Sequenom Patent Invalidation May Have Ramifications for NIPT Field, Entire MDx Industry

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Premium

NEW YORK (GenomeWeb) – The invalidation of a broad patent held by Sequenom in the noninvasive prenatal testing field may impact not only the litigious NIPT field but also the molecular diagnostics industry as a whole, according to patent law experts.

Last week, the US Court of Appeals for the Federal Circuit upheld a previous ruling by the US District Court for the Northern District of California that the claims of Sequenom's US Patent No. 6,258,540 are not patent eligible.

Since 2011, the so-called '540 patent has been at the center of various lawsuits among the four major US NIPT providers: Sequenom, Ariosa, Natera, and Illumina's Verinata Health. The US District Court for the Northern District of California found the '540 patent invalid in 2013, ruling that it covered an unpatentable phenomenon of nature. Sequenom subsequently appealed, and last week's ruling was the result of that appeal.

In a statement, Sequenom said that the appeals court decision to uphold the previous ruling of invalidity would have "little business impact," since the firm has been operating under the ruling since October 2013 and because it had entered into a patent pool agreement with Illumina. In addition, the company noted that it holds valid patents in Europe, Japan, Hong Kong, Canada, and Australia with "claims equivalent" to the those in the '540 patent.

Sequenom declined to comment beyond its statement. Illumina also declined to comment on the potential impact of the ruling to its patent pool agreement with Sequenom, whereby the firms pooled their NIPT patents and license the technology to other test developers.

However, Lisa Haille, co-chair of the global life sciences sector at the law firm DLA Piper, told GenomeWeb that the ruling of invalidity could impact the patent pool. Haille said that she did not know the details of the specific patent pool agreement between Sequenom, Illumina, and the licensees, but typical patent pool agreements include language that specifies that payments apply only to valid patent claims.

"So licensees wouldn't be paying on invalid patents," Haille said. "If I'm a licensee, I would certainly go back and look at the claims of the patents and make sure I really need the license," she added.

The case is also one of several in recent years that provide "clarity with respect to some of these diagnostic claims," Haille added. In the '540 case, the court cited the Supreme Court case *Mayo Collaborative Services v. Prometheus Laboratories* in its reasoning for deeming the patent invalid. *Mayo v. Prometheus* provided a two-step framework for determining whether patents that claim applications of laws of nature are patentable. Essentially, if a patent claims a phenomenon of nature, the methods and applications must be novel.

Because the language the Supreme Court used in its definition of what could not be patented was so broad, subsequent cases have found patents that use standard laboratory techniques to not be sufficient enough to be patentable.

For instance, last year, the Supreme Court ruled a number of Myriad Genetics' claims in its patents around the hereditary breast and ovarian cancer risk genes, BRCA1 and BRCA2, invalid in *Association for Molecular Pathology et al. v. Myriad Genetics*.

However, the Supreme Court left some of Myriad's patent claims intact, deciding that while human genes are not patentable, synthetic DNA, or cDNA, is. Immediately after the ruling, a number of other firms launched their own tests that included analysis of the BRCA1 and BRCA2 genes. Myriad sued a number of these companies, and in almost all cases, either the courts sided against Myriad or the suit was settled out of court and resulted in the opposing company being able to offer its test.

Given this background, Haille said it was not surprising that the appeals court ruled the way it did on Sequenom's patent. In addition, the ruling provides insight into how similar future cases may be decided.

For instance, Illumina sued UK-based NIPT firm Premaitha Health, which launched a CE-marked *in vitro* diagnostic test in Europe that assesses the risk of fetal aneuploidy. Illumina alleges that Premaitha Health infringes two patents owned by Sequenom that Illumina licenses from the patent pool — European Patent (UK) 0 994 963 B2 and European Patent (UK) 1 981 995 B1. Haille said that she had not reviewed the Illumina/Premaitha Health case in depth, so did not want to comment specifically about that case, but said that "because of the consistency in recent decisions, it might be easier to predict an outcome."

Bill Quirk, an analyst with investment bank Piper Jaffray, wrote in a memo following the appellate court decision that the ruling was not surprising and "reinforces our thoughts that there is very little IP protection between Sequenom, Illumina, and Ariosa's test."

However, Quirk did not think the ruling would have a substantial impact on the patent pool or the ability of Illumina and Sequenom to gain new licensees.

"We anticipate most labs will opt to avoid litigation, albeit at lower test margins," he wrote.

Haille said that less patent protection could be good or bad, depending on your perspective. It may be beneficial to patients by giving them more options and driving down the cost. "That was one of the biggest criticisms with Myriad. Women couldn't get a second opinion," she said. The ruling may also be beneficial for smaller companies looking to get into the field. "The door's open for competitors," she said.

The ruling also "provides more clarity" with respect to not only the validity of existing patents, but what will be required in patent applications. "It is consistent with the types of rejections I'm seeing from the patent office," Haille said, adding that it is becoming more difficult to obtain a patent in the molecular diagnostics space, particularly if the company does not use novel reagents or techniques.

David Gass, a patent attorney and partner at Marshall, Gerstein & Borun, said that one downside of the recent rulings is that they may "incentivize people who can copy, and disincentivize those who innovate."

He also noted that the concurring opinion written by Judge Robert Linn was interesting and highly unusual. Linn essentially wrote that while the ruling of invalidity was appropriate in light of the Supreme Court's previous decisions, he thought that Sequenom's test deserved patent protection.

Linn wrote in a concurring opinion that he joined the court in invalidating the '540 patent "only because I am bound by the sweeping language" set out in *Mayo v. Prometheus*. "This case represents the consequence — perhaps unintended — of that broad language in excluding a meritorious invention from the patent protection it deserves and should have been entitled to retain."

Although Sequenom did not disclose what its next steps would be, in its statement, it said that it is "considering its options for further appeal."

Gass said that although "Sequenom has no automatic appeal at this stage, it can petition the Supreme Court to review the case." He thinks this is a likely scenario.

The Supreme Court denies most petitions due to the sheer volume of cases, Gass said, but Linn's concurring opinion may bolster Sequenom's prospects of getting the case heard. "It was written almost inviting that review," he said. Gass added that he could not predict what the Supreme Court would do, but "the concurring opinion kind of says that this would be a good case to review."

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