

Lambda Research Newsletter

August 2018



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▶ GLOBAL NEWS

1. New therapeutic target explored for kidney cancer



A new potential therapeutic target has been discovered for the treatment of clear cell renal cell carcinoma (RCC) by the University of North Carolina (UNC) Lineberger Comprehensive Cancer Center.



This therapeutic target is a protein called ZHX2. This protein over-accumulates in the cells and it helps to turn on signals, which are involved in cancer cell growth. About 90% cases of RCC have genetic mutation or alteration. The mechanism involves VHL (tumor suppressor gene) to lose its function leading to an overabundance of blood vessels that helps cancer to grow. Scientists have also found the methods to screen the molecules that may cause renal cancer when VHL loses its function.

The cells which do not have VHL, have more ZHX2 protein content in them. If this protein is eliminated from the cells, it may inhibit cancer growth.

This research was supported by the US Department of Defense Careers Development Award, UNC Lineberger's Cancer Research Fund and the National Career Institute.

Source: globalpharmaupdate.com



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▶ GLOBAL NEWS

2. Gut bacteria byproduct protects against salmonella infections



At the Stanford University School of Medicine, researchers have identified a molecule against one of the most common intestinal pathogens that serves as natural protection.



Stanford
University

Bactericides' byproduct propionate inhibits the growth of *Salmonella* (which cause infection often causing diarrhea, fever and abdominal cramps) as studied in the intestinal tracts of mice.

It will be published in Cell Host and Microbe journal. Propionate doesn't prevent the pathogen but it prolongs the time for the pathogen to start dividing by increasing its internal acidity.

Source: sciencedaily.com



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► GLOBAL NEWS

3. IgM antibody may protect against HIV-1 infection



Texas Biomedical Research Institute Scientists have introduced a new defense against human immunodeficiency virus (HIV)-1. Scientists have used immunoglobulin M (IgM) as a defense against HIV in mouse models for the first time. The study is published in the journal *AIDS*.

For *in vivo* studies, Rhesus monkeys were used as models. The researchers first treated the animals with human-made version of IgM (naturally produced by plasma cells). After half an hour, these same animals were then exposed to SHIV (simian-human immunodeficiency virus). Out of these six animals, four were fully protected against the virus and monitored for 82 days. IgM works as a immune exclusive agent, by clumping the viruses and preventing the virus to cross the mucosal barrier, thus inhibiting its spread to rest of the body.

IgM has a higher affinity to bind with virus particles than that of IgG. This research was supported by the Southwest National Primate Research Center grant P51 OD011133 from the Office of Research Infrastructure Programs, National Institutes of Health.

Source: sciencedaily.com



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▶ GLOBAL NEWS

4. Parkinson's disease: new evidence for LRRK2 gene mutation

LRRK2 gene mutation can cause Parkinson's disease in about 3% of cases. It is known that mutation in LRRK2 gene causes Parkinson's disease, but the researchers have now evidenced that the disease may occur even when the gene is not mutated.

The study also finds LRRK2 as an integral protein in the neurobiological pathways affected by the disease. The mutation produces a version of LRRK2 protein that behaves more actively in abnormal condition than that it does in normal conditions. Despite its importance in Parkinson's disease, the presence of normal LRRK2 protein in very minute quantities in nerve cells has made it difficult to study.

In the current study published in Science Translational Medicine, the authors developed a new method for observing LRRK2 cells that makes them glow fluorescently only when LRRK2 is in its activated state. They have also used detection of fluorescent signals to demonstrate loss of binding of an inhibitor protein to LRRK2 when LRRK2 is activated.

The study was supported by the NINDS, the National Institute on Aging, the National Institute of Environmental Health Services, the Blechman Foundation, the American Parkinson Disease Association, University of Pittsburgh Brain Institute, Michael J. Fox Foundation grant, Medical Research Council grant, and friends and family of Sean Logan.

Source: pharmabiz.com



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► PHARMA INDIA

1. Generic Glumetza tablets launched in US by Sun Pharma



Sun Pharmaceutical Industries announced that one of its wholly owned subsidiaries has launched the generic version of Santarus Inc's Glumetza HCl (i.e., metformin hydrochloride) in the USA.



