BRAC UNIVERSITY
Inspiring Excellence

PHARMA HIGHLIGHTS

ISSUE 18|April 2016

BRAC University Pharma Society (BUPS) at 'Save Buriganga, Save Dhaka's Heart' Event Organized by Green Steps Partner

BRAC University Pharma Society (BUPS) participated in a civic engagement campaign, titled "Save Buriganga, Save Dhaka's Heart" organized by Green Steps Partner to celebrate the Earth day on April 22, 2016. Green Steps Partner is a US-based organization addressing issues of environmental protection and climate change. They have programs in several countries, but this was their first major event in Dhaka, Bangladesh. As part of this initiative, volunteers from different organizations including BUPS, University of Liberal Arts Bangladesh (ULAB), and several Rotaract clubs gathered in the Ahsan Manzil premises and started cleaning up the Buriganga river bank in front of this historic building. The Honorable Minister of Information, Government of the People's Republic of Bangladesh, Mr. Hasanul Haq Inu, MP graced the occasion as the Chief Guest, extended his support to this campaign, and asked the students to make a long-term commitment to environmental activism. Since Green Steps Partner believes that protection of natural environment and preservation of cultural heritage reinforce each other and strengthen local communities, this venue was of utmost importance to the campaign.

The event was a huge success. As student volunteers picked up trash and dumped trash-filled bags into a City Corporation dumpster, they engaged the local residents, especially the street vendors in a conversation about environmental stewardship, civic responsibility, and the harmful effects of littering and industrial waste disposal on the river ecosystem and their own communities. Because of their efforts, a number of local residents joined the drive.

At the end of the event the volunteers pledged the following:

1. They will never litter the streets or throw trash into a water body.
2. If they see anyone littering, they will politely ask the person to stop and engage him in a conversation.
3. They will launch a clean-up drive in their local neighborhood every two months.
4. They will identify locations within their local neighborhood that need trash cans or dumpsters and inform the local government of their needs.
5. They will never write graffiti on walls without permission.
6. If graffiti art happens to be part of local culture, they will work with the local government to identify locations where it can be performed with the consent of the local community.
7. They will each plant at least one tree every year.

BUPS contributed the largest number of volunteers to this campaign and played a critical role in its success.

FDA approves new drug for chronic lymphocytic leukemia in patients with a specific chromosomal abnormality

The U.S. Food and Drug Administration has approved Venclexta (venetoclax) for the treatment of patients with chronic lymphocytic leukemia (CLL) who have a chromosomal abnormality called 17p deletion and who have been treated with at least one prior therapy. Venclexta is the first FDA-approved treatment that targets the B-cell lymphoma 2 (BCL-2) protein, which supports cancer cell survival and is overexpressed in many patients with CLL.

According to the National Cancer Institute, CLL is one of the most common types of leukemia in adults, with approximately 15,000 new cases diagnosed each year. CLL is characterized by the progressive accumulation of abnormal lymphocytes, a type of white blood cell. Patients with CLL who have a 17p deletion lack a portion of the chromosome that acts to suppress cancer growth. This chromosomal abnormality occurs in approximately 10 percent of patients with untreated CLL and in approximately 20 percent of patients with relapsed CLL. Venclexta is manufactured by AbbVie Inc. of North Chicago, Illinois, and marketed by AbbVie and Genentech USA Inc. of South San Francisco, California. The Vysis CLL FISH probe kit is manufactured by Abbott Molecular of Des Plaines, Illinois. The most common side effects of Venclexta include low white blood cell count (neutropenia), diarrhea, nausea, anemia, upper respiratory tract infection, low platelet count (thrombocytopenia) and fatigue. Serious complications can include pneumonia, neutropenia with fever, fever, autoimmune hemolytic anemia, anemia and metabolic abnormalities known as tumor lysis syndrome. Live attenuated vaccines should not be given to patients taking Venclexta.

–Fabiha Tasnim

http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm495253.htm

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Design: Fabiha Tasnim

Do Antacids Increase the Risk of Dementia?

