks not what words the patentee discarded, but what subject matter the patentee relinquished or disclaimed. Our review of the relevant prosecution history shows that while Abbott and the examiner may have disagreed about which words best described the compounds disclosed by the specification, their colloquy reveals no intent or requirement to surrender any or all compounds that might be described as a "complex," "ionic complex," "dimer," "derivative," "mixed salt," or "salt."

Furthermore, as TorPharm admits, TorPharm's construction would exclude the preferred embodiment (as well as all other embodiments) disclosed by the patent specifications. Such claim constructions are "rarely, if ever, correct," Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583, 39 USPQ2d 1573, 1578 (Fed. Cir. 1996).

¹ Covalent bonds involve sharing of electrons by a pair of atoms, and, as compared to compounds formed from noncovalent bonds, covalently associated molecules tend to remain associated when dissolved in solvents.

TorPharm contends that the ordinary reluctance to reach such an interpretation should be overcome here because the preferred embodiment described by the specification does not actually exist. However, as we explain below, TorPharm has not substantiated its challenges against the existence of the oligomeric structure described by the specification and encompassed within the district court's claim construction. We thus conclude that TorPharm has shown no error in the district court's claim construction.

II

A

When a district court grants summary judgment, we review without deference to the trial court whether there are disputed material facts, and review independently whether the prevailing party is entitled to judgment as a matter of law. SunTiger, Inc. v. Scientific Research Funding Group, 189 F.3d 1327, 1333, 51 USPQ2d 1811, 1814 (Fed. Cir. 1999). Summary judgment is proper "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. Proc. 56(c). Summary judgment is improper "if the evidence is such that a reasonable jury could return a verdict for the nonmoving party." Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 248 (1986). Because the determination of infringement is a question of fact, Bai v. L & L Wings, Inc., 160 F.3d 1350, 1353, 48 USPQ2d 1674, 1676 (Fed. Cir. 1998), summary judgment of infringement is improper if a reasonable jury could find that not every limitation of the claim in question would be met by the product TorPharm is likely to sell. As the nonmovant on a summary judgment motion, TorPharm is entitled to have all of its

evidence believed, and all justifiable inferences drawn in its favor. See Anderson, 477 U.S. at 255.

An infringement inquiry provoked by an ANDA filing under 35 U.S.C. § 271(e)(2)(A) is focused on the product that is likely to be sold following FDA approval. Glaxo, Inc. v. Novopharm, Ltd., 110 F.3d 1562, 1568, 42 USPQ2d 1257, 1262 (Fed. Cir. 1997). This determination is based on consideration of all the relevant evidence, including the ANDA filing, other materials submitted by the accused infringer to the FDA, and other evidence provided by the parties. Id. at 1570, 42 USPQ2d at 1263-64. Because drug manufacturers are bound by strict statutory provisions to sell only those products that comport with the ANDA's description of the drug, an ANDA specification defining a proposed generic drug in a manner that directly addresses the issue of infringement will control the infringement inquiry. Bayer, 212 F.3d at 1249-50, 54 USPQ2d at 1717. Thus, in Bayer, we held that summary judgment of no literal infringement was properly granted where the ANDA specification required the proposed drug to have a specific surface area outside the range claimed by the patent in suit. Id. at 1250, 54 USPQ2d at 1717.

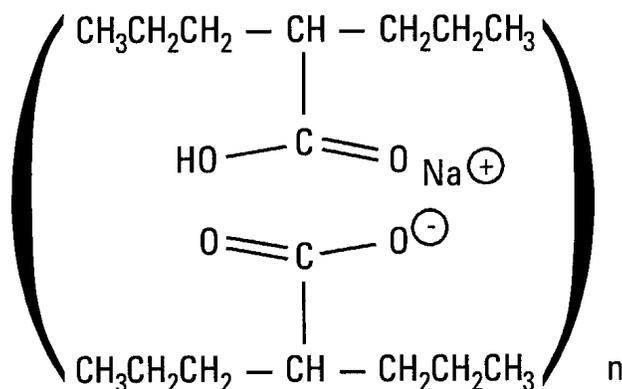
The converse must be true as well: If an ANDA specification defines a property of a compound such that it must meet a limitation of an asserted claim, then there will almost never be a genuine dispute of material fact that the claim is infringed with respect to that limitation. Of course, there may well be genuine disputes as to whether the ANDA specification defines the compound with sufficient particularity to answer the infringement inquiry. See Glaxo, 110 F.3d at 1569-70, 42 USPQ2d at 1263-64. It is also possible, at least in theory, that other evidence may directly contradict the clear representations of the ANDA and create a dispute of material fact regarding the identity

