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New discovery: Safer potential Zika vaccine that does not produce antibodies

December 22, 2018/The Asian Age

Researchers have identified a potential vaccine that may defend against Zika virus without producing antibodies. Many reports show that antibodies against Zika virus can worsen dengue virus infection, which, like Zika, is caused by a mosquito-borne virus, said researchers from the University of Nebraska-Lincoln in the US. This phenomenon is referred to as antibody-dependent enhancement (ADE) of disease. This has been an obstacle to the development of effective and safe dengue virus vaccines. "If you have immunity to one of these viruses and get infected by a second one, the illness can be much worse," said Eric Weaver from the University of Nebraska-Lincoln. "The body makes the wrong immune response," Weaver said. First discovered in Uganda's Zika Forest in 1947, the virus initially was believed to cause only mild or asymptomatic infection in humans. However, outbreaks in Brazil in 2015 and 2016 resulted in higher than historical rates of congenital birth defects in babies born to infected mothers and an increase in the neurological disorder Guillain-Barre syndrome in adults. In 2016, between 500,000 to 1.5 million suspected cases of Zika infection were reported worldwide, with 4,300 related cases of microcephaly, or abnormally small heads, in infants, researchers said. Doctoral student Brianna Bullard developed a genetically altered version of Adenovirus while working with Weaver as an undergraduate.

Doctors raise concerns over new Surrogacy Bill

December 22, 2018/Deccan Chronicle

The Surrogacy Bill, which recently got the Lok Sabha's nod, did not go down well the medical fraternity. The Bill was passed on Wednesday and is aimed at prohibiting commercial surrogacy and other unethical practices related to it.

The bill, which was first introduced by Health Minister J P Nadda, only permits surrogacy for couples who cannot conceive a child. The intending couple must be a resident of India and be married for a minimum of five years with at least one of them being infertile. Moreover, the surrogate mother has to be close kin who has been married and has a child of her own. Speaking to ANI, Dr. Aanchal Agarwal, Senior Consultant, Department of Infertility, IVF and Reproductive Medicine, BLK Super Speciality Hospital, stated that permitting surrogacy with robust screening and selection of cases in strictly regulated setup could have been more patient friendly than a complete ban.

Paper sensors for diabetics to monitor blood sugar

December 23, 2018/The Tribune

Scientists have developed disposable paper-based sensors that can measure glucose concentrations in saliva, paving the way for a pain-free alternative to diabetics for monitoring their blood sugar levels daily. Strips of pH-sensitive paper are commonly used to test whether a liquid is acidic or alkaline. Researchers are now working to apply similar principles to create paper sensors that quickly indicate disease biomarkers. Key to this approach is replacing traditional electronic circuitry in the sensors with low-cost plastics that can be manufactured quickly

and in large quantities. A team from the King Abdullah University of Science and Technology (KAUST) in Saudi Arabia used inkjet technology to produce sensors sensitive to small sugar concentrations in biofluids. Utilising a commercial ink made from conducting polymers, the team printed microscale electrode patterns onto glossy paper sheets. They printed a sensing layer containing an enzyme, glucose oxidase, on top of the tiny electrodes. The biochemical reaction between available glucose and the enzyme creates electrical signals easily correlated to blood sugar levels.



[Is your cough an allergy, asthma or a deadly infection](#)

December 23, 2018/Hindustan Times

Living in India and inhaling lungfulls of polluted air every day is like being a chronic smoker, said India's State-Level Disease Burden Initiative released earlier this month. This partly explains why many people in urban India have a persistent dry and hacking cough even if they don't have asthma or have never smoked.

Allergic cough is more common in the winter months when drop in temperature prevents air pollutants and allergens from dissipating, trapping them close to the ground in toxic concentrations to trigger asthma, allergic rhinitis, and other allergic disorders. Sudden change in temperature and cold, dry air also makes airways constrict, triggering bouts of annoying coughing that does not constrict breathing, like asthma. While the triggers vary, ranging from air pollutants such as ozone and nitrogen dioxide, road and construction dust, pollen, smoke, damp, chalk dust to sudden change in temperature, the signs are the same. The dry, itchy throat can last for weeks to months at a time and varies in intensity from one day to the next, depending on the level of exposure to the pollutant.

[Here's how to care for your eyes during winter](#)

December 25, 2018/Hindustan Times

Retaining moisture can help combat dryness to the eyes during winter season, says an ophthalmologist. Dry, itchy eyes are a common problem in the winter due to low humidity. "On average, the humidity drops in the winter with the cold weather," Marissa Locy, an instructor in the department of ophthalmology at the University of Alabama at Birmingham, was quoted as saying by Health Day.

