United States Court of Appeals for the Federal Circuit

AMGEN INC., AMGEN MANUFACTURING LIMITED, AMGEN USA, INC.,
Plaintiffs-Appellees

v.

SANOFI, AVENTISUB LLC, REGENERON PHARMACEUTICALS INC., SANOFI-AVENTIS U.S., LLC,
Defendants-Appellants

2017-1480

Appeal from the United States District Court for the District of Delaware in Nos. 1:14-cv-01317-SLR, 1:14-cv-01349-SLR, 1:14-cv-01393-SLR, 1:14-cv-01414-SLR, Judge Sue L. Robinson.

Decided: October 5, 2017

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Thompson, M.D., Rosa DeBernardo, Alina Wilson. Also represented by MICHAEL JAY, Santa Monica, CA.

Before PROST, *Chief Judge,* TARANTO and HUGHES, *Circuit Judges.*

PROST, *Chief Judge*.

Appellants Sanofi, Aventisub LLC, Regeneron Pharmaceuticals Inc., and Sanofi-Aventis U.S., LLC (collectively, "Appellants") appeal from a final judgment of the district court holding U.S. Patent Nos. 8,829,165 ("'165 patent") and 8,859,741 ("'741 patent") not invalid and granting a permanent injunction enjoining sales of Appellants' Praluent® alirocumab ("Praluent").[1] In particular, Appellants argue that the district court improperly excluded evidence regarding written description and enablement, improperly instructed the jury on written description, improperly denied Appellants' motion seeking JMOL of no written description and no enablement, improperly granted Appellees' motion seeking JMOL of non-obviousness, and improperly issued the permanent injunction. Appellants' Br. 1. Because we conclude that the district court (i) erred by excluding Appellants' evidence regarding written description and enablement, and (ii) improperly instructed the jury on written description, we reverse-in-part and remand for a new trial on written description and enablement. We also conclude that Appellants are not entitled to JMOL of no written description and no enablement. We affirm the district court's grant of Appellees' JMOL of non-obviousness. Finally, we vacate the district court's permanent injunction.

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[1] Appellants stipulated to infringement of the '165 and '741 patents. Appellants' Br. 11.

I

A

The patents at issue generally relate to antibodies that help reduce low-density lipoprotein cholesterol (LDL-C), or "bad cholesterol." High levels of LDL-C in the bloodstream can cause heart attacks, strokes, and cardiovascular disease. Typically, high LDL-C is treated using small molecules called statins. In some cases, however, statins have adverse side effects or cannot reduce a patient's LDL-C to a healthy level, requiring alternative treatment. One such alternative treatment is a PCSK9 inhibitor—the medicine claimed by the patents at issue. PCSK9 is a naturally occurring protein that binds to and causes the destruction of liver cell receptors (LDL receptors, or LDL-Rs) that are responsible for extracting LDL-C from the bloodstream.

Appellees Amgen Inc., Amgen Manufacturing, Ltd., and Amgen USA, Inc. (collectively, "Appellees") first began studying PCSK9 in early 2005. This research resulted in the development of Appellees' drug Repatha™ which uses the active ingredient "evolocumab." Evolocumab is a monoclonal antibody that targets PCSK9 to prevent it from destroying LDL-R proteins. Appellees filed for FDA approval on August 27, 2014. The FDA approved Repatha in August 2015.

The two patents at issue, both of which share the same specification, are entitled "Antigen binding proteins to proprotein convertase subtilisin kexin type 9 (PCSK9)."[2] The '165 patent issued on September 9, 2014, and the '741 patent issued on October 14, 2014. The patents have an undisputed priority date of January 9, 2008. Appellants' Br. 12. The relevant claims cover the

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[2] All references are to the '165 patent unless otherwise indicated.

entire genus of antibodies that bind to specific amino acid residues on PCSK9 and block PCSK9 from binding to LDL-Rs.[3] The patents do not specifically claim Repatha, or any other antibody, by amino acid sequence. Claim 1 of the '165 patent is representative. It recites:

> An isolated monoclonal antibody, wherein, when bound to PCSK9, the monoclonal antibody binds to at least one of the following residues: S153, I154, P155, R194, D238, A239, I369, S372, D374, C375, T377, C378, F379, V380, or S381 of SEQ ID NO:3, and wherein the monoclonal antibody blocks binding of PCSK9 to LDL[-]R.

