

Industry Visits to Pharmaceutical Companies

Industry visits to various pharmaceutical companies were arranged for the students of the Department of Pharmacy, Brac University. The companies included were Beximco Pharmaceuticals Limited (Head Office), ACI Pharmaceuticals (Head Office), Roche Pharmaceuticals (Head Office) and Eskayef Pharmaceuticals Limited (Plant).

The students visited both the head offices and the factories and were provided with deep insights about how the different areas of the pharmaceutical companies function, particularly the marketing departments at the head offices and the production and quality control departments at the factories. Each visit also concluded with a question answer session for the students to resolve any queries or to gain further knowledge about the industrial setting.

The trips were highly useful to the students as they were exposed to the real-life applications of their theoretical knowledge in the practical industrial setting.



Source: [Department of Pharmacy](#)

Type 2 Diabetic Drug Reverses Heart Failure

A drug used for the treatment of diabetes, empagliflozin, was shown to improve the functioning of the heart by reversing the progression of heart failure in non-diabetic animal models.

This drug could be a promising treatment for heart failure in both non-diabetic and diabetic patients. In diabetes, empagliflozin limits renal sugar resorption in individuals with Type 2 diabetes. Studies have led researchers to wonder if the drug exerts an action which is independent of anti-diabetic activity and if that mechanism is implicated in heart failure prevention.

Investigators from the Atherothrombosis Research Unit tested the hypothesis by inducing heart failure in 14 non-diabetic pigs. For two months, they treated half of the animals with empagliflozin and the other group with a placebo. Researchers found that the drug reversed heart failure by improving cardiac metabolism thereby producing more energy and allowing the heart to function more strongly and efficiently as a result.

This study demonstrated that empagliflozin could potentially be useful for heart failure independently of a patient's diabetic status. More importantly, empagliflozin

switches cardiac metabolism toward fatty acid and ketone body consumption, and less glucose, as contrasted with heart failure patients (diabetic and non-diabetic), whose hearts consume more glucose and almost no fatty acids and produces less energy. This drug therefore allowed the production of more energy in the heart. This study offers a new therapeutic strategy in heart failure, something badly needed given that there have not been new effective drugs for heart failure since the 1990s. The researchers are currently studying whether empagliflozin is an effective heart failure treatment in non-diabetic human patients.



Source: [Science Daily](#)

A New Human Virus is Identified

No one knows exactly how many viruses there are on our planet, but among them 220 are known to infect people. In addition, there is an estimated 320,000 viruses that can infect mammals that are awaiting discovery. Now researchers can analyze genetic material from viruses in human samples with faster and more powerful techniques. Finding the ones that do can still pose challenges because there is no reference viral genome with which to compare a new viral sequence.

Scientists at the Perelman School of Medicine at the University of Pennsylvania have overcome difficulties to report a new viral family called Redondoviridae in Cell Host & Microbe. Redondoviruses were found to be highly prevalent in eukaryotic DNA, most commonly in the respiratory tract and oro-pharyngeal samples, whereas the sequences were most prevalent in periodontitis patients. Through this research, scientists have specifically identified a new DNA virus in the Redondoviridae family that may be involved in periodontitis.

In this study, the researchers sequenced the DNA and RNA and all the genetic material in viral particles floating in human lung samples. They compared their findings with known viral sequences in publicly available databases and identified short spans with sequences that were like a virus found in domesticated pig feces. The DNA sequences were recognized for their similarity to viral proteins.

It is the second most common DNA-based virus affecting the mouth, and the lungs, where it is linked to severe



illness. Redondovirus is often present in the lungs of intensive care unit patients, the researchers found. Now the researchers want to grow redondovirus in the lab so they can learn more about its biology and how it's related to disease. This future work can help show whether it is causing illness or is just correlated with it.

"Overall, we are asking whether we can take unknown DNA sequences and make sense of it by identifying new viruses from the whole universe of sequences in the human virome," said co-senior author Ronald G. Collman, MD, a professor of Pulmonary, Allergy and Critical Care.

If it is causative, it will open a new avenue to explore for diagnostics and treatment strategies of lung and dental disorders..

Source: [Perelman School of Medicine at the University of Pennsylvania, Cell Host & Microbe](#)

Drug-resistant *Candida Auris* is Spreading

A drug-resistant fungal yeast, *Candida auris*, is spreading throughout hospitals worldwide. Deemed "an urgent threat" by the Center for Disease Control and Prevention (CDC), *C. auris* has infected more than 600 people in the United States as of March 29, 2019. Cases of *C. auris* infections have been reported from multiple countries including Australia, China, France, Germany, India, Russia, Pakistan, and many more. The CDC estimates that more than 90% of *C. auris* infections are resistant to at least one type of drug, while 30% are resistant to two or more drugs. Typical *Candida* infections don't spread from patient to patient; however, *C. auris* was found to remain on skin and surfaces for extensive periods of time. Extreme precautions must be taken to prevent the spread of the infection, and once exposed hospital rooms and equipment must be thoroughly cleaned and disinfected with specific materials recommended by the CDC. In

addition to its resistance to anti-fungal drugs and transmission, it impacts those with weakened immune systems and infections are commonly reported in wounds, bloodstreams, and ears. The threat of *C. auris* infecting healthy individuals is very low.



Source: [Center for Disease Control and Prevention](#)