Lambda Research Newsletter

May 2020

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Research Accelerated

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Clinical Research

NEWS letter

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GLOBAL NEWS

1. Researchers identify protein against cancer

The researchers at the Ohio State University have identified a protein within certain immune cells that is required for immune responses against cancer. The finding is reported in *"The Journal Science Advances"*. This protein is called PCBP1 (poly(C)-binding protein 1), it is also useful in the prediction of which cancer patients are less likely respond to the form of therapy.

PCBP1 is a molecules of RNA binding protein family, it controls gene expression when immune T cells differentiate into either regulatory T cells or into cytotoxic T cells, that causes infection and cancer.

The researchers have found that PCBP1 helps to ensuring that adequate numbers of activated immune T cells and differentiate into cytotoxic T cells, which destroys cancer cells. At a time PCBP1 reduces the development of regulatory T cells, which do not kill cancer cells.

Source: news-medical.net

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GLOBAL NEWS

2. Liquid biopsy may help for treatment of prostate cancer

ICR

A team of researchers at the Institute of Cancer Research (ICR) has found blood test that could detect traces of cancer DNA in the bloodstream and also identify the patients who are more likely to relapse. This new blood test is known as liquid biopsy, which is painless and cheaper than tissue biopsies.

This test could help the doctors to treat advanced prostate cancer and detect traces of cancer in the bloodstream and monitor how the disease behaves and responds to treatment.

At the start of treatment, the study findings that men with high levels of tumor DNA had worsted health outcomes. In fact, at the beginning of the treatment their condition worsted two and a half months earlier than those who tested negative for ctDNA.

The researchers have also monitored patients with repeat blood tests during treatment. The liquid biopsies could help to predict response of treatment. They disclosed that men who responded to treatment had the most significant drop of 23% in the level of cancer DNA in their blood. On the other hand, those who partially responded to treatment had a 16% drop.

After an analysis, the team found that there were specific genetic changes tied to drug resistance that indicating the risk of early relapse.

Source: news-medical.net

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GLOBAL NEWS

3. Cancer cluster's resistance to NK cell

The researchers have found that the clusters of tumor cells are more resistant compared with single tumor cells to being killed by natural killer (NK) cells. The findings suggest that increasing the natural ability of NK cells to remove circulating cancer cell clusters may provide a complementary approach to cancer therapy.

Researchers were working on different animal models, they discovered that clusters ability to metastasize associated with the presence of competent NK cells. They have determined that activated NK cells can eliminate both single and cluster metastasis, but they are more efficient at eliminating the former.

The highlight of this research is to importance of NK cells in immunotherapy. Activated NK cells act fast and efficient to kill tumor cells.

Source: news-medical.net

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GLOBAL NEWS

4. New approach to therapeutic intervention for ALS

HARVARD MEDICAL SCHOOL

Amyotrophic lateral sclerosis (ALS) is one of the most destructive onset neurodegenerative diseases. Patients become progressively debilitated and eventually paralyzed due to degeneration of motor neurons.

The lady researcher at the Harvard Medical School has researched on familial ALS behaves under controlled conditions. Her study is published in “eNeuro” and clarifies the mechanisms underlying neural dysfunction in ALS.

She focused on this mutant protein G85R-SOD1 and affects neurotransmission at the squid giant synapse, the junction where neurons transmit chemical signals to muscle fibers and causing the muscle to contract. Synapse is one of the few mature nervous systems that mimics neuromuscular junctions.

She showed that the presence of misfolded mutant SOD1 inhibits synaptic transmission and decreases the pool of synaptic vesicles. Surprisingly synaptic function was restored by intermittent, high-frequency stimulation, which suggested abnormal calcium signaling may underlie SOD1 toxicity to normal synaptic transmission.

To test this she used calcium imaging to capture the abnormal calcium influx in the presynaptic terminal and confirmed the protective role of a calcium chelator which corrected the calcium imbalance without affecting neurotransmission.

Source: news-medical.net

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PHARMA INDIA

1. Indian and American pharmaceutical companies working together

To develop vaccines against COVID-19 pandemic, the Indian and the American companies are currently working together on three vaccines. There are an opportunity to expand its manufacturing base and play a significant role in the recovery process of the global supply chains.