'165 patent col. 427 ll. 47–53.

The patents disclose the trial-and-error process Appellees used to generate and screen antibodies that bind to PCSK9 and block PCSK9 from binding to LDL-Rs. *Id.* at col. 73 l. 29–col. 124 l. 31. In particular, the specification explains that to discover the claimed antibodies, 3,000 human monoclonal antibodies were "rescreened for binding to wild-type PCSK9 to confirm stab[ility]," *id.* at col. 78 ll. 4–6, which were eventually narrowed to "85 antibodies that blocked interaction between the PCSK9 . . . and the LDLR [at] greater than 90%," *id.* at col. 80 ll. 35–37. The specification also discloses the three-dimensional structures, obtained via x-ray crystallography, of two antibodies known to bind to residues recited in the claims—21B12 (Repatha) and 31H4. *Id.* at fig. 3E, fig. 3JJ, col. 99 l. 29–col. 103 l. 60. Finally, the specification discloses the amino acid sequences of twenty-two other antibodies that "bin" with Repatha or 31H4, meaning they

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[3] A "residue" is a particular amino acid along PCSK9's amino acid sequence. Thus, the residue "S153" refers to the amino acid serine, located at the 153rd position of PCSK9's sequence.

compete with these antibodies for binding to PCSK9. *Id.* at figs. 2A–2D, figs. 3A–3JJ, col. 88 l. 30–col. 89 l. 37.

In September 2007, Appellants also started exploring antibodies targeting PCSK9. This research resulted in development of Praluent. The active ingredient in Praluent is a monoclonal antibody that targets PCSK9 to prevent it from binding to and destroying LDL-R proteins. The LDL-R proteins then extract LDL-C thereby lowering overall LDL-C levels in the bloodstream. In November 2011, the PTO issued Appellants a patent that claimed Praluent by its amino acid sequence. Appellants filed for FDA approval of Praluent in November 2014. The FDA approved Praluent in July 2015.

B

In October 2014, Appellees sued Appellants, claiming that Praluent infringed the patents in suit. Appellants stipulated to infringement but challenged the patents' validity on written description, enablement, and obviousness grounds.

Over the course of litigation, the district court made several rulings and decisions that are challenged here on appeal. First, the district court excluded all of Appellants' post-priority-date evidence proffered to show that the patents in suit did not provide adequate written description. Second, the district court instructed the jury, over Appellants' objection, that written description can be satisfied "by the disclosure of a newly-characterized antigen . . . if you find that the level of skill and knowledge in the art of antibodies at the time of filing was such that production of antibodies against such an antigen was conventional or routine." J.A. 1580. Third, the district court denied Appellants' post-trial motions seeking JMOL on written description and enablement. Fourth, the district court excluded two purported prior art references, Novartis and Schering, for being improper prior art and granted Appellees' motion seeking JMOL of

non-obviousness. And fifth, the district court issued a permanent injunction removing Appellants' Praluent from the market.

This court stayed the injunction pending appeal.

II

A

We first review whether the district court improperly excluded Appellants' evidence about antibodies, including Appellants' infringing Praluent, developed after the patents' priority date of January 9, 2008. Appellants proffered this evidence to show that the patents lack 35 U.S.C. § 112 written description support. The district court excluded this evidence, concluding that because the evidence did not "illuminate[] the state of the art *at the time of filing*," it was not relevant "to determine whether there is sufficient disclosure of the claimed invention." *Amgen Inc. v. Sanofi*, No. 14-1317, 2016 WL 675576, at *2 (D. Del. Feb. 18, 2016); *see also* J.A. 1030 ("I concluded that, because the written description requirement is tested as of the filing date, such evidence should be excluded."). Because the district court's decision was based on a misapplication of the law, we reverse.