These are extended release tablets of metformin. The company has launched strengths of 500 mg and 1000 mg in the US market.

These generic formulations are used for improving the glycemic control in adult patients with type 2 diabetes.

As per IQVIA, the addressable market size for the same will be approximately USD 443 million for 12 months.

Source: moneycontrol.com



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► PHARMA INDIA

2. India pharma sector optimistic about US Govt.'s move to lower the prices of drugs

For lowering the price of prescribing drugs, the US Govt. will explore ways to safely import a select set of drugs from foreign countries. The decision is cherished by the Indian pharmaceutical manufacturers. The decision will provide some relief to the domestic manufacturers who have suffered recent price erosion in the US market.

As India has the highest number of the manufacturing plants approved by the US Food and Drug Administration (FDA) outside the US, these new opportunities will be welcomed by the Indian Pharma as they will benefit.

For making it successful, Washington has already released the blueprint to lower the prices. The respective officials are looking to draw out recommendations from the industry.

Source: pharmabiz.com



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► PHARMA INDIA

3. Potential new ways to treat muscular dystrophy



Scientists at the Centre for Cellular and Molecular Biology (CCMB) have discovered new ways to cure the hereditary muscular degradation disease called 'Muscular Dystrophy'.



According to the chief scientist at CCMB Hyderabad, normally sleeping muscle stem cells help to repair and regenerate the destroyed muscle cells, when the muscle cells are damaged as in case of accidents. In hereditary diseases, these cells do not work. These cells awake only when there is serious injury in the muscles. These are present in the muscle cells but they are not in active form all the time.

The researchers identified a new pathway in normal mice where the stem cells were awakened during injury and worked towards regeneration of the muscle in their initial experiments. The mechanism of signaling pathway works as switch for sleeping stem cells. If this phenomenon is understood, then it may result in developing new treatments.

Source: pharmabiz.com



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► PHARMA INDIA

4. India can provide cheaper treatments for African countries



Dr. Harish Pillai, CEO, Aster Hospitals & Clinics said that, India is a laboratory for sustainable innovations for the rest of the world. There is an opportunity for south-south collaboration to merge with countries including Africa in the healthcare field of India. India is a cost-effective market, so what is successful in India is applicable for Africa specifically Nigeria.

Indian healthcare system can provide many solutions to the African healthcare system. Telemedicine is an option for Nigerian patients as they can easily interact with Indian physicians and can have follow-up at cheaper costs. The Indian healthcare system is the best for Nigerian patients as they can access well-qualified, English speaking doctors, nurses and paramedical staff, and a very cost-effective healthcare system.

The biggest issue in the healthcare system is the cost of its delivery.

Source: pharmabiz.com



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▶ REGULATORY ROUND-UP

1. Draft guidance on field alert report submission for NDAs and ANDAs



The US Food and Drug Administration (FDA) have released a draft guidance for the Field Alert Report Submission (FAR). This guidance is for applicants of new drug applications (NDAs) and abbreviated new drug applications (ANDAs). The draft highlights the recommendations for FAR submissions, which will help to increase consistency and relevancy. FAR can be submitted using Form FDA 3331a.

The guidance discusses the topics such as any incident that causes a mistake in drug product or it's labeling, the bacteriological contamination, any deterioration in the distributed drug product, any failure of one or more distributed batches of the drug product which must meet the specification already established for it.

The guidance document also states that every buyer complaint must be evaluated within 3 working days. This can be used to determine whether the information provided is meeting the criteria or not. Also, where the drug is marketed whether in the domestic or international markets, need to be mentioned in the NDA and ANDA applications.

Source: pharmabiz.com



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▶ REGULATORY ROUND-UP

2. FDA creates Type C meeting to discuss surrogate endpoints



The US Food and Drug Administration (FDA) has released surrogate endpoints (SE). Also, the FDA has created a special Type C meeting for creating new SE. This list involves more than 100 FDA approved drugs and also the biologic products used over the last 10-15 years with practical and common SE in particular disease.