The Indian Council of Medical Research (ICMR), the Centers for Disease Control and Prevention (CDC), and the National Institutes of Health (NIH), have been joined with each other for a number of years and together had developed a vaccine for rotavirus, it is used in India and also in the United States.

India is an important part of the supply chain particular in crisis situation. India is a reliable partner and able to fulfill that, and this has been acknowledged by the highest level in the US government.

Especially in the economic aspects, an opportunity for both the Indian companies as well as the American ones for developing a stronger bond.

Source: livemint.com

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PHARMA INDIA

2. AYUSH and CSIR to develop four traditional formulations to treat COVID-19

The department of Ayurveda (Ayush) has joined with Council of Scientific and Industrial Research (CSIR) and working on developing four formulations of traditional medicine for the treatment of novel coronavirus infections.

The four potential ayurvedic medicines are Ashwagandha, Yashtimadhu (Mulethi), Guduchi+Piippali (Giloy) and Ayush-64. All these medicines are earlier indicated for the treatment of malaria and now they are trying to put as a potential candidates to cure COVID-19 infections.

The scientists are planned clinical trials in next week to find out the cure of deadly coronavirus infections among the public.

Source: pharmabiz.com

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PHARMA INDIA

3. DBT invites research proposals on cancer immunology & immunotherapy

The Department of Biotechnology (DBT) has invited research proposals from the eligible researchers and clinicians to identify problems in the area of cancer immunology & immunotherapy. The DBT has called Letters of Intent (LoI) for setting up of Virtual Network Centers (VNCs) for five years.

The aim of this call is to develop a centralized platform for sharing concepts and ideas from different organizational settings and partnering scientific institutions work together to develop and actualize a cancer research agenda.

The researchers have to study for the identification and characterization of newer regulatory pathways for an effective immune response. Another area of research is the development of novel vectors for CAR-T cell therapies, development of bispecific monoclonal antibodies and bispecific T cell engagers (BiTEs) for cancer immunotherapy.

Source: pharmabiz.com

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PHARMA INDIA

4. NRDC launches compile Indian technologies for combating COVID-19

The National Research Development Corporation (NRDC) has developed compilation of Indian technologies for tracking, testing and treating of COVID-19. The compilation carries information about Indian technologies, ongoing research activities, and technologies available for commercialization, initiatives and efforts by the Government of India.

Team-NRDC has made an attempt to compile most relevant and emerging indigenously developed technological innovations, including those which are at research stage. Several technologies are approved by the Indian Council of Medical Research (ICMR).

The NDRC, a unit of the Department of Scientific and Industrial Research, Ministry of Science and Technology, will promote COVID-19 technologies such as:

- Pilot plant studies
- Registration of product with regulatory authorities
- Field trials
- Bridge the gap between the lab scale development and the industrial requirement

Source: pharmabiz.com

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REGULATORY ROUND-UP

1. FDA's MyStudies app provides platform for electronic informed consent

The US Food and Drug Administration (FDA) has developed MyStudies application to provide informed consent for clinical trials in a format that is easily available by both investigators and participants.

The FDA has noted that the investigators having difficulties obtaining informed consent for clinical trials when patients were in isolation rooms in health care facilities and could not travel to outpatient clinics.

Informed consent can be sent to the patient or an authorized representative and after signed they receives an electronic copy. The investigator can access the consent electronically and can also generate a printed copy. All informed consent documents must go through institutional review board for review and approval.

The application now be found as COVID MyStudies in Google Play and Apple App stores. It providing a mechanism for securing informed consent from prospective clinical trial participants and gives investigators option to incorporate branding specific to a clinical trial. The documents are then added to the app, investigators can review the consent documents for completeness and accuracy by viewing them within the app before making them available to prospective trial participants.

Source: raps.org

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REGULATORY ROUND-UP

2. Vaccine tracker for COVID-19

Worldwide, the researchers are working on to find out a vaccine against COVID-19 pandemic. Experts estimate vaccine development process could speed a successful candidate and approximately 12-18 months to take time in market.

Currently, the tracker lists of COVID-19 vaccine candidates in Phase 1-3 trials, and the major candidates are in pre-clinical stages of development and research.

If the data information have any issue the tracker information can be updated weekly.

Source: raps.org

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REGULATORY ROUND-UP

3. FDA will permanently make some changes for COVID-19

The US Food and Drug Administration (FDA) will improve some of the processes and policies of coronavirus disease permanently.

