United States District Court,
N.D. California.

DEPOMED, INC,
Plaintiff.
v.
IVAX CORPORATION and Ivax Pharmaceuticals, Inc,
Defendants.

No. C 06-00100 CRB

Dec. 12, 2007.

Background: Pharmaceutical company holding patent for compositions and methods for controlled-release drug delivery to the upper gastrointestinal ("GI") tract, including delivery of highly soluble drugs brought infringement action against competitor selling generic version of drug. Cross-motions for summary judgment were filed.

Holdings: The District Court, Charles R. Breyer, J., held that:
(1) competitor infringed asserted claims of patents;
(2) issues of material fact precluded summary judgment on invalidity;
(3) issues of material fact precluded summary judgment on willful infringement; and
(4) issues of material fact precluded summary judgment on issue of inequitable conduct.

Plaintiff's motion granted; defendants' motions granted in part and denied in part.

6,340,475, 6,635,280. Cited.

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MEMORANDUM AND ORDER RE: SUPPLEMENTAL CLAIM CONSTRUCTION AND SUMMARY JUDGMENT MOTIONS

CHARLES R. BREYER**, District Judge.**

This suit involves the alleged infringement by Ivax Corp. and Ivax Pharmaceuticals, Inc. (collectively, "Ivax") of two United States patents issued to Depomed, Inc. ("Depomed"). The patents teach compositions and methods for controlled-release drug delivery to the upper gastrointestinal ("GI") tract, including delivery of highly soluble drugs. The court issued a Claim Construction Order on December 20, 2006, 2006 WL 3782829.

Now pending before the Court is Depomed's motion for summary judgment of infringement. Also before the Court are several motions by Ivax, including a motion for supplemental claim construction, and motions for summary judgment of invalidity, no willful infringement and inequitable conduct.

BACKGROUND

A. Claimed Technology

Depomed is the assignee of U.S. Patent Nos. 6,340,475 (the '475 patent) and 6,635,280 (the '280 patent), both entitled "Extending the duration of drug release within the stomach during the fed mode." The '280 patent is a continuation of the '475 patent, which is a continuation-in-part of an application now abandoned. The patents provide substantively identical disclosures. FN1

FN1. The specifications of the two patents differ only by the cross-references made to related applications and spacing changes incident to publication. Unless a passage is unique to the '280 patent, such as the claims, only the '475 patent will be cited.

The '475 and '280 patents disclose oral drug dosage forms-that is, pills or tablets suitable for ingestion-that incorporate the drug within a polymeric matrix. The matrix swells on contact with gastric fluid. This swelling hinders passage of the dosage form out of the stomach so that it remains in the stomach for a longer period of time. The swelling also retards the rate of diffusion of the incorporated drug out of the tablet, thereby moderating the rate at which the drug is released. The invention thus promotes drug delivery to the upper GI tract, which enhances the efficacy of many drugs and prevents potential deleterious consequences of delivery to the lower GI tract. The invention also helps avoid transient overdosing by extending delivery of the drug.

Controlled-release drug dosage forms are characterized by their dominant rate-controlling release mechanism. This mechanism is the rate-limiting, or slowest, means by which the drug is released from the dosage matrix. There were several release mechanisms known at the time Depomed applied for its patents. The release rate for a "dissolution-controlled" dosage form is dominated by the rate that the drug is dissolved from the matrix by the gastric fluid. The release rate for a "diffusion-controlled" dosage form is dominated by the rate that the drug diffuses out of the matrix. Release from a "swelling-controlled" dosage form is dominated by the rate of hydration of the matrix. Finally, an "erosion-controlled" release mechanism primarily releases the drug as the matrix is eroded or dissolved. Release mechanisms are not mutually exclusive. For example, all dosage forms may release some, however negligible, amount of the drug by diffusion.

The claims at issue in this suit involve the controlled-release of highly soluble drugs. The prior art taught controlled delivery of such drugs that released the drug by the dual mechanisms of swelling and erosion. Depomed's own prior art taught dissolution-controlled release of highly soluble drugs. In these systems, the drug is modified to reduce its solubility and thereby slow the rate of dissolution, for example by modifying

the drug with an insoluble fatty moiety. The '475 and '280 patents teach the controlled delivery of highly soluble drugs by swellable polymers of high molecular weight. The claimed drug forms do not undergo substantial erosion, but release the drug by dissolution and diffusion without requiring drug modifications.

B. Case History

Metformin is a highly soluble drug that helps to control blood sugar levels in persons with type 2 (non-insulin-dependent) diabetes. Bristol-Myers Squibb ("BMS") sells an extended-release metformin hydrochloride ("metformin HCl") dosage form under the brand name Glucophage XR. Glucophage XR was developed jointly by Depomed and BMS, who holds a license to Depomed's patents.

Ivax sells a generic extended-release dosage form of metformin HCl, hereinafter referred to as Metformin ER. To gain FDA approval to sell Metformin ER, Ivax filed an Abbreviated New Drug Application (ANDA), certifying that its generic drug dosage form is bioequivalent to Glucophage XR. Accordingly, Metformin ER substantially mimics the performance of Glucophage XR. Ivax gained approval to sell Metformin ER in 2002.

On January 9, 2006, Depomed filed a complaint against Ivax for infringement of the '475 and '280 patents. Depomed claims that Ivax's Metformin ER infringes claim 1 of both patents along with various other claims. FN2 The court issued a Claim Construction Order on December 20, 2006. The Court heard oral argument for the instant motions on November 20, 2007.

