Shook, Hardy & Bacon L.L.P.

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LIFE SCIENCES & BIOTECHNOLOGY LEGAL BULLETIN

SCIENCE • TECHNOLOGY
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IP NEWS

First-to-File System Now in Effect

Under the first-to-file provisions of the Leahy-Smith America Invents Act, any patent application filed after March 16, 2013, containing even one claim with a priority date of March 16 or later, will now fall under the first-to-file rules. As commentators have noted, however, this shift from a first-to-invent system to a first-to-file system is more complex than the designations alone imply.

A determination of who is the first-to-file in the United States will depend on the interplay between the filing dates and any pre-filing disclosures about the invention, that is, the United States will recognize a "grace period" for disclosures made before the patent application is filed. A downside to this practice is that a number of international jurisdictions do not recognize such grace periods. In practical effect, inventors who do not promptly seek patent protection face an increased risk that a later inventor will hold the U.S. patent rights. Thus, some expect that more provisional applications will be filed with the U.S. Patent and Trademark Office (USPTO) as an efficient way to secure an early priority date.

In addition, USPTO's new **fee schedule** took effect on March 19. While some fees have increased, a number of those applicable to small or micro entities are reduced.

Meanwhile, USPTO issued a **final rule** on March 14 to add missing text to its "First Inventor to File Final Rule" pertaining to "claims for priority to a foreign application in an application filed under the Patent Cooperation Treaty." This correction also took effect on March 16. *See Forbes*, March 11, 2013; *Federal Register*, March 14, 2013.

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SHB offers expert, efficient and innovative representation to life sciences clients facing complex biotech litigation and intellectual property and regulatory protocols. We know that the successful resolution of biotech-related matters requires a comprehensive strategy developed in partnership with our clients.

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INVESTOR NEWS

PolyMedix Expects to Raise $25 Million for Antibiotic Development

PolyMedix, Inc. stockholders have overwhelmingly approved a reverse stock split of the company's common stock at a ratio of up to fifty-for-one. According to the Radnor, Pennsylvania-based company, "The primary purposes for the reverse stock split are to increase the per share price of the company's common stock to meet the listing requirements of the NASDAQ Stock Market and to facilitate a public offering of up to $25 million of common stock." The biotech's stockholders also evidently approved a reduction in the number of authorized shares of common stock from 250 million to 25 million. PolyMedix, Inc.'s common stock reportedly began trading on a post-split basis on March 18, 2013.

The company, which develops small-molecule drugs intended to mimic host defense protein activity to treat infectious diseases and innate immunity disorders, said that it intends to use the offering's net proceeds to conduct additional clinical trials for brilacidin, an experimental antibiotic designed "to exploit a method of bacterial cell killing, via biophysical membrane attack, against which bacteria have not shown development of resistance in multiple preclinical studies." It also plans to develop brilacidin as a "topical treatment for radiation and chemotherapy-induced cancer oral mucositis, a common and often debilitating complication of cancer treatments." *See PolyMedix, Inc. News Release,* March 15, 2013.

ImmBio Gets Funding to Develop Pneumococcal Vaccine

U.K.-based vaccine developer, Immunobiology Ltd. (ImmBio), has announced that the U.K. government-backed Biomedical Catalyst has awarded the company some £0.2 million (US$0.3 million) to support the pre-clinical development of the company's PnuBioVax™, a pneumococcal vaccine. According to a news source, the new grant follows a previous Biomedical Catalyst award in late 2012 of approximately £1 million (US$1.5 million) used to further develop ImmBio's meningococcal B vaccine, MenBioVax™.

"ImmBio is delighted to receive funding from the UK's innovation agency and Medical Research Council to progress the development of our novel vaccines," CEO Graham Clarke reportedly said. "Successfully winning funding in both the first and second Biomedical Catalyst investment rounds represents a major vote of confidence in our ImmBioVax™ vaccine technology. This most recent award recognizes the need for effective new vaccines against invasive pneumococcal disease, and the potential of our technology to protect against a wide range of disease-causing strains." *See Heraldonline.com,* March 12, 2013.

Biotech Secures $7.2 Million for Cancer Research

Clearbridge BioMedics, a Singapore-based company that develops medical devices for cancer research and diagnostics, has announced a new series B financing round totaling US$7.2 million. According to a news source, the financing, led by Vertex Venture Holdings Ltd, the wholly-owned venture capital arm of Temasek Holdings, will be used to further develop the company's propriety ClearCell System, which consists of patent-pending CTChips— microfluidic biochips—that can detect, isolate and retrieve tumor cells from patient blood samples. The isolated tumor cells can then apparently be stained for identification and analysis.

