DIVIDE AND CONQUER

In light of the US Supreme Court's ruling in *Akamai v Limelight*, Marsha Rose Gillentine, Rebecca Hammond and Robert Millonig suggest drafting strategies for personalised medicine patents to avoid the 'divided infringement' pitfalls.

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Personalised medicine has been hailed by *Nature* magazine as a revolution in human health. In the past decade, the medical field has seen a steady increase in the number of personalised medicine therapies.

As of March 2013, the US Food and Drug Administration (FDA) required the labels for at least 119 drugs to include information regarding pharmacogenomics markers, including drug exposure and clinical response variability, risk for adverse events, genotype-specific dosing, mechanisms of drug action, and polymorphic drug target and disposition genes. Further, there are currently at least nine FDA-approved *in vitro* companion diagnostic devices and 51 nucleic acid-based tests that have been cleared or approved by the Center for Devices and Radiological Health. Thus, therapeutics having a personalised medicine component play an increasing role in the clinical setting.

The future of therapeutics?

Personalised medicine provides an individualised treatment, directing the right drug to the right patient at the right dose at the right time. For example, a diagnostic test is used to determine whether a patient's cancer will be susceptible to a particular therapeutic. By relying on diagnostic tests, a treatment regimen can be tailored to a specific patient's disease. In some cases, a diagnostic test can detect genetic variants before the manifestation of clinical symptoms, enabling a physician to initiate therapy much earlier than previously possible with enhanced therapeutic outcomes. In other cases, a diagnostic test can assist a physician in identifying treatments that will be more efficacious for an individual patient.

Because personalised medicine plays such an important role in a patient's care, patents covering these inventions are of high value. However, recent Supreme Court decisions have affected personalised medicine patents. One case earlier this year, *Limelight Networks, Inc. v Akamai Technologies, Inc.*, has an impact on whether a patentee will be able to assert a personalised medicine patent against an infringer.

Personalised medicine patenting issues—divided infringement challenges

In the pharmaceutical industry, companies rarely perform the steps recited in a method claim of a patent themselves. Rather, pharmaceutical companies generally direct others to perform such steps, for example in a label accompanying a pharmaceutical product. Thus, patent owners typically rely on inducement to obtain a finding of liability for infringement of a method claim. under 35 USC §271(b), "whoever actively induces infringement of a patent shall be liable as an infringer". Inducement occurs when a party "causes, urges, encourages, or aids" direct infringement by another party.

To establish inducement, direct infringement by another party must be established. Many personalised medicine inventions are multi-step processes where different steps are performed by different actors. A classic example of such an invention would be a patent claim comprising a first step to assay for a particular biomarker, which would be performed by a laboratory, followed by a second step to administer a particular therapeutic dose based on the result of the biomarker assay, which would be performed by a physician.

Earlier this year, the *Akamai* court clarified the requirements for induced infringement of method claims where the steps are performed by different actors. This case involved a patent directed to methods of delivering electronic data. In *Akamai*, the patent was directed to "tagging" certain components of a content provider's website to be stored on a server and then accessed by internet users. Limelight was accused of infringing the patent, but Limelight did not perform all the claimed steps. Rather, Limelight required its customers to do their own "tagging".

The court unanimously held that there can be no liability for induced infringement because "there has simply been no infringement of the method in which respondents have staked out an interest, because the performance of all of the patent's steps is not attributable to any one person.

"[W]here there has been no direct infringement, there can be no inducement of infringement…"

The court added: "Performance of all the claimed steps cannot be attributed to a single person, so direct infringement never occurred. Limelight cannot be liable for inducing infringement that never came to pass." Therefore, a defendant cannot be liable for inducing infringement if two separate parties perform different steps of a method patent, ie, there can be no divided infringement.

Impact on personalised medicine patents

Extending the holding in *Limelight* to personalised medicine patents, a patent holder may have difficulty in establishing inducement of multi-step method claims in which the recited steps are carried out by different actors, such as

physicians, testing laboratories, and/or patients. For example, an alleged infringer could assert no infringement of a claim directed to a method of treating a patient with a particular cancer using a particular assay if a physician is performing one step and a testing laboratory is performing other steps recited in the claim.

The patent owner must then demonstrate that performance of all of the patent's steps is attributable to one person, such as the physician. The success of such a showing by a patent owner will be dependent upon the available evidence and the specific wording of the patent. Because success will be so fact-specific, it is possible that many personalised medicine patent owners will be unable to establish liability for infringement because two distinct parties are performing the steps of a method claim.

Patent drafting strategies

A carefully considered claim-drafting strategy is critical to protect personalised medicine inventions successfully. To avoid the divided infringement pitfall seen in *Akamai*, method claims should be drafted to include as few steps as possible. For example, two-step claims that recite an assay step followed by a treatment step could be redrafted into a single-step claim of administering the drug to a patient subpopulation exhibiting the relevant biomarker. Moreover, if multi-step claims are required, they should be drafted to make it difficult for potential infringers to divide completion of multiple steps among multiple actors. Careful word choice in defining active steps will be important. For example, a method claim that recites diagnosing a patient with a biomarker may imply an action to be taken by a physician and not a laboratory. When this is followed by a prescribing step, both the diagnostic and therapeutic elements of the claim would be performed by the same actor, ie, the physician.

In the case of a claim directed to a laboratory as the actor, the claim could be directed to only the assay steps, without reference to a treatment or administration step. Of course, care must be taken to address the patentable subject matter requirements under 35 USC § 101 set out in *Mayo Collaborative Services v Prometheus Laboratories* and *Alice Corporation Pty. Ltd. v CLS Bank International* because personalised medicine claims are susceptible to invalidity challenges as being directed to unpatentable subject matter.

In any instance, combining specific assay steps with administration steps should be avoided. Such a combination would encompass steps performed by a laboratory with steps performed by a physician—the classic divided infringement situation exhibited in *Akamai*.

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When drafting a new patent application, it is important to indicate clearly that a single person is directing the active steps of a multi-step method. For example, "testing" could be defined in the specification to include ordering a diagnostic assay to be performed. Additionally, a patent applicant can specify that a specific diagnostic assay is ordered by a physician and that the physician, upon receipt of the assay results, diagnoses the presence of the biomarker, and administers a particular therapeutic.

Conclusions

Considerations regarding divided infringement have become more important in light of *Akamai*. Thus, patent owners should evaluate their patent portfolios in light of this standard. Where appropriate, they should seek to strengthen previously issued patents by filing a reissue or reexamination application to clarify the claim scope that all actions are performed exclusively by a single actor or under the direction of a single actor.

As these claim amendments may be broadening, a patent owner should consider within two years of issue whether a reissue application should be filed. At the same time, a patent owner should consider whether the claims satisfy the patentable matter requirements set forth in *Mayo* and *Alice*. Additionally, looking ahead, smart patent drafting strategies can limit these pitfalls. ■

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