FN2. Specifically, Depomed alleges that Ivax infringes claims 1-4, 8, 9, 13, 14, 45, 46, 61-65, 68-75 and 79-86 of the '475 patent, and claims 1-4, 8, 9, 13, 14 and 45-53 of the '280 patent.

LEGAL STANDARDS

A. Claim Construction

[1] [2] [3] Claim construction is a matter of law for the court to decide. Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed.Cir.1995). When construing claims, a court first looks to intrinsic evidence within the record, and thereafter, if appropriate, to extrinsic evidence. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996). Intrinsic evidence includes the patent claims, the specification, and, if entered into evidence, the prosecution history. Id. Intrinsic evidence also includes the prior art cited in a patent or during the prosecution. Kumar v. Ovonic Battery Co., 351 F.3d 1364, 1368 (Fed.Cir.2003). In most cases, the intrinsic evidence alone determines the proper meaning of the claim terms. Vitronics, 90 F.3d at 1583.

[4] [5] Claim construction analysis begins with the plain language of the claims. Interactive Gift Exp., Inc. v. Compuserve Inc., 256 F.3d 1323, 1331 (Fed.Cir.2001). Generally, a court gives the words of a claim their ordinary and customary meaning. Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed.Cir.2005). The "ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." Id. at 1313.

[6] [7] [8] [9] The person of ordinary skill reads the claims in light of the specification and other intrinsic evidence. *See* id. at 1315 ("[C]laims must be read in view of the specification ... [T]he specification is

always highly relevant to the claim construction analysis ... [I]t is the single best guide to the meaning of a disputed term." (quotations omitted)). If a claim term has multiple, yet potentially consistent, definitions, the specification and other intrinsic evidence provide guidance. Brookhill-Wilk 1, LLC v. Intuitive Surgical, Inc., 334 F.3d 1294, 1300 (Fed.Cir.2003). Or if the patentee explicitly defines a term in the specification, that definition trumps the ordinary meaning of the term. CCS Fitness v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed.Cir.2002). The specification also may define a term by implication, Phillips, 415 F.3d at 1321, or it may reveal a disclaimer of the claim scope by indicating that the invention and all of its embodiments only occupy part of the broad meaning of a claim term, SciMed Life Sys. v. Advanced Cardiovascular Sys., 242 F.3d 1337, 1343-44 (Fed.Cir.2001).

B. Summary Judgment

Summary judgment is appropriate when there is no genuine issue as to any material fact and the moving party is entitled to judgment as a matter of law. 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, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986); Vanmoor v. Wal-Mart Stores, Inc., 201 F.3d 1363, 1365 (Fed.Cir.2000). An issue is "genuine" only if there is sufficient evidence for a reasonable fact finder to find for the non-moving party. *See* Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 248-49, 106 S.Ct. 2505, 91 L.Ed.2d 202 (1986). A fact is "material" if the fact may affect the outcome of the case. *See* id. at 248, 106 S.Ct. 2505. "On summary judgment, the evidence must be viewed in the light most favorable to the party opposing the motion, with doubts resolved in favor of the nonmovant." Crown Operations Int'l, Ltd. v. Solutia Inc., 289 F.3d 1367, 1375 (Fed.Cir.2002) (citations omitted).

C. Infringement

[10] [11] [12] To determine infringement, the asserted claim must be compared to the allegedly infringing method or device. Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed.Cir.1995). To establish literal infringement, every claim limitation, or claim element, must be found in the accused subject matter. Warner-Jenkinson Co. v. Hilton Davis Chemical Co., 520 U.S. 17, 29, 40, 117 S.Ct. 1040, 137 L.Ed.2d 146 (1997). Thus, establishing that the accused method or device does not satisfy one claim limitation would support a finding of noninfringement. Id. The patentee must prove infringement by a preponderance of the evidence. Bayer AG v. Elan Pharm. Research Corp., 212 F.3d 1241, 1247 (Fed.Cir.2000).

D. Invalidity

[13] Patents are presumed to be valid. 35 U.S.C. s. 282. An accused infringer must prove invalidity by a showing of clear and convincing evidence. SIBIA Neurosciences, Inc. v. Cadus Pharm. Corp., 225 F.3d 1349, 1355 (Fed.Cir.2000). A patent claim is invalid if the claimed invention is anticipated or obvious in light of the prior art. A claim is anticipated if every claim element is found in a single piece of prior art. *See* 35 U.S.C. s. 102. A claim is obvious "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. s. 103(a).

[14] [15] [16] Obviousness is a question of law based on underlying questions of fact. Winner Int'l Royalty Corp. v. Wang, 202 F.3d 1340, 1348 (Fed.Cir.2000). Factual elements of an obviousness analysis include: (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. KSR Int'l Co. v. Teleflex Inc., 550 U.S. 398, 127 S.Ct. 1727, 167 L.Ed.2d 705 (2007). Unlike anticipation, prior art

references may be combined to establish invalidity under 103(a). SIBIA Neurosciences, 225 F.3d at 1356. However, there must be some motivation to combine the references, which may be found in the prior art itself, in the knowledge of one of ordinary skill in the art, or the nature of the problem to be solved. Id. Although the Supreme Court recently rejected an overly rigid inquiry into motivation to combine references, the Court acknowledged the importance of identifying "a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does." KSR, 127 S.Ct. at 1731.