- Represent support for decentralized clinical trials, greater use of telemedicine technology in clinical trials and work related to laboratory-developed tests.

- To identify what arrangements may be needed and make permanently FDA more efficient to manage emergencies.

- FDA is using real-world evidence to monitor the use of medical products during disease situation. This real-world evidence can also help to better understand disease, describe and measure immunity to understand the operating characteristics of tests and maintain regulatory independence.

Source: raps.org

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REGULATORY ROUND-UP

4. DSCSA Governance touts its pilot-project goal

To conduct a pilot project, the DSCSA Governance (PDG) has announced that it had successfully developed an agreement on how to define the status of an "authorized trading partner" (ATP) in the evolving electronic systems to share product data and status. For an outsider, how to conduct together the various parts of the pharma supply chain so that there is accordance on how information is to be shared. The ATP information is a use case for the overall governance process.

pdg
Partnership for DSCSA Governance

The FDA pilot program, was started a year ago, in it involved the selection of projects by 20 organizations. Reports have been filed with FDA, and FDA will accumulate and summarize the reports, in which some of running tests of actual exchanges of products and information.

The PDG board is filled out with representatives from manufacturers, wholesaler-distributors, hospital systems and chain and independent pharmacies a cross-section of the entire US pharma supply chain. The Pilot Project has demonstrated the ability of PDG to foster cross-sector collaboration in a balanced and unbiased way.

Currently, PDG has 45 members across the supply chain and having a good number of IT and systems-integration firms working on DSCSA improvements. PDG'S plan is to arrange a variety of workgroups to resolve DSCSA issues.

Source: pharmaceuticalcommerce.com

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MERGERS /ACQUISITIONS /COLLABORATIONS

1. AbbVie collaborated with Jacobio pharmaceuticals for cancer drugs

AbbVie has merged with Jacobio Pharmaceuticals for the development and commercialization of SHP2 inhibitors. SHP2 is a protein mediator for cellular signaling of RAS/MAP kinase pathway.

Several tumors have a genetic mutation that leads to abnormal cancer cell growth due to SHP2 activity. SHP2 is also involved in cytokine generation and immune cell response. SHP2 inhibition is decreasing its early clinical-stage for inhibit SHP2 activity.

AbbVie focused on novel SHP2 first-in-class therapy as a new approach for multiple cancer types. According to the deal, AbbVie will receive license to the SHP2 portfolio and Jacobio will carry out global clinical trials of JAB-3068 and JAB-3312, while AbbVie will fund R&D activities. After completion, AbbVie will be responsible for development and commercialization globally.

Source: pharmaceutical-technology.com

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MERGERS /ACQUISITIONS /COLLABORATIONS

2. GlaxoSmithKline signs agreement with Samsung Biologics

GlaxoSmithKline has signed an agreement with South Korean Samsung Biologics for manufacture and supply of its biopharmaceutical therapies.

Samsung Biologics is a contract manufacturing and development organization that provides development, manufacturing and analytical testing services.

According to the agreement, GlaxoSmithKline will receive additional large scale manufacturing of biopharmaceutical products, this may change based on future requirement. The 8 year agreement value is more than $231m.

In the future, the partnership will be expanded to add other speciality-care products.

Source: pharmaceutical-technology.com

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MERGERS /ACQUISITIONS /COLLABORATIONS

3. Dyno Therapeutics deals with Novartis and Sarepta

Dyno Therapeutics is a biotechnology company has launched from stealth mode using artificial intelligence (AI) technology for the development of adeno-Associated Virus (AAV) vectors. The company has signed deals with Novartis and Sarepta Therapeutics.

Dyno Therapeutics and Novartis will focused on AAV research, development and commercialization of gene therapies. Using CapsidMap AI technology and experimental tools Dyno will design and identify AAV capsids with implementation of functional properties for gene therapy.

After that Novartis will conduct preclinical, clinical and commercialization activities for the gene therapy candidates developed using the AAV capsids. Dyno will receive an upfront payment, research funding, license fees, along with clinical, regulatory and sales milestone payments.

Meanwhile, the company will work with Sarepta Therapeutics to develop next-generation AAV vectors for muscle diseases. According this agreement Dyno therapeutics will design and discover AAV capsids for gene therapy while Sarepta will conduct pre-clinical, clinical and commercialization for product.

