BRAC UNIVERSITY
Inspiring Excellence

PHARMA HIGHLIGHTS

BRAC UNIVERSITY
School of Pharmacy

ISSUE 108 | SEPTEMBER 2023

Celebration of World Pharmacists Week 2023

On the occasion of the annual World Pharmacists Week 2023 under the theme “Pharmacists strengthening health systems”, the School of Pharmacy organized an event in collaboration with Renata Limited, on September 27, 2023, at the UB02 auditorium. Every year, the school organizes a celebration on this occasion to encourage activities that promote and advocate for the role of pharmacists in improving health in every corner of the world.

With this year’s theme in mind, the school organized a series of events, including a Round Table Discussion, Research Proposal Presentations, and a Student Debate Competition. After the opening remarks by Professor Dr. Eva Rahman Kabir, Dean of the School of Pharmacy, the event was inaugurated by Dr. David Dowland, Registrar of Brac University. Distinguished guests from academia and the pharmaceutical industry were invited to participate in the round table discussion on “Role of Pharmacists is Integral to a Sustainable Health System”. The round table discussion was moderated by Dr. Hasina Yasmin, Professor, Associate Dean, and Program Director of the School of Pharmacy, and Dr. Sharmind Neelotpol, Professor of the School of Pharmacy.

During the round table discussion on the theme "Role of Pharmacists is integral to a Sustainable Health System" held as part of the annual World Pharmacists Week 2023 event, the School of Pharmacy had the privilege of hosting distinguished guests from academia and the pharmaceutical industry. Among those present were Md. Tanbir Sajib, Chief Marketing Officer of Renata Ltd.; Ms. Sadaf Saaz Siddiqi, a Molecular Biologist and CEO of EskeGen Ltd; Md. Motiar Rahman, Executive Director of Quality Assurance at Eskayef Pharmaceuticals Ltd.; Mr. Jahangir Hyder, a Business and Management Consultant; Khaled Alhossainy, Director of Marketing and Sales at IQVIA Limited (Former IMS); Mohammad Mizanur Rahman, General Manager of Marketing in the Marketing Strategy Department at Incepta Pharmaceuticals Ltd.; Sk. Abdul Goni, Head of Value & Access and Public Affairs at Novartis (Bangladesh) Limited; Dr. Syed Umar Khyyam, a Public Health Expert representing US Pharmacopeia; Mr. Wasif Bin Ahmed, Deputy Manager of Marketing at Synovia Pharma PLC; Dr. Malay Kanti Mridha, Professor and Deputy Dean at the James P Grant School of Public Health, BRAC University; and Susmita Laila, DGM- Global Regulatory Compliance at Eskayef Pharmaceuticals Ltd. These esteemed guests contributed their valuable insights to the discussion.

Subsequent segments of the event were more student-centric and was moderated by Ms. Namara Mariam Chowdhury, Senior Lecturer and Program Coordinator of the School of Pharmacy. Eleven student debate teams from first year to fourth year participated in four rounds of debate over various health system notions with the final round being held in front of distinguished guests and judges on the day of the event. The topic for the final was ‘Medical Research Should Focus on

Increasing the Health Span, Not the Lifespan', and after a very engrossing exchange of opinions, the team against the notion, consisting of Rana Tabassum Sababa and Naziah Anika Ahmed, were deemed victorious.

This was followed by research proposal presentations by third- and fourth-year students. After an exciting presentation of potential research topics, Fariha Tasneem was announced as the winner, with J.M. Aousiful Islam finishing as runner-up and Sizamoon Arabi as the 2nd runner-up. As part of Renata Limited's 30-year celebration, three research grants were awarded to the top three promising young students based on their research ideas presented during the event by Md. Tanbir Sajib, Chief Marketing Officer at Renata Limited, Professor Dr. Eva Rahman Kabir, and Dr. David Dowland.

The daylong celebration ended with an award-giving ceremony to the achievers and a certificate-giving ceremony to all participants. The event was closed by Professor Dr. Hasina Yasmin's vote of thanks to all who helped in every manner to make the event a success.

Seminar on "Oncology Drugs in Bangladesh and Role of Pharmaceutical Companies"

The field of oncology and cancer treatment has shown remarkable resilience. In contrast with other leading causes of death, the cancer death rate continued to decline from 2019 to 2020, experiencing a 1.5% reduction. This progress underscores a 33% overall reduction in cancer-related deaths since 1991, amounting to an estimated 3.8 million lives saved during this period. As part of the 'Toolbox for Success' series, a seminar on 'Oncology Drugs in Bangladesh and Role of Pharmaceutical Companies' was organized by the School of Pharmacy of Brac University on 11th September 2023 at the UB02 auditorium.