E. Willful Infringement

The Court may award enhanced damages for patent infringement, "up to three times the amount found or assessed," pursuant to 35 U.S.C. s. 284 upon a finding of willful infringement. Beatrice Foods Co. v. New England Printing & Lithographing Co., 923 F.2d 1576, 1578 (Fed.Cir.1991). Over time, the standard for evaluating willfulness has evolved. Recently, the Federal Circuit announced a new legal standard, which requires that to establish willful infringement, "a patentee must show by clear and convincing evidence that the infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent." In re Seagate Tech. LLC, 497 F.3d 1360, 1371 (Fed.Cir.2007) (en banc) (citing Safeco Ins. Co. of Am. v. Burr, 551 U.S. 47, 127 S.Ct. 2201, 2215, 167 L.Ed.2d 1045 (2007)). The accused infringer's subjective state of mind is not relevant to this objective inquiry. *See* id.

If the threshold inquiry is satisfied, "the patentee must also demonstrate that this objectively-defined risk (determined by the record developed in the infringement proceeding) was either known or so obvious that it should have been known to the accused infringer." Id. The Federal Circuit declined to further develop application of its new wilfulness standard-leaving that task to future cases-but did suggest that "the standards of commerce" would be among the factors to consider. *See* id. at 1371, 1371 n. 5. It is unsettled whether the Federal Circuit's prior "totality of the circumstances" test is now abrogated, or whether the factors identified in Read Corp. v. Portec, Inc., 970 F.2d 816, 826-27 (Fed.Cir.1992), remain relevant to the wilfulness inquiry. FN3

FN3. The factors identified in Read Corp. include: (1) whether the infringer deliberately copied the ideas or design of another; (2) whether the infringer, when he knew of the other's patent protection, investigated the scope of the patent and formed a good-faith belief that it was invalid or that it was not infringed; (3) the infringer's behavior as a party to the litigation; (4) defendant's size and financial condition; (5) closeness of the case; (6) duration of defendant's misconduct; (7) remedial action by the defendant; (8) defendant's motivation for harm; and (9) whether defendant attempted to conceal its misconduct. 970 F.2d at 826-27.

F. Inequitable Conduct

[17] [18] Applicants for patents have a duty to prosecute patent applications in the United States Patent and Trademark Office with candor, good faith, and honesty. Nilssen v. Osram Sylvania, Inc., 504 F.3d 1223, 1229 (Fed.Cir.2007); *see also* 37 C.F.R. s. 1.56(a). A breach of this duty-in the form of affirmative misrepresentations of material facts, failure to disclose material information, or submission of false material information-coupled with an intent to deceive constitutes inequitable conduct, which, when proven, renders the patent unenforceable. Bristol-Myers Squibb Co. v. Rhone-Poulenc Rorer, Inc., 326 F.3d 1226, 1233 (Fed.Cir.2003).

[19] [20] [21] In determining whether inequitable conduct occurred, a trial court must determine whether the

party asserting the inequitable conduct defense has shown by clear and convincing evidence that the alleged nondisclosure or misrepresentation occurred, that the nondisclosure or misrepresentation was material, and that the patent applicant acted with the intent to deceive the Patent Office. Honeywell Int'l Inc. v. Universal Avionics Sys. Corp., 488 F.3d 982, 999 (Fed.Cir.2007). The nondisclosure or misrepresentation must meet threshold levels of both materiality and intent. Molins PLC v. Textron, Inc., 48 F.3d 1172, 1178 (Fed.Cir.1995). Once the threshold levels of materiality and intent have been established, the trial court must weigh materiality and intent to determine whether the equities warrant a conclusion that inequitable conduct occurred. Id. The more material the information misrepresented or withheld by the applicant, the less evidence of intent will be required in order to find inequitable conduct. Id.

DISCUSSION

A. Supplemental Claim Construction

[22] Ivax and Depomed dispute the meaning of the term "dissolution and diffusion." The parties did not ask the Court to construe this term in the Claim Construction Order. But Ivax now moves for supplemental claim construction of the term and both parties agree that the Court should clarify its meaning. The term is found in claim 1 of the '475 patent and claim 1 of the '280 patent and refers to the release mechanism of the drug from the matrix. Claim 1 of the '475 patent is reproduced here for reference:

Claim 1. A controlled-release oral drug dosage form for releasing a drug whose solubility in water is greater than one part by weight of said drug in ten parts by weight of water, said dosage form comprising a solid polymeric matrix with said drug dispersed therein at a weight ratio of drug to polymer of from about 15:85 to about 80:20, said polymeric matrix being one that swells upon imbibition of water thereby attaining a size large enough to promote retention in the stomach during said fed mode, that releases said drug into gastric fluid *by the dissolution and diffusion of said drug out of said matrix by said gastric fluid,* that upon immersion in gastric fluid retains at least about 40% of said drug one hour after such immersion and releases substantially all of said drug within about eight hours after such immersion, and that remains substantially intact until all of said drug is released.

(Emphasis supplied). The term "dissolution and diffusion" appears in an identical context in claim 1 of the '280 patent.

Ivax argues that "dissolution and diffusion" should be construed according to its plain language to mean "dissolution of the drug in the matrix by the gastric fluid and diffusion of the drug out of the matrix." Ivax contends that the plain meaning of "dissolution and diffusion" does not connote a rate-controlling step. Dissolution-controlled release, diffusion-controlled release and swelling-controlled release may all involve the acts of dissolution of the drug from the matrix and diffusion of the drug out of the matrix. Therefore, Ivax urges that the claim encompasses all three of these release mechanisms.FN4

FN4. Ivax does not argue that "dissolution and diffusion" should be construed to include erosion-controlled release mechanisms. The claims explicitly state that the dosage form remains substantially intact (i.e., does not substantially erode) until the drug is released.

