PTAB Review of Allergan Patents

Intellectual Property Analysis of Combigan® and Restasis®

April 9, 2015

In our Patently Obvious® report on March 19, 2015, "The Financial Uncertainties of Patent Rules Changes," we discussed new avenues for post-grant patent challenges through the Patent Trial and Appeal Board (PTAB) made available by the Leahy-Smith America Invents Act. These new avenues are currently being explored by hedge funds like Ferrum Ferro Capital, who filed an inter partes review case with the PTAB against a patent owned by the pharmaceutical company Allergan.

Hedge funds like Ferrum Ferro and Dallas-based Hayman Capital Management are taking advantage of the PTAB's new methods of post-grant patent challenges like Inter Partes Review (IPR) as part of an investment strategy targeting large pharmaceutical companies. The aim is to short-sell the pharmaceutical stocks ahead of the announcement of the IPR challenge and the potential patent invalidations, which would threaten proprietary cashflows generated by the companies' blockbuster drug therapies. If these patents are invalidated, it potentially allows for generic pharmaceutical compounds to be sold in the United States.

In February, The New York Times reported that Hayman is looking to bring IPR challenges based on patent obviousness against companies with a combined market capitalization of $450 billion.[1] Hayman founder Kyle Bass was quoted in a Reuters report as saying that Hayman's strategy is "…to challenge and invalidate patents through the IPR process ... (and) we are not going to settle."[2] Thus far, Hayman has filed IPR challenges against one of Acorda Therapeutics' patents which protect the proprietary cashflows of the multiple sclerosis drug Ampyra®[3] and against Shire Plc's patents which protect the gastrointestinal drugs Lialda® and Gattex®.[4]

On March 10, 2015, Ferrum Ferro Capital filed an IPR challenge with PTAB against U.S. patent 7,030,149 (the '149 patent) which belongs to the pharmaceutical company Allergan.[5] The '149 patent is one of seven patents which protect Allergan's proprietary cashflows for the drug Combigan®, a medicated eye drop formulation for the treatment of glaucoma.[6] Combigan's formulation combines the pharmaceutical agents brimonidine tartrate and timolol maleate.

In 2013, the Federal Circuit Court heard the case of *Allergan, Inc. v Sandoz, Inc.* (726 F.3d 1286) which arose from Sandoz's filing of an Abbreviated New Drug Application (ANDA) with the U.S. Food and Drug Administration as the first step in producing a generic version of Combigan. Allergan filed the Federal Circuit suit in response to the ANDA, alleging that Sandoz's action infringed all claims of four of Allergan's FDA Orange Book-listed Combigan patents, including the '149 patent. The court initially upheld all of the Combigan patents' claims, but on appeal from Sandoz it declared the claims of Allergan's U.S. patent 7,323,463 (the '463 patent), invalid for obviousness under 35 U.S.C. § 103(a).[7] The court's ruling in that case explained how the '463 patent was an obvious extension of the prior art, stating that U.S. patent 5,502,052 "expressly provided a motivation to formulate fixed combinations of alpha2-agonists [the class of drugs in which brimonidine fell] and beta blockers, including timolol, in order to increase patient compliance."[8]
The Federal Circuit Court also addressed Claim 4 of the '149 patent in the 2013 case, but the narrow standard of claim construction required in the Federal court system meant that the claim was found to be valid. In its PTAB filing, Ferrum

[1] http://dealbook.nytimes.com/2015/02/11/kyle-bass-wields-new-weapon-in-challenging-drug-makers/?_r=1
[2] http://www.reuters.com/article/2015/01/07/pharmaceuticals-haymancapital-idUSL3N0UM42O20150107
[3] http://www.businessinsider.com/kyle-bass-files-first-ipr-petition-2015-2
[4] http://www.shire.com/shireplc/en/media/shirenews?id=1085
[5] http://fishpostgrant.com/wp-content/uploads/IPR2015-00858-petition.pdf
[6] http://fishpostgrant.com/wp-content/uploads/IPR2015-00858-petition.pdf
[7] https://scholar.google.com/scholar_case?case=12133200405388001998&hl=en&as_sdt=6&as_vis=1&oi=scholarr
[8] http://fishpostgrant.com/wp-content/uploads/IPR2015-00858-petition.pdf

Ferro argues that under the "broadest reasonable interpretation" standard of claim construction used by PTAB, Claim 4 of the '149 patent would have been found invalid on the same grounds of obviousness.