Dyno could receive $40m an upfront payment and license payments during the research phase. Dyno will receive milestone payments if Sarepta develops and commercializes product candidates for various muscle diseases.

Source: pharmaceutical-technology.com

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MERGERS /ACQUISITIONS /COLLABORATIONS

4. Regeneron and Intellia expand its partnership

Regeneron Pharmaceuticals has expanded its partnership with Intellia Therapeutics to develop therapies for haemophilia A and B. Under the expansion deal the companies' collaboration will extent till April 2024.

The collaboration provides rights for Regeneron to develop products for more in-vivo CRISPR / Cas9-based therapeutic targets.

Regeneron also receives non-exclusive rights to develop and commercialize ex-vivo gene-edited products. According to deal Intellia will receive an upfront payment of $70m with an equity investment of $30m.

The goal of this expansion is to intended advance jointly-developed transgene insertion capabilities and their discovery and advance their development of therapies, including haemophilia A and B treatments.

They had tested first CRISPR/Cas9-mediated targeted transgene insertion in the liver of animal primates after that the animals could produce normal or higher levels of circulating human Factor IX. These results indicates that transgene insertion could offer a functional Factor 9 gene which encodes Factor IX.

Source: pharmaceutical-technology.com

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DRUGS: APPROVALS AND LAUNCHES

1. USFDA nod for treatment of high-risk patients with CAD

The US Food and Drug administration has approved AstraZeneca's Brilinta (ticagrelor) for the treatment of first heart attack or high-risk patients with coronary artery disease (CAD). Coronary artery disease is a life-threatening disease that causes significant deaths.

The drug was approved based on data from the Phase III THEMIS clinical trial. The results shown at 36 months 10% reduction in the primary endpoint of major adverse cardiovascular (CV) events with combination of aspirin and 60 mg Brilinta vs. aspirin alone in CAD and type II diabetes patients. The combination of Brilinta and aspirin is a new therapeutic option to reduce heart attack and stroke.

Brilinta is currently approved in more than 110 countries for the prevention of atherothrombotic events in adult patients with acute coronary syndrome (ACS) and in more than 70 countries for the secondary prevention of CV events with high-risk patients who have previously experienced myocardial infarction.

Source: pharmatimes.com

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DRUGS: APPROVALS AND LAUNCHES

2. Roche's Tecentriq and Avastin gets approval from USFDA

USFDA has approved first and only cancer immunotherapy regimen Tecentriq (atezolizumab) in combination with Avastin (bevacizumab) for the treatment of metastatic hepatocellular carcinoma (liver cancer). The drug combination was approved based on Phase III IMbrave150 clinical trial, results showed using this drugs 42% reduced risk of death and 41% reduced the risk of disease worsening by compared with sorafenib.

Phase III cancer immunotherapy trial shown an improvement in overall and progression free survival in people with unresectable or metastatic HCC compared with sorafenib.

Roche essentially submitted simultaneous applications to regulators in the US, Australia, Canada and Singapore under the initiative.

Source: pharmatimes.com

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DRUGS: APPROVALS AND LAUNCHES

3. Novo Nordisk launch new strategy to defeat diabetes

Novo Nordisk has launched a new social responsibility strategy to defeat diabetes. The company has introduces new long term goal to provide easy to access and an affordable diabetes care to vulnerable patients in every country and to ensure that no child should be die from type 1 diabetes.

- As a first step Novo Nordisk is reducing the ceiling price of human insulin from 4 USD to 3 USD per vial in 76 low- and middle-income countries. This applies only least developed countries as defined by the UN, other low-income countries as defined by the World Bank and middle-income countries where large low-income populations lack sufficient health coverage.
- For diabetic children Novo Nordisk is expanding its Changing Diabetes in Children programme by 2030. The programme provides care and life-saving medicine for children with type 1 diabetes.
- The International Committee of the Red Cross and the Danish Red Cross, supporting care for people with serious chronic diseases in humanitarian crises, is also being extended. The partnership is supporting the diabetes and hypertension care into the Red Cross's global health.

