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Amgen Inc. et al. v. Sanofi, et al.: "A New Technology, But the Legal Principle Is the Same" – Part I

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THE STATUTE AT ISSUE

Section 112(a), states that the specification "shall contain a written description of the invention, and of the manner and process of making and using it, 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."

SUMMARY OF THE SUPREME COURT'S DECISION

The Court granted certiorari on the following question:

> Whether enablement is governed by the statutory requirement that the specification teach those skilled in the art to "make and use" the claimed invention, 35 U.S.C. §112, or whether it must instead enable those skilled in the art "to reach the full scope of claimed embodiments" without undue experimentation – i.e., to cumulatively identify and make all or nearly all embodiments of the invention without substantial "time and effort."

One is not likely to do better in summarizing the Supreme Court's opinion in *Amgen v Sanofi* than by quoting the Court's own conclusion:

> Section 112 of the Patent Act reflects Congress's judgment that if an inventor claims a lot, but enables only a little, the public does not receive its benefit of the bargain. For more than 150 years, this Court has enforced the statutory enablement requirement according to its terms. If the Court had not done so in *Incandescent Lamp*, it might have been writing decisions like *Holland Furniture* in the dark. Today's case may involve a new technology, but the legal principle is the same.

In order to understand that conclusion, a brief background is helpful.

BACKGROUND, DISTRICT COURT AND FEDERAL CIRCUIT PROCEEDINGS

The patents at issue cover antibody technology that helps control the level of LDL cholesterol. A

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natural protein, called PCSK9, can bind to LDL receptors and so disrupt removal of LDL. In the 2000s, scientists hypothesized that antibodies that bind to PCSK9's "sweet spot," would prevent PCSK9 from binding to receptors and allow the liver to remove more LDL from the bloodstream.

In October 2011, Amgen obtained a patent covering a specific antibody, identified by the amino acid sequence of its binding region, which binds to the PCSK9 sweet spot. The next month, Sanofi obtained a patent covering a different antibody, also identified by the amino acid sequence of its binding region, which binds to a different location on the sweet spot. Amgen and Sanofi each obtained FDA approval for their antibodies and began marketing and selling them. Amgen's Repatha drug product and Sanofi/Regeneron's Praluent drug product, each covered by respective patents, do not have identical indications or dosages.

In 2014, Amgen obtained the two additional patents at issue before the Supreme Court: U.S. Patent No. 8,829,165 ('165 patent) and U.S. Patent No. 8,859,741 ('741 patent). Amgen sued Sanofi for infringement of the '165 and '741 patents. The parties stipulated to infringement but disputed validity.

The claims at issue together "claim antibodies that bind to one or more of" specified residues in the sweet spot "of the PCSK9 protein and block PCSK9 from binding to LDL receptors." The specifications of the two patents are identical, disclose amino-acid sequences of 26 different antibodies, and depict the three-dimensional structures of two of those antibodies.

The specifications also describe two methods to produce other antibodies that bind to the PCSK9 sweet spot. The specifications explain that a POSITA could generate a random pool of antibodies (such as by injecting mice with PCSK9), test those antibodies to see if they bind to PCSK9, and then test if the antibodies also block interaction with LDL receptors. Alternatively, a POSITA could selectively replace amino acids in an antibody with other amino acids exhibiting common properties – "conservative substitution" – and then test the resulting antibody for function.

Two trials and two appeals ensued.

In the first trial, the jury found Sanofi had not proven lack of enablement. Sanofi appealed; and the Federal Circuit, in *Amgen Inc. v. Sanofi*,[1] reversed and remanded for a new trial. On remand, a second jury also upheld the patent claims. Sanofi then moved for judgment as a matter of law on enablement. The district court determined that "there does not appear to be a genuine dispute between the parties" that "millions" of antibodies "would need to be tested to determine whether they fell within the claims." It noted that both parties had acknowledged substantial uncertainty in the art, and that the patents lack "guidance on how to predict whether an antibody will bind."