The list may also include the new SE formed by the FDA acceptable endpoints. It's important to discuss with FDA before using these SE in new projects. The SEs which are no longer in use, are not included in this list. With this, sponsors are also encouraged for the development of new SEs.

Once preliminary hypothesis that builds the clinical data becomes available, then requests can be made at any time for the development of the drug. To request this meeting, sponsors are required to submit a full meeting information package including description of background information that can support their rationale of using this new SE as their primary endpoint.

Also, details must be provided on the relationship of SE with the mechanism of action, its clinical relevance, consistence, reliability, and also predictive value of the SE. This rule must be accepted by all manufactures as they face many issues when planning for endpoints.

Source: fdamap.com



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▶ REGULATORY ROUND-UP

3. Trace and track mechanism: An update



To weed out fake medicines by the using the unique codes from Indian market, India's central drug regulator is now creating a working group that will work for this proposal to set up a "trace and track" mechanism. The working group will have pharmaceutical association representatives with the members of the Central Drugs Standard Control Organization (CDSCO). The report should be submitted on the problems and suitable solutions till October.

The major objectives of this proposal are to create fear in the minds of fake drug sellers and to build up the image of the Indian pharma industry. The technology decided by the members should be used for the authentication.

Industries and contract manufactures have raised concerns about the cost of operating systems, which will be required to print the unique codes on the shortlisted drugs. According to the companies, the usage may be very low.

Source: indiatimes.com



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► REGULATORY ROUND-UP

4. Conference for strengthening collaboration amongst regulatory authorities



The International Conference of the Drug Regulatory Authorities (ICDRAs) provides a forum to meet and discuss ways for strengthening collaboration to drug regulatory authorities of World Health Organization (WHO) Member States. This is useful in providing guidelines which covers regulatory authorities, WHO and interested stakeholders.



This 4 days programme formed by the planning committee of representative drug regulators may discuss on quality issues, herbal medicines, homeopathy, regulatory reform, medicines' safety, counterfeiting, access and regulation of clinical trials, harmonization, new technologies and e-commerce.

Many of the new challenges such as globalization and extension of free trade faced by regulatory authorities are continuously increasing. The recommendations of the same are proposed for action among the officials of agencies, WHO and related institutions.

Source: who.int



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► **MERGERS / ACQUISITIONS / COLLABORATIONS**

1. Xbrane and STADA collaborate for treatment of eye disease



Xbrane Biopharma and STADA have collaborated with each other for Xlucane, a biosimilar of ranibizumab. It is a vascular endothelial growth factor (VEGF) α inhibitor for the treatment of several eye diseases.



STADA has agreed to make an upfront payment of €7.5 million to Xbrane. According to the agreement, Xbrane will be responsible for developing the product until completion of the marketing authorization applications. STADA will hold the marketing authorizations and will be responsible for sales and marketing of the product across all territories included in the agreement.

Development for the Xlucane was initiated with the pivotal phase I/III clinical trial. The deal will contribute and help in the funding and providing expertise for the development and commercialization for Xlucane and help the development of other biosimilars pending in the pipeline.

Source: bioanalysis-zone.com



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► **MERGERS / ACQUISITIONS / COLLABORATIONS**

2. Boehringer Ingelheim and Lupin extend collaboration for anti-diabetic drugs



Boehringer Ingelheim and lupin have expanded their partnership for co-marketing 2 antidiabetic drugs combinations.



The combinations are Gibtulio Met[®] (Empagliflozin + Metformin) and Ajaduo[®] (Empagliflozin + Linagliptin), which have been approved by the Drug Controller General of India (DCGI). The two products will be co-marketed simultaneously by Boehringer Ingelheim and Lupin across India under different brand names. Both these products belong to a novel class of oral anti-diabetic drugs patented in India and will be launched for the first time by an Indian company.

Empagliflozin + Linagliptin combination is the world's first approved combination of an SGLT-2 and DPP4 inhibitors. It has a potential for addressing cardiovascular disease (CVD) risk along with effective blood sugar control in adult Indian patients with type 2 diabetes. Empagliflozin + Linagliptin combination has a strong blood sugar lowering effect and at the same time addresses multiple pathophysiological defects in type 2 diabetes.