of the compound that is likely to be sold following FDA approval. Such circumstances may be unlikely to arise in practice but, in any event, do not describe the case before us.

B

All of the claims in suit recite an oligomer "having a 1:1 molar ratio of sodium valproate and valproic acid." Each claim also specifies that the repeating subunit of the oligomer has one molecule of sodium valproate and one molecule of valproic acid. The district court found the 1:1 ratio limitation satisfied by the description of TorPharm's product found in its proposed package insert. The proposed package insert is part of the ANDA filing, see 21 C.F.R. § 314.94(a)(8) (2001), and in this case duplicates

Abbott's package insert for Depakote.² TorPharm's proposed package insert states: "Divalproex sodium is a stable co-ordination compound comprised of sodium valproate and valproic acid in a 1:1 molar relationship," and depicts the structure of the molecule as having a repeating unit with one valproic acid and one sodium valproate:



There is little need for the infringement inquiry to proceed further on this point, for the ANDA would seem to define the compound in a manner that directly addresses the question of infringement. We agree with the district court that "a stable co-ordination compound comprised of sodium valproate and valproic acid in a 1:1 molar relationship" describes a composition with "a 1:1 molar ratio of sodium valproate and valproic acid" as required by the patent claims. While TorPharm asserts that a composition can be "a stable co-ordination compound in a 1:1 molar relationship" without having a 1:1 ratio of acid to salt at the "molecular level," it provides neither evidence nor logic to support this suggestion.

TorPharm's entire theory of noninfringement for this limitation rests on one statement in its scale-up manufacturing directions, which are said to be part of its ANDA

² TorPharm states that its package insert must by law duplicate Abbott's. We note, however, that a manufacturer may petition under 21 C.F.R. § 314.93 for labeling different from that of the reference listed drug if the two preparations have different formulations. 21 C.F.R. § 314.94(a)(8)(iv) (2001). TorPharm has not stated whether it has filed such a petition.

submission. After describing the addition of an equimolar amount of solid sodium valproate to liquid valproic acid, these instructions state: "Observable particles of solid Sodium Valproate will be present in the mixture at the end of this step." TorPharm supplemented this statement with testimony that solid particles (assumed to be sodium valproate) remain in the reaction vessel after the mixture has been heated to 100 °C.

TorPharm reasons as follows: A quantity of sodium valproate was dissolved in an equimolar quantity of valproic acid. Given that not all of the sodium valproate is dissolved (and available for combination with valproic acid), not all of the valproic acid can be combined with sodium valproate to form a 1:1 ratio. Thus, TorPharm's drug consists of two "phases," in unknown proportions: solid, unreacted sodium valproate, and an acid/salt complex of some ratio that is also not known but is certainly not 1:1. This theory was set forth not by TorPharm's experts, but rather by two TorPharm company officials (Sherman and Coffin-Beach).

Such speculation, and TorPharm's apparent ignorance concerning the actual composition of its proposed pharmaceuticals, does not give rise to a genuine dispute of material fact. A statement that undissolved particles are visible at one step of the manufacturing procedure says little about the composition of the final product, given that additional sodium valproate could dissolve as the salt is removed from solution by complexation with the acid, or during other subsequent steps of the manufacturing procedure. TorPharm provided no testimony, expert or otherwise, stating that the composition of the mixture at this step in the procedure is preserved in the final formulation, and thus made no attempt to relate this observation to the composition of the final product. Nor did TorPharm provide any evidence, such as analysis of its final product, that would substantiate TorPharm's interpretation of the scale-up instructions,

or would contradict the plain representation of a 1:1 molar ratio found in its proposed package insert. To the contrary, Abbott's tests on TorPharm's product, which TorPharm fails to rebut, showed a 1:1 molar ratio of sodium valproate to valproic acid and an absence of any unreacted sodium valproate. The district court therefore correctly concluded, based on the entire contents of TorPharm's ANDA submission, that TorPharm would likely market a product having a 1:1 molar ratio of sodium valproate and valproic acid. Reinforcing this conclusion with the data from Abbott's testing of TorPharm's samples, the district court correctly identified the absence of any genuine dispute of material fact whether TorPharm's product would meet the 1:1 molar ratio limitation of the patents in suit.