Depomed counters that the term is limited to diffusion-controlled release mechanisms. It argues that "diffusion and dissolution" should be construed within the broader context of the claim, "by the dissolution and diffusion of said drug out of said matrix by said gastric fluid," to mean "rapid dissolution of the drug by

the gastric fluid, followed by slow diffusion of the drug out of the matrix, such that the drug is released at a rate primarily controlled by the rate of diffusion." Depomed asserts that one skilled in the art would read the term to require diffusion-controlled release because the claim recites high solubility drugs. These drugs rapidly dissolve in solution so that a dissolution-controlled system would not exhibit the claimed controlled-release profile. Depomed finds further support for its construction in the patent specification. The "Summary of the Invention" section states that the dosage form "releases the drug primarily by diffusion," '475 patent at col. 5, ll. 60-62, that "[t]he rate-limiting factor in the release of the drug is therefore controlled diffusion of the drug from the matrix," id. at col. 6, ll. 14-16, and that "[f]or highly soluble drugs, the swelling of the polymeric matrix ... retards the rate of diffusion of the highly soluble drug long enough to provide multi-hour, controlled delivery of the drug into the stomach," id. at col. 6, ll. 18-23.

The Federal Circuit recently cautioned against "plac[ing] too much emphasis on the ordinary meaning of [a term] without adequate grounding of that term within the context of the specification of the [ ] patent." Curtiss-Wright Flow Control Corp. v. Velan, Inc., 438 F.3d 1374, 1378 (Fed.Cir.2006). In Curtiss-Wright, the Federal Circuit overturned the district court's construction of the term "adjustable" for placing too much emphasis on the ordinary meaning. Id. The court explained that the specification consistently used the term within a given context and it thus limited the term to that context. Id. at 1379. The court further explained that a broader reading of the term "renders that limitation nearly meaningless." Id.

Similarly, in Nystrom v. TREX Company, Inc., 424 F.3d 1136 (Fed.Cir.2005), the Federal Circuit affirmed construction of the term "board" to mean a board cut from a log even though the claim language did not limit the board's composition to any given material, and the specification did not explicitly disavow other materials. The court noted that "Nystrom consistently used the term 'board' to refer to wood cut by a log. Although there was no clear disavowal of claim scope, there was nothing in the intrinsic record to support the conclusion that a skill artisan would have construed the term 'board' more broadly...." Id. at 1145.

Ivax is correct that the ordinary meaning of "diffusion and dissolution," standing alone, does not specify a rate-limiting release mechanism. However, the claim must be read in light of the specification. *See* Phillips, 415 F.3d at 1315. The patent specification explicitly states that the "beneficial effects" of the invention are "achieved by using a formulation in which the drug is dispersed in a polymeric matrix that ... releases the drug primarily by diffusion." '475 patent at col. 5, ll. 60-62. The specification further states that "[t]he rate-limiting factor in the release of the drug is therefore controlled diffusion of the drug from the matrix." Id. at col. 6., ll. 14-16. The specification consistently refers to the dominant release mechanism as controlled-diffusion. *See* Curtiss-Wright, 438 F.3d at 1379 (limiting a term to a context consistently used throughout the specification); Nystrom, 424 F.3d at 1145 (same).

In addition, Ivax's reading of the term would "render[ ] that limitation nearly meaningless." *See* Curtiss-Wright, 438 F.3d at 1379. Ivax argues that "dissolution and diffusion" encompasses any release mechanism that exhibits dissolution of the drug within the matrix and diffusion of the drug out of the matrix. But any drug release mechanism may exhibit some amount of dissolution and diffusion, however negligible.

Ivax nevertheless maintains that the specification never specifies a rate-limiting release mechanism. First, Ivax points to statements in the specification that discuss dissolution and diffusion without denoting a rate-limiting step. *See, e.g.,* '475 patent at col. 6, ll. 6-10 ("dissolution of the drug in the penetrating fluid and diffusion of the drug back out of the matrix"); id. at col. 9, ll. 7-13 ("[t]he release rate of a drug from the matrix is primarily dependent upon the rate of water imbibition and the rate at which the drug dissolves and diffuses from the swollen polymer ..."). However, such statements simply note that the drug is released by

dissolution and diffusion. Diffusion-controlled release mechanisms require dissolution. Thus, the statements Ivax quotes in no way contradict other statements in the specification that explicitly define diffusion as the primary release mechanism. *See, e.g.,* id. at col. 5, ll. 60-62.

Second, Ivax contends that, read in the broader context, statements referring to release as primarily diffusion-controlled only serve to contrast "dissolution and diffusion" against erosion-controlled release mechanisms. Ivax first points to the statement that "[t]he rate-limiting factor in the release of the drug is therefore controlled diffusion of the drug from the matrix *rather than erosion, dissolving or chemical decomposition of the matrix*." Id. at col. 6., ll. 14-18 (emphasis supplied). It argues that this statement only compares the rate of diffusion versus erosion, and not that of diffusion to dissolution. This argument is unpersuasive. Although the statement only mentions diffusion- and erosion-controlled release mechanisms, it does not thereby equate the term "diffusion" with any release mechanism other than erosion, such as "diffusion," "dissolution," or "swelling." The quoted text explicitly states that "controlled diffusion" is rate-limiting.