"Having already entered the cancer research market with its ClearCell System, Clearbridge BioMedics is well-positioned to have a tremendous impact on the way healthcare professionals screen, diagnose, treat and monitor cancer patients. Our investment focus has been to invest and build global champions. We see Clearbridge BioMedics, with its leading world class technology platform, as being one of them," said Vertex Venture Managing Director and CIO Chua Joo Hock, who will join the Clearbridge BioMedics board of directors. *See E27.com,* March 13, 2013.

Active Biotech Raises $42.6 Million by Adding New Investor

According to news sources, Sweden-based Active Biotech, a developer of treatments for autoimmune/inflammatory diseases and cancer, has nearly doubled its cash position and brought a new investor on board in a $42.6-million deal. The company's board agreed to issue 6 million shares to Investor AB, a Swedish investment firm, in a move that will reportedly broaden the shareholder base.

Sources indicate that the funds will be used to support development of the company's drug therapies, including (i) tasquinimod, a prostate cancer drug, which has reportedly completed enrollment in a 1,245-patient Phase III study and started Phase II trials in prostate cancer and other solid cancers, and (ii) laquinimod, a multiple sclerosis treatment reportedly under review in Europe and wrapping up Phase III testing in the United States.

Active Biotech President and CEO Tomas Leanderson said that the firm's "focus over the next 18-month period will be on finding suitable partners and partnering structures for each project," observing that a strong balance sheet is viewed as a "prerequisite in order to succeed with this activity in an optimal way." *See Bloomberg.com,* March 6, 2013; *Bioworld.com,* March 13, 2013.

Nabsys Secures Financing to Develop Electronic DNA Sequencing Technology

Nabsys, a gene-sequencing startup, has reportedly secured $20 million in a Series D financing round. The Providence, Rhode Island-based company says the money will be used to develop and commercialize its solid-state

electronic systems for single-molecule DNA sequencing and analysis. The round was led by new investor Bay City Capital, along with previous investors including Point Judith Capital and Stata Venture Partners, according to a company news release.

"We are delighted to welcome Bay City Capital, with its deep experience working with life sciences companies, to our existing investor group," said Nabsys CEO Barrett Bready. "Nabsys is at an important transition point as we prepare for commercial launch. This Series D financing will enable us to build a commercial organization that will support launch. Also, because of the scalability of our single-molecule, solid-state, electrical detection technology, we will be able to significantly expand our initial assays and commercialize additional research and diagnostic applications," he added. *See Nabsys Press Release*, March 13, 2013.

Two Boston-Area Biotechs Set to Raise $146 Million in IPOs

According to a news source, Enanta Pharmaceuticals, Inc. and Tetraphase Pharmaceuticals, Inc. were poised to raise a combined total of $146 million in two initial public offerings (IPOs) this week. Watertown, Massachusetts-based Enanta focuses on research and development involving "novel inhibitors designed for use against the hepatitis C virus." It has also apparently created antibiotics to treat multi-drug resistant bacteria. Tetraphase, also based in Watertown, describes itself as "a clinical-stage life science company developing a portfolio of potent new antibiotics to be effective against dangerous, drug-resistant bacteria." Its most advanced product has apparently completed Phase II clinical testing. *See Boston Business Journal*, March 15, 2013.

BUSINESS CLIMATE

Report Highlights Growth in Oncology R&D Among Midcap Biotechs

Business intelligence company GlobalData has released a report on mid-cap biotech companies and concludes that their research and development (R&D) spending increased significantly in the third quarter of 2012 ($746.8 million) when compared to the same period in 2011 ($621.1 million). Oncology R&D is apparently the "main focus" of these companies' activities, according to a GlobalData analyst, and that is "driving peer group R&D expenses higher." This analyst cautions that the high cost of R&D and bringing innovative products to market "continues to erode corporate profitability." *See GlobalData News Release*, March 5, 2013.

LEGISLATIVE AND REGULATORY DEVELOPMENTS

President's Bioethics Commission Issues Report on Pediatric Medical Testing

The Presidential Commission for the Study of Bioethical Issues has issued a **report** which concludes that "the federal government would have to take multiple steps before anthrax vaccine trials with children could be ethically considered." Titled "Safeguarding Children: Pediatric Countermeasure Research," the March 2013 report seeks to balance the demands of safeguarding children during emergency situations while recognizing "a fundamental duty to protect children from undue risk during research." The Health and Human Services secretary asked the commission to advise the U.S. government "on ethical considerations in evaluating and conducting pediatric medical countermeasure (MCM) research." Specifically, the commission was asked to consider the ethics of conducting interventions both before and after an attack, such as with the anthrax virus.