The district court observed that Amgen's experts testified that "the experimentation necessary to enable the full scope of the claims would take a substantial amount of time and effort." The district court granted Sanofi's motion, and held the claims invalid concluding that "a reasonable factfinder could not fail to find that the experimentation required is 'undue.'"

The Federal Circuit affirmed the invalidity ruling indicating that "the specification here did not enable preparation of the full scope of these double-function claims without undue experimentation." The Federal Circuit recited the standard that a patent claim is invalid for lack of enablement if "a person of ordinary skill in the art would not be able to practice the claimed invention without 'undue experimentation,'" as determined in light of the *Wands* factors. The court also noted that a patent's disclosure "must be 'at least commensurate with the scope of the claims.'"[2]

The Federal Circuit noted that the asserted claims are "defined, not by structure, but by meeting functional limitations." It concluded "that the claims are far broader in functional diversity than the disclosed examples." The Federal Circuit determined that "no reasonable fact-finder could conclude that there was adequate guidance beyond the narrow scope of the working examples." While declining to hold "that the effort required to exhaust a genus is dispositive," the court found that "no reasonable jury could conclude under these facts that anything but 'substantial time and effort' would be required to reach the full scope of claimed embodiments" in Amgen's patents. The Federal Circuit thus affirmed "that undue experimentation would be required."

The Federal Circuit issued an opinion denying panel rehearing, stating that it had not "created a new test for enablement," but had applied long-standing patent-law principles.[3] The panel explained that if a claimed invention is "defined as a genus,

that group is enabled by a disclosure commensurate with the scope of the genus." The panel stated that the enablement problem with Amgen's patents was "not simply that the claimed genus was numerous," or "that it would take a long time to collect the full set of each and every embodiment." Rather, the genus was not enabled because it "was so broad, extending far beyond the examples" and "the narrow and limited guidance in the specification."

The panel further held that "[c]laims defining a composition of matter by function raise special problems." The panel emphasized, however, that "well-supported generic claims do not lack for enablement," and that "[g]enus claims, to any type of invention, when properly supported, are alive and well."

THE SUPREME COURT BRIEFS AND ORAL ARGUMENT

In the Supreme Court, and especially during oral arguments, although different words were being used, the parties did not differ much regarding the proper legal test for enablement – whether given the disclosures in the specification a POSITA could practice invention without undue experimentation. Rather, what became clear was that the live issue was how to apply that enablement standard to the claims at issue. A clear point of contention between the parties was whether to look at the amount of experimentation required to make and use *every* antibody within the scope of the claims or instead focus on how much experimentation was required to make *one more* antibody that was not specifically disclosed but was within the scope of the claims.

Amgen's Positions

Amgen made two primary arguments against the Federal Circuit's "full scope" standard.

First, Amgen argued that the "full scope" standard had no textual, precedential, or historic support. Amgen argued the Federal Circuit's "full scope" standard was a clear departure from established law and that focusing on the "number of possible candidates" contained within the scope of the claims was error. Amgen argued that the degree of experimentation to get all embodiments (plural) is irrelevant, and how to make any singular antibody was adequately disclosed in its patents.

Amgen proposed that proving lack of enablement required both: (1) evidence of some category or class that required "painstaking" experimentation, and (2) a reason why that would matter to a POSITA. On the first point, Amgen asserted there was no evidence that a POSITA could not make even a single antibody by following the "roadmap" in its patents. On the second point, Amgen noted that many antibodies within the scope of the claims could be made and used and so the possible inability to make any one would not matter to a POSITA.