Source: nordiclifescience.org

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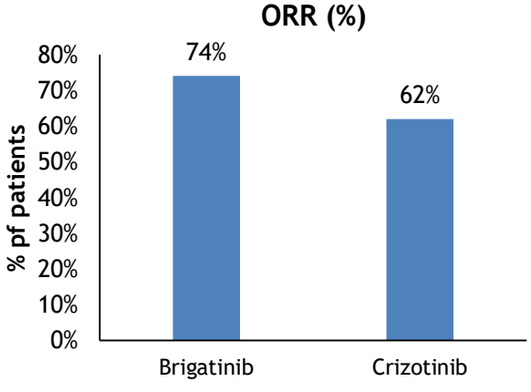
DRUGS: APPROVALS AND LAUNCHES

4. US approved Takeda's alunbrig as a first-line treatment

US regulators have expanded Takeda's alunbrig (brigatinib) as a first-line treatment of adults with anaplastic lymphoma kinase-positive (ALK+) metastatic non-small cell lung cancer (NSCLC).



The decision is based on results from Phase III ALTA 1L trial, the trial was conducted to evaluate the safety and efficacy of alunbrig compared to crizotinib in adult patients with ALK+ locally advanced or metastatic NSCLC who have not received preveous treatment with an ALK inhibitor. More than two year follow up alunbrig has significant anti-tumour activity observed, especially in patients with baseline brain metastases.

Alunbrig reduces the risk of disease progression or death compared with crizotinib with a 24-month median progression-free survival (PFS) as assessed by a blinded independent review committee (BIRC).

The overall response rate (ORR) of 74% versus 62% of crizotinib, while results for intracranial ORR for patients with measurable brain metastases at baseline were 78% and 26%, respectively.

Source: pharmatimes.com

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DRUGS: DEVELOPMENT & CLINICAL TRIALS

1. CAR-T study shows 100% overall response in multiple myeloma

Janssen has received high rates of response in patients with relapsed or refractory multiple myeloma in CAR-T clinical trial. The data was received from the Phase Ib/II CARTITUDE-1 study and result shown durable 86% complete response at a median follow-up of 11.5 months.

The study shown 100% overall response rate (ORR), 97% of patients achieving a very good partial response and 3% achieving a partial response. Responses were also observed in heavily pretreated 29 patients, who had received a median of five prior treatment regimens, 86% who have received triple-refractory and 28% were penta-refractory.

The most common adverse event were neutropenia (100%), thrombocytopenia (69%) and leukopenia (66%) observed in patients. Three deaths were reported during the Phase Ib study.

Source: pharmatimes.com

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DRUGS: DEVELOPMENT & CLINICAL TRIALS

2. AbbVie expanding Rinvoq for psoriatic arthritis

AbbVie is expanding Rinvoq (upadacitinib) in the US and Europe for the treatment of active psoriatic arthritis.

PA is a complex heterogeneous disease with manifestations including joints and skin, which causes pain.

Upadacitinib is a selective and reversible JAK inhibitor. Drug is used in several immune-mediated inflammatory diseases. Upadacitinib was approved last year for the treatment of moderate to severe active rheumatoid arthritis in adults, who have responded inadequately and who are intolerant to other disease-modifying anti-rheumatic drugs.

The drug marketing application is confirmed in the USFDA and Europe based on data from two Phase III studies who have enrolled 2000 patients. At 12 week upadacitinib met primary endpoint of ACR20 response versus placebo and received non-inferiority versus adalimumab in terms of ACR20 response in both the studies. Patients have also experienced improvements in physical function and skin symptoms and achieved minimal disease activity.

Source: pharmatimes.com

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DRUGS: DEVELOPMENT & CLINICAL TRIALS

3. Merck and Eisai announced results of lenvima with keytruda trial

Eisai and Merck will announced results from two trials 116/KEYNOTE-524 and 111/KEYNOTE-146 of lenvima with keytruda. The drug combination was examined in patients with hepatocellular carcinoma (HCC) with no previous systemic therapy and patients with metastatic clear cell renal cell carcinoma (ccRCC).

Lenvima is multiple receptor tyrosine kinase inhibitor, it is an orally available and discovered by Eisai.

The study will demonstrate the tumor response rates of lenvima with keytruda. Results from Study 116/KEYNOTE-524 are being presented in a poster discussion session, and results from Study 111/KEYNOTE-146 are being presented in an oral abstract session of the virtual scientific programme of the 2020 ASCO Annual Meeting.

