BRAC UNIVERSITY
Inspiring Excellence

PHARMA HIGHLIGHTS

ISSUE 26|November 2016

Current PhD Studentship Opportunities for Health Science Students

The King's College London is currently offering 26 fully funded studentships under four broad strategic themes: Molecules, Cells and the Basis for Disease Neurosciences, Psychiatry and Mental Health, Physiological Medicine and Imaging and Biomedical Engineering Applications are invited for a range of research studentships offered by the interdisciplinary research groups and centres, mainly tenable for four years, and covering tuition fees and a stipend. The University of Oxford, PhD studentships in Health Sciences opens in September 2017. The Department of Oncology, University of Oxford, United Kingdom is offering a Phd project on the topic 'The role of epigenetic reader proteins in hypoxic tumours'. The best applicant will receive full funding and the deadline for application is January 6, 2017. For more information please visit the respective websites.

Source: Internet

FDA approved VEMLIDY to treat hepatitis B virus

On November 10, 2016, the FDA approved VEMLIDY (tenofovir alafenamide) 25 mg tablets. VEMLIDY is a hepatitis B virus (HBV) nucleoside analog reverse transcriptase inhibitor and is indicated for the treatment of chronic hepatitis B virus infection in adults with compensated liver disease. Prior to initiation of VEMLIDY, patients should be tested for HIV infection. VEMLIDY alone should not be used in patients with HIV infection. Serum creatinine, serum phosphorous, estimated creatinine clearance, urine glucose, and urine protein should be assessed before initiating VEMLIDY and during therapy in all patients as clinically appropriate. No dosage adjustment of VEMLIDY is required in patients with mild, moderate, or severe renal impairment or mild hepatic impairment. But it is not recommended in patients with end stage renal disease or with decompensated (Child-Pugh B or C) hepatic impairment. Most common adverse reactions (incidence greater than or equal to 5%, all grades) are headache, abdominal pain, fatigue, cough, nausea, and back pain.

Source: FDA

How Tickling Looks In The Brain

A recent study from the Humboldt University in Berlin investigated the specific reaction to tickling and being tickled. There's been much discussion of the stimuli concerning tickling, how different parts of the body respond and why it's not possible to tickle yourself. The rats displayed common behaviors that indicate pleasure when being tickled. By looking at these reactions and vocal calls, the team conducting the research was able to determine that rats were most ticklish on the their belly and under their feet. Tickling on the back produced a smaller amount of happiness and tickling their tails did not seem enjoyable to the rats at all. Specifically,the investigators studied the rat's somatosensory cortex, a large brain structure that processes stimuli on the body. In the trunk region of this area, there were nerve cells that responded with a lot of activity when being tickled. Similar

brain responses were found in the rats when they were being played with but not being touched. The mood of the rats was significant as well. When the rats were stressed the activity in this part of the brain was reduced as were the vocalizations. Professor Michael Brecht, lead author of the study stated, "The data much look like we identified the ticklish spot in the rat brain. I also find the similarity of brain responses to tickling and play remarkable. Perhaps ticklishness is a trick of the brain that rewards interacting and playing."

Source: http://www.labroots.com

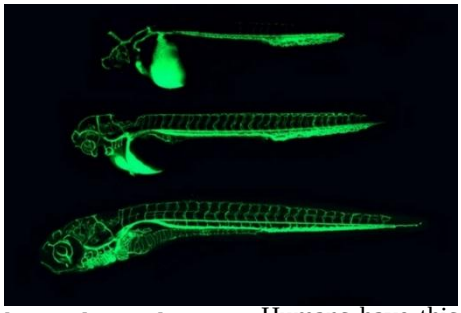
Faster, Better, Stronger Heart Cells Made from Scratch

A new study from scientists at the Gladstone Institutes introduces two unique chemicals that boost the healing process by eightfold. One chemical inhibits a growth factor that helps cells to grow and divide uninhibited. With this factor inhibited, the chemical provides a population of cells available for repairing tissue after cardiac injury. The second chemical inhibits an important pathway involved in the regulation of heart development. Together, the two chemicals created the perfect solution for promoting cardiomyocyte regeneration as the body cannot naturally regenerate and repair

dead and dying cardiomyocytes. The chemicals increase the number of connective tissue cells transform to cardiomyocytes with the help of the three known transcription factors Gata4, Mef2c, and GMT. They also speed up the process.