Second, Amgen argued policy suggesting that the Federal Circuit's decision would harm innovation. Amgen's brief emphasized that the patent system allows inventors to receive protection for their ideas in exchange for disclosing their inventions – the "full scope" standard upsets this exchange. Amgen challenged the idea that broad patent claims would deter innovation and argued that companies would not invest billions of dollars to find new antibodies if broad, functional, genus claims were unavailable. Amgen emphasized that genus claims are "critical to protecting and advancing innovation" and offer protection that the doctrine of equivalents cannot provide. Genus claims encourage companies to develop diverse therapies rather than creating minor variations to known inventions – this, Amgen argued, is the type of innovation that the patent system should promote. Amgen argued that "rote identification" of parts of an invention adds nothing to the understanding in the relevant field but rather results in delayed patent filings and escalating costs. Amgen asserted that the "full scope" standard could affect genus claims in any field, resulting in devastating effects to patent system as a whole.

Amgen then argued that the statutory "make and use" standard should govern. Amgen asserted that the make and use standard provides a practical test that relies on real evidence rather than speculation. Amgen submitted that this standard is consistent with precedent that found that the scope of enablement "must only bear a reasonable correlation to the scope of the claims." Amgen stated that its patent provided a roadmap that allowed a POSITA to make claimed antibodies using "routine and well-known methods." This roadmap, Amgen argued, allows a POSITA "to start where Amgen's research ended" and that its patents "provide a wealth of previously unknown shortcuts and techniques."

Amgen asserted that the "make and use" standard is supported by § 112(a) and does not depend on the number of embodiments encompassed by a

claim – it instead takes into consideration the nature and field of the claimed invention. Amgen pointed to the language of the statute and noted that it does not pose any requirement that every embodiment one can hypothesize be predictably produced.

Amgen attempted to refute the government's argument that Amgen's patents were not enabled because they covered more embodiments than what was exemplified in the specification by pointing to "centuries of law" that state that patents may guide skilled artisans on the application of embodiments not disclosed in the specification.

Sanofi's Positions

Sanofi endeavored to put Amgen's arguments into context for establishing enablement under the patent laws. Sanofi argued that by claiming a broad, functionally defined genus, Amgen was required under § 112 to establish enablement of the entire genus.

Sanofi argued: "There is no special rule for functional or genus claims, but the more that is claimed the more that must be enabled." Sanofi argued that if a POSITA in an unpredictable art would have to perform a trial and error process, even if routine, and the claim encompassed tens of thousands of species, the claims were not enabled.

Amgen's patents, Sanofi argued, provide no guidance for preparing particular embodiments of the claims or any specific, undisclosed antibody, absent undue experimentation. Sanofi stated that a "clear case of non-enablement is when skilled artisans cannot predictably produce specific undisclosed embodiments of the claimed invention (or even entire classes of undisclosed embodiments) that they want or need without engaging in a trial-and-error process that could take years."

Sanofi challenged Amgen's characterization of the Federal Circuit's decision, down to the Question Presented, stating that the Federal Circuit did not require the patentee to expend effort to "cumulatively identify and make all or nearly all embodiments of the invention," and never once used the word cumulative in its decision. Sanofi went on to argue that Amgen's "cumulative effort test" was strawman, and that Federal Circuit never defined or applied that test, and in fact disclaimed it.

In terms of policy, Sanofi argued that the industry and patients will suffer if Amgen's claims stand. Finding that Amgen's claims are enabled will allow patent applicants to lay claim to an entire genus, such as the genus of antibodies claimed here, without establishing their composition or how to make and use them, thereby preempting others from developing different compounds in the same genus, which the patent applicants had never even contemplated. Focusing on timelines of the respective parties' development, Sanofi accused Amgen of scheming the patent system. The timeline cuts against Amgen's argument that their genus claims spurred innovation. Amgen's genus claims were filed years after several companies (including Sanofi) had independently pursued and discovered PCSK9-inhibiting antibodies.

The Government's Positions

The United States supported Sanofi.

The government noted that the parties agree that if "undue experimentation" is required to practice the claimed invention, there is no enablement. The government argued the determination of undue experimentation was a fact-specific inquiry, including the context of the invention and the nature of the patent claim at issue. The government asserted that Amgen's specification does no more than recite 26 exemplar antibodies with structural information that allow reverse engineering of those exemplars, while claiming all antibodies with the same function. The government argued Amgen's "roadmap" merely instructs POSITAs to run experiments.