"In addition, most people turn on the heat in their homes or offices to combat the cold. So, what you end up having is lower humidity outside, and even lower humidity inside, making for warm, dry conditions where moisture can evaporate from the eye faster than normal," she said. The study highlighted ways to retain moisture, thereby combating dryness to the eyes during winter season due to lower humidity. If you spend time in heated locations, use a humidifier to add some moisture back into the air. Drink lots of fluids. Keeping your body hydrated will help maintain moisture in your eyes, Locy said. Direct blow heating onto your face should be avoided because this can dry up moisture in your eyes.

[This is how your brain activity predicts fear of pain](#)

December 26, 2018/Hindustan Times

Pain is something that we all share. But, have you ever wondered about how you know what that pain is about? Pain-related fear is typically assessed with various questionnaires, often used interchangeably, that ask patients how they feel about their clinical pain. However, it is unclear to what extent these measure fear and

anxiety, which are known to involve different brain regions, and perhaps other psychological constructs. During a recent study, researchers at the Balgrist University applied a machine learning technique that could potentially translate patterns of activity in fear-processing brain regions into scores on questionnaires used to assess a patient's fear of pain. This study was published in the Journal of eNeuro. Researchers addressed this ambiguity by imaging the brains of patients with low back pain as they watched video clips evoking harmful (bending) and harmless (walking) activities for the back. Participants' brain activity was predictive of their scores on the various questionnaires. Importantly, different questionnaires were associated with distinct patterns of neural activity.

Virtual tumour offers a new look at cancer

December 26, 2018/The Hindu

Cambridge scientists have built a virtual reality (VR) 3D model of cancer that allows viewers to 'fly' through tumour cells, observing every detail from different angles. The advance paves the way for better understanding cancer, and developing new treatments for it. The tumour sample, taken from a patient, can be studied in detail and from all angles, with each individual cell mapped.

"No-one has examined the geography of a tumour in this level of detail before; it is a new way of looking at cancer," Greg Hannon, director of Cancer Research U.K. Cambridge Institute (CRUK), told the BBC. Researchers started with a 1mm cubed piece of breast cancer tissue biopsy, containing around 1,00,000 cells. They cut wafer thin slices, and then stained them with markers to show their molecular make-up and DNA characteristics. The tumour was then rebuilt using VR, which allows multiple users from anywhere in the world to examine it. Although the human tissue sample was about the size of a pinhead, using the VR headsets, it could be magnified to appear several metres across.

Breast cancer drugs may help treat resistant lung cancers

December 27, 2018/The Tribune

A class of drugs used to treat certain breast cancers could help fight lung cancers that have become resistant to targeted therapies, according to a study conducted in mice. The study, published in the journal Cell Reports, found that lung tumours in mice caused by mutations in a gene called EGFR shrunk significantly when a protein called p110a was blocked. Drugs to block p110a are currently showing promise in clinical trials against certain breast cancers, so could be approved for clinical use in the near future, said researchers from the Francis Crick Institute and the Institute of Cancer Research (ICR) in the UK. The new findings suggest that these drugs could potentially benefit patients with EGFR-mutant lung cancers whose tumours have become resistant to treatment. "At the moment, patients with EGFR-mutant lung cancers are given targeted treatments that are very effective for the first few years," said Professor Julian Downward, who has labs at the Francis Crick Institute and the ICR. "These drugs are improving, but unfortunately after a couple of years the cancer usually becomes resistant and starts to grow and spread again," Julian said. The second line of treatment is currently conventional chemotherapy, which is not targeted and has substantial side-effects, researchers said. It would be worth investigating whether p110a inhibitors could be used as a second-line therapy, they said.

High cholesterol food causes liver cancer, says study

December 28, 2018/The Asian Age

Turns out, a high cholesterol diet can trigger changes in the immune system that can lead to a serious form of fatty liver disease. Known as non-alcoholic steatohepatitis (NASH), it eventually progresses to cirrhosis or liver cancer, especially in those with obesity or Type 2 diabetes. Researchers at Keck School of Medicine found how a toxic combination of dietary fat and cholesterol impacts the behaviour of macrophages, a type of white blood cell, in the liver.

The findings of the study are published in the Journal of Hepatology. Using a mouse model, the study detailed the cascade of events in the immune system that eventually leads to the type of liver inflammation and scarring that is commonly seen in patients with NASH. "Despite its increasing prevalence and burden to the health care system, there are currently no food and drug administration-approved therapies for non-alcoholic fatty liver disease," said Hugo Rosen, study's corresponding author.

