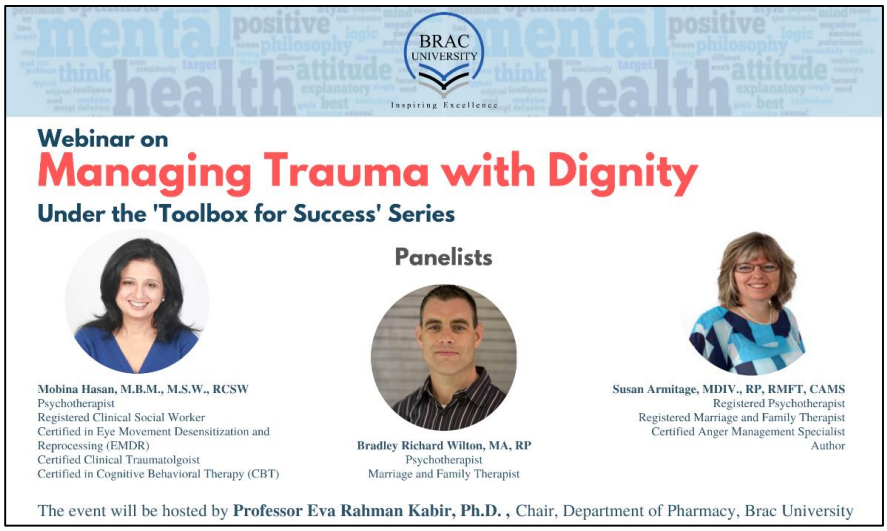
BRAC UNIVERSITY
Inspiring Excellence
Department of Pharmacy

PHARMA HIGHLIGHTS

ISSUE 70 | JULY 2020

Webinar on "Managing Trauma with Dignity"



On July 26, 2020, the Department of Pharmacy, Brac University organized a webinar on 'Managing Trauma with Dignity' under the 'Toolbox for Success' series, where a panel of three experienced psychotherapists, currently practising in Canada shared with us ways that would empower individuals to increase their resilience and manage collective trauma with dignity in the current global pandemic of COVID-19. The panel of three speakers of the webinar were Mobina Hasan, Psychotherapist and Registered Clinical Social Worker, Certified Clinical Traumatologist, Certified in Eye Movement Desensitization and Reprocessing (EMDR), and Certified in Cognitive Behavioral Therapy (CBT); Susan Armitage, Registered Psychotherapist, Registered Marriage and Family Therapist and a Certified Anger Management Specialist; and Bradley Richard Wilton, Psychotherapist and Marriage and Family Therapist. They helped the audience better understand what trauma is and how it is affecting different spheres of life, from the lens of COVID-19. They also discussed some coping methods to increase our resilience with dignity. Resiliency in the face of adversity is a critical element for success and it is not something we are born with - it needs to be worked on. There are skills and strategies for building resilience. The speakers also mentioned that it is important to break the stigma surrounding mental health and trauma - whether it's asking for help, or helping- that will change lives.

The webinar was a success and managed to reach over 17,800 people. Even after the original live stream was over, viewers were found to be watching the webinar on Facebook from the Department of Pharmacy, Brac University Facebook page (https://www.facebook.com/BracU.Pharmacy). Students have been continuously expressing their gratitude, commenting how the discussion guided them to cope with this situation, including tips on how to manage themselves and their stressed elderly family members.

Written by: Department of Pharmacy

Is Gluten Becoming More Immunoreactive?

Celiac disease is a genetic autoimmune disorder characterized by the lower gastrointestinal tract's (GI) inability to process gluten. Instead, when an individual with celiac disease consumes food containing gluten, the body launches an immune response as if gluten were a dangerous pathogen.

This reaction prevents the GI tract from absorbing important nutrients. Protein content found in wheat usually constitutes 10 to 12 percent of the crop, with 70 percent being starch. Of the protein content, gluten is the majority, constituting 75 to 80 percent of the protein content. Researchers from the study considered two groups of gluten: glutenins and gliadins, with the latter likely representing the group to blame for increased autoimmunity. Ultimately, while researchers observed changes in intra-gluten content, there was no indication of increased immunoreactive potential of wheat varieties over the years. However, other protein components other than gluten have yet to be studied for their chronological change in immunoreactive potential.

Written by: Nuzhat Zahin (TA)

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Newly Discovered Gut Enzyme Could Function as Disease Biomarker