Section 112 states that "[t]he specification shall contain a written description of the invention . . . in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains . . . to make and use the same . . . ." This requirement ensures "that the inventor actually invented the invention claimed." *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (en banc). To show invention, a patentee must convey in its disclosure that it "had possession of the claimed subject matter as of the filing date." *Id.* at 1350. Demonstrating possession "requires a precise definition" of the invention. *Id.* To provide this "precise definition" for a claim to a genus, a patentee must disclose "a repre-

sentative number of species falling within the scope of the genus or structural features common to the members of the genus so that one of skill in the art can 'visualize or recognize' the members of the genus." *Id.*

Here, the parties dispute whether a court may rely on post-priority-date evidence to determine if a patent discloses "a representative number of species." *Id.* Appellants argue that because the "written description requirement protects against 'attempts to preempt the future before it has arrived,'" Appellants' Br. 28 (quoting *Fiers v. Revel,* 984 F.2d 1164, 1171 (Fed. Cir. 1993)), it "would make [no] sense if future innovators were barred from introducing evidence of their own innovations in written description challenges," *id.* Appellees counter that because "[w]ritten description and enablement are judged at the time of filing," Appellees' Br. 34 (citing *Ariad*, 598 F.3d at 1355), "post-priority-date evidence may be relevant only if it illuminates the state of the art at the filing date," *id.* (first citing *In re Koller*, 613 F.2d 819, 825 (CCPA 1980); then citing *In re Hogan*, 559 F.2d 595, 605 (CCPA 1977)). And because Praluent and the other antibodies Appellants proffered did not exist until after the priority date, "they [were] not part of the state of the art . . . and therefore cannot 'illuminate' it." *Id.*

Appellees are correct that written description is judged based on the state of the art as of the priority date. *Ariad*, 598 F.3d at 1355. Accordingly, evidence illuminating the state of the art subsequent to the priority date is not relevant to written description. *Id.* Appellants, however, are also correct that a patent claiming a genus must disclose "a representative number of species falling within the scope of the genus or structural features common to the members of the genus so that one of skill in the art can 'visualize or recognize' the members of the genus." *Id.* at 1351. Evidence showing that a claimed genus does not disclose a representative number of species may include evidence of species that fall within the

claimed genus but are not disclosed by the patent, and evidence of such species is likely to postdate the priority date. If such evidence predated the priority date, it might well anticipate the claimed genus.

Here, Appellants sought to introduce evidence not to illuminate the state of the art on the priority date but to show that the patent purportedly did not disclose a representative number of species. Appellants' Br. 12. As a logical matter, such evidence is relevant to the representativeness question. Simply, post-priority-date evidence of a particular species can reasonably bear on whether a patent "fails to disclose a representative number of species falling within the scope of the genus or structural features common to the members of the genus so that one of skill in the art can 'visualize or recognize' the members of the genus." *Ariad*, 598 F.3d at 1350.

We have not ruled on that question to date, but the common-sense logic of admissibility finds support in *AbbVie Deutschland GmbH & Co. v. Janssen Biotech, Inc.*, 759 F.3d 1285 (Fed. Cir. 2014). There, Centocor, the accused infringer of AbbVie's functional claim to a genus of antibodies, stipulated to infringement and challenged validity based on written description. Centocor argued that the antibodies disclosed in AbbVie's patents were "not representative of the entire genus," *id.* at 1298, and it relied heavily on its own accused antibody to support the unrepresentativeness argument, introducing evidence that its antibody "differ[ed] considerably from the . . . antibodies described in [the asserted] patents," *id.* at 1300. The jury found that the patents lacked adequate written description, and both the district court and this court relied heavily on that evidence in upholding the invalidity verdict. *See AbbVie*, 759 F.3d at 1301; *Abbott GmBH & Co., KG v. Centocor Ortho Biotech, Inc.*, 971 F.3d 171, 176–80 (D. Mass. 2013). That is significant because, at the time of trial, the timing of Centocor's antibody in relation to AbbVie's priority date was unset-

tled: the PTO, in an interference, had found that Centocor's antibody postdated AbbVie's invention, as AbbVie argued, and the subsequent litigation of the question under 35 U.S.C. § 146 was unresolved. *See Abbott*, 870 F. Supp. 2d at 246. The Centocor antibody, in short, was a basis for the unrepresentativeness ruling without regard to whether it postdated the patent's priority date.

Appellees argue, and the district court held, that our predecessor court's decision in *In re Hogan* prohibits the use of post-priority-date evidence to show that a patent fails to disclose a representative number of species. *See* Appellees' Br. 34 ("[P]ost-priority-date evidence may be relevant only if it illuminates the state of the art at the filing date."); J.A. 1032 ("By giving its imprimatur to the jury's verdict [in *AbbVie*], the Federal Circuit arguably departed from its own precedent, established in *In re Hogan,* 559 F.2d 595 (CCPA 1977), that later-developed or later-discovered products should not be used to test compliance with 35 U.S.C. § 112[, ¶] 1."). But the district court and Appellees misread *In re Hogan* by conflating the difference between post-priority-date evidence proffered to illuminate the post-priority-date state of the art, which is improper, with post-priority-date evidence proffered to show that a patent fails to disclose a representative number of species. *In re Hogan* prohibits the former but is silent with respect to the latter.