Source: pharmabiz.com

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DRUGS: DEVELOPMENT & CLINICAL TRIALS

4. Roche begin clinical trial of combination drug against COVID-19

Roche has collaborated with Gilead and begin global randomized, double-blind, placebo-controlled Phase III clinical trial (COVACTA). The study will evaluate the safety and efficacy of intravenous Actemra/RoActemra with standard of care (SOC), versus placebo with SOC in hospitalized adult patients with severe COVID-19 pneumonia.

In REMDACTA trial, the patients will either receive the combination of placebo with remdesivir alongside standard of care. Globally the 450 subjects will enrolling in June with a target.

The primary and secondary endpoints include clinical status, mortality, mechanical ventilation and intensive care variables, and patients will be followed for 60 days post-randomization.

Source: pharmatimes.com

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PATENTS: NEW APPROVALS /LITIGATIONS /SETTLEMENTS

1. Teva filed petition against Aurobindo Pharma for cancer drug

Teva Pharmaceuticals, along with Cephalon and Eagle Pharmaceuticals have filed petition in the US court against Aurobindo Pharma. They said that the Indian drug-maker is planning to make a generic version of cancer medicine Bendeka, before expiration of its patents.

Bendeka (bendamustine hydrochloride) is used for the treatment of chronic lymphocytic leukemia and indolent B-cell non-Hodgkin lymphoma.

The petition said that the Aurobindo Pharma had sent a notice letter to Teva they had submitted US FDA an Abbreviated New Drug Application (ANDA) with IV certifications to make generic version before expiration of the patents of 100 mg/4 mL (25 mg/mL) of Bendeka Injection.

Under paragraph IV patent certifications, a company can seek FDA approval to market a generic drug before the expiration of patents related to the branded medicine.

Source: economictimes.indiatimes.com

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PATENTS: NEW APPROVALS /LITIGATIONS /SETTLEMENTS

2. Tennessee federal judge has approved $120 million settlement for Lovenox

Tennessee federal judge has approved $120 million settlement of claims against Momenta Pharmaceuticals and Novartis AG unit Sandoz.

The companies have betrayed regulators in to patent of Lovenox into a standard drug testing. After giving it a preliminary nod, Sandoz will pay $85 million and Momenta will pay $35 million. Both the drugmakers of concealing their pending Lovenox patent application while lobbying the U.S. pharmacopeial convention in favor of a testing protocol that would require generic makers to infringe the patent, which was later approved.

The patent covered a method for testing the quality of Lovenox's active ingredient, used to treat and prevent clots and heart attacks.

The scheme allegedly worked with the agency approving a protocol that forced generic Lovenox makers to infringe the patent by performing mandated quality tests. Meanwhile, hospitals, insurers, pension funds, and uninsured consumers filed their antitrust lawsuit against Momenta and Sandoz in the U.S. District Court.

Source: bloomberglaw.com

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PATENTS: NEW APPROVALS /LITIGATIONS /SETTLEMENTS

3. Conformis settlement with Zimmer Biomet

Conformis has entered into a settlement and license agreement with Zimmer Biomet, which is resolves all patent problems between both the companies.

President of Conformis said that, through this settlement, they have received legal value of their patient-specific instrument patents and steadfastly protected their core business of patient-specific implants.

Conformis is a medical technology company that uses proprietary iFit Image-to-Implant technology platform for the development, manufacture, and sell joint replacement implants and instruments.

Source: orthospinenews.com

PATENTS: NEW APPROVALS /LITIGATIONS /SETTLEMENTS

4. Natera sign settle agreement with Illumina

Natera Inc.is a pioneer and global leader in cell-free DNA testing and Illumina Inc. is a global leader in next-generation sequencing platforms. They have entered in to the settlement and agreement of their patent infringement.

Action is about Illumina Inc.'s U.S. patent No. 9,493,831 and Natera's U.S. patent No. 8,682,592.

Terms and agreement of the settlement are included in the Form 8-K filed by Natera with the U.S. Securities & Exchange Commission. This settlement resolves all the claims related to non-invasive prenatal testing. Natera will gain an intellectual property license for use in NIPT using the Illumina sequencing platform. The supply agreement has been extended until 2030.