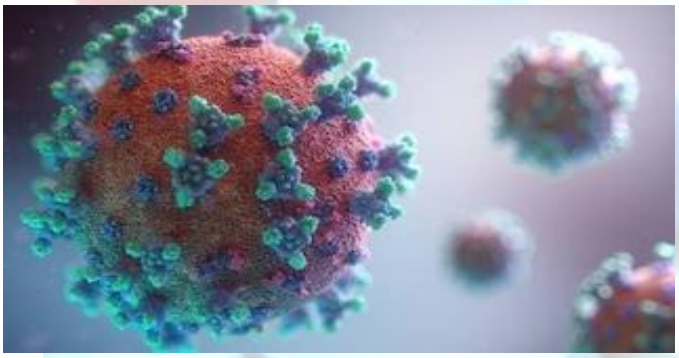
Recently, researchers characterized an enzyme produced by gut bacteria that can remove sugar molecules from the protective mucus lining the gut, enabling the microbes to consume those sugars. According to the report of Nature Communications, this research might have identified a marker of intestinal disease. The enzyme that was studied has a unique mechanism, making it useful as a diagnostic tool. Mucins in gut can contain sugar molecules called glycans, which gut bacteria trim off and can then use for energy. The lead researcher, Dr. Lucy Crouch of the University of Birmingham's School of Biosciences claims that the enzyme discovered will clip away a whole branch of mucin. Owing to this distinctive mechanism, mucin can serve the purpose of a useful biomarker for studying disease. Formerly, alterations in mucin levels have been linked to certain diseases, making it possible to do a biopsy to measure the levels of glycans in the gut. This information could be utilized to determine whether there is a risk of gut disease.

Tissue observed by the scientists to analyze the process were taken from adults with colorectal cancer or ulcerative colitis and preterm infants with a serious gut inflammatory disorder called necrotizing enterocolitis. Additionally, the investigators tagged the glycans with fluorescence to learn more about their structures.

The lead author states that despite their minimal knowledge regarding glycan structure they could easily spot the distinct structure variation of mucin between healthy and non-healthy tissue. She also optimistic about incorporating these enzymes in initial stages of diseases for better diagnosis.

Written by: Sabiha Akhter (TA)

How SARS-CoV-2 Works



The importance of research by the scientists has never been clearer, as scientists around the world scramble to learn as much as they can about the pandemic coronavirus SARS-CoV-2, which has killed more than 643,000 people as of July 25, 2020. SARS-CoV-2 is about one-hundredth the size of a cell, and it has a genome made of RNA. It's a coronavirus, a group of viruses that gained their name because of crown-like proteins on their surface, which can bind to receptors on human cells, as well as avian cells. When an infection occurs, the virus enters the body and after binding to a host cell receptor, it fuses to the host cell membrane and releases its contents into the cell. Once inside of the host cell, the first two-thirds of its genome are used to create structural proteins and copy the viral genome so that more viral particles can be generated. These will go on to infect more cells. Before these viruses are shipped out, however, they move to an organelle in the host cell called the Golgi apparatus. The Golgi normally helps sort and package proteins. New copies of the SARS-CoV-2 virus also seem to be assembled there. A part of its lipid envelope is made, and the virus gets packaged there into vesicles that move to the cell surface. Although it is not the most efficient way to assemble viruses and get them out of the cell, a study showed that that a bronchitis coronavirus can neutralize the pH of the Golgi apparatus, which may help the pathogens move out of the host cell. Rubella is another virus that's known to assemble new viral particles at the Golgi. Other viruses including hepatitis C, West Nile, and Zika use a different organelle, the endoplasmic reticulum, to process their proteins. There are many different coronaviruses other than SARS-CoV-2, which was not known to humans before late last year. Rhinoviruses, of which there are over 100 strains and adenoviruses are known to cause around 80% of cases of the common cold, but the remaining 20% are caused by coronaviruses.

Written by: Nahid Nausheen (TA)

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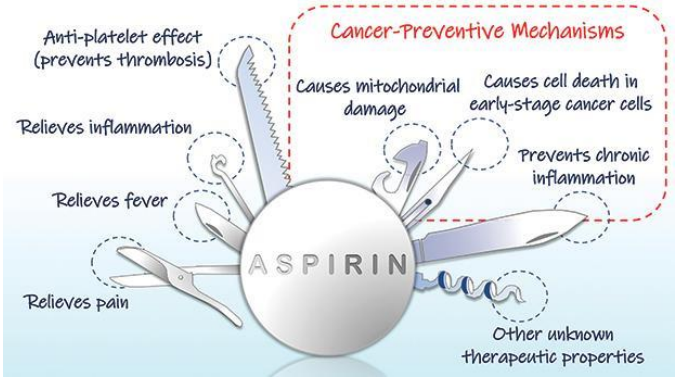
Aspirin Could Accelerate Cancer Progression in Older Adults



Alarming research published in the Journal of the National Cancer Institute points toward the association between aspirin use and increased risk of cancer and early death in older adults. While previous studies and clinical trials have shown that aspirin may reduce the risk of developing cancer in middle-aged adults, this study from scientists at Massachusetts General Hospital (MGH), the Berman Center in Minnesota, and Monash University in Australia targets adults 70 years and older.

The study, called the ASPirin in Reducing Events in the Elderly (ASPREE) trial, is the first randomized double-blind placebo-controlled trial of daily low-dose aspirin (100 mg) in healthy older adults. The 19,114 participants taking aspirin or placebo treatments were followed for a median of 4.7 years, after which the researchers saw an association between aspirin use and an elevated risk of death from cancer. The researchers concluded that aspirin was associated with a 19% higher risk of being diagnosed with metastatic cancer and a 22% higher risk of being diagnosed with advanced cancer. Although there was no association among the types of cancer developed, those who developed advanced cancer and were taking aspirin had a higher risk of dying during follow-up than those taking placebo. While the scientists are still unsure about the way that aspirin might affect older people at the cellular or molecular level, they plan on conducting more research.

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