Source: http://www.labroots.com

A Tiny Fish Making a Big difference



Much like a super highway the spinal cord is the pathway between the brain and the rest of the body. Messages for muscle movement, bodily functions and so much more have to pass along the spinal cord which makes it so devastating when a spinal cord injury occurs such as Paralysis, a loss of sensation etc. Medical science has not figured out how to regenerate the spinal cord and restore function, but a team at Duke University might have advanced the cause just a bit further with their recent study on the freshwater zebra fish as they are also vertebrates and can repair their own spinal cord. The Duke team was able to identify that the spinal cord in the fish regenerates by forming a bridge of cells which takes about 8 weeks to repair a severed spinal cord, when it's complete, paralysis is completely gone and function is restored. When regeneration first begins, cells extend projections of matter outward, sometimes at distances tens of times their own size. The injury site is like a wide chasm that has to be knitted together. Once the nerve cells join in the process, the paralysis is reversed. Is has been found that CTGF, or connective tissue growth factor, increased dramatically after spinal cord injury. It was this protein that drove the first cells at the injury site to start bridging the gap. Fish that had been modified genetically to eliminate CTGF could not regenerate their spinal cords at all. Humans have this protein as well, however the team did not think that in mammals, CTGF would be enough to trigger regeneration, mostly because of how humans form scar tissue near injuries. They hope to expand the research into mouse models, which would show how the CTGF behaves in an anatomy more similar to humans. The human form of CTGF is only about 90% similar to that of the fish, but the team is still hopeful that looking at how this protein is expressed in other species will lead to more information on spinal cord regeneration and other nerve injury. **Source:** http://www.labroots.com

A New Way of Assessing Addiction

Drug addiction is considered to be a deliberate choice or a character flaw but according to scientific research addiction happens in the brain which is very real and affects thousands. Proper assessment of addiction is the key to better treatments. When a person is said to have addictive disorder, the determination is made based on the substance that is being abused. Current assessment tool includes brain imaging, and genetic data. This provides a much more complete picture of what is happening which gives more information thus better chance to design effective treatments. The new way of assessing addiction would be known as the Addictions Neuroclinical Assessment or ANA and the experts at the National Institute on Alcohol Abuse and Alcoholism (NIAAA), part of the National Institutes of Health (NIH) believe that the method by which a person who is addicted to a substance is assessed matters because the ANA approach fosters understanding of addiction at the physical level in the biology of the brain. Using this way of evaluating patients would lead to better treatments, individualized for each patient. The ANA would look at three functional processes that are thought to be most closely related to addiction. They are: altered perception of an object or event by drug-taking that makes it seem more attractive or important (incentive salience), increased negative emotional responses (negative emotionality) when drugs are no longer available, and deficits in organizing behavior toward future goals (executive functioning). **Source:** http://www.labroots.com

How Surgeons Can Detect Cancer with Sound

The aim of cancer surgery is to successfully remove the cancerous tissues without harming the healthy surrounding tissues. Scientists have developed technologies that help surgeons navigate such operations with more precision. One such device is known as the iKnife, which uses a near-infrared laser probe to capture vibration frequencies of different tissues. Because cancer tissues tend to have a different vibration signature than healthy tissues, surgeons can use this information to decide where to cut. Now, the technology has been updated, with vibration frequency converted into audio signals. This bypasses the need for surgeons to shift attention away from the tissues, as they can utilize their sense of hearing to discriminate between cancerous and healthy tissues. In a test run of the technology, doctor participants who were trained to detect differences in the audio frequency were able to differentiate healthy vs. cancer cells with about 70 percent accuracy. **Source:** http://www.labroots.com