Analysis

Below is a view of the two Allergan patents on Combigan mentioned in the PTAB challenge.

Document #	Title	Assignee Name	Priority	File	Issue
US 7,030,149	Combination of brimonidine timolol for topical ophthalmic use	Allergan, Inc.	19-Apr-02	19-Apr-02	18-Apr-06
US 7,323,463	Combination of brimonidine timolol for topical ophthalmic use	Allergan, Inc.	19-Apr-02	03-Feb-03	29-Jan-08

M·CAM analyzed Allergan's '149 patent using our Innovation Clearance™ platform. Innovation Clearance™ uses M·CAM's proprietary linguistic genomics algorithms which associate syntactical structures, words, and the ideas behind words to produce an accurate and comprehensive view of the relevant innovation space. This analysis concluded that prior art for Allergan's claimed composition incorporating **both** brimonidine tartrate and timolol maleate does not exist in the innovation space. The Innovation Clearance™ platform found only precedent innovation claiming one or the other of these ingredients. This finding is consistent with the Federal Circuit's ruling and Ferrum Ferro Capital's current PTAB filing.

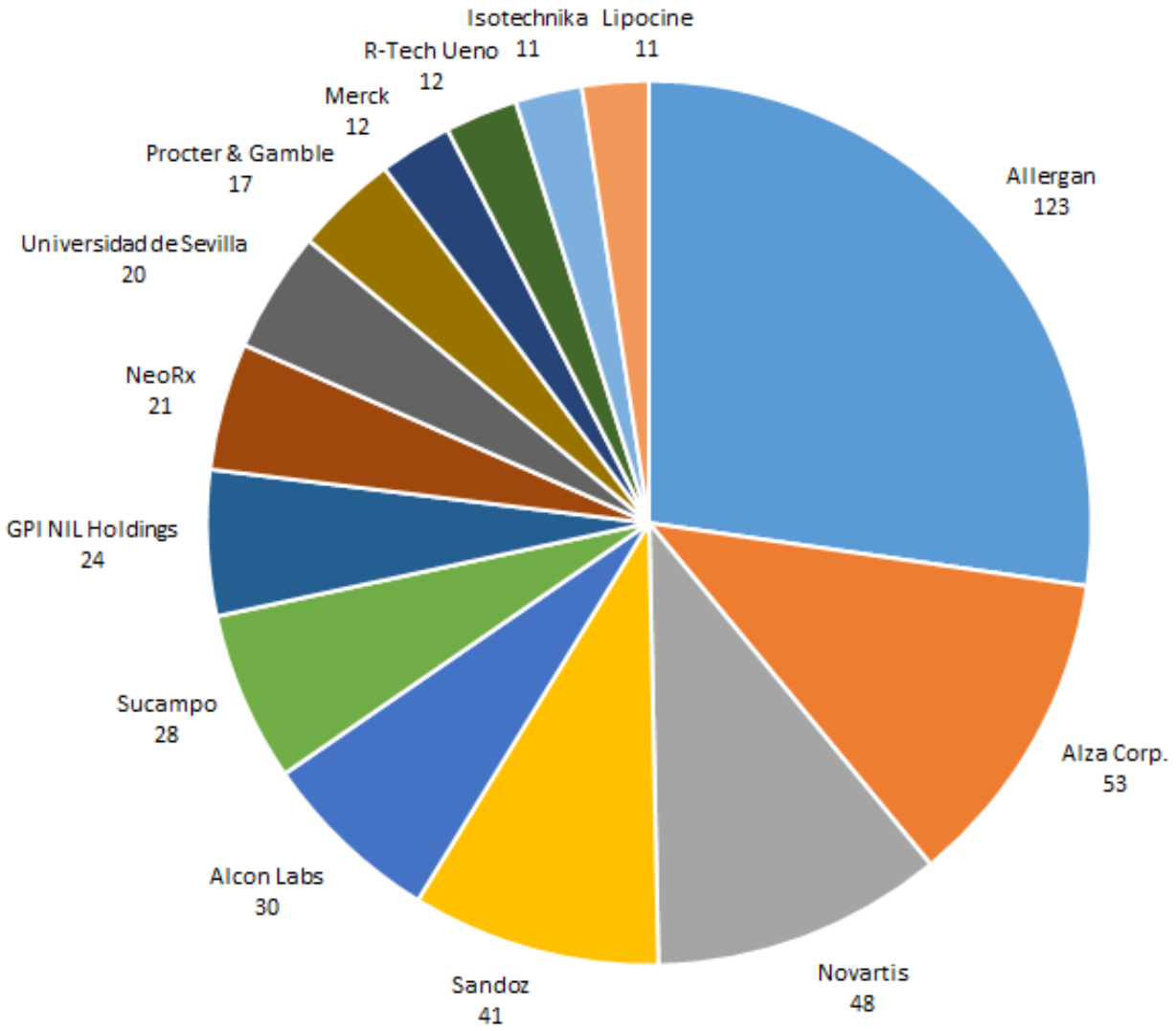
Although there is not a clear path to invalidation for Allergan's '149 patent which protects Combigan, M·CAM also performed analysis on the company's U.S. patents 8,629,111 (the '111 patent) and 8,685,930 (the '930 patent), which cover the drug Restasis®, a medicated eye drop treatment for chronic dry eye. This analysis through the Innovation Clearance™ platform identified numerous pieces of precedent innovation which have significant points of overlap with the ingredients and uses claimed in the '111 and '930 patents. One particularly notable example of precedent innovation that M·CAM identified through the Innovation Clearance™ analysis is U.S. patent 4,839,342 (the '342 patent) assigned to the University of Georgia (UGA) Research Foundation, which Allergan paid $70 million to license in 2008.[9] A side-by-side comparison of selected claims from Allergan's '111 patent and the '342 patent is displayed below.