C

The second limitation on which TorPharm contends there remains a genuine dispute of material fact concerns the oligomeric structure of the acid/salt complex. With the exception of '326 claim 5, each claim in suit recites an oligomer having a certain number of subunits, wherein each subunit comprises a valproic acid molecule and a sodium valproate molecule. The '731 patent recites an oligomer with about 4 such units, while claims 1-4 of the '326 patent recite oligomers with about 4 to 6, or about 6, such units. Thus, under the district court's construction of "oligomer," Abbott must demonstrate that TorPharm's proposed product would have somewhere between about 4 and about 6 repeating subunits of the acid/salt pair.

Because TorPharm's ANDA does not specify the number of repeating sub units, if any, in TorPharm's divalproex sodium, Abbott sought to prove the oligomeric nature of TorPharm's product in the same manner by which it convinced the Patent Office of Depakote's oligomeric structure: by introducing evidence of the accused formulation's

molecular weight. Abbott's experts subjected samples of TorPharm's divalproex sodium to three different tests designed to determine its molecular weight, and thereby its degree of self-association. These three techniques were fast atom bombardment (FAB) mass spectrometry, freezing point depression, and vapor phase osmometry.

Abbott's expert, Dr. Atwood, identified two peaks in the mass spectrum of TorPharm's product corresponding to species with molecular weights of 1351 and 1185. Because these molecular weights are approximately what one might expect from oligomers having 4 or 3.5 units of the proposed acid/salt pair, Dr. Atwood opined that the FAB mass spectrometry data showed that TorPharm's product had about 4 repeating units of the acid/salt pair, thereby satisfying this limitation of the patent claims. However, TorPharm's expert, Dr. Hercules, showed that these two peaks—as well as every other peak in the mass spectrum—could be accounted for precisely, down to the atomic mass unit, by complexes of one to eight molecules of sodium valproate alone coupled with a sodium atom. Although TorPharm's expert admitted he did not know how such multimers of sodium valproate could arise, or why valproic acid would be missing from the mass spectrum, these uncertainties do not rehabilitate Abbott's evidence. If not completely negating the mass spectrometry evidence, Dr. Hercules's alternative analysis of the data at the least succeeds in raising a genuine issue of material fact as to whether the mass spectrometry data proved the presence of the claimed oligomer. Thus, to the extent the district court relied on the mass spectrometry data in granting summary judgment for Abbott, the district court's judgment was in error.

Abbott's experts also measured the molecular weight of TorPharm's samples by two solution-based techniques, freezing point depression and vapor phase osmometry. Dr. Atwood used freezing point depression to measure the molecular weight of a

sample of TorPharm's divalproex sodium. He obtained a value of 2000, consistent with measurements of a sample prepared according to Example 1 of the patents in suit. Based on the calculated weight of an assumed acid/salt subunit (310.41), Dr. Atwood opined that this molecular weight measurement showed that TorPharm's sample consisted of an oligomer of acid/salt pairs consisting of about 4 to 6 subunits. Likewise, Dr. Atwood's vapor phase osmometry experiments, which yielded a molecular weight of 1700 for TorPharm's sample, also led him to conclude that TorPharm's divalproex sodium consisted of oligomers containing from 4 to 6 repeating units of an acid/salt subunit.