Recent studies in USA and Germany revealed an association of antacid intake with the increased risk of certain disorders. Antacids, more specifically, Proton Pump Inhibitors (PPIs) are often prescribed to alleviate heartburns, resulting from acid reflux. The medications work by turning off or reducing the production of acid in the stomach. In the United States, the use of these medications increased dramatically during a ten year period and was also linked with increased risk of chronic renal disease. In a recent study by the German researchers, data for a period of 2004 to 2011 of 74,000 seniors aged 75 or older were collected from a large health insurance firm. The analysis of the data including information on patient diagnoses and prescription histories showed that about 2,950 patients using PPI medications on a regular basis had 44% increased risk of dementia compared to patients who did not report the use of acid-reducing medications. However, it is important to note that the study authors only provided a statistical association between dementia and PPI medications. To evaluate and establish direct cause and effect relationships between PPI use and incidence of dementia in the elderly, randomized, prospective clinical trials need to be explored in future studies. Since acid reflux drugs have been linked to dementia risk, the clinicians have been advised to follow guidelines for PPI prescription in order to avoid overprescribing and hence inappropriate use of PPIs. **–Tanisha Tabassum Sayka Khan**

http://www.labroots.com/trending/cardiology/2551/physically-fit-improves-recovery-heart-attack

Drinking Coffee Linked to Lower Colorectal Cancer Risk

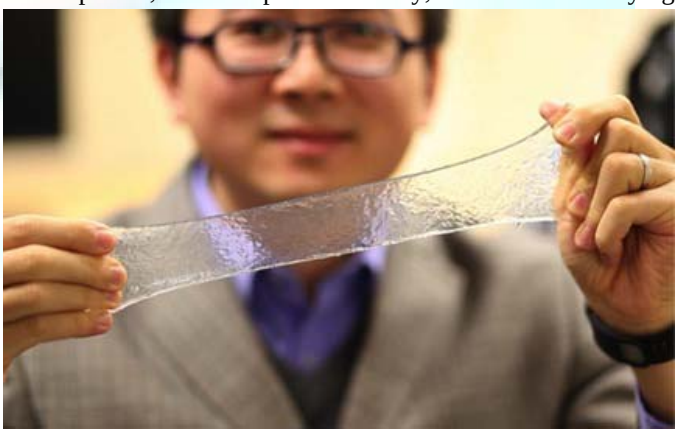
According to a case-control study in Cancer Epidemiology, Biomarkers & Prevention, regular coffee drinkers may have a reduced risk for developing colorectal cancer. Researchers assessed coffee consumption in 5100 colorectal cancer patients and 4100 control, cancer free individuals in Israil. After multivariable adjustment, any coffee consumption was tied to a 26% reduced risk for incident colorectal cancer, compared with no coffee intake.

The risk was lowest in the highest consumption group (more than 2.5 cups a day). Benefits were seen with both regular and decaf coffee. The authors speculated that coffee's components could affect motility and fecal output, microbiome composition, and inflammation. They concluded by saying, "The health risks of coffee consumption are low, but additional evidence is warranted before advocating for coffee consumption as a nutraceutical approach to reduce the risk of colorectal cancer." **–Fabiha Tasnim**

http://www.jwatch.org/fw111385/2016/04/01/drinking-coffee-linked-lower-colorectal-cancer-risk?query=etoc_jwonchem&jwd=000020044402&jspc=

Hydrogel 'Band-Aids': The World's Smartest Bandages

The Band- Aid would never be the same again; a team of MIT engineers have recently come up with the latest model of stick-on dressing with a gel-like material that is sticky and stretchable. The key to the design is a hydrogel matrix designed by Xuanhe Zhao, the Robert N. Noyce Career Development Associate Professor in MIT's Department of Mechanical Engineering. The hydrogel, which Zhao devised, is a rubbery material, mostly composed of water, designed to bond strongly to surfaces such as gold, titanium, aluminum, silicon, glass, and ceramic. The team was able to embed various electronics into the dressing -- including conductive wires, semiconductor chips, LED lights and temperature sensors. "Electronics are usually hard and dry, but the human body is soft and wet. These two systems have drastically different properties," said Xuanhe Zhao, lead author of the study. In another study, the group has embedded electronic temperature sensors and tiny drug reservoirs within a sheet of hydrogel to create what they call a "smart wound dressing." They also created pathways to allow drugs to flow through the hydrogel, by either inserting patterned tubes or drilling tiny holes through the matrix. They have evaluated the dressing by placing it over various regions of the body and found that even when highly stretched, it continues to monitor skin temperature and release drugs according to the sensor readings. LED light panels embedded in the hydrogel has been found to be useful in indicating when the stores of drugs within the reservoirs are running low. The researchers hope their dressing could be a treatment option for burns or other skin conditions. In the long run, they are hoping to use it to deliver tiny electronics inside the body-glucose sensors or neural probes, for example. "Currently, researchers are trying



different soft materials to achieve long-term biocompatibility of neural devices. "With collaborators, we are proposing to use robust hydrogel as an ideal material for neural devices, because the hydrogel can be designed to possess similar mechanical and physiological properties as the brain" said Zhao. **–Noshin Mubtasim**

http://www.labroots.com/trending/clinical-and-molecular-dx/2751/hydrogel-band-aids-world-s-smartest-bandages