Approximately, 1,13,360 million patients are suffering with diabetes in India and are growing at 11.7% (IMS MAT April 2018) with usage of oral anti-diabetic drugs being valued at INR 83,340 million and growing at 11.21% (IMS MAT April 2018).

Source: pharmatimes.in



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► **MERGERS / ACQUISITIONS / COLLABORATIONS**

3. Nabriva acquires Zavante Therapeutics for Contepo antibiotic treatment



Nabriva has acquired Zavante therapeutics for injectable antibiotic Contepo. Contepo is fosfomycine, previously known as ZTI-01. It has been developed for the treatment of serious infections including gram negative and gram positive bacterial infections.

Zavante has developed Contepo as standard-of-care for hospitalized patients having serious infections caused by multi-drug resistant bacteria. In the USA, Contepo has been used for the treatment of complicated urinary tract infection and serious bacterial infection.

Contepo has been granted Qualified Infectious disease Product (QIDP) and fast track designations by the US FDA in several indications, including urinary tract infection. Nabriva plans to seek regulatory approval of the drug by year's end.

Under terms of the deal, Zavante has received 8.2 million of Nabriva shares in an upfront payment. Additionally, Zavante's stockholders are eligible to receive up to \$97.5 million upon the achievement of specified regulatory and commercial milestones. That payment could be in the form of Nabriva's ordinary shares.

Source: biospace.com



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► **MERGERS / ACQUISITIONS / COLLABORATIONS**

4. PharmaMar collaborates with Impilo Pharma for cancer chemotherapy drug



PharmaMar has collaborated with Impilo pharma for the distribution of anti-cancer compound Yondelis. According to the agreement, Impilo pharma will make an upfront payment of €2 million. PharmaMar will handle the responsibility of manufacturing Yondelis. Impilo Pharma will promote and distribute the drug throughout the Nordic countries and Eastern Europe.

This agreement will replace the current contract between PharmaMar and Swedish Orphan Biovitrum International for the promotion and distribution of Yondelis in the Nordic countries and Eastern Europe.

"This agreement will help us to strengthen the sales of Yondelis even more throughout various European Countries, also maintaining our promise with the patients, facilitating their access to novel therapies," said Luis Mora, Managing Director of the Oncology Business Unit at PharmaMar.

Source: pharmoutsourcing.com



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▶ DRUGS: APPROVALS AND LAUNCHES

1. Dr Reddy's launches biosimilar trastuzumab in India for HER2 positive cancer

Dr. Reddy's laboratory has launched a biosimilar version Hervycta of Roche's Herceptin (trastuzumab) in India. Trastuzumab is indicated for the treatment of early breast cancer, metastatic breast cancer and metastatic gastric cancer in patients who are HER2 positive.



The launch of Hervycta will immensely benefit women in India who are suffering from HER2-positive breast cancer and are in need of access to high quality, affordable and innovative medicines. Herceptin (marketed as Herclon in India) and its biosimilars had India sales of approximately Rs. 290 crore MAT for the most recent twelve months ending in December 2017, according to Ipsos (India Tandem Oncology Monitor 2017).

Dr Reddy's Hervycta is available in strengths of 150 mg and 440 mg multiple dose vials. Dr. Reddy's currently has four biosimilar products commercialized in India and various emerging markets, and an active pipeline of several biosimilar products in the oncology and immunology space.

Source: pharmabiz.com



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▶ DRUGS: APPROVALS AND LAUNCHES

2. USFDA approves Lupin's desoximetasone topical spray



Lupin is an innovative and developing pharmaceutical company, which is delivering a broad range of branded and generic, biotechnological products and formulates active pharmaceutical ingredients globally.



Lupin has launched the generic drug desoximetasone topical spray 0.25% in the US market. The drug is bioequivalent of the Taro Pharmaceuticals USA Inc.'s 0.25% Topicort topical spray.