Although TorPharm's experts made various methodological criticisms of Abbott's molecular weight data, those experts could not identify any particular errors in the way Abbott's measurements were performed, nor could they maintain that the measurements would have yielded a different molecular weight had they been carried out more carefully. They did, however, focus on the inability of molecular weight measurements to provide definitive proof of molecular structure. The fact that these experts prefer single-crystal x-ray crystallography as a method of determining molecular structure is not particularly significant, for Abbott is entitled to demonstrate the existence of the claimed oligomer in any way it sees fit. However, Abbott claimed its composition by its oligomeric structure and the number of repeating units and not by reference to molecular weight or a particular method of determining molecular weight. Having chosen that metric to define the scope of its claims, Abbott must now demonstrate infringement in terms of these properties rather than by a molecular weight measurement per se. Viewing, as we must on summary judgment, the alleged facts in the light most favorable to TorPharm and drawing all justifiable inferences in TorPharm's

favor, we are unable to conclude that there is no dispute of material fact whether these molecular weight determinations carry Abbott's burden of proving an oligomeric structure with about 4, about 6, or about 4 to 6 acid/salt subunits.

According to TorPharm's experts, both freezing point depression and vapor pressure osmometry measure the molecular weight of a substance when it is dissolved in a solvent, and there is no certainty that the oligomeric structure in the solid state (as in the accused product) is the same as the alleged oligomeric structures observed when the substance is dissolved in liquid. Although Abbott's experts maintain that molecular weight measurements are an accepted means of determining molecular structure, they do not refute TorPharm's point. TorPharm's experts do not explicitly identify any competing hypothesis to explain the molecular weight data—other than to assert generally that aggregates observed in solution may not be present in the solid state. But the mass spectrometry data indicates that, at least under some conditions, high molecular weight species other than the claimed oligomers of acid/salt pairs may form. While a trier of fact might well infer the existence of the claimed oligomeric species from Abbott's molecular weight data, we cannot ignore the possibility that a trier of fact might accept TorPharm's experts' criticisms and regard the solution molecular weight data as not probative of the claimed oligomeric structures. While the question is close, we find that this uncertainty creates a genuine issue of material fact for trial and must preclude summary judgment of infringement of the '731 patent and claims 1-4 of the '326 patent.

Alone of all the claims, claim 5 of the '326 patent does not recite any particular number of subunits. Instead, it requires only an oligomer of 1:1 acid/salt subunits, as well as three specified physical properties: having the form of a stable, white crystalline powder, having a melting point between 98 and 100 °C, and an infrared absorption

spectrum characterized by six specified absorption bands. That TorPharm's product has the recited physical properties is not in dispute; nor, as we have seen, is there a genuine dispute that TorPharm's product has a 1:1 ratio of sodium valproate to valproic acid. Infringement of claim 5 therefore rests on whether any dispute of material fact remains as to whether TorPharm's product is an "oligomer" or not.

The district court resolved this question by reference to the proposed package insert found in TorPharm's ANDA submission. The proposed labeling depicts an acid/salt pair enclosed in parentheses with the subscript "n". As the district court recognized, this nomenclature indicates a structure with "n" number of repeating subunits, but does not indicate how many subunits are found in the structure. We must agree with TorPharm that the lack of any numerical designation for "n" leaves open the possibility that the product described by TorPharm's package insert might not consist of "a relatively small number of repeating units." If "n" were 1, the product would be a monomer, not an oligomer. Conversely, high values of "n" would not reflect a "relatively small number" of subunits, and the composition would likely be classified as a polymer rather than an oligomer. And although Abbott elicited an admission from TorPharm's president that this notation "would be an indication of an oligomer," this admission alone does not establish the number of subunits, if any, in TorPharm's product.

Of course, a demonstration that TorPharm's product contains the 4 to 6 subunits recited by the other claims, would establish that TorPharm's product has a "relatively small number" of subunits. But given that disputes of fact remain as to whether Abbott's molecular weight tests unequivocally demonstrate an oligomer with any particular number of subunits, a dispute of fact must also remain as to whether TorPharm's product consists of a relatively small number of repeating units. Because a relatively

small number of repeating units is a necessary property for an "oligomer" under the district court's claim construction, this dispute of fact must preclude a grant of summary judgment for Abbott on infringement of '326 claim 5.