Because pediatric research with no prospect of direct benefit to participants and not likely to yield generalizable knowledge about the participants' conditions "can only be conducted if it presents no more than minimal risk, except in extraordinary circumstances," the commission overall judged that pre-event MCM research "generally cannot proceed unless it is minimal risk research." The report's six recommendations address how to design minimal risk research, including conducting research that (i) "exposes children to no more than a minor increase over minimal risk," (ii) first involves testing on animals and the youngest adults, and (iii) "meets the requirements of the framework outlined in this report."

The commission built its report on previous work addressing the issue of protecting human research participants. According to commission chair Amy Gutman, "The rules that protect children are even more stringent, as they should be. Medical countermeasure research warrants an ongoing national conversation to ensure an unwavering commitment by our society to safeguard all children from both unacceptable risks in research and through ethically sound research that promotes their health and well-being." *See Presidential Commission for the Study of Bioethical Issues Press Release*, March 18, 2013.

House Subcommittee Addresses Policies Blocking U.S. Exports to India

The House Ways and Means Trade Subcommittee recently held a hearing on U.S.-India trade relations during which industry groups reportedly called on Congress to pressure India to reform purportedly protectionist policies that have, among other matters, damaged drug patent rights in favor of Indian generic companies and allegedly abused compulsory drug licenses for the benefit of domestic firms. U.S. government officials are considering

the renewal of U.S. trade benefits for India under the Generalized System of Preferences program, which expires July 31, 2013. India is apparently one of the largest recipients of benefits under the program; in 2011, it exported $3.7 billion in goods to the United States, or one-tenth of its total exports to this country, as part of the program. Some of those testifying during the March 13, 2013, hearing were reluctant to curtail India's involvement in the program, because that would not likely change its protectionist behavior and could instead be viewed as trade retaliation. The better course, they suggested, would be to challenge India's drug, technology and farm policies before the World Trade Organization. *See Committee on Ways and Means Hearing Advisory*, March 6, 2013; *Reuters*, March 13, 2013.

FDA Issues Guidance on "Latex-Free" Medical Product Labeling

The U.S. Food and Drug Administration (FDA) has issued draft **guidance** related to accurately labeling medical products not manufactured with natural rubber latex. Titled "Draft Guidance for Industry and FDA Staff: Recommendations for Labeling Medical Products To Inform Users That the Product or Product Container Is Not Made With Natural Rubber Latex," the guidance offers recommendations on the "appropriate language to include in the labeling of a medical product to convey that natural rubber latex was not used as a material in the manufacture of the product or product container."

FDA cites concerns that statements submitted for inclusion in medical product labeling such as "latex-free," "does not contain natural rubber latex," or "does not contain latex" are not accurate because "it is not possible to reliably assure that there is an absence of the allergens associated with hypersensitivity reactions to natural rubber latex in the medical product." The agency will accept comments on the draft guidance until June 10, 2013. *See Federal Register*, March 5, 2013.

LITIGATION

U.S. Supreme Court Allows Application of First-Sale Doctrine to Books Published Abroad

The U.S. Supreme Court has determined that a Thai student who came to the United States to study mathematics at Cornell University and earned money by selling the academic textbooks his family and friends purchased in Thailand at low prices and mailed to him in the United States did not infringe the publisher's copyrights. ***Kirtsaeng v. John Wiley & Sons, Inc.*, No. 11-697 (U.S., decided March 19, 2013)**.

In an opinion authored by Justice Stephen Breyer, the Court majority agreed with the student that the "first sale" of the books, which were lawfully printed and sold abroad under a contract with the U.S. publisher, exhausted the

copyright owner's exclusive 17 U.S.C. § 106(3) distribution right. According to the majority, the common-law "first sale" doctrine makes no geographical distinctions. The Court found the concerns of *amici*—booksellers, libraries, museums, and retailers whose practices have long involved selling or lending books lawfully obtained from foreign booksellers—too significant to abrogate the "first sale" protection.

Dissenting Justice Ruth Bader Ginsburg, joined in part by Justices Anthony Kennedy and Antonin Scalia, rejected the majority's "embrace of 'international exhaustion.'" She opined that the 600 books which the student sold were lawfully made not under U.S. copyright law, but instead, under the law of some other country. Thus, the student's "unauthorized importation constitutes copyright infringement under § 602(a)(1)."

FDA Argues to D.C. Circuit That Stem Cell Treatment Is a Drug

Asserting that "FDA may lawfully regulate the creation of a new drug product even if it contains some of a patient's cells," the Food and Drug Administration (FDA) has filed a final brief in an appeal pending before the D.C. Circuit Court of Appeals involving an enforcement action against a facility and several physicians who treat patients with a stem cell therapy that they claim is not subject to FDA regulation. *United States v. Regenerative Sciences, LLC*, No. 12-5254 (D.C. Cir., brief filed March 13, 2013).