Topicort (desoximetasone) is used for plaque psoriasis in patients 18 years or above. The annual sale of this corticosteroid drug is approximately 18.7 USD million in the US (IQVIA MAT May 2018).

Source: pharmabiz.com



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▶ DRUGS: APPROVALS AND LAUNCHES

3. Keytruda gets Chinese approval for advance melanoma



Merck has announced that Keytruda, Merck's anti-PD-1 therapy, has been approved by the China National Drug Administration (CNDA) for the treatment of adult patients with unresectable or metastatic melanoma following failure of one prior line of therapy. This is the first and only approval of an anti-PD-1 therapy for advanced melanoma in China.

Advance melanoma is a type of skin cancer involving uncontrolled growth of pigment-producing cells. Keytruda blocks the binding between PD-1 and its receptor, resulting in improving the ability of body's immune system to detect the tumor cells.

Keytruda has been granted approval based on the overall response rate (ORR) achieved in an open-label, single-arm, multi-center, Phase 1b KEYNOTE-151 study, which enrolled 103 Chinese patients with metastatic melanoma who were previously treated with systemic therapy.

Source: pharmabiz.com



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► DRUGS: APPROVALS AND LAUNCHES

4. FDA approves elagolix for severe endometriosis pain



Neurocrine Biosciences has announced that elagolix has been approved by the US Food and Drug Administration (FDA). Orilissa (elagolix) is the gonadotropin releasing hormone antagonist indicated for the treatment of severe endometriosis pain.

Endometriosis is a common gynecological disorder; it affects 1 out of 10 women and often characterized by severe pelvic pain.

The approval of elagolix is based on two replicate Phase 3 trials, which evaluated nearly 1,700 women suffering from moderate to severe endometriosis pain. The results of the study indicate that Orilissa significantly reduced endometriosis pain.

The dose of the drug to be administered is 150 mg once daily for up to six months orally, with or without food.

Source: drugs.com



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► DRUGS: DEVELOPMENT & CLINICAL TRIALS

1. Abbott initiates study of Tendyne for mitral regurgitation treatment



Abbott has initiated a pivotal clinical study in the US for its Tendyne, indicated in the treatment of mitral regurgitation. Tendyne is a device known as Transcatheter Mitral Valve Replacement (TMVR).

TMVR is used for critical heart diseases. In mitral regurgitation (MR) disease, the heart's mitral valve doesn't close completely, and the blood regurgitates back and leaks into the left atrium leading to a leaky heart - a very life-threatening condition. If left untreated, it can increase the risk of stroke and ultimately heart failure and death.

Abbott's MitraClip is the leading device approved to repair a leaking mitral valve, but there are currently no approved minimally invasive therapies to replace the mitral valve.

This trial will evaluate the safety and efficacy in MR patients. The study plans to enrol up to 1,010 patients at 80 sites in the US, EU and Canada. Recently, Abbott shared positive data of 100 patients using Tendyne device to the European Association of Percutaneous Cardiovascular Interventions (EAPCI). The results showed significantly reduced symptoms of MR and increased survival rate.

Source: pharmabiz.com



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▶ DRUGS: DEVELOPMENT & CLINICAL TRIALS

2. BioArctic shows positive results of BAN2401



BioArctic has announced positive results from their clinical Phase 2b trial with BAN2401. BAN2401 is an anti-amyloid β antibody that reduces the amyloid accumulated in the brain.



This Phase 2b trial randomly assigned 856 patients with early Alzheimer's disease. At 18 months, the study showed that BAN2401 at the highest dose 10 mg/kg twice a month slowed the progression of Alzheimer's Disease Composite Score (ADCOMS), and reduced the amyloid by 47% compared to placebo as measured by Positron Emission Tomography (PET).

The data presented at the Alzheimer's Association International Conference (AAIC) 2018 in Chicago, US display with pre-specified analysis applying conventional statistical methods dose-dependent, clinically meaningful and statistically significant effects of BAN2401 on several clinical endpoints as well as dose-dependent and significant effects on PET and other biomarkers with a good tolerability profile.