Allergan '111	University of Georgia Research Foundation '342
1. A topical ophthalmic emulsion for treating an eye of a human comprising **cyclosporin A** in an amount of about 0.05% by weight, polysorbate 80, acrylate/C10-30 alkyl acrylate cross-polymer, water, and **castor oil** in an amount of about 1.25% by weight; wherein **cyclosporin A** is the only peptide present in the topical ophthalmic emulsion. 17. The topical ophthalmic emulsion of claim 13, wherein the topical ophthalmic emulsion is effective in treating **keratoconjunctivitis sicca.**	1. A method for enhancing or restoring **lacrimal gland tearing** comprising topically administering **cyclosporin** to the eye in a pharmaceutically acceptable vehicle. 5. The method of claim 3 wherein the pharmaceutically acceptable excipient is olive oil, arachis oil, **castor oil**, polyoxyethylated **castor oil**, mineral oil, petroleum jelly, dimethyl sulphoxide, an alcohol, liposome, silicone fluid or a mixture thereof.

As evidenced by the above, were the Restasis patents to face an IPR challenge before the PTAB, there is precedent innovation that could be used by a challenger to attempt to invalidate the claims of Allergan's '111 and '930 patents on the basis of novelty under 35 U.S.C. § 102 (a).

[9] http://onlineathens.com/stories/092908/uga_337995839.shtml#.VSQwAdzF9I5

The following chart displays the top 15 patent holders in the cyclosporin emulsion innovation space. The assignees identified here would be other likely targets for IPR challenges against their patent holdings in this space.



Conclusion

Allergan has already been challenged before the PTAB and faces potential future challenges to other parts of its patent portfolio. As revealed by M·CAM's Innovation Clearance™ analyses, the company's portfolio which protects the drugs Combigan and Restasis has vulnerabilities which could be exploited by entities taking part in the expanded opportunities to bring IPR challenges. This shifting landscape may force Allergan and other large pharmaceutical companies to weigh the costs of licensing agreements with the holders of precedent innovation against the potential for a key patent to be invalidated as part of a third party's investment strategy. Allergan's situation may also serve as a warning sign to other companies in pharmaceuticals, automation, communications, information technology, and other sectors which are now exposed to the risk of losing proprietary cashflows.

For a more detailed examination of the patents mentioned in this report, please contact us at patentlyobvious@m-cam.com**.**

M·CAM's Patent Glossary

Aligned Sector: The business sector in which the product(s) resulting from the patent(s) is currently or intended to be sold.