In *In re Hogan*, the U.S. Patent and Trademark Office ("PTO") rejected an application directed to "Solid Polymer of Olefins" for failing to enable the claimed invention. 559 F.3d at 597. The relevant claim at issue recited, in its entirety, "[a] normally solid homopolymer of 4-methyl-1-pentene." *Id.* The application disclosed "a method of making the crystalline form" of the claimed homopolymer which was "the only then existing way to make such a polymer." *Id.* at 606. The PTO rejected the application, however, because the application did not disclose a second, "amorphous form" of making the polymer "which . . .

did not exist" as of the priority date. *Id.* Our predecessor court reversed the PTO, holding that "[t]o now say that appellants should have disclosed in 1953 the amorphous form which on this record did not exist until 1962, would be to impose an impossible burden on inventors and thus on the patent system." *Id.* Further, because the applicant had claimed the homopolymer and not a particular method of making the polymer, the court further held that "[t]o restrict appellants to the crystalline form disclosed, under such circumstances, would be a poor way to stimulate invention, and particularly to encourage its early disclosure." *Id.*

Here, unlike in *In re Hogan*, Appellants were not offering post-priority-date evidence to show that Appellees' claimed genus is not enabled because of a change in the state of the art. Instead, Appellants offered Praluent and other post-priority-date antibodies to argue that the claimed genus fails to disclose a representative number of species. As explained above, the use of post-priority-date evidence to show that a patent does not disclose a representative number of species of a claimed genus is proper. It was thus legal error for the district court to categorically preclude all of Appellants' post-priority-date evidence of Praluent and other antibodies. Accordingly, we reverse the district court's decision and remand for a new trial on written description.

For many of the same reasons, the district court's improper exclusion of post-priority-date evidence requires a new trial on enablement as well. Under the enablement requirement, "the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation." *Genentech, Inc. v. Novo Nordisk A/S*, 108 F.3d 1361, 1365 (Fed. Cir. 1997). Appellants purportedly sought to introduce post-priority-date evidence showing that Appellees engaged in lengthy and potentially undue experimentation to enable the full scope of the claims. Such evidence

could have been relevant to determining if the claims were enabled as of the priority date and should not have been excluded simply because it post-dated the claims' priority date. *See, e.g.*, *White Consol. Indus., Inc. v. Vega Servo-Control, Inc.*, 713 F.2d 788, 791 (Fed. Cir. 1983) (determining, based on post-priority-date expert evidence that "1½ to 2 man years of effort" would be needed to practice an invention, that patent claims were not enabled). Accordingly, we reverse the district court's decision excluding Appellants' post-priority-date evidence of enablement and remand for a new trial on enablement.

B

We next consider whether the trial court improperly instructed the jury on written description. The district court correctly instructed the jury that in order to satisfy the written description requirement, a patentee may disclose either a representative number of species falling within the scope of the genus or disclose structural features common to the members of the genus so that one of skill in the art can visualize or recognize the members of the genus. Additionally, however, the district court further instructed the jury that:

> In the case of a claim to antibodies, the correlation between structure and function may also be satisfied by the disclosure of a newly characterized antigen by its structure, formula, chemical name, or physical properties if you find that the level of skill and knowledge in the art of antibodies at the time of filing was such that production of antibodies against such an antigen was conventional or routine.

J.A. 1580. Appellants argue that this instruction is erroneous because disclosing an antigen does not satisfy the written description requirement for a claim to an antibody. Appellees respond that the instruction was proper because it merely restates the law as set forth in

Enzo Biochem, Inc. v. Gen-Probe Inc., 323 F.3d 956 (Fed. Cir. 2002), *Noelle v. Lederman*, 355 F.3d 1343 (Fed. Cir. 2004), and *Centocor Ortho Biotech, Inc. v. Abbott Labs.*, 636 F.3d 1341 (Fed. Cir. 2011). As discussed below, the district court's instruction is not legally sound and is not based on any binding precedent. Accordingly, we conclude that the instruction was improper.

