

## BioBusiness in China

Juno Therapeutics and WuXi AppTec recently formed a new joint Chinese company, JW Biotechnology Co. Both co.'s have initial equal ownership of the new co. In the future, JW Biotechnology can access licensing product candidates from Juno's pipeline for development and commercialization in China, and Juno will receive upfront payments in equity, milestone payments and royalties on any net sales. *Source: Puget Sound Business Journal, Apr 12 2016*

Sanofi will partner with China-based Hummingbird Bioscience in a new cancer antibody partnership. Hummingbird Bio will give Sanofi access to its proprietary Rational Antibody Development platform to help Sanofi build its early-stage cancer pipeline. No financial details received for the new partnership. Hummingbird currently has two lead preclinical assets in its own pipeline. *Source: Various, Apr 2016*

Abpro received a USD \$3.5 MIL investment from Essex Bio to develop drugs for cancer and eye disease. Abpro uses synthetic biology to speed up the manufacture of biomolecules for big pharma firms including Eli Lilly and Sanofi Genzyme. The co. will also receive an undisclosed amount from other co.'s under the agreement. *Source: Boston Business Journal, Apr 6 2016*

India's imports of pharma products from China reached USD \$1.7 BIL in 4<sup>th</sup> quarter, 2015, according to a recent report submitted to India's Parliament. This is down from USD \$2.2 BIL in 2014-15 and \$2.1 BIL in 2013-14. The country imports drugs and pharma products from China in the form of raw materials as well as finished products for both domestic consumption and exports. *Source: The Economic Times, May 2 2016*

Startup Unity Biotechnology Inc. will partner with China-based Ascentage Pharma to develop and sell, "senolytic" drugs, aimed at clearing damaging cells believed to play a role in a range of age-related diseases, in China. No financial details disclosed, except Ascentage will buy a stake in Startup Unity, and Unity will make an investment in Ascentage. *Source: San Francisco Business Times, Apr 25 2016*

DiaCarta will partner with China's Pangaea Biotech to license in the U.S. Pangaea's non-invasive 'liquid biopsy' assay to detect EGFR, KRAS and BRAF mutations in blood from cancer patients. Both co.'s will provide genetic testing and next-generation sequencing services to pharma co.'s with novel targeted therapies in clinical trials in Europe, China and the U.S. *Source: PR Web, Apr 13 2016*

Shanghai-based BioVeda China Fund, a life science fund focused on private equity and venture investment, looks to raise USD \$400 MIL for a 4<sup>th</sup> U.S. fund.

The co. looks to close in a few months, and have a final close before the end of 2016, according to an unnamed source. *Source: Various, Apr 2016*

WuXi AppTec recently acquired Germany-based Crelux, a structure-based protein drug discovery co. WuXi hopes to use the addition to further its presence in Europe. No financial details disclosed. *Source: Various, Apr 2016*

## **BioScience in China**

Researchers at Guangzhou Medical University recently used CRISPR technology, a gene-editing technique, to insert a genetic mutation in the CCR5 gene that might make them resistant to HIV, the virus that causes AIDS, according to a report submitted in the Journal of Assisted Reproduction and Genetics. The researchers successfully inserted the mutated gene in four out of 26 embryos. This is only the world's second published account of gene editing in human embryos. *Source: Quartz, Apr 9 2016*

Chinese scientists have recently broken down the structure of the Zika virus NS1 protein, and hope to eventually develop a vaccine for the virus, currently being spread by the *Aedes aegypti* mosquito. *Source: China Daily, Apr 20 2016*

Researchers at the Guangzhou Institute of Biomedicine and Health, led by research scientist Pei Duanqing, recently created stem cells from urine. This breakthrough could help to develop treatments for Parkinson's and other degenerative diseases. *Source: CNN, Apr 28 2016*

Scientists at The Scripps Research Institute, University of Maryland, Chinese Center for Disease Control and Prevention, Peking University and Nankai University, have described the first-ever immature or "teenage" antibody found in a powerful class of immune molecules effective against HIV, according to a study published in the journal *Immunity*. This development could help researchers design a vaccine to prevent AIDS. *Source: Science Daily, Apr 5, 2016*

Scientists at the National Engineering Research Center of Beijing Biochip Technology recently developed three biochips to be used to help with infertility rates in China. Infertility affects at least about 15% of the Chinese population ages 20 to 49, or 40 MIL people, according to a report published in January by Woyaoyun, a website jointly operated by the China Sexology Association and the Chinese Medical Association's andrology department. *Source: The Star Online, May 2, 2016*

## Regulatory and Clinical in China

China recently banned drug wholesalers from selling vaccines after a scandal in which about \$90 MIL worth of improperly stored vaccines was suspected of being sold illegally in dozens of provinces. The new rules will toughen requirements for distribution of non-compulsory vaccines. *Source: Reuters, Apr 26 2016*

357 officials may face criminal charges in the recent scandal involving the sale of improperly handled vaccines in China. Any involved officials will also either be fired, or demoted, according to an announcement from China's cabinet, the State Council. *Source: The Wall Street Journal, Xinhua, Apr 13 2016*

WHO issues a warning against China stating the country must 'exert stronger oversight over vaccines sold on the private market' following a recent scandal involving expired or improperly stored vaccines. WHO continues its ongoing investigation into the scandal, and vows to find methods to tighten regulation of the private market in vaccines. *Source: AP, Mar 29, 2016*

Hand, foot and mouth disease (HFMD) can decrease in China following broad vaccinations, according to predictions made from an epidemiologic model published in PLOS Medicine. The study, conducted by researchers from Princeton University in the US in collaboration with the Chinese Center for Disease Control and Prevention in China, further suggests that serotype replacement will not significantly deplete the benefits of a HFMD vaccination campaign. *Source: Asian Scientist Magazine, Feb 23, 2016*

Chinese subsidiary Hutchison MediPharma Limited recently initiated the first-in-human Phase I clinical trial of HMPL-689 in Australia. HMPL-689 is a novel, highly selective and potent small molecule inhibitor targeting the delta isoform of the phosphatidylinositol-3-kinase, also known as PI3K $\delta$ , a key component in the B-cell receptor signaling pathway. The first drug dose was administered on April 7, 2016. *Source: BusinessWire, Apr 12, 2016*

China's Center for Drug Evaluation (CDE) recently granted priority review status as part of a bulk action for versions of Gilead's hepatitis C drug Sovaldi and Harvoni. AbbVie, Bristol-Myers Squibb and Janssen Pharmaceuticals were also given the same status. CDE recently ruled that the antivirals have obvious clinical advantages over existing treatment options. *Source: RAPS website, Apr 26, 2016*

China Food and Drug Administration suspended Alibaba Health Information Technology, Ltd.'s online drug tracking platform, while it revises regulations related to pharma sales. The platform was previously called the Product Identification Authentication and Tracking System. In addition, a group of 19

Chinese pharmacy chains have urged the CFDA to permanently shutter the system. *Source: Various, Feb 2016*