Similarly, Ivax points to the full context of the statement that "the drug is dispersed in a polymeric matrix that ... releases the drug primarily by diffusion":

Each of the beneficial effects enumerated above is achieved by using a formulation in which the drug is dispersed in a polymeric matrix that is water-swellable rather than merely hydrophilic, that has an erosion rate that is substantially slower than its swelling rate, and that releases the drug primarily by diffusion. It has further been found that the rate of diffusion of the drug out of the matrix can be slowed by ...

'475 patent at col. 5, ll. 57-64. Ivax argues that this passage does not specify diffusion-controlled release but is simply saying that the release of the drug out of the matrix is by dissolution and diffusion and not by erosion. As above, Ivax's argument is unpersuasive. Nothing in the broader context of the statement suggests that the patentee intended "releases the drug primarily by diffusion" to be read as "releases the drug primarily by dissolution and diffusion" without distinguishing the two. Indeed, the following sentence goes on to discuss the rate of diffusion specifically, as shown in the quoted text above.

Finally, Ivax contends that Depomed's construction is inconsistent with the release of insoluble drugs. Ivax notes that both the specification and unasserted method claims specify the release of insoluble drugs by "dissolution and diffusion." Because it is not feasible to release low solubility drugs via diffusion-controlled release, *see* Hopfenberg Decl. para. 31, "dissolution and diffusion" must be construed more broadly. For example, Ivax points to claim 27 of the '475 patent, which describes the release of cyclosporin, a low solubility drug. The claim recites "dissolving of said drug by said gastric fluid and either erosion of said matrix or diffusion of said dissolved drug out of said matrix." '475 patent at col. 19, ll. 36-40. Ivax argues that the diffusion element is impermissibly superfluous if, as Depomed argues, low solubility drugs must be released by erosion-controlled systems. Ivax's arguments do not follow from the claim language or Depomed's expert testimony. Depomed's expert Dr. Hopfenberg claims that erosion, rather than "dissolution and diffusion," would be the *dominant* release mechanism for low solubility drugs. *See* Declaration of Dr. Harold B. Hopfenberg in Opposition to Defendants' Motions for Supplemental Claim Construction and for Summary Judgment on the Bases of Invalidity and Inequitable Conduct (Hopfenberg Supp. Claim Const. Decl.) para. 31. But he does not state that erosion-controlled mechanisms cannot release at least some amount of the drug by diffusion. Moreover, the claims reciting low solubility drugs specify release by dissolution and either erosion *or* diffusion. Because "erosion" and "diffusion" are used in the disjunctive, the claim is operable as written for an erosion-controlled release mechanism with little to no diffusion, or

vice versa.

In this case, the intrinsic record limits the meaning of "dissolution and diffusion" to a diffusion-controlled dominate release mechanism. Ivax's arguments to the contrary "place[ ] too much emphasis on the ordinary meaning of [the term] without adequate grounding of that term within the context of the specification of the [ ] patent." Curtiss-Wright, 438 F.3d at 1378. The Court concludes that "by the dissolution and diffusion of said drug out of said matrix by said gastric fluid" means "rapid dissolution of the drug by the gastric fluid, followed by slow diffusion of the drug out of the matrix, such that the drug is released at a rate primarily controlled by the rate of diffusion."

B. Summary Judgment of Infringement

[23] Depomed moves for summary judgment that Ivax infringes the asserted claims of Depomed's '475 and '280 patent by the sale, offer for sale and/or manufacture of the accused Metformin ER product. Ivax did not present any evidence of non-infringement. Rather, it concedes infringement under its broad reading of the term "dissolution and diffusion." But Ivax asserts that Depomed did not prove that Metformin ER uses a diffusion-controlled release mechanism. Because the Court construed "dissolution and diffusion" under Depomed's construction to mean that "the drug is released at a rate primarily controlled by the rate of diffusion," the dispositive factor in this inquiry is whether Depomed meets its burden of proving that Ivax's product uses a diffusion-controlled release mechanism.

Depomed introduced two lines of evidence. First, the Metformin ER package insert states that the "[d]rug is released slowly from the dosage form by a process of diffusion through the gel matrix." Declaration of Elena M. DiMuzio in Support of Plaintiff Depomed, Inc.'s Notice of Motion and Motion for Summary Judgment of Infringement ("DiMuzio Decl."), Ex. G. Ivax's representative on infringement confirmed this statement. DiMuzio Decl. Ex. F (Shah Dep. Tr.) at 94:14-18. And a former Ivax employee who formulated Ivax Metformin ER testified that the drug is released by dissolution and diffusion. DiMuzio Decl. Ex. D (Panchal Dep. Tr.) at 35:16-37:4. Ivax simply counters with attorney argument that Depomed did not show that the witnesses intended to convey "diffusion-controlled release" by their use of the word "diffusion." But a highly soluble drug such as metformin dissolves quickly, whereas the package insert clearly states that the drug is released slowly via diffusion. Thus, even supposing that the package insert's statement does not explicitly state that Metformin ER uses a diffusion-controlled release, it does so implicitly.

Second, Depomed and its expert witness Dr. Hopfenberg conducted dissolution tests to determine the release mechanism of Metformin ER. Depomed's experimental evidence is presented in plots showing percent drug released as a function of the square root of time. *See* Declaration of Dr. Harold B. Hopfenberg in Support of Plaintiff Depomed, Inc.'s Motion for Summary Judgment of Infringement ("Hopfenberg Infringement Decl.") para. 66; Ex. D. Dr. Hopfenberg's declaration states that a linear relationship in these plots for at least 50 percent of the original drug loading is characteristic of release controlled by dissolution and diffusion. Hopfenberg Infringement Decl. para. 66. He states that Depomed's experiments show "a linear relationship between the amount of drug release and the square root of time over the range from 0-50% of drug release," and thus opines that Metformin ER releases the drug by dissolution and diffusion. *Id*.