Illumina has received a non-exclusive license to Natera's '592 Patent family. The license is limited to Illumina's current technology.

Source: biospace.com

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TECHNOLOGY /NDDS

1. New types of microfluidic test for detection of COVID-19

The researchers at Hokkaido University have developed a new type of microfluidic test for the treatment of viral infection, the test could be detect antibodies against the virus causing COVID-19.

The microfluidic test is works based on binding of fluorescently labelled protein to the antibody in a serum sample. The technique involves detecting the fluorescence polarization and liquid crystal molecules which are used to control the direction of this polarization. Once the sample is within the microfluidic device then it is then attached to a portable fluorescence polarization analyzer, which can measure the fluorescence signal and indicate if the antibody is present in the sample.

Then after before loading in to the microfluidic device the serum sample are mixed with the fluorescent reagent and allow it to rest for 15 mins. Then attached the microfluidic device to the portable fluorescence polarization analyzer to obtain a reading.

The whole entire process takes only 20 minutes. This types of devices could help to speed up and streamline community testing for antibodies related to COVID-19.

Source: medgadget.com

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TECHNOLOGY /NDDS

2. Rapid urine test for detection precursors of kidney stones

The researchers at Penn State and Stanford University have developed rapid urine test to measure levels of substances that contribute in the formation of kidney stone. The test could help patients to find out the probability of stone formation and avoiding this progression through treatment or dietary changes.

Kidney stones are accumulations of minerals and salts that can cause pain and blockages in the urinary system.

The current urinary test for detection of crystallization substance is boring and time consuming, in which patients have to collect a significant quantity of urine over a 24-hour period, and then send it to a laboratory for specialized testing and receiving a result after one week. To address this problem, the researchers have developed rapid urine test that takes only 30 minutes, this test can be performed at home without any specialized equipment.

The test uses bioinspired low-friction surfaces that cause improve liquid movement through a small plastic device. It's called slippery liquid-infused porous surface (SLIPS)-LAB. A small urine sample is added to this device and surface tension draws droplets of the sample through the plastic channels, which are low-friction and allow the droplets to move easily. The droplets combine with specific reactants within the device and the results can be assessed using a cell phone camera.

Source: medgadget.com

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TECHNOLOGY /NDDS

3. Fast, simple and easy fidget spinner-like device for detection of UTIs

Korean and Indian researchers of multiple institutes have developed a fast, simple, easy, and fidget-spinner-like device to detect urinary tract infections. The study is published in the journal of *"Nature Biomedical Engineering"*.

Urinary tract infections (UTIs) are a very common in women and in pregnant women which can lead to a wide variety of problems for mother and baby.

Currently, the detection of UTIs are take many hours or even days, depending on lab conditions. Now, the researchers have developed a device that can be used to diagnose UTIs in just 45 minutes.

The device looks like a commercial fidget spinner, the urine samples are placed inside of it and the device spins using hand action. The spinning motion forces the urine though a thin membrane, leaving any bacteria behind on the inside. If bacteria accumulate on the membrane, it will interact with a dye, revealing its presence. The process involves two spins of the device over the course of 45 minutes. The person performing the test can receive their diagnosis directly from the device by noting if the dye has been activated.

Source: medicalxpress.com

LAMBDA
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Volume 5 / May 2020

Clinical Research NEWSletter
www.lambda-cro.com

TECHNOLOGY /NDDS

4. Smartphone camera measures blood HB levels from eyelid

The researchers at New York have developed a way to assess blood hemoglobin levels from person's eyelid using a protein in red blood cells that carries oxygen. The study is published in "*The Optica Journals*".

A team has created a mobile health version of this analysis by using a spectral super-resolution spectroscopy. This technique uses software to virtually convert photos acquired with low-resolution systems such as a smartphone camera into high-resolution digital spectral signals. The research team selected the inner eyelid as a sensing site because microvasculature is easily visible there; it is easy to access and has relatively uniform redness.

Blood hemoglobin measurement using new technique, the patient pulls down the inner eyelid to expose the small blood vessels underneath. A healthcare professional person then take pictures of the eyelids. Spectral super-resolution algorithm is applied to extract the detailed spectral information from the camera's images and another computational algorithm quantifies the blood HB content by detecting its unique spectral features.

Source: outlookindia.com

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