The district court's instruction traces its roots back to PTO guidelines first discussed by this court in *Enzo Biochem*. That case involved claims directed to nucleic acid probes that were defined by their function of selectively hybridizing to the genetic material of certain bacteria. *Enzo Biochem*, 323 F.3d at 960. We noted in that case that not "all functional descriptions of genetic material fail to meet the written description requirement." *Id.* at 964. Instead, we cited the PTO's Guidelines on written description for the proposition that "functional characteristics when coupled with a known or disclosed correlation between function and structure" may satisfy the written description requirement. *Id.* (citing *Guidelines for Examination of Patent Applications Under the 35 U.S.C. 112, ¶ 1, "Written Description" Requirement* 66 Fed. Reg. 1099–01, 1106 ("Guidelines")).[4] We further noted, in dicta, that

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[4] The Guidelines were first published on Feb. 28, 2000 as the Revised Interim Written Description Guidelines Training Materials. In March 2008, the training materials were revised and republished as Written Description Training Materials, Revision 1, available at https://www.uspto.gov/sites/default/files/web/menu/written.pdf. The PTO now notes that the Training Materials have been "archived" and that "[a] new version will be prepared to reflect changes in the law since 2008, including any required clarifications due to developments in the law relating to 35 U.S.C. 112." Examination Guidance and Training Materials, United States Patent and

"the PTO would find compliance with 112, [¶] 1, for a claim to an isolated antibody capable of binding to antigen X, notwithstanding the functional definition of the antibody, in light of the well-defined structural characteristics for the five classes of antibody, the functional characteristics of antibody binding, and the fact that the antibody technology is well developed and mature." *Id.* (citing Synopsis of Application of Written Description Guidelines, at 60, *available at* https://web.archive.org/web/20041101121800/http://www.uspto.gov/web/menu/written.pdf).

In *Noelle*, the patent owner claimed an antibody and sought to claim priority to an earlier filed patent. 355 F.3d at 1349. Noelle argued that "because antibodies are defined by their binding affinity to their antigens, he sufficiently described [the claimed antibody] by stating that it binds to [a disclosed antigen]." *Id.* We rejected this argument and concluded that the claims were not entitled to the earlier priority date because "Noelle failed to disclose the structural elements of [the] antibody or antigen in his earlier . . . application." *Id.* In reaching this conclusion, we acknowledged that according to *Enzo*, "as long as an applicant has disclosed a '*fully characterized* antigen,' either by its structure, formula, chemical name, or physical properties, or by depositing the protein in a public depository, the applicant can then claim an antibody by its binding affinity to that described antigen." *Id.* But because Noelle did not disclose structure for the antibody or the antigen, we did not rely on *Enzo* to find that the patentee had satisfied the written description requirement.

Trademark Office, *available at* https://www.uspto.gov/patent/laws-and-regulations/examination-policy/examination-guidance-and-training-materials.

Then, in *Centocor*, we examined *Enzo* and *Noelle* as well as the PTO Guidelines and held that the antibody claims at issue were invalid for lack of written description. 636 F.3d at 1351–53. We noted that under the PTO's Guidelines, "an applicant can claim an antibody to novel protein X without describing the antibody when (1) the applicant fully discloses the novel protein and (2) generating the claimed antibody is so routine that possessing the protein places the applicant in possession of an antibody." *Id.* at 1351–52. The patentee there had claimed a "class of antibodies containing a human variable region that have particularly desirable therapeutic properties: high affinity, neutralizing activity, and A2 specificity." *Id.* at 1352. The claimed antibodies could bind to "the human TNF-α protein." *Id.* at 1351. The patentee there argued that under *Noelle* and the PTO Guidelines, "fully disclosing the human TNF-α protein provides adequate written description for any antibody that binds to human TNF-α." *Id.* We held, however, that even though the patentee had disclosed the human TNF-α protein, the claims were still invalid. *Id.* at 1352–53. We questioned the propriety of the "newly characterized antigen" test and concluded that instead of "analogizing the antibody-antigen relationship to a 'key in a lock,'" it was more apt to analogize it to a lock and "a ring with a *million* keys on it." *Id.* at 1352.

