

Department of Pharmacy: 2018 At A Glance

Seminar and Round Table Discussion

Top executives from leading pharmaceutical companies, both national and multinational were invited as speakers in our continued series of student development seminars titled “How to Prepare Competent, Future Ready Pharmacy Graduates”.

World Pharmacist Day

The Department observed World Pharmacists Day in September with the theme “Pharmacists: Your Medicines Experts”.

Poster Challenge and Research Showcase

In October the “Pharma Poster Challenge 2018 Drug Discovery and Development” was held where students presented their research projects on various issues in drug development. In the research showcase six alumni presented their research findings to a public audience.

Industry Visit

Students were taken to Beximco, Novartis, Sanofi and Eskayef Pharmaceuticals Ltd, where they were able to see the manufacture of various pharmaceutical preparations in the plant. Students were also taken for a day long visit to the headquarters of the different pharmaceutical companies (Beximco Pharmaceuticals Ltd, Roche and Novartis Bangladesh Ltd), where they were briefed about

all the departments of the company not only operating in Bangladesh but also globally.

Faculty Achievements at a glance:

- Over twenty faculty members with Master’s and PhD degrees from across the globe
- Twenty-seven research articles published in reputed internationally peer reviewed journals
- Research collaborations with Harvard Medical School, National University of Singapore, Nanyang Technological University, and University of Greenwich
- Nine conference proceedings were published
- Research grants from University of Kent, University of Greenwich, Ministry of Science and Information and Communication Technology (MOSICT) of Bangladesh
- Three faculty members receiving doctoral scholarships for PhD in USA

Source: [DoP](#)

Breakthrough Imaging Tool Shows How Pancreatic Cancer Forms

Scientists have developed an imaging tool that will allow the development of cancer to be seen in 3D which will help them to learn about tissues harvested from cancer.

A new method to analyze cancer biopsies in three dimensions has been developed to investigate the origins of pancreatic cancer.

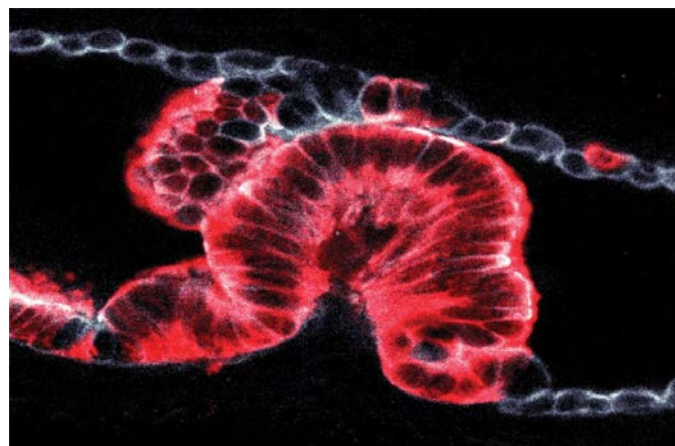
The pancreas uses a network of ducts to connect to other organs in the digestive system.

Two types of cancer forms in ductal cells. One type produces ‘endophytic’ tumors, which grow towards the ducts; the other kind is ‘exophytic’ that grow outwards. In this study, 3D imaging and computer modeling were used. According to Messal, this technique revealed that cancers develop in the duct walls and either grow inwards or outwards depending on the size of the duct.

“We made a simulation of the ducts, describing individual cell geometry to understand tissue shape,” explained co-lead study author and biophysicist Dr. Silvanus Alt. “The model and experimental results both confirmed that cancer grew outwards when the diameter of the duct was less than approximately twenty micrometers, around a fiftieth of a millimeter.”

Like most cancers, ductal pancreatic cancer starts with a single defective cell that starts dividing. They found that when there are only a few cells, the tumor starts to grow very quickly either inwards or outwards depending on duct diameter.

This technological breakthrough has the potential to unlock many unanswered questions of great importance in how we understand and treat pancreatic cancer.



Source: [AAAS/EurekAlert! Via Crick Institute, Nature](#)

Drug Blocks Toxic-Protein Production in ALS

ALS or amyotrophic lateral sclerosis, is a progressive neurodegenerative disease that affects nerve cells in the brain and the spinal cord. Amyotrophic comes from the Greek language. "A" means no. "Myo" refers to muscle, and "Trophic" means nourishment – "No muscle nourishment." When a muscle has no nourishment, it "atrophies" or wastes away. "Lateral" identifies the areas in a person's spinal cord where portions of the nerve cells that signal and control the muscles are located.



As this area degenerates, it leads to scarring or hardening ("sclerosis") in the region.

Individuals affected by ALS carry a mutation in the gene C9orf72 which results in repeated DNA sequences. These repetitions result in the production of toxic proteins that are associated with the development of ALS. The goal of the study was to target a stress response with a known drug that may result in a reduction of toxic-protein production.

The very first step of the study was to understand what triggers the production of toxic protein. By the help of this information they could block toxic protein production in laboratory tests. 'Trazodone' is the drug used in the present research and is currently approved for the treatment of depression and known to act on stress response. This study indicates that 'Trazodone' successfully inhibited the production of toxic protein when tested on animal models with mutations. The researchers suggest that collaborative approaches will be very beneficial as ALS is a complex and heterogenous disease. Researchers are now trying to find other compounds that might work better than trazodone.

Source: [Science Daily](#)

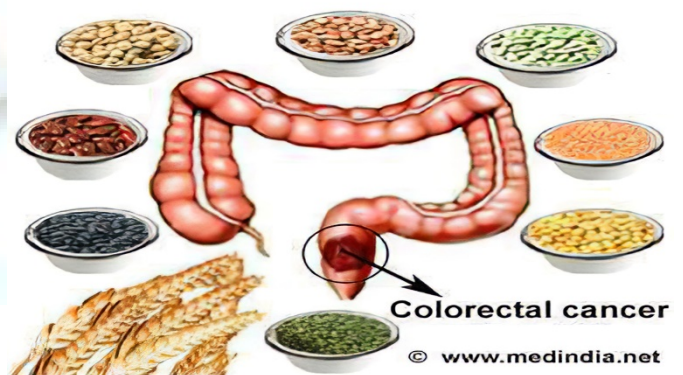
How High-Fat Diets may be Driving a Rise in Colon Cancer

Even though cancer rates are decreasing, colorectal cancer is becoming common among the people under the age of 55. Salk Institute has indicated that diets rich in fat contribute to the growth of cancer by disrupting bile acids in the gastrointestinal tract. This initiates a hormonal signal, that allows cells which may be cancerous, to continue growing.

Bile acids aid in digestion, and have been found to work with the Farnesoid X receptor (FXR) in disease development. Bile acid levels rise when cancer starts growing. With the addition of more bile acids, there is an increase in the progression of cancer.

The research showed that diets high in fat increase the levels of two bile acids which suppress FXR activity. FXR should be keeping cell growth in the gut slow and steady, but the bile acids impair that process, leading to rapid cell division and DNA damage.

The researchers used a mouse model to explore the impact of a high-fat diet while mutations in a gene called APC exert an influence. The most common gene mutation in people with colorectal cancer is in the APC gene. Animals



with that mutation got cancer more quickly when they also consumed a high-fat diet.

APC is known as a tumor suppressor gene; it helps control cell division. Mutations in the gene disrupt that control and can lead to the unchecked growth that's characteristic of cancer.

In mice with APC mutations, a high-fat diet caused benign intestinal growths called adenomas to become cancerous.

Source: [AAAS/EurekAlert! via Salk Institute, Cell](#)