PHARMA HIGHLIGHTS

BRAC UNIVERSITY School of Pharmacy

ISSUE 113 | FEBRUARY 2023

Promoting Research Excellence: Quality Journal Publications Award Ceremony

An award ceremony acknowledging researchers of BRAC University was held on the 27th of February, 2024 at the BRAC University Multipurpose Hall. BRAC University's "Rewarding Quality Journal Publication" initiative, a comprehensive approach to elevate the institution's research profile is a reflection of the University's continued commitment to academic excellence and research advancement. The goal of this award was to inspire the researchers at BRAC University to contribute to top tiered (Q1) journals. The top 25% of the journals are designated as Q1 based on their recognition and significant impact of research. The initiative offered financial incentives including 100,000 BDT for the top 10% Q1 journals and 50,000 BDT for the remaining Q1 publications.

The ceremony commenced with a speech by the Pro-Vice Chancellor and Acting Vice Chancellor, Professor Syed Mahfuzul Aziz, followed by a speech from the chief guest, Architect Yeafesh Osman, the Honorable Minister, Ministry of Science and Technology, Government of the People's Republic of Bangladesh.

Ten faculty members from the School of Pharmacy were recipients of the prestigious award, including Professor Dr. Eva Rahman Kabir, Dean of the School of Pharmacy; Professor Dr. Hasina Yasmin, Assistant Dean and Program Director; Professor Dr. Raushanara Akhter; Professor Dr. Sharmind Neelotpol; Professor Dr. Mesbah Talukder; Dr. Afrina Afrose; Mohammad Kawsar Sharif Siam; Namara Mariam Chowdhury; Tanisha Tabassum Khan Sayka, and Tanisha Momtaz.

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Vonoprazon- A Game Changer in Acid-Related Disorder

The search for safer and more effective therapies for conditions connected to acid has been going on for decades in the field of gastroenterology. Among the many medications designed to treat the symptoms of conditions including peptic ulcers and gastroesophageal reflux disease (GERD), Vonoprazan has garnered a lot of attention lately.

Vonoprazan is a potassium competitive acid blocker (PCAB) that reversibly and competitively inhibits H+, K+-ATPase. As Vonoprazan inhibits the H+, K+-ATPase enzyme competitively so it's conferring numerous benefits over proton pump inhibitors (PPIs) which mainly bind proton pump irreversibly. The short half-life, inadequate acid suppression, delayed onset of action, and wide patient variability in efficacy due to CYP2C19 metabolism are some of the limitations of PPI therapies' effectiveness and success. On the other hand, Vonoprazon has rapid onset of action, suppresses acid more effectively than traditional PPIs and has long-lasting benefits even after a single daily dose and its mechanism of action produces more uniform acid suppression across patient groups than PPIs, which vary in potency among individuals because of genetic and metabolic variables.

PCAB development has been attempted by numerous pharmaceutical companies, however most of its clinical development has been shelved because of safety concerns or comparable efficacy to PPIs. Revaprazan was the first PCAB to be licensed for commercial use and was developed in Korea but later on Vonoprazan was licensed in Japan in 2015 which has a higher pKa value and a distinct chemical structure than other PCABs.

In addition, Vonoprazan was given FDA approval in May 2022 to treat H. pylori infection in a co-packaged medication that also included amoxicillin and clarithromycin. Studies have demonstrated that an H. pylori eradication rate of almost 90% is achieved by concurrent administration of Vonoprazan, Amoxicillin, and Clarithromycin.

It can be used in the treatment of gastric ulcer, duodenal ulcer, gastric MALT lymphoma, idiopathic thrombocytopenic purpura, the stomach after endoscopic resection of early-stage cancer, or Helicobacter pylori gastritis. Pharmacokinetics at single administration in healthy adult male patients, repeat once daily dosages of 10 - 40 mg of Vonoprazan after 7 days and it can be taken in without regard to food or timing of food. Though it has shown potential result in acid suppression and eradication of H. pylori bacteria but some side effects of Vonoprazon include diarrhea, nausea, vomiting, constipation, abdominal pain and skin rash.