There was also significant reduction in the levels of tau protein compared to placebo. The most common adverse events were infusion related reactions and amyloid related imaging abnormalities (ARIA). The AEs were mild to moderate in seriousness.

Source: pharmabiz.com



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▶ DRUGS: DEVELOPMENT & CLINICAL TRIALS

3. Phase 2a results are positive for MIV-711 in osteoarthritis



Medivir AB announced positive top line result of MIV-711 for osteoarthritis in a Phase 2a extension trial. MIV-711 is indicated for increase in the joint bone growth and in the prevention of cartilage degradation.

The MIV-711 Phase 2a extension study included patients with moderate knee osteoarthritis who completed 6 months of treatment in the initial clinical trial (MIV-711-201). Patients were eligible to participate in the extension study if the pain associated with their knee osteoarthritis, assessed on the numeric rating scale (NRS), did not worsen after 6 months of treatment with 200 mg once daily, or if their NRS pain symptoms worsened after 6 months of treatment with placebo.

Of the total 50 patients in the MIV-711-202 study, 46 patients had received MIV-711 in the MIV-711-201 study, and therefore received a total of 12 months treatment with MIV-711, while 4 patients had previously received placebo. Changes in joint structure were determined using the same magnetic resonance imaging methods that were used in MIV-711-201 and were secondary endpoints in the extension study population that had previously received MIV-711.

The extension study met the primary endpoint, demonstrating that MIV-711 200 mg had an acceptable safety and tolerability profile with 6 months of additional treatment with 200 mg MIV-711 following the initial Phase 2a study (12 months in total).

Source: pharmabiz.com



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► DRUGS: DEVELOPMENT & CLINICAL TRIALS

4. Glenmark reports positive results for GBR 310



Glenmark pharma presented positive results of Phase 1 trial of their biosimilar GBR 310 and also showed that their data had similar pharmacokinetic, pharmacodynamic and immunogenicity profiles when compared with Xolair (omalizumab). GBR 310 is a recombinant DNA-derived humanized immunoglobulin G1 kappa monoclonal antibody. The proposed indications for GBR 310 are for the treatment of allergic asthma and chronic idiopathic urticaria (CIU).

The now completed Phase 1 study enrolled 168 healthy adult volunteers, randomized 1:1 to receive either a single 150 mg dose of GBR 310 subcutaneously (SC) or a single 150 mg dose of US-sourced omalizumab SC. The total duration of participation for each volunteer was approximately 127 days, including screening, in-house stay, outpatient and follow-up visits.

Asthma is a common disease in children. Urticaria is a common skin disease that affects all age groups, urticaria has two types chronic and acute with 70% patients affected by chronic skin disease.

Source: pharmabiz.com



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▶ PATENTS: NEW APPROVALS /LITIGATIONS /SETTLEMENTS

1. DUSA Pharma has filed a law suit against Biofrontera



DUSA Pharma, a US subsidiary of Sun Pharma, has filed new law suit against German drug maker Biofrontera for patent infringement, trade secret misappropriation and tortious interference claims in an ongoing patent infringement suit.

DUSA has alleged that Biofrontera defendants misappropriated confidential and trade secret information from DUSA and improperly obtained confidential DUSA information from its former employees to sell and market their own products.

The case revolves around two topical solutions DUSA LEVULAN[®] KERASTICK[®]. The litigation seeks an assessment of both damages and injunctive relief against the Biofrontera defendants. The company added that the patents-in-suit deals with an apparatus and method for “photodynamic therapy” (or “PDT”) and equipment for PDT. According to DUSA's claims, the photodynamic therapy, pioneered by DUSA, combines a drug with a light source to treat disease conditions.

Source: indiatimes.com



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► PATENTS: NEW APPROVALS /LITIGATIONS /SETTLEMENTS

2. Amneal Pharma agrees with Actavis for patent lawsuit settlement

Amneal Pharma has announced the patent litigation settlement with Actavis Laboratory related to the Rytary® (Carbidopa + levodopa). The litigation had been pending in the U.S. District Court for the District of New Jersey and resulted from Actavis's submission of an Abbreviated New Drug Application (ANDA) to the U.S. Food & Drug Administration (FDA) seeking approval to market a generic version of Rytary.