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Digital Diabetes: 'Smart Insulin Patch' Could Revolutionize Glucose Control

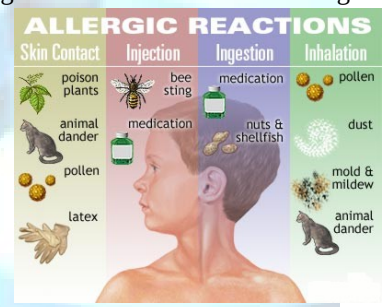
Patients with diabetes have to control their blood sugar by regularly pricking their finger and giving themselves insulin shots. Scientists have long been struggling to free diabetics from this regular painful insulin shots. They have even been tried to duplicate the function of beta cells through transplantation as an alternative treatment but it fails due to rejections from patient's immune system or side effects from immunosuppressive therapies. Finally, a group of researchers from University of North Carolina at Chapel Hill and North Carolina State University has come up with a new invention: "smart insulin patch." This is a synthetic patch, filled with natural beta cells which can be stuck painlessly to a patient's skin to secrete doses of insulin for controlling blood sugar levels on demand without inducing hypoglycemia. The patch is covered with more than 100 tiny needles, each about the size of an eyelash. These "micro-needles" are packed with microscopic storage units for insulin and glucose-sensing enzymes (proteins) that can quickly release their cargo in response to high levels of glucose. The study, which has been published in the Proceedings of the National Academy of Sciences, found that the new, painless patch could lower blood glucose in a mouse model of type 1 diabetes for up to nine hours. So far, the patch has been tested on only two human patients. More pre-clinical tests and subsequent clinical trials in humans will be required before the patch can be administered to patients. "We have designed a patch for diabetes that works fast, is easy to use, and is made from nontoxic, biocompatible materials," said co-senior author Zhen Gu, PhD, a professor in the Joint UNC/NC State Department of Biomedical Engineering. "The whole system can be personalized to account for a diabetic's weight and sensitivity to insulin," he added, "so we could make the smart patch even smarter." However, the patch is too expensive to produce in mass quantities. Hence, the research team behind it is also trying to overcome the cost hurdle and test the product on more people. "The hard part of diabetes care is not the insulin shots, or the blood sugar checks, or the diet but the fact that you have to do them all several times a day every day for the rest of your life, said Buse, the director of the North Carolina Translational and Clinical Sciences (NC TraCS) Institute and past president of the American Diabetes Association. "If we can get these patches to work in people, it will be a game changer."

–Noshin Mubtasim

http://news.unchealthcare.org/news/2016/march/scientists-create-painless-patch-of-insulin-producing-beta-cells-to-control-diabetes

Treatment for Allergic Reactions

According to Ruchi Gupta, an Associate Professor in Pediatrics at Northwestern University Feinberg School of Medicine and a Physician at Lurie Children's Hospital, doctors are not paying much attention in the management of children's food allergies which might lead to life threatening allergic reactions like anaphylaxis and anaphylactic shock and even death. The best possible treatment of anaphylactic shock is administering an epinephrine auto-injection in the mid-outer thigh and they are sold under brand names: "EPIPEN" and "ADRENACLICK". Many children have food allergies and when they have a severe allergic reaction they are given epinephrine injections, without doctor's prescription. The parents also do not know how to use the auto-injector devices. National Institute of Allergy and Infectious Diseases has certain guidelines the doctors should follow when they are treating allergic reactions. However, these guidelines are being neglected. This may be due to their inadequate training. Alternatively they might not feel comfortable showing it to the patients. This is causing mismanagement of pediatric food allergy cases. In order to overcome this problem the doctors and other health care providers should be trained first, and they should show the parents how to use the auto-injectors.



–Md. Arafat Khan

http://www.labroots.com/trending/immunology/2761/doctors-not-telling-parents-food-allergies

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