

INSTITUTE COLLOQUIUM

Division of Chemical Sciences



INDIAN INSTITUTE OF
SCIENCE

SYNTHESIS OF NATURAL PRODUCTS TODAY AND THE CHALLENGES OF TOMORROW

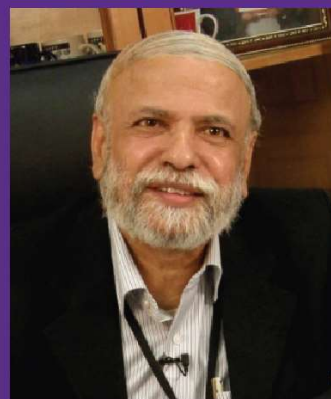
ABSTRACT

Synthesis of structurally complex and biologically active natural products remains as fascinating and challenging as ever. Chemical synthesis of natural products allows us to carry out structural modifications of molecules to improve their selectivity, potency and pharmacological properties that have made tremendous inroads in the drug discovery today. Semisynthesis of molecules having improved physiological properties is another niche area of synthetic organic chemistry. In addition, pruning the unrequired appendages from structurally complex natural products has given rise to many core pharmacophores with improved efficacies. While modern chemical biology approaches like polypharmacology for repurposing the already approved drugs or synthetic biology to make useful molecules by engineered bacteria / yeast are gaining strong footholds, synthetic organic chemists are also gearing up to meet the challenges of present age of scalability by equipping themselves with diverse skills. Discovery of new smart reactions and simplification of target molecules are some of the hallmarks of modern organic synthesis facilitating new drug discovery.

Cyclooligomerization – a simple way to make complex structures – has been an area of intense research interests in our group. Beside its application in the synthesis of some symmetric cyclic natural products, we have extensively utilized this approach in developing many amide-linked designer cyclic molecules for diverse biological activities. Details of some of our recent works will be presented.

ABOUT THE SPEAKER

Dr. Tushar Kanti Chakraborty, FNA, FASc, FNASc, JC Bose Fellow and Professor, Department of Organic Chemistry, Indian Institute of Science joined IISc in January 2014 after serving as the Director of CSIR-Central Drug Research Institute, Lucknow. He is the recipient of the SSB Prize in Chemistry. He is also an elected Fellow of INSA, IASc and NASI. He has received the prestigious JC Bose Fellowship from SERB and several other awards like NASI-Reliance Platinum Jubilee Award in Physical Sciences, CRSI medals, Pt. Jawaharlal Nehru National Award in Science, etc. Dr. Chakraborty specializes in the area of organic synthesis, especially total synthesis of natural products; peptides and designer peptidomimetic molecules for potential therapeutic applications.



TUSHAR KANTI CHAKRABORTY

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**THURSDAY,
12 OCTOBER 2017**

Faculty Hall,
Main Building, IISc

4:00 pm to 5:00 pm

Professor Anurag Kumar,
Director, IISc will preside

Tea at 5:00 pm

All are welcome