III

A

We may dispose of TorPharm's invalidity defenses in short order. TorPharm contends that the specification fails to enable one of ordinary skill in the art to make the "oligomer" defined by the claims, because such an oligomer does not exist—or at least is not the material that results when the procedure disclosed by the specification is carried out. Enablement is a conclusion of law reviewed de novo, but may depend on underlying factual findings. Enzo Biochem, Inc. v. Calgene, Inc., 188 F.3d 1362, 1369-70, 52 USPQ2d 1129, 1134 (Fed. Cir. 1999). Here, TorPharm's argument relies on its claim construction position: that anything qualifying as a "complex," "ionic complex," "dimer," "derivative," "mixed salt," or "salt" cannot be an "oligomer;" or, in the alternative, that an "oligomer" may be comprised only of covalently associated subunits.³ Because the district court correctly refused to so limit the definition of "oligomer," there would be no basis for a trier of fact to conclude that the specification fails to teach one of ordinary skill in the art how to make a composition defined by the claims. TorPharm's only other meaningful argument in support of its "nonexistence" claim is its assertion that the FDA concluded that Abbott's divalproex sodium is not an oligomer. This assertion is based on mischaracterization of the FDA's statements. The agency merely stated that even if Depakote was an oligomer, it was still a salt of a

³ TorPharm's expert opinion that valproic acid and sodium valproate are incapable of reacting to form an oligomer is based on the premise that only covalently associated subunits qualify as "oligomers."

previously known active ingredient (valproic acid) and therefore not entitled to the exclusivity available to drugs with novel active ingredients under 21 U.S.C. § 355. In the absence of any evidence from which a reasonable fact-finder could conclude that the specification failed to teach one of ordinary skill in the art to make and use the subject matter defined by the properly construed claims, Abbott was entitled to summary judgment on TorPharm's nonenablement defense.

As to TorPharm's argument that Abbott's prior public use and sale of Depakote defeats the novelty of the '326 patent because the '326 patent cannot claim the benefit of the earlier-filed application that matured into the '731 patent, we find that argument entirely without merit. During prosecution of the '731 patent, Abbott's claims for an oligomer of "about 6" and "about 4 to 6" subunits were rejected under section 112, 1st paragraph, because the "about 6" or "about 4 to 6" language did not appear in the originally-filed specification. The Board of Patent Appeals and Interferences affirmed the rejection, and Abbott, rather than appeal the rejection to this court, instead filed a continuation application and won allowance of the claims by submitting new evidence that the "about 6" or "about 4 to 6" limitations were inherent in its original disclosure. TorPharm argues that the '326 patent is not entitled to rely on the filing date of the '731 specification, because the unappealed Board decision gave rise to "collateral estoppel" precluding Abbott from thereafter arguing that the original specification provided support for claims reciting the "about 6" or "about 4 to 6" limitations. If the '326 application was not entitled to rely on the filing date of the '731 application, TorPharm argues, '326 is anticipated by Abbott's intervening public use and sale of Depakote.

We pause to note that TorPharm might encounter some difficulty in establishing by clear and convincing evidence that Depakote prepared according to the '731

specification anticipates the "about 6" and "about 4 to 6" limitations, when the Board decision on which TorPharm seeks to rely holds that the '731 specification fails to disclose those very same limitations. But regardless of such logical difficulties, TorPharm's collateral estoppel argument must fail as a matter of law because precedent has long supported the right of an applicant to file a continuation application despite an unappealed adverse Board decision, and to have that application examined on the merits. In re Kaghan, 387 F.2d 398, 401, 156 USPQ 130, 132 (CCPA 1967). Where the Patent Office has reconsidered its position on patentability in light of new arguments or evidence submitted by the applicant, the Office is not forbidden by principles of preclusion to allow previously rejected claims. See In re Craig, 411 F.2d 1333, 1335-36, 162 USPQ 157, 159 (CCPA 1969). As such, TorPharm lacks any basis to assert that the '326 patent cannot claim the benefit of the '731 application, and the district court therefore properly granted summary judgment to Abbott on TorPharm's anticipation defense.