Ivax disputes Depomed's experimental evidence. Ivax presents no evidence of its own, but rather offers attorney argument that Dr. Hopfenberg's deposition testimony conflicts with his declaration testimony. Ivax contends that Dr. Hopfenberg's deposition states that there must be a *perfectly* linear relationship over 50% drug release to draw a valid conclusion, whereas Depomed's experimental evidence deviates ever so slightly

from linearity. Ivax finds support for the perfect linearity argument because Dr. Hopfenberg at deposition said he could not conclude that a curve in the prior art Jagotec patent demonstrated dissolution and diffusion. Ivax argues that Dr. Hopfenberg's opinion was based on a slight deviation from linearity in the plot. *See* Reply Declaration of Nathan E. Shafroth in Support of Depomed's Motion for Summary Judgment of Infringement, Ex. A ("Hopfenberg Dep.") at 276:7-279:4. But Dr. Hopfenberg's opinion was not only based on a slight deviation from linearity, but also because the curve deviated upwards. *Id.* at 284:15-285:1.FN5 In contrast, dissolution and diffusion controlled release mechanisms deviate in the downward direction after the period of linearity. *Id.,* Declaration of Dr. Harold B. Hopfenberg in Support of Depomed's Reply re Infringement ("Hopfenberg Reply Decl."), para. 7. Thus, Ivax's selective characterization of Dr. Hopfenberg's deposition testimony fails to rebut Depomed's evidence that Metformin ER uses a diffusion-controlled release mechanism.FN6

FN5. Dr. Hopfenberg further testified that the linearity test was inapplicable to the Jagotec patent because the linearity test is only applicable for a single-layer monolithic matrix. Hopfenberg Dep. 280:10-17.

FN6. At oral argument, Ivax argued that a concave curve is also indicative of swelling-controlled release and thus Depomed's experimental evidence cannot distinguish diffusion-controlled release. But Dr. Hopfenberg testified at deposition that a concave curve rules out a dominant swelling mechanism. Hopfenberg Dep. 84:21-25. Ivax has not presented evidence to support its argument or rebut Dr. Hopfenberg's testimony. In addition, the package insert for Metformin ER states that the drug is released slowly by diffusion.

Ivax concedes infringement on all claim elements except for "dissolution and diffusion." Ivax's arguments fail to rebut Depomed's evidence that Metformin ER infringes this claim element. The Court therefore grants Depomed's motion for summary judgment of infringement.

C. Summary Judgment of Invalidity

[24] Ivax moves for summary judgment on the affirmative defense that the asserted claims of Depomed's '475 and '280 patents are invalid on the basis of obviousness under 35 U.S.C. s. 103. The parties agree that all elements of the claims except for metformin HCl are found within a combination of Depomed's own prior art, U.S. Patent No. 5,582,837 (the '837 patent), FN7 and a technical publication by Dow. The primary dispute is whether a person of ordinary skill would have a reason to combine the references to develop a controlled dosage form of a highly soluble drug, such as metformin HCl, according to the asserted claims in the patents-at-issue.

FN7. The '837 patent is the United States counterpart to PCT publication WO 93/18755. The two disclosures are substantively the same for purposes of invalidity analysis.

The '837 patent, entitled "Alkyl-substituted cellulose-based sustained-release oral drug dosage forms," is directed toward formulations for controlled release, gastric retentive dosage forms. The patented invention involves dissolution-controlled release systems. *See e.g.,* Hopfenberg Supp. Claim Const. Decl., para.para. 34-43. Thus, the patented formulations are primarily useful for low solubility drugs because drugs of high solubility would rapidly leach from the dosage forms and thus not sustain controlled-release. *See e.g.,* ' 837

patent, col. 2, ll. 23-30 ("The dosage forms of the present invention are effective for administering drugs of limited solubility in gastric fluid ... The drug should be solid and not so water-soluble that it is rapidly leaches from the particles over a very short time ..."). Nevertheless, the patent specification states that the formulations are useful for the controlled-release of high solubility drugs as well. *See e.g.,* id., col. 2, ll. 34-37 ("Normally, the solubility of the drug ... will be in the range of 0.01% to about 35% by weight, more normally 0.01% to 5% by weight."); id., col. 3, ll. 36-37 (noting formulation for captopril, a highly soluble drug); *id.,* col. 5, ll. 44-46 (noting formulation for potassium chloride, a highly soluble drug). In such cases, the patent teaches modification of the drug with a long fatty chain acid ester to reduce the drug's solubility and therefore allow controlled-release:

Another additive for the inert matrix in the dosage form may be desirable when the *selected drug is so soluble that it may be released at a rate more rapid than desired*. Examples of such drugs are potassium chloride and various peptides used as pharmaceuticals. In order to reduce the rate of release of these high solubility drugs, the particles are formulated to include a long chain fatty acid ester of glycerin, such as glyceryl monooleate.... In general, *highly soluble drugs will exhibit the desired reduced release rate* by adding about 0.5 to 4 moles of the glyceryl ester for each mole of drug.

Id., col. 5, ll. 42-65 (emphasis supplied). For example, dependent claim 14 recites the claimed dosage form "wherein said drug has a release rate greater than desired because of its water solubility and including long chain fatty acid ester of glycerin in which the fatty acid moiety has 15 to 21 carbon atoms bonded to its carboxyl group, to reduce the release rate of drug to a lower rate." *Id.,* col. 14, ll. 60-65.

