BRAC UNIVERSITY
Inspiring Excellence
Department of Pharmacy

PHARMA HIGHLIGHTS

ISSUE 57 | JUNE 2019

Project Presentations of Spring 2019

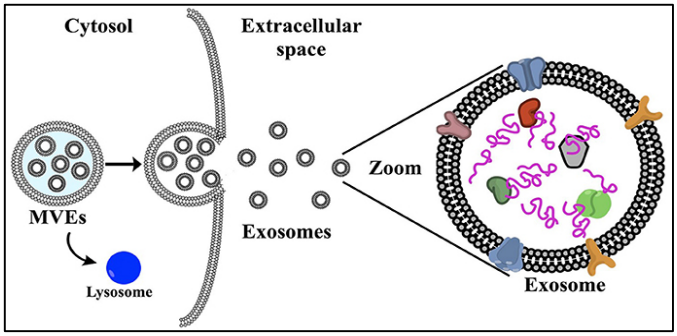
The following is a list of the students who gave their project presentations in Spring 2019:

	Name of Student	Project Title
1.	Md. Muhtaz Hassan ID: 10246002	Progress of Finding Latent Therapeutic Activity of Vaccine for Alzheimer's Disease
2.	Sumayea Kabir Saba ID: 13146068	Phytochemical and Pharmacological Potential of Crotalaria L. – A Review
3.	Illiyun Litch Ohi ID: 14146037	Design and Optimization of 3D Printed Orodispersible Film
4.	Sabiha Akhter ID: 14346002	Use of Rescinnamine in Estrogen Receptor Alpha (ERα/ESR1) Positive Breast Cancer: An *in silico* Study
5.	Anupam Mondal ID: 14346009	A Short Review on Novel Anti-malarial Heterocyclic Aromatic Therapeutic Agents: Synthesis, Efficacy and Effectiveness of Potential Drug Candidates for Malaria
6.	Ruhani Amrin Mimiya ID: 14346010	HPLC Method Development for the Analysis of Linaglipitin
7.	Meher Niger Islam ID: 14346022	Voice Disorder among Academicians: A Review
8.	Sadman Sakib Bin Rashed ID: 15146012	Use of Combination of Statins as Antagonists of SPARC in Stomach Cancer: An *in silico* Study
9.	Syeda Maliha Ahmed ID: 15146032	Patient Care Management of Cancer
10.	Md. Kaykobad Hossain ID: 15146065	Solubility Profile of Linagliptin: Designing of Transdermal Formulation

Source: Department of Pharmacy

A Test to Measure the Effectiveness of Stem Cell Transplantation

A team of scientists have created a repeatable, non-invasive, timely technique to know whether or not transplanted stem cells are able to repair damaged heart tissues. Most cell types release exosomes which are small extracellular vesicles that are produced in the endosomal compartment of most eukaryotic cells. They were once thought of as a waste disposal system. However, recently it was proposed that they may also be part of a mechanism that helps cells send signals and can contain many types of biological molecules.



Rats were transplanted with stem cells after inducing a myocardial infarction, or heart attack and their respective levels of exosomes were then assessed. It was observed that the exosomes contained the signals of the cells they're derived from - proteins as well as nucleic acids and micro ribonucleic acids (miRNAs) - which affect receptor cells and remodel or regenerate the organ that was being targeted. The scientists named their test a "liquid biopsy." According to them, this study should be considered as the first stepping stone in understanding what stem cells do.

Source: University of Maryland Medical Center,

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New Viable Drug Target for Prostate Cancer

MYC is historically known to be a difficult oncogene to target in cancer therapy in the history of research community. An enzyme called PHLPP2 can benefit as a potential route to target the MYC gene. This was found in a recent study in the Journal of Cell Biology.

Prostate cancer is one of the most pervasive cancers among men and the second leading cause of cancer death in American men. Prostate cancer can metastasize to other parts of the body. As a result patients with metastatic cancer have a much-reduced rate of survival than if the cancer was contained in the organ. The researchers examined the natural process of prostate cancer metastasis in mice and how to halt these processes by deleting the PHLPP2 enzyme.

In response to extracellular communications and signal relays, the PHLPP2 enzyme is a critical protein in a signal pathway indicated in cell growth and survival. PHLPP2 cause the continuation and later metastasis in prostate cancer because it stabilizes and supports the MYC oncogene. Thus, if PHLPP2 is deleted, it can be proven as a viable drug target for the treatment of prostate cancer. PHLPP2 is the key to a signal pathway in the cell that controls cell growth and survival in response to extracellular communications and signal relays. It is required for prostate cancer progression to metastasis because it stabilizes and supports the MYC oncogene. When the researchers completely blocked PHLPP2, they were able to stop prostate cancer growth and metastasis. Additionally, the scientists remarked that deleting this enzyme didn't manifest signs of toxicity in mice or human cells. This makes PHLPP2 an attractive drug target for treating prostate cancer with possible applications across other types of cancers as well.

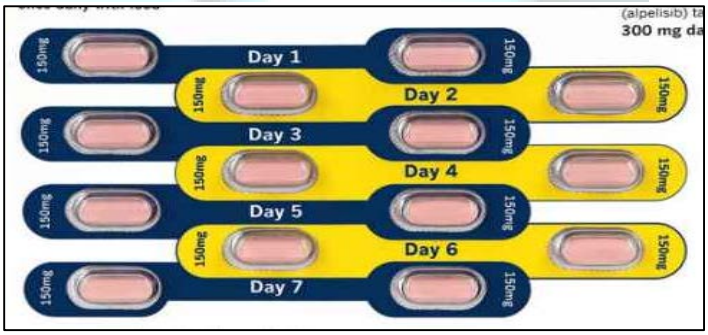
Source: Cold Spring Harbor Laboratory

First PI3K Inhibitor for Breast Cancer

The U.S. Food and Drug Administration has approved Piqray (alpelisib) tablets, to be used in conjunction with FDA-approved endocrine therapy fulvestrant for the treatment of postmenopausal women, and men, with hormone receptor (HR)-positive, human epidermal growth factor receptor 2 (HER2)-negative, PIK3CA-mutated, advanced or metastatic breast cancer.

Piqray is the first PI3K inhibitor to demonstrate a clinically meaningful benefit in treating patients with this type of breast cancer. The ability to target treatment to a patient's specific genetic mutation or biomarker is becoming increasingly common in cancer treatment. Companion diagnostic tests assist oncologists in selecting patients who may benefit from these targeted treatments. This drug is the first novel drug approved under the Real-Time Oncology Review pilot program. The updated Assessment Aid was used, which is a multidisciplinary review template that helps focus the written review on critical thinking and consistency and reduces time spent on administrative tasks.

It's important to note that metastatic breast cancer is breast cancer that has reached to other organs in the body most notably the bones, lungs, liver or brain. When breast cancer is hormone-receptor-positive, patients receive anti-hormonal endocrine therapy either alone or in combination with other medicines. With the efficacy of Piqray, it can significantly prolong progression-free survival in patients whose tumors had PIK3CA mutation. Some common side-effects of this medicine include high blood glucose levels, an increase in creatinine, diarrhea, and rash.



Source: FDA

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