"There's an urgent need to better understand the causes of non-alcoholic fatty liver disease progression so that successful therapeutics can be designed and brought into clinical practice," he added.

HealthWise: New outbreaks need better disease surveillance

December 30, 2018/Hindustan Times

Disease outbreaks in India occur with seasonal regularity, with each region having its own particular malaise. The monsoons, for example, bring dengue to Delhi, leptospirosis to Mumbai, chikungunya to Karnataka, encephalitis to eastern Uttar Pradesh and Bihar, and malaria to Chattisgarh, Jharkhand and Odisha.

In 2018, two new potentially fatal infections struck populations several hundred miles away from regions where these diseases had previously occurred, catching epidemiologists and public health experts off guard. One was Nipah virus disease, which was reported for the first time in Kerala, where it killed 17 persons in Kozhikode and Malappuram districts in Kerala in May and June. The infection, which was first reported in India in 2001 in Siliguri, West Bengal, when 66 cases and 45 deaths were confirmed, has since then been found in Pteropus giganteus bats or fruit bats. Low levels of the virus stays in bats without sickening them. A few very ill bats secrete the virus in their droppings, saliva and other body fluids, exposure nasal or respiratory droplets, urine or blood, leading to infection in humans.

Moderate drinking beneficial for heart failure patients: Study

December 30, 2018/the Indian Express

Moderate drinking, a new study suggests, can help those suffering from heart failure live longer. The study, published in JAMA Network Open, and as quoted by a report in The New York Times, is one of the firsts to analyse the effect of drinking post a heart failure diagnosis and also claims to have a definite inference. Previously, as the report mentions, most studies which tried examining the relationship between alcohol and the risk of heart failure ended up giving ambivalent results. In order to arrive at the results, the researchers studied 393 people who had heart failure and were of an average age of 79. Each of them was followed for an average of seven and a half years. A drink was defined by the study as half ounces of hard liquor, 12 ounces of beer and six ounces of wine. It was

concluded that those who did not drink survived for an approximate seven years and three months after a heart failure diagnosis. In comparison to this, those who moderately drank in a week survived for more than eight years after heart failure diagnosis and those who drank more survived for over seven and a half years.

Dr David L Brown, the one who led the research and professor of medicine at the Washington University School of Medicine in St. Louis, said “I would feel comfortable telling a patient that there’s probably no harm in continuing to drink, and even a chance that you may have increased survival drinking up to seven drinks a week.”

Community-based HIV testing effective in reaching at-risk populations

January 2, 2018/the Tribune

Training lay people to conduct HIV testing can be an effective approach to reach high-risk populations and prevent the spread of the infection throughout the world, a study has found. Lay providers can serve as a critical addition to efforts to help achieve the United Nations' global HIV targets by 2020 and help to cover the "last mile" of HIV services to at-risk populations. The study—published in PLOS ONE—suggests that community-based HIV testing is an effective approach to reach people at risk of HIV who have never been tested or test infrequently. Key at-risk populations include people who inject drugs, men who have sex with men, female sex workers, and first-time HIV testers. A cross-sectional survey of 1,230 individuals tested by lay providers found that 74 per cent of clients belonged to at-risk populations, 67 per cent were first-time HIV testers, and 85 per cent preferred lay provider testing to facility-based testing. Furthermore, lay provider testing yielded a higher HIV positivity rate compared to facility-based testing and resulted in a high ART initiation rate of 91 per cent.

Artificial sweeteners do not assist weight loss, says study

January 3, 2018/Deccan Chronicle

The findings of a recent study suggest that artificial sweeteners may not help with weight loss. The research, published in the journal The BMJ, also stated that there is not enough evidence on their safety. Growing concerns about health and quality of life have encouraged many people to adopt healthier lifestyles and avoid foods rich in sugars, salt, or fat. Foods and drinks containing non-sugar sweeteners rather than regular sugars have therefore become increasingly popular.

Although several non-sugar sweeteners are approved for use, less is known about their potential benefits and harms within acceptable daily intakes because the evidence is often limited and conflicting. To better understand these potential benefits and harms, a team of European researchers analysed 56 studies comparing no intake or lower intake of non-sugar sweeteners with higher intake in healthy adults and children. Measures included weight, blood sugar (glycaemic) control, oral health, cancer, cardiovascular disease, kidney disease, mood and behaviour. Studies were assessed for bias and certainty of evidence.

With regards,

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