Oncology and the treatment of cancer have witnessed notable progress in recent years, and Bangladesh was no exception to this global trend. The availability and accessibility of oncology drugs in the country have improved significantly, thanks to the active involvement of pharmaceutical companies. To comprehend the then-current state of oncology drugs in Bangladesh and the crucial role played by pharmaceutical companies, Dr. Khandker Shamsul Arefin shared his real-life experience during the seminar. Dr. Arefin is a medical doctor by training and a pharmaceutical professional with 26 years of experience in marketing, sales, administration, and people management in that industry. He is a pharma industry expert in different capacities of marketing and business management with a track record of success in achieving and exceeding management, and business expectations. He is well-versed in formulating strategic and tactical plans that are successfully translated into business generation. He launched several global brands that successfully fulfilled the unmet needs of patients in Bangladesh. He is currently serving as General Manager of the Specialty Product Department involving Oncology & Virology business, Jenphar Bangladesh Limited- a concern of Radiant Pharmaceuticals Limited.

The seminar was particularly arranged for all the Pharmaceutical Marketing students but was also open to all pharmacy students and faculty members of BRAC University who were interested in learning about the evolving marketing strategies used in this sector. It was moderated by Nashrah Mustafa, Lecturer at the School of Pharmacy of BRAC University.

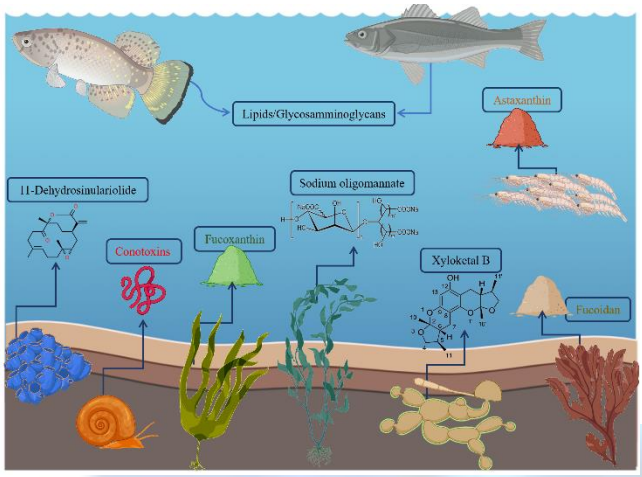
Newsletter Editorial Board: Namara Mariam Chowdhury, Luluel Maknun Fariha, Syeda Maliha Ahmed, Nashrah Mustafa

PHARMA HIGHLIGHTS

BRAC UNIVERSITY School of Pharmacy

ISSUE 108 | SEPTEMBER 2023

Marine Pharmacology: Drugs from the Ocean



More than 80% of flora and fauna on this earth are under the possession of the oceans. The vast, deep, and mysterious portion of this earth is the residence of numerous marine living creatures. Delicate corals, prawns, molluscs, shells, sea weeds, sponges, sea whips, squalamines, algae, etc. are the name of few. Interestingly, marine animals & plants retain vigorous pharmacological properties. The division of pharmaceutical sciences that deals with the pharmacological properties of marine living beings is called marine pharmacology.

The history goes back to the 1940s when the production of cephalosporin C by fungus acremonium chrysogenum initiated marine drug development. In the 1950s, the discovery of spongothymidine and spongouridine paved the way. However, it was not until 2004, when the FDA (U.S Food and Drug Administration) gave approval to a drug that directly came from the sea. Ziconotide, first among the marine drugs, used for blocking calcium channels and treating chronic pain, made it to FDA affirmation.

The process of marine drug development consecutively includes handling, collection and storage, chemical compound isolation, lead structure development, clinical trials, approval, and market entry. Similar to the biodiversity of the oceans, the classification of marine drugs exhibits variations. They are the anti-bacterial (Eicosapentanoic acid), anti-inflammatory (Spongia officinialis), neuroprotective (Ulva reticulata), anti-parasitic (Sarcotragus sp), anti-viral (Celtodoryx girardae), anticancer (Bryostatin), analgesic (Ziconotide), anti-microbial (Cephalosporin C), anti-malarial (Acanthella sp.) etc. Besides Ziconotide, the other three approved marine drugs are Cytarabine (Leukemias), Vidarabine (Herpes simplex viral infection), and Trabectedin (first anticancer-approved molecule - EU).

Furthermore, sponges enriched with terpenoids yield antibiotic activity. Sponge Discodermolide has shown an effect against breast cancer. On the other hand, brown macroalgae lessonia squeeze out gut microbiota in a high-fat diet. The capacity of green algae to produce bioactive compounds is not less than a boon to pharmacological research. Eventually, if there is any upcoming Covid - 19 pandemic, marine citizen tunicates may help us, as they show strong antiviral activity against RNA & DNA viruses. Certainly, you should not miss drugs like Eribulin, Ziconotide which are making an effort to work against neurodegenerative complications such as Alzheimer's disease.

Marine compounds can also be utilized in research processes and diagnostic tools. For instance, "Zebra Fish" whose gene is 70% similar to humans, due to its transparent body, gives advantages to examining internal structures. It is also cheaper than mice for cancer experiments.