The Dow reference is a technical bulletin entitled "Formulation for Controlled Release with METHOCEL Premium Cellulose Ethers." Declaration of Nathan E. Shafroth in Opposition to Ivax's Motions for Supplemental Claim Construction and for Summary Judgment on the Basis of Invalidity, Ex. M ("Dow reference"). The reference describes the use of Dow's hydrophilic polymer hydroxypropylmethylcellulose ("HPMC") METHOCEL product for use in controlled-release drug formulations. It explains that wetting of the tablet surface forms an outer gel layer, which protects the tablet's inner core from wetting and dissolution. *Id*. at 2. The gel layer dissolves in solution and is replaced by a new layer to retard diffusion and sustain controlled drug release. *Id*. The Dow reference teaches use of METHOCEL for soluble and insoluble drugs. *Id*. at 2; 16-17. Soluble drugs are released by diffusion from the gel layer and erosion of the tablet, while insoluble drugs are released by erosion. *Id*. at 5; 16.

[25] [26] A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. KSR, 127 S.Ct. at 1741. To demonstrate that a patent is invalid for obviousness based on a combination of references, "the burden falls on the patent challenger to show by clear and convincing evidence that a person of ordinary skill in the art would have had reason to attempt to make the composition ... and would have had a reasonable expectation of success in doing so." PharmaStem Therapeutics, Inc. v. ViaCell, Inc., 491 F.3d 1342, 1360 (Fed.Cir.2007).

In this case, there is little question that one of skill in the art would have recognized the benefits of a gastric-retentive, controlled-release dosage form of metformin HCl. The drug was known to be soluble, absorbed high in the GI tract and irritating to the stomach. The more difficult question is whether one of skill in the art would have had a reasonable expectation of success in combining the '837 patent and Dow reference to create the controlled-release metformin formulation claimed in the '475 and '280 patents.

Ivax argues that there are numerous reasons to modify the '837 patent formulation with the polymers of the

Dow reference. HPMC was well known in the art at the time of invention, Dow reference at 2, and the '837 patent itself disclosed use of HPMC. *See, e.g.,* '837 patent claim 1, col. 13, ll. 59-63 ("each particle containing a solid-state drug dispersed within a non-chemically crosslinked alkyl-substituted cellulose selected from the group consisting of ... hydroxypropylmethylcellulose ..."). Although the '837 patent does not explicitly recite use of higher viscosity HPMC, the Dow reference teaches that such HPMC is useful for controlling the diffusion of soluble drugs. Dow reference at 12 ("[h]igh viscosity polymers creat[e] more viscous gel layers, thus causing the drug to diffuse more slowly"). Ivax argues that Dow's high viscosity polymers could be substituted for those described in the '837 patent, thus offering the convenience of eliminating the hydrophobic additive taught by the patent as required to sustain the release of soluble drugs.

Depomed counters with several reasons that one of skill would not have looked to combine the asserted prior art references. First, the '837 patent claims dissolution-controlled release and is directed towards the use of insoluble drugs. The patent only discloses controlled-release of soluble drugs that are modified with an additive to reduce their solubility. Thus, one of skill would have avoided the '837 patent when looking to develop a controlled release formulation for an unmodified soluble drug. Second, there would be no reason to substitute the polymers of the Dow reference for those of the '837 patent. Dow does not teach polymers that swell or remain substantially intact, as required by the asserted claims, but rather discloses that the outer gel layer erodes over time. Finally, the Dow reference teaches that its polymers produce layers that undergo cycles of gel formation, erosion and replacement. This behavior suggests that the Dow polymers display "front-synchronization," a phenomenon that the asserted '475 patent itself explains and distinguishes. *See* '475 patent, col. 1, ll. 64-65; Hopfenberg Supp. Claim Const. Decl., para. 52 n. 8.

In reply, Ivax asserts that one of skill would look to the '837 patent for disclosure of gastric retentiveness and to the Dow reference for disclosure of soluble drug formulations. But such arguments do not address the motivation to combine these pieces of prior art. Rather, they only demonstrate that the ' 837 patent and Dow reference disclose all elements of certain claims-at-issue.

In addition, Ivax refutes Depomed's arguments that the two references are incompatible. First, Ivax claims that the gastric retention disclosed in the '837 patent is not dependent on drug solubility, so that one of skill would look to the reference for gastric-retentive formulations for a drug of any solubility. But the patent explicitly teaches away from using its formulation for unmodified, soluble drugs. This weighs against motivation to combine with a reasonable expectation of success.

Second, Ivax notes that the Dow references cautions against premature disintegration of the tablets. But the Dow reference teaches that its formulations release soluble drugs by both diffusion and *erosion*. It explains that the outer gel layer is continuously dissolved and replaced. Thus, the reference teaches away from a formulation that swells and remains substantially intact until the drug is released, as required in the asserted claims-at-issue.

Finally, Ivax argues that the '837 patent discloses the use of HPMC, such as that of the Dow reference. But the patent teaches that its formulations are inappropriate for controlled-release of unmodified soluble drugs. Thus, if the patent discloses Dow's HPMC, then the patent suggests that Dow's polymers are not useful for controlled-release of unmodified soluble drugs. As a result, the '837 patent disclosure of HPMC actually teaches away from the asserted combination of references.

