

## Journal club session 2

On the 26th of October 2023, at approximately 12:50 pm, members of the Biochemical Society orchestrated our second session of the Journal Club talk. The focal point of this session was the exploration of the groundbreaking and timely topic: CRISPR/Cas9 - Gene Editing Technology, and Toxin Tales: Unraveling the Chemistry Behind Nature's Deadly Weapons. The insightful and engaging presentations were delivered by Shivani S and Prakhar Jain, both in their third year of Biochemistry studies.

Commencing the session, Prakhar delved into the intricate world of toxins, elucidating their diverse forms, including biological toxins, chemical toxins, and biotoxins. Biological toxins, such as botulinum toxin and snake venom, emanate from living organisms like bacteria and animals. On the contrary, chemical toxins are synthetic substances like pesticides and heavy metals. Biotoxins, produced by organisms such as algae, can contaminate seafood, leading to illnesses like paralytic shellfish poisoning. Prakhar emphasized the significance of comprehending toxin mechanisms for developing defenses against bioterrorism and highlighted their role in environmental science, where certain bacteria can be employed for detoxifying pollutants in bioremediation efforts aimed at cleaning up contaminated sites.

Following Prakhar's illuminating discourse, Shivani S took the stage to expound on how CRISPR/Cas9 has emerged as a revolutionary gene-editing technology, capturing considerable attention in the scientific community. Originating from a natural bacterial defense mechanism against viral infections, the CRISPR system utilizes specific DNA sequences in bacteria, known as Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR), to store information about past viral attacks. The protein "Cas9" serves as molecular scissors, precisely cutting DNA at targeted locations. While presenting its vast potential in various applications, Shivani underscored the importance of addressing ethical and safety concerns in its usage. Responsible and regulated research and applications are crucial in ensuring the technology's ethical utilization. The rapid development and continuous research surrounding CRISPR/Cas9 render it a subject of sustained interest and scrutiny in both scientific and ethical communities.

For the Images of the Journal club, kindly refer to the Photo Gallery:

<https://www.sju.edu.in/gallery/70>