The appeal was taken from a district court grant of FDA's motion for summary judgment; the court agreed with FDA that the "defendants' cultured cell product was a 'drug' because defendants intend their product to be used for the treatment of disease and injury" and that it was also "a 'biological product' under the Public Health Service Act." The district court further agreed that the product did not qualify for regulation under rules applying to products that are minimally manipulated, and also determined that the "defendants had failed to comply with good manufacturing practice and failed to properly label their cultured cell product, thereby causing their product to be adulterated and misbranded." The court permanently enjoined the defendants from future violations and ordered them to cease manufacturing their cultured cell product unless "they follow current good manufacturing practice in their laboratory and retain an expert to inspect their facilities."

The drug at issue is developed from bone marrow or synovial fluid taken from a patient and sent to a laboratory along with the patient's whole blood. The defendants then, according to FDA, "centrifuge the bone marrow or synovial fluid, and certain cells are removed. The removed cells are placed in a flask to incubate, along with the patient's blood platelets, a nutrient solution, and other additives. The mesenchymal stem cells contained in this fluid adhere to the flask, and defendants remove them by applying Trypsin, an enzyme. Defendants harvest the cells and repeat the process, further culturing and expanding the cells over the span of two to three weeks.

"Defendants engage in this process in an attempt to isolate mesenchymal stem cells and 'to determine the growth and biological characteristics of the resulting cell population.' The resulting cell population is then combined with doxycycline, an antibiotic, 'and other additives' and placed in syringes." The cultured cell product is then injected in the patients to treat "orthopedic conditions, such as non-healing bone fractures, osteoarthritis, injuries to the meniscus and rotator cuff, avascular necrosis (death of the bone tissue) of the shoulder and hip, and chronic bursitis." FDA has not approved the drug. The agency's expert stated that the processing "alters the original cells' biological characteristics: For example, he explained that '[s]cientists have shown that bone-marrow derived cells that are cultured to manufacture [mesenchymal stem cells] change both in terms of their proteins and in the genes they express.'"

The appeal has not yet been scheduled for argument; the appeals court has also been asked to address findings that because component parts used in the processing are shipped in interstate commerce, the drugs can lawfully be regulated within Congress's Commerce Clause authority, as well as challenges under the Administrative Procedure Act to an FDA rule adopted in 2001 and a statement of policy appearing in its preamble, which the defendants claim should have been subject to notice-and-comment rulemaking. FDA contends that it is too late to challenge the rulemaking.

Federal Circuit Reminds Litigants to Cross-Appeal Patent Invalidity Claim

The Federal Circuit Court of Appeals, in the context of patents on improvements to electronic animal collars, has in large part affirmed a lower court judgment of non-infringement, but refused to consider an alternative ground of patent invalidity to affirm the entire judgment because the alleged infringer did not cross-appeal the lower court's denial of its summary judgment motion on the invalidity issue. ***Radio Sys. Corp. v. Lalor*, No. 2012-1233 (Fed. Cir., decided March 6, 2013)**.

According to the panel majority, "a judgment of invalidity is broader than a judgment of noninfringement. '[A] determination of infringement applies only to a specific accused product or process, whereas invalidity operates as a complete defense to infringement for any product, forever.' Thus, invalidity cannot be an alternative ground for affirming a judgment of noninfringement absent a cross-appeal." Judge Pauline Newman, concurring in part and dissenting in part, would have held that the alleged infringer "was not required to filed a cross-appeal, for as prevailing party it had no right of appeal" and the "prevailing party need not file a cross-appeal in order to defend a judgment in its favor on any ground that is supported by the record." Newman further noted that issue was fully addressed by the lower court and fully briefed by the alleged infringer. She also concluded, "Since validity was not considered on the appeal to this court, it may be considered in the remand proceeding."

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The Federal Circuit remanded the matter for further proceedings in light of its determination that the lower court abused its discretion in relying on equitable estoppel to rule that one of the patents was not infringed.

NEWS BYTES

The U. S. Patent and Trademark Office **extends** the public comment period for a patent small claims proceeding. The new comment deadline is April 30, 2013.

The U. S. Patent and Trademark Office (USPTO) **extends** the period for public comments on the preparation of patent applications, seeking input on "potential practices that applicants can employ at the drafting stage of a patent application in order to facilitate examination and bring more certainty to the scope of issued patents." USPTO received several requests for additional time to submit comments; the new comment deadline is April 15, 2013.

The U.S. Patent and Trademark Office (USPTO) **seeks** public comments by May 14, 2013, about the deposit of biological materials as part of a patent application. USPTO has estimated the time and cost burdens of depositing such material in "a suitable depository that has been recognized as an International Depositary Authority (IDA) established under the Budapest Treaty," and solicits comments that address, among other matters, "the accuracy of the agency's estimate of the burden of the proposed collection of information" and minimizing "the burden of the collection of information on those who are to respond."

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