B

TorPharm further contends that the district court erred by granting Abbott summary judgment on TorPharm's inequitable conduct defense. The defense of inequitable conduct requires proof of failure to disclose material information (or submission of false material information) with the intent to deceive, and to survive summary judgment, TorPharm was required to introduce evidence from which a trier of fact could find materiality and intent by clear and convincing evidence. See Kingsdown Med. Consultants, Ltd. v. Hollister Inc., 863 F.2d 867, 872, 9 USPQ2d 1384, 1389 (Fed. Cir. 1988). "Although the premises of inequitable conduct require findings based on all the evidence, a procedure that may preclude summary determination, a motion for

summary judgment may be granted when, drawing all reasonable factual inferences in favor of the non-movant, the evidence is such that the non-movant can not prevail." ATD Corp. v. Lydall, Inc., 159 F.3d 534, 547, 48 USPQ2d 1321, 1330 (Fed. Cir. 1998) (citation omitted).

TorPharm bases its unenforceability defense on Abbott's failure to disclose to the Patent Office the results of a single-crystal xray diffraction study on a crystal that was, according to Abbott, "initially believed to be a crystal of divalproex sodium." The xray diffraction analysis showed that the crystal was comprised of a 3:1 molar ratio of sodium valproate to valproic acid, rather than a 1:1 ratio as described in Abbott's patent. According to TorPharm, this was evidence that divalproex sodium did not have the 1:1 structure described in the patent application, and was therefore material information that should have been disclosed to the Patent Office.

According to Abbott, the composition of this crystal was not material information because the crystal was not composed of divalproex sodium at all. After the crystal's 3:1 structure was determined, Abbott scientists calculated the crystal's predicted powder x-ray diffraction pattern (derived from the crystal diffraction pattern), and found that this predicted powder diffraction pattern did not match the known powder diffraction pattern for divalproex sodium. Based on this discrepancy, Abbott's scientists concluded that the crystal upon which the structure determination had been performed was not, in fact, divalproex sodium.

TorPharm seeks to prove inequitable conduct from Abbott's failure to disclose a single (apparently) aberrant result, based solely on the fact that one or more Abbott employees thought at one point that the crystal was in fact divalproex sodium. However, TorPharm does not take issue with the district court's observation that the

record fails to show that the mystery crystal was produced by any process similar to that disclosed by the patent. Nor does TorPharm explain how a fact finder could find the requisite intent to deceive the Patent Office, simply asserting in its reply brief that the intent to deceive may be inferred from the omission alone. While the intent to deceive may be inferred from the surrounding circumstances rather than by direct evidence, the intent necessary to establish inequitable conduct is based on a sliding scale related to materiality of the omission. Critikon, Inc. v. Becton Dickinson Vascular Access, Inc., 120 F.3d 1253, 1256, 43 USPQ2d 1666, 1668 (Fed. Cir. 1997). TorPharm has not pointed to any other evidence tending to show that divalproex sodium ever forms the 3:1 structure deduced from the single-crystal measurements, rendering the omission of questionable materiality. As such, TorPharm must show a relatively high level of intent to deceive the Patent Office. Yet TorPharm fails to dispute Abbott's claim that Abbott scientists believed the crystal to be comprised of a material other than divalproex sodium—which would seem to preclude a finding that Abbott actively sought to deceive the Patent Office. TorPharm directs us to no other evidence that would establish materiality or intent. In light of the requirement that the accused infringer prove both materiality and intent by clear and convincing evidence, we think the district court did not err by concluding from this record that TorPharm had not introduced sufficient evidence from which a reasonable trier of fact could find that the elements of inequitable conduct had been established. We conclude therefore that the district court properly granted summary judgment for Abbott on TorPharm's unenforceability defense.

CONCLUSION

Although we find no reason to disturb the district court's claim construction or grant of summary judgment to Abbott on TorPharm's various defenses, we find that a

dispute of material fact with respect to the oligomeric structure of TorPharm's product precludes summary judgment of infringement. We therefore affirm the district court's rulings on validity and enforceability of the '731 and '326 patents, but vacate the grant of summary judgment of infringement and remand the case for further proceedings.

COSTS

No costs.

AFFIRMED-IN-PART, VACATED-IN-PART, AND REMANDED