Amneal will grant Actavis a license to begin selling a generic version of Rytary on July 31, 2025, or earlier under certain circumstances under this agreement. Additional details regarding the settlement were not disclosed. The launch of Actavis's generic product is contingent upon Actavis receiving final approval from the FDA of its ANDA for a generic version of Rytary.

Source: traders.com



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3. Oramed granted Japanese patent for GLP-1 analog capsule

The Japanese Intellectual Property Office has publicized its intent to grant Oramed a patent titled "Methods and Compositions for Oral Administration of Exenatide."

Oramed is seeking to revolutionize the treatment of diabetes through its proprietary flagship product, an orally ingestible insulin capsule (ORMD-0801). The company completed multiple Phase 2 clinical trials under an Investigational New Drug application with the U.S. Food and Drug Administration. In addition, Oramed is developing an oral GLP-1 analog capsule (ORMD-0901).

Oramed's oral capsule based on protein oral drug delivery technology was developed on the basis of 30 years of research.

Source: marketwatch.com



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4. Nevro announces patent litigation update



Nevro Corp., a global medical technology company that is providing innovative evidence-based solutions for the treatment of chronic pain, announced that the district court, in its patent dispute with Boston Scientific, issued an order on claim construction and summary judgment.



The court favored Nevro for 6 method claims in 3 patents, which was rejected, claimed invalid by Boston Scientific. The claims upheld in the ruling is in particular patent number, 11, 21 and 23 of U.S. Patent No. 8,359,102, claim 18 of U.S. Patent No. 8,792,988, and claims 1 and 5 of U.S. Patent No. 8,768,472.

Nevro believes that the six method claims that were upheld would effectively preclude Boston Scientific from commercially providing high frequency SCS therapy between 1.5 kHz and 100 kHz in the United States.

Source: marketwatch.com



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► TECHNOLOGY /NDDS

1. X-ray triggered liposomes as new cancer treatment



Scientists have developed drug filled nano-bubbles that can be triggered in the body by standard X-rays and may pave the way for a new range of cancer treatments. The tiny bubbles, known as liposomes, are commonly used in pharmacology to encapsulate drugs, making them more effective in the treatment of disease.

Researchers have now been able to engineer these liposomes to discharge their drug cargo on-demand, once activated by standard X-rays. Initial testing has shown this technique to be highly efficient in killing bowel cancer cells. The development and application of various nanomaterial designs for drug delivery is currently a key focus area in nanomedicine.

The X-ray triggered liposomes were loaded with the drug doxorubicin which killed the cancer cells far more effectively than without X-ray triggering. The cells gradually shrunk and the results are encouraging.

Source: indiatimes.com



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► TECHNOLOGY /NDDS

2. New test to measure synaptic loss in Alzheimer's patients



Researchers at the Yale University have developed a new method to measure the synaptic loss directly in Alzheimer's patients. The method uses positron emission tomography (PET) imaging technology, which scans a specific protein in the brain and is linked to synapses. This new method will pave the way to potentially develop new treatments for Alzheimer's disease.

This was a collaborative study done between Yale researchers PET Center and the Yale Alzheimer's Disease Research Unit (ADRU). The study aimed to explore a new strategy for measuring synaptic loss (an established indicator of cognitive decline, as it is impaired in the Alzheimer's disease patients). Synaptic loss measurement will measure pathogenesis and treatment responses easily. The results of the study are published in *JAMA Neurology*.

This study was supported in part by The Dana Foundation David Mahoney Neuroimaging Grant, Yale Alzheimer's Disease Research Center, and the National Institutes of Health.

Source: sciencedaily.com



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▶ TECHNOLOGY /NDDS

3. Roche's Accu-chek micropump cleared in Europe



Roche will soon unveil its Accu-Chek (a tube-free solo insulin micropump) in the Europe after having the CE marking for the device. This micropump comes with a wireless remote control like smartphone that features glucose monitoring and also advices on how much amount of insulin to be administered.