Vonoprazan offers fast, strong, long-lasting acid suppression with a good safety record, which is a paradigm change in the treatment of acid-related diseases. With its introduction, a new chapter in the history of gastroenterology begins, giving doctors a useful tool to help patients with GERD and peptic ulcers heal and experience less discomfort. Vonoprazan's place in the gastroenterologist's toolbox is set to grow as more research and clinical experience are gained, which should lead to better outcomes for patients dealing with these difficult disorders.

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Exploring Condensins: Unraveling the Mysteries of Mitotic Genome Folding

Random coils of chromatin fiber

The Nobel Forum was the stage for an enlightening research lecture on the 15th of February, 2024, by Dr. Tatsuya Hirano, which delved into the intricate world of condensins and their pivotal role in mitotic genome folding. Hosted by Camilla Björkegren, this event unveiled the latest advancements in understanding these fascinating protein complexes.

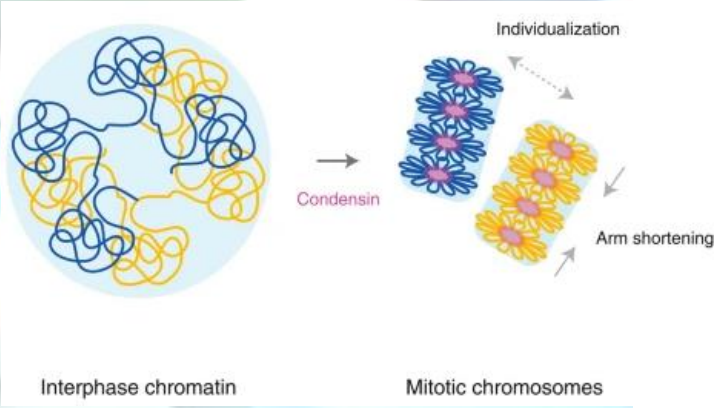
Condensins, first discovered in the early 1990s, have since captivated the attention of researchers for their indispensable function in orchestrating the organization and segregation of chromosomes during the cell division process. Dr. Hirano guided the attendees through the annals of condensin research, from its humble beginnings to the forefront of modern molecular biology.

At the heart of the lecture lay an exploration of the mechanisms underlying the actions of condensins. These large protein complexes act as molecular architects, and are capable of sculpting the chromatin into compact structures essential for proper chromosome segregation. Dr. Hirano's discussion illuminated the intricate choreography of molecular interactions that drive the functions of condensins, providing insight into their dynamic behavior during mitosis.

Central to the discourse was the emerging understanding of how condensins contribute to mitotic genome folding. Through a combination of biochemical studies, advanced imaging techniques, and genetic manipulations, researchers have begun to unravel the complexities of chromosome condensation and compaction mediated by condensins. By elucidating these mechanisms, scientists aim to decipher fundamental principles governing genome organization and stability. The collaborative efforts of researchers worldwide have propelled condensin research to new heights, offering tantalizing glimpses into the inner workings of the cell.

Moreover, Dr. Hirano's lecture shed light on the broader implications of condensin research. Beyond their known role in mitosis, condensins have been linked to various other cellular processes, including transcriptional regulation, DNA repair, and genome maintenance. Understanding the multifaceted functions of condensins not only expands our knowledge of cell biology but also holds potential implications for human health and disease.

In conclusion, Dr. Tatsuya Hirano's research promises to be a captivating exploration of condensins and their role in mitotic genome folding. From their discovery to cutting-edge insights into their mechanisms of action, attendees will be treated to a comprehensive overview of this fascinating area of molecular biology. As we unravel the mysteries of condensins, we inch closer to unlocking the secrets of life itself.



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