Centocor is the only case where we examined the "newly characterized antigen" test in some detail. The test was not central to the holding in either *Enzo* or *Noelle* and neither case explored it in much depth. And in *Noelle*, we cautioned that "each case involving the issue of written description[] 'must be decided on its own facts. Thus, the precedential value of cases in this area is extremely limited.'" *Id.* at 1349 (quoting *Vas–Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1562 (Fed. Cir. 1991)).

The essential problem with the jury instruction given in this case is that it effectively permitted the jury to

dispense with the required finding of a "written description of the invention." 35 U.S.C. § 112. Our en banc decision in *Ariad*, reflecting earlier decisions such as *Schriber-Schroth Co. v. Cleveland Trust Co.*, 305 U.S. 47, 56–57 (1938), and *In re Ruschig*, 379 F.2d 990, 991–95 (CCPA 1967), made clear that, to satisfy the statutory requirement of a description of the invention, it is not enough for the specification to show how to make and use the invention, *i.e.*, to enable it. *Ariad*, 598 F.3d at 1345–46, 1347–48. Yet the instruction in this case invites just that improper equation. A jury would naturally understand the instruction to permit it to deem any antibody within the claim adequately described merely because the antibody could easily be "produc[ed]" (and, implicitly, used as an antibody). J.A. 1580 (requirement "may . . . be satisfied" if antigen is newly characterized and "production of antibodies against such an antigen was conventional or routine"). Indeed, the instruction does not even require any *particular* antibody to be easily made; all it requires is that "production of *antibodies*"—some, not all—"against [a newly characterized] antigen" be conventional or routine. By permitting a finding of adequate written description merely from a finding of ability to make and use, the challenged sentence of the jury instruction in this case ran afoul of what is perhaps the core ruling of *Ariad*.

We cannot say that this particular context, involving a "newly characterized antigen" and a functional genus claim to corresponding antibodies, is one in which the underlying science establishes that a finding of "make and use" (routine or conventional production) actually does equate to the required description of the claimed products. For us to draw such a conclusion, and transform a factual issue into a legally required inference, we would have to declare a contested scientific proposition to be so settled as to be entitled to judicial notice. That we cannot do.

An adequate written description must contain enough information about the actual makeup of the claimed products—"a precise definition, such as by structure, formula, chemical name, physical properties, or other properties, of species falling within the genus sufficient to distinguish the genus from other materials," which may be present in "functional" terminology "when the art has established a correlation between structure and function." *Ariad*, 598 F.3d at 1350. But both in this case and in our previous cases, it has been, at the least, hotly disputed that knowledge of the chemical structure of an antigen gives the required kind of structure-identifying information about the corresponding antibodies. *See, e.g.*, J.A. 1241 (549:5–16) (Appellants' expert Dr. Eck testifying that knowing "that an antibody binds to a particular amino acid on PCSK9 . . . does not tell you anything at all about the structure of the antibody"); J.A. 1314 (836:9–11) (Appellees' expert Dr. Petsko being informed of Dr. Eck's testimony and responding that "[m]y opinion is that [he's] right"); *Centocor*, 636 F.3d at 1352 (analogizing the antibody-antigen relationship as searching for a key "on a ring with *a million* keys on it") (internal citations and quotation marks omitted).

A court may take judicial notice of a fact only when it is either "generally known" or "accurately and readily [discernible] from sources whose accuracy cannot reasonably be questioned." Fed. R. Evid. 201(b); *see B.V.D. Licensing Corp. v. Body Action Design, Inc.*, 846 F.2d 727, 728 (Fed. Cir. 1988) ("Courts may take judicial notice of facts of universal notoriety, which need not be proved, and of whatever is generally known within their jurisdictions." (citing *Brown v. Piper,* 91 U.S. 37 (1875))). Because the scientific premise behind the "newly characterized antigen" test stated in the instruction in this case was neither "generally known" nor "accurately and readily" ascertainable, we cannot take judicial notice of the premise and displace the required fact finding with what amounts to a

rule of law. We are not required to conclude otherwise, and depart from the plain restriction on judicial notice, by the statement in *Enzo*, which was unnecessary to its holding, about what PTO Guidelines indicated the PTO would find.