Additionally, this remote control can be used to initiate the process without touching the pump and it can be used for selecting the amount of insulin to administer. Also, patient can inject insulin manually from the pump itself, when in case the remote control is not available or simply when it's easier. The tube-free design enables use of the pump by detaching and reconnecting without wasting any insulin.

The system has additional features that includes the Accu-Chek Smart Pix system allowing doctors to look at detailed and comprehensive information of the patient's glucose levels, insulin compliance, diet, and other related matters.

Source: medgadget.com



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4. Instrument to improve hygiene during colonoscopy



Invendo Medical, a high-definition endoscopy developer, is developing the world's first sterile, single-use colonoscope to help improve hygiene during colonoscopies. This product is ready to use and it is sterilized with ethylene oxide.



The company turned to Watson-Marlow Fluid Technology Group (WMFTG) for using their OEM peristaltic pumps allowing the rinsing of the integral camera lens continually during examinations in developing their invendoscope SC200. The rinsing is important as it helps to provide good visibility. During the colonoscopy procedure, rinsing of lens must be at once per minute.

These pumps are designed in such a way that it operates continuously, for the optimum interaction between the pump and the tube. Pumpsil tubing is used which is a USP Class VI platinum-cured silicone. The tubing is produced by using the latest extrusion systems in Class 7 clean rooms. It is in accordance with ISO 14644-1 standards.

Source: medicalplasticsnews.com



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▶ WHAT'S NEW AT LAMBDA

1. Implementation of bio-lyte for Shimadzu machines

Lambda has implemented bio-lyte functionality for its Shimadzu machines (06 nos.). Henceforth, the entire bio-analytical lab liquid chromatography-mass spectrometry (LC-MS/MS) instruments will have bio-lyte functionality for data movement and review. Overall, the bio-lyte functionality implementation will enhance the productivity and process harmonization within the department.

2. PK, PD, immunogenicity study of biosimilar pegfilgrastim for USFDA submission

Lambda has successfully completed the pharmacokinetic (PK) measurement, pharmacodynamic (PD) analysis and immunogenicity evaluation of biosimilar pegfilgrastim for the US Food and Drug Administration (FDA) submission. Pegfilgrastim is a biosimilar granulocyte colony stimulating factor.

The PD biomarker 'Absolute Neutrophil Count (ANC)' was analyzed using a flow cytometry based method. An ELISA (Enzyme Linked Immuno Sorbent Assay) based assay was used for PK measurements. Immunogenicity evaluation was performed by ECL - ELISA (Electrochemiluminescence - ELISA) based screening and confirmatory methods and cell based neutralizing antibody detection method. All these methods were developed and validated at Lambda's new bioanalytical - biosimilars laboratory. The project was Lambda's first foray into bioanalytical development of biosimilars targeted for regulated market submission and has paved the way for many more biosimilar studies.



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3. Completion of GLP study using method based on dry chemistry

Lambda team has successfully completed a multi-site preclinical study of an Iron replacement product (Iron Sucrose). The study was performed in compliance with GLP principles and was based on Vitros 5,1 FS Chemistry System with colorimetric endpoint. The in-built iron detection method of the analyzer was optimized to develop a sensitive and robust method with a very high throughput. The method was validated to meet bioanalytical recommendations as per US FDA guidance.

The achievement is distinct as the method development and validation was extremely challenging owing to the high endogenous level of iron in rat serum and that the method was based on a chemistry analyzer whereas the standard technique of iron detection is inductively coupled plasma mass spectrometry.

4. eSOP system implementation

Lambda has implemented the concept of Electronic Standard Operating Procedure (SOP) Management in Qedge Quality Management System software. With effect from 23 July 2018, final SOPs and associated documents have been uploaded into the software. Review, authorization and assignment of effective date are managed through electronic signatures in the software. The final SOP output is generated in the form of .pdf file, which is available for user training and operational use.

Implementation of this concept helps in reducing hard copy generation of SOPs. It improves operational co-ordination, increases document security and control, lowers document management and archiving costs, and provides better document management and search features.



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