The success of anything, let it be humans or others, depends on the synchronization between potentials and opportunities. This is where marine drugs lag behind. With quite promising potential, it has challenges. The complexity of the ocean environment, the rarity of marine compounds, the difficulty of reaching the right species, cost and supply problems, and the small amount of output (e.g., 1 gm of drug from 1 ton of sea squirts) - put the whole concept at stake. As everything is business, the dark tactics of "Big Pharma" about not disclosing the source of drugs (because it may increase competition in the market on that particular product) restrict us to know more.

To wrap it up, marine pharmacology opens the door to groundbreaking innovations. It's on us now how far we can go to make the "utopia of marine drugs" happen.

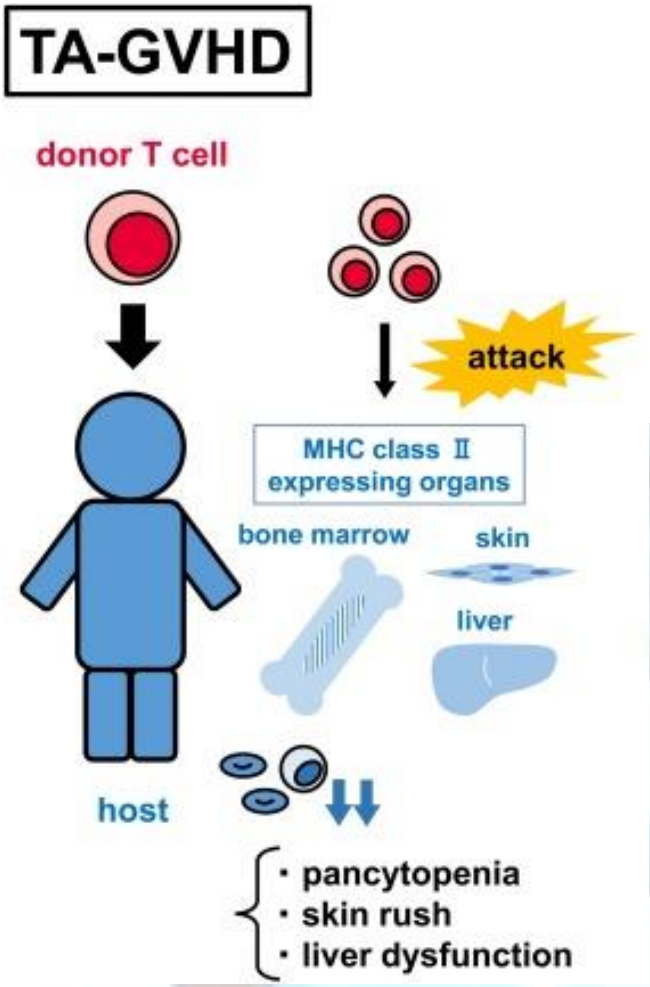
Written by: Bibi Khadiza (ID:22346057)

PHARMA HIGHLIGHTS

BRAC UNIVERSITY School of Pharmacy

ISSUE 108 | SEPTEMBER 2023

Unveiling the Hidden Threat: Transfusion-associated Graft-Versus-Host Disease



Blood transfusion-associated graft-versus-host disease, or TA-GVHD, is a rare but deadly side effect in which lymphocytes from the transfused blood part attack the recipient's tissues, especially the skin, bone marrow, and digestive system. Nonspecific symptoms are often misattributed to the patient's underlying disease or another condition, such as infection.

TA-GVHD has no known very effective therapies; hence, prevention is crucial. By treating the blood component to inactivate live lymphocytes before transfusion, this may be performed quite well. In contrast to GVHD, which is caused by allogeneic hematopoietic stem cell transplantation (allo-HCT), lymphocytes from the transfusion attack the recipient's bone marrow. This causes bone marrow aplasia and significant pancytopenia, which is usually fatal.

The similarity of human leukocyte antigens between the transfused lymphocytes and the host facilitates the survival of grafted lymphocytes in the host's immune response. This similarity, when combined with host immunosuppression, enables the tolerance of the grafted lymphocytes. The occurrence of TA-GVHD may be attributed to any blood component that contains live T lymphocytes. It is worth noting that fresher components are more likely to include intact cells, thereby increasing the potential for disease development.

The key to preventing TA-GVHD is typically the irradiation of blood components given to susceptible recipients. Treatment is typically ineffective. In the future, methods such as pathogen inactivation may play an essential role. Billingham proposed three fundamental requirements for GVHD:

(1) immunocompetent transplanted cells;

(2) host antigens identifiable by the transplanted cells but absent in the donor; and

(3) a host incapable of mounting an immune response against the transplanted cells.

T-cells are the immunocompetent cells that target human leukocyte antigens (HLAs) expressed in host tissues. GVHD still develops in 40% of HLA-identical transplant recipients. In this situation, a mismatch of minor histocompatibility antigens (such as HY, HA-3) that are necessary for minor histocompatibility is what causes GVHD. Tissue damage caused by the recipient's underlying disease, an infection, or pretransplant conditioning is also a key factor in setting off the inflammatory response. This happens when pro-inflammatory cytokines are made, and antigen-presenting cells (APCs) are turned on.

Written by: Syeda Maliha Tarannum (ID:22146065)