Further, the "newly characterized antigen" test flouts basic legal principles of the written description requirement. Section 112 requires a "written description of the invention." But this test allows patentees to claim antibodies by describing something that is not the invention, i.e., the antigen. The test thus contradicts the statutory "quid pro quo" of the patent system where "one describes an invention, and, if the law's other requirements are met, one obtains a patent." *Ariad*, 598 F.3d at 1345. Indeed, we have generally eschewed judicial exceptions to the written description requirement based on the subject matter of the claims. *See Univ. of Rochester v. G.D. Searle & Co.*, 358 F.3d 916, 925 (Fed. Cir. 2004) (noting that "the statute applies to all types of inventions"). And Congress has not created a special written description requirement for antibodies as it has, for example, for plant patents. *See*, *e.g.*, 35 U.S.C. § 162 (exempting plant patents from § 112 "if the description is as complete as is reasonably possible").

For those reasons, it was improper for the district court to instruct the jury as it did in the sentence at issue here. On remand, the district court should amend its jury instructions accordingly.

C

Next, we consider whether the district court improperly denied Appellants' post-trial motion seeking JMOL of no written description and no enablement. Appellants argue that the asserted patents fail to provide written description support because they merely teach "where an antibody binds to an antigen" which "tells one *nothing* about the structure of any other antibody." Appellants'

Br. 53. Appellants also argue that the patents are not enabling because one must engage in several steps including a trial-and-error process of generating and screening antibodies, performing x-ray crystallography, and still potentially failing to "get a sufficient number of antibodies that enable the full scope of the claims." *Id.*

JMOL is proper when "a reasonable jury would not have a legally sufficient evidentiary basis to find for the party." Fed. R. Civ. P. 50(a)(1). "A determination that a patent is invalid for failure to meet the written description requirement of 35 U.S.C. § 112, ¶ 1 is a question of fact, and we review a jury's determinations of facts relating to compliance with the written description requirement for substantial evidence." *Ariad*, 598 F.3d at 1355 (citing *PIN/NIP, Inc. v. Platte Chem. Co.,* 304 F.3d, 1235, 1243 (Fed. Cir. 2002)). And "[t]o be enabling, the specification of a patent must teach those skilled in the art how to make and use the full scope of the claimed invention without undue experimentation." *Genentech*, 108 F.3d at 1365 (internal quotation marks omitted). But "[e]nablement is not precluded by the necessity for some experimentation such as routine screening" of antibodies. *In re Wands*, 858 F.2d 731, 736–37 (Fed. Cir. 1988).

Here, the jury did not hear relevant post-priority-date evidence regarding written description and enablement. This evidence may show, for example, that practicing the invention did not require undue experimentation or that the disclosed species are representative of the claimed genus. Because we are presented with an incomplete record on these issues, the court is unable to determine whether the jury would have a "legally sufficient evidentiary basis" to determine if the patents provide sufficient written description or if the claims are enabled. Fed. R. Civ. P. 50(a)(1). We therefore reject Appellants' arguments and conclude that Appellants are not entitled to JMOL of no written description and no enablement.

D

We next address whether the district court improperly granted Appellees' JMOL of non-obviousness. Because the district court correctly excluded Appellants' proffered references as improper prior art, we conclude that the district court's grant of Appellees' motion seeking JMOL of non-obviousness was proper.

During litigation, Appellants sought to invalidate the asserted patents by proffering two published PCT applications: Novartis (WO 2008/12563) and Schering (WO 2009/055783). Neither reference predates the January 9, 2008 priority date of the asserted patents. But both applications claim priority to provisional applications that do predate the asserted patents' priority date.[5] In the district court, Appellants attempted to rely on these PCT applications as pre-AIA § 102(e)(1) art. 35 U.S.C. § 102(e)(1) (providing "an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent"). Appellees argued, however, that the references were not proper prior art because Appellants had not shown that the provisional applications provided written description support for the claims of the PCT applications. The district court agreed, excluded the two references, and granted JMOL of non-obviousness.

Appellants argue that the district court erred by misapplying our decision in *Dynamic Drinkware, LLC v. National Graphics, Inc.*, 800 F.3d 1375 (Fed. Cir. 2015). According to Appellants, that case only related to whether "a *patent* asserted as prior art under § 102(e)(2) was prior art as of the filing date of a parent application" but does

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[5] It is undisputed that the provisional applications are not themselves prior art under § 102(e)(1) because they are not applications published under § 122(b).

not relate to whether "published patent *applications* asserted as prior art under § 102(e)(1)" were prior art as of the filing date of their provisional applications. Appellants' Br. 46. Appellants are incorrect.