Applicant: The person or corporation that applies for a patent with the intent to use, manufacture or license the technology of the invention; under U.S. law, except in special situations, the applicant(s) must be the inventor(s).

Application: Complete papers submitted to the U. S. Patent and Trademark Office seeking a patent including oath, specification, claims, and drawings. This usually does not signify a Provisional Patent Application, but only a regular patent application.

Art: The established practice and public knowledge within a given field of technology. This also identifies a process or method used to produce a useful result. A term used in consideration of the problem of patentable novelty encompassing all that is known prior to the filing date of the application in the particular field of the invention.

Assignee: The person(s) or corporate body to whom the law grants or vests a patent right. This refers to the person or corporate entity that is identified as the receiver of an assignment.

Business Method Patent: A patent that controls the way a business process is undertaken. The issuance of these patents by the United States Patent and Trademark Office (USPTO) is new and controversial, since many allege that it is unfair to allow a patent on a way of doing business.

Citation: This may include patents or journal articles that the applicant or examiner deems relevant to a current application. A reference to legal authorities or a prior art documentation are examples of a citation.

Claim: The language in a patent application that defines the legal scope of the patent. Most patents have numerous claims. This is typically the single most important section in the application.

Concurrent Art: Concurrent art occurs when related patent applications are being examined by the USPTO at the same time. It is difficult for any company or inventor to know, at the time they file for a patent, whether a "related" patent application exists.

Filing Date: The date when a properly prepared application reaches the patent office in complete form.

Innovation Cycle: A description of the commercialization timeframe for the intellectual property.

Innovation Space: M·CAM's representation of the innovation(s) that occur before, during, and after the pending period of the subject patent. The innovation space is the first place to look for patents that are closely related to the subject patent and that may impact the defensibility of the subject patent or create opportunities for patent licensing.

Issue Date: Not to be confused with the filing date, which is the date the patent application was physically received by the U.S. Patent and Trademark Office. This is the date on which the patent actually issues.

Non-Aligned Sector: Any sector in which the patent can be used or sold, other than the sector for which the patent or resultant product was invented or intended.

Pod: A group of patents owned by a company that should be treated as a single unit of innovation (e.g., a certain group of patents that comprise a single product or multiple related products).

Prior Art: Any relevant patent that was issued before the patent being analyzed. If this previous patent was specifically mentioned in the new patent's application, the previous patent is referred to as "cited prior art". If it was NOT mentioned, then that previous patent is referred to as "uncited prior art".

Subsequent Art: Any patent that has a filing date with the USPTO that is after the issuance date of the subject patent. This subsequent art patent may or may not have cited (see "Citation" above) the subject patent. As subsequent art represents more recent innovation than the subject patent, it has great potential to shrink the market opportunity for the subject patent.

A Brief Primer on the Patent System

In recent years, the importance of patents and intellectual property rights as an important variable in the marketplace has come to the forefront of the public consciousness as world leaders declare their country's lead in the innovation race. Damaging intellectual property litigation is becoming increasingly common across all industries. This is exacerbated when patent rights are granted for non-novel ideas. A vast amount of precedent innovation is unconsidered by patent-granting authorities in the creation of new IP rights. Patent granting authorities including the United States Patent and Trademark Office (USPTO), European Patent Office (EPO), Japanese Patent Office (JPO), Chinese State Intellectual Property Office (SIPO), Korean Intellectual Property Office (KIPO) and many others are constrained by the use of patent classification systems which are routinely circumvented by patent applicants.

There is a two-way social contract underlying the patent system. In the United States, patent terms are generally limited to 20 years from the date of application. By statutory intention, once a patent has expired, the patent holder loses the right to exclude others from fully utilizing any innovation described in the patent. A large number of patents enter the public domain when they are "abandoned" – when owners discontinue paying patent maintenance fees. Patents also only provide an exclusionary right in the country for which the patent is filed. As demonstrated by the Global Innovation Commons[10] (G.I.C.), using intellectual property available in the public domain eliminates the need to pay licensing fees on those innovations in countries where the patent was never registered, or worldwide, if abandoned.

Patently Obvious® is a weekly report focusing on select groups of patents in order to increase transparency in markets, addressing information asymmetries, and providing a more level playing field for all parties.

[10] http://www.globalinnovationcommons.org/