Positions of the Amici

Numerous amici filed amicus briefs, as noted in Table 1 accompanying the second part of this article.

Many of the amicus briefs included policy discussions regarding whether broad genius claims (including those defined functionally) promote or hinder innovation, and whether enablement should be determined by a test strictly limited to the words of the statute.

Nine amicus briefs filed in support of Amgen focused mainly on the need for genus claims that the amici argued are critical to innovation, as well arguing that the Federal Circuit test was contrary to the statutory language and the prior case law.

Sixteen amicus briefs filed in support of Sanofi mainly argued that the Federal Circuit only required a patentee to enable the full invention

which it claimed; the standard demanded by § 112 and applied consistently by the courts.

Five amicus briefs filed in support of neither party argued the "time-honored standard" of "how to make and use the invention," and that it is a fact-specific, flexible analysis.

The amicus brief by Nobel Laureate Sir Gregory Winters (noted during oral argument as a must-read for the Justices) stressed the importance of antibodies as treatments for disease. From a scientific perspective, the brief stressed three points:

- The unpredictability of the antibody art;
- The lack of guidance in Amgen's patents; and
- The "devastating impact" of over-broad, purely functional claims.[4]

Oral Argument

The fundamental question at oral argument was whether there was an actual dispute over the legal standard for enablement. This included the question of whether the "cumulative effort" to make and use all of the claimed antibodies was dispositive, relevant, or irrelevant. Amgen argued that although enablement might vary with claim scope, broad claims do not necessarily require difficult or lengthy experimentation. Sanofi focused on the unpredictability in the art and argued that both the time and effort, as well as the nature of the experimentation required to practice an invention's full scope, are all relevant.

A second, central question at oral argument was, what is Amgen's claimed invention? The Justices, particularly Justice Thomas, wanted a precise definition of the claimed invention, and its boundaries. Specifically, the Justices' questions were directed to whether the claims cover just the 26 antibodies with amino acid sequences in the patents or the about-400 antibodies that Amgen identified via mouse immunizations. Or, as Sanofi argued and the Federal Circuit noted, do the claims cover potentially millions of antibodies including via conservative substitution?

The government agreed with Sanofi and went further, proposing that amino acid sequences were (all but) required for enablement. As to the supposed death of genus claims, the government argued that if new rules were required, it was up to Congress, not the Court. The Justices asked several questions that illuminated the tension created by functionally claiming a composition, as compared to process or product-by-process claims.

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Editors' note: In the conclusion of this article, to be published in the next issue of the *Intellectual Property & Technology Law Journal*, the authors will discuss in depth the Court's decision and its ramifications.

Notes

1. Amgen Inc. v. Sanofi, 872 F.3d 1367, 1375 (Fed. Cir. 2017), cert. denied, 139 S. Ct. 787 (2019).
2. Amgen Inc. v. Sanofi, Aventisub LLC, 987 F.3d 1080, 1084 (Fed. Cir. 2021) (quoting Crown Operations Int'l, Ltd. v. Solutia Inc., 289 F.3d 1367, 1379 (Fed. Cir. 2002)), cert. granted 143 S.Ct. 399 (2022).
3. Amgen Inc. v. Sanofi, Aventisub LLC, 850 F. App'x. 794 (Fed. Cir. 2021).
4. Only three of the numerous amicus briefs were mentioned in the opinion. First, the brief of Sir Gregory Winters (almost akin to an expert opinion) was cited as support for background facts regarding antibodies, and their function and structure. Second, the Brief of Arnold Ventures was cited as support regarding the extensive work on PCSK9 antibodies that occurred in the mid-2000s. Third, the Brief of Intellectual Property Scholars was the source for the one hypothetical analogy used by the Court – a combination lock with 100 tumblers – noted as capturing "the gist of the problem."