In *Dynamic Drinkware*, we clearly explained that for a non-provisional application to claim priority to a provisional application for prior art purposes, "the specification of the *provisional* [application] must contain a written description of the invention . . . in such full, clear, concise, and exact terms, to enable an ordinarily skilled artisan to practice the invention claimed in the *non-provisional* application." 800 F.3d at 1378. Further, we have previously stated that "for the non-provisional utility application to be afforded the priority date of the provisional application, . . . the written description of the provisional must adequately support the claims of the non-provisional application." *New Railhead Mfg., L.L.C. v. Vermeer Mfg. Co.*, 298 F.3d 1290, 1294 (Fed. Cir. 2002).

Here, Appellants challenged the district court's application of *Dynamic Drinkware*, but did not proffer any evidence showing that the provisional applications contained representative species or common structural elements sufficient to satisfy the written description requirement for the monoclonal antibodies claimed in the PCT applications. Similarly, Appellants provided no evidence that the claims of the PCT applications were enabled by the provisional application. Because the district court properly excluded Novartis and Schering under *Dynamic Drinkware*, the court's grant of JMOL of non-obviousness was proper.

E

Finally, we address the district court's permanent injunction removing Appellants' Praluent from the market. As noted earlier, we stayed this injunction pending resolution of this appeal. Because we vacate the district court's judgment as to written description and enable-

ment and remand for a new trial, we also vacate the permanent injunction.

We write to note, however, that the district court's permanent injunction analysis in this case was improper for two distinct reasons. First, the district court misapplied *eBay, Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006). In that case, the Supreme Court explained that:

> [A] plaintiff seeking a permanent injunction *must satisfy* a four-factor test before a court may grant such relief. A plaintiff *must demonstrate*: (1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.

Id. at 391 (emphases added). Here, the district court concluded that issuing a permanent injunction would disserve the public interest. Despite that finding, the court issued a permanent injunction. J.A. 33–34. That was in clear violation of *eBay*. If a plaintiff fails to show "that the public interest would not be disserved by a permanent injunction," then the district court may not issue an injunction. *eBay*, 547 U.S. at 391.

Second, the district court also erred in its analysis of the "public interest" factor. In reaching its conclusion that the injunction would disserve the public, the district court weighed "being a patent holder and a verdict winner" on the one hand and "taking an independently developed, helpful drug off the market" on the other. J.A. 33. It then "conclude[d] that the public interest of having a choice of drugs should prevail." J.A. 33–34.

But eliminating a choice of drugs is not, by itself, sufficient to disserve the public interest. Under such an approach, courts could never enjoin a drug because doing so would always reduce a choice of drugs. That, of course, is not the law. *See* 35 U.S.C. § 271(e)(4)(B) ("[I]njunctive relief may be granted against an infringer to prevent the commercial manufacture, use, offer to sell, or sale within the United States or importation into the United States of an approved drug, veterinary biological product, or biological product."). We previously rejected such reasoning in *WBIP, LLC v. Kohler Co.* and explained that:

> The district court's decision is based on its reasoning that having more manufacturers of a lifesaving good in the market is better for the public interest. But this reasoning is true in nearly every situation involving such goods, such that, if it alone is sufficient, it would create a categorical rule denying permanent injunctions for life-saving goods, such as many patented pharmaceutical products. As the Supreme Court has warned, categorical rules regarding permanent injunctions are disfavored.

829 F.3d 1317, 1343 (Fed. Cir. 2016). Just as a patent owner does not automatically receive an injunction merely by proving infringement, *see eBay*, 547 U.S. at 394, an accused infringer cannot escape an injunction merely by producing infringing drugs. Accordingly, a reduction in choice of drugs cannot be the sole reason for a district court to deny an injunction.

III

For the foregoing reasons, we conclude that the district court erred by (i) categorically excluding Appellants' evidence of written description and enablement, and (ii) improperly instructing the jury on written description. For these reasons we reverse the district court's decision to exclude Appellants' evidence of written description and

enablement and remand for a new trial consistent with this opinion. We conclude that Appellants are not entitled to JMOL of no written description and no enablement. We also conclude that the district court properly granted Appellees' JMOL of non-obviousness. Finally, we vacate the permanent injunction and remand for further proceedings consistent with this opinion.

REVERSED IN PART, AFFIRMED IN PART, VACATED IN PART, AND REMANDED