Ivax has failed to meet its burden of demonstrating that, as a matter of law under the clear and convincing evidence standard required for invalidity, the asserted claims of the '475 and '280 patents are obvious in

light of the ' 837 patent and Dow reference. The Court therefore denies Ivax's motion for summary judgment of invalidity.

D. Summary Judgment of No Willful Infringement

[27] Ivax moves for summary judgment on the issue of willful infringement, arguing that no reasonable juror could find that Ivax acted despite an objectively high likelihood that its actions would infringe a valid patent. Because reasonable jurors could disagree on the issue of willful infringement, Ivax's motion is denied.

There is substantial evidence that would support the conclusion that Ivax sold Metformin ER despite an objectively high likelihood that its actions constituted infringement of Depomed's valid patents. First, as explained in the preceding section, Ivax's argument that Depomed's patents were not valid as a matter of law must be rejected. The Court's conclusion thus supportsDepomed's argument that a reasonable party in Ivax's position would not have believed that Depomed's patents were invalid. Second, Depomed's '475 patent issued almost two years before Ivax began selling its Metformin ER product. A reasonable party would therefore have had ample time to investigate and discover the relevant patent. Third, there is evidence that the '475 patent and an agreement to license the patent to a third party were well publicized. *See* Fara Declaration at para. 17, Exh. C. This evidence weighs in favor of Depomed's argument that a reasonable party in Ivax's position would have or should have known of the existence of the '475 patent.

In sum, there is ample evidence upon which a reasonable juror could base the conclusion that Ivax sold its metformin ER product, despite an objectively high likelihood that is actions constituted infringement of a valid patent. The motion for summary judgment must therefore be denied.

E. Summary Judgment of Inequitable Conduct

[28] Ivax requests that the Court deem Depomed's patents-in-suit unenforceable as a result of Depomed's inequitable conduct. According to Ivax, Depomed committed inequitable conduct during prosecution of the patents-in-suit by misrepresenting prior art, failing to provide a complete and accurate description of the relevance of prior art, failing to disclose prior art, failing to correct the Examiner's error, and interfering in the litigation of this case. However, because this is not the exceptional case where adjudication at the summary judgment stage is appropriate, the motion is denied.

[29] [30] "A *summary judgment* that a reputable attorney has been guilty of inequitable conduct, over his denials, ought to be, and can properly be, rare indeed." Burlington Indus., Inc. v. Dayco Corp., 849 F.2d 1418, 1422 (Fed.Cir.1988). The intent element of inequitable conduct "may be proven by a showing of acts the natural consequences of which were presumably intended by the actor," which requires the factfinder to evaluate all the facts and circumstances in each case, thereby precluding summary judgment in most cases. KangaROOS U.S.A., Inc. v. Caldor, Inc., 778 F.2d 1571, 1577 (Fed.Cir.1985). Summary judgment is appropriate where "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 (Fed.Cir.1998), or where "the summary judgment record establishes that (1) the applicant knew of the information; (2) the applicant knew or should have known of the materiality of the information; and (3) the applicant has not provided a credible explanation for the withholding," Ferring B.V. v. Barr Labs., Inc., 437 F.3d 1181, 1191 (Fed.Cir.2006).

Ivax has set forth some evidence to support its allegation of breach of the disclosure duty. For example, the

Court is troubled by Dr. Henry Heines' characterization of the prior art Shell patents as limited to "drugs of low solubility in water," whereas there is evidence that the Shell '790 and '837 patents disclose examples of highly soluble drugs.

Nonetheless, Depomed has adequately set forth credible explanations for the alleged misrepresentations that preclude summary judgment. Depomed explains that even if the prior Shell art listed drugs, such as potassium chloride, with a solubility range outside what Dr. Heines' characterized as the "preferred range," Dr. Heines did disclose that the prior art applied to drugs with a solubility range up to 35% and therefore his statement was not, per se, untruthful.

Even assuming that Dr. Heines did breach his disclosure duty and that such breach was material, Ivax has not adequately demonstrated-at *this* stage in the proceeding-that Dr. Heines intended to deceive. *See* Manville Sales Corp. v. Paramount Sys., Inc., 917 F.2d 544, 552 (Fed.Cir.1990) ("[M]ateriality does not presume intent, which is a separate and essential component of inequitable conduct."). In a case such as this, where Depomed *did* disclose prior art, any misrepresentation of the prior art must be blatant to justify summary judgment because the very fact of voluntary disclosure undercuts Ivax's allegation of deceptive intent. *See* Advanced Cardiovascular Sys., Inc. v. SciMed Life Sys., 63 F.Supp.2d 1064, 1076-77 (N.D.Cal.1999) ("[A]lthough not dispositive, ACS' counsel's voluntary submission of the Yock specification to the PTO during the Sirhan prosecution constitutes evidence of a lack of intent to deceive."). Ivax has identified no breach of duty that is so obvious and so material that intent can be inferred for purposes of summary judgment. Therefore, Ivax's motion is denied.

CONCLUSION

The claim term "dissolution and diffusion" means "rapid dissolution of the drug by the gastric fluid, followed by slow diffusion of the drug out of the matrix, such that the drug is released at a rate primarily controlled by the rate of diffusion." Depomed's motion for summary judgment of infringement is GRANTED. No reasonable jury could find that Ivax's generic Metformin ER product does not infringe the '475 and '280 patents. Ivax's motion for summary judgment of invalidity is DENIED. Ivax's motion for summary judgment of no willful infringement is DENIED. Ivax's motion for summary judgment of inequitable conduct is DENIED.

IT IS SO ORDERED.

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