

Discovery of Drugs Targeting G Protein-coupled Receptors

Overview

G protein-coupled receptors (GPCRs) play an eminent role for drug discovery as more than half of all drugs currently in the market target members of this superfamily of membrane-bound proteins. Based on the large number of different GPCRs and the specific tissue distribution of receptor subtypes, the treatment of a large variety of different diseases may be improved by novel ligands for such receptors.

In this course, various aspects of drug discovery will be reviewed. The course will provide an overview of drug-receptor interaction in general with a focus on GPCRs. Overall, the course will offer a detailed account of the field to the participants with an interest in drug development, which may spawn interest in more detailed training in specific aspects of receptor pharmacology and drug design. Using the example of adenosine receptors, a subfamily of GPCRs, the development of small molecules that specifically interact with individual receptors subtypes will be discussed. Such ligands might help in devising therapeutic strategies for the treatment of numerous pathophysiological conditions, e.g., CNS diseases like Parkinson's disease, inflammatory conditions like asthma, and various cardiovascular diseases.

Course Details

Modules	The course will cover the following subjects: <ul style="list-style-type: none">- Drug-receptor interactions with GPCRs; mechanisms of downstream GPCR signaling-Physiological and pathophysiological roles of adenosine-Biology and pharmacology of adenosine receptor subtypes-Therapeutic options based on adenosine receptors-Strategies in ligand development for adenosine receptors-GPCR structure, modeling and docking studies in ligand development-Adenosine receptor agonists and specific mechanism of receptor activation-Adenosine receptor antagonists, partial agonists and allosteric ligands
Course duration	Nov 21- Nov 26, 2016
You Should Attend If...	<ul style="list-style-type: none">▪ you are a student at any level with an interest in drug development, medicinal chemistry, pharmacology▪ you are a faculty from academic institutions with such interests▪ You are a researcher from industry with such interests
Fees	The participation fees for taking the course is as follows: Participants from abroad : US \$300 Industry/ Research Organizations: Rs 5,000 Academic Institutions: Students: Rs 2000 ; Faculty : Rs 3000 The above fee is towards participation in the course and the course materials. The participants will be provided with accommodation on payment/availability basis. Number of participants for the course will be limited to fifty

The Faculty



Prof. Dr. Karl-Norbert Klotz is a Professor of Pharmacology at the University of Würzburg, Germany. He is also the Administrative Director of the Rudolf-Virchow-Center (2004 to present), which is a central research facility for Biomedical Research at the University of Würzburg. Although the work of Dr. Klotz covers 30 years of work on several GPCRs including adrenergic receptors, N-formyl peptide receptors and NPY receptors, the interest of his laboratory predominantly focuses on adenosine receptor research. The enduring interaction with more than a dozen groups of medicinal chemists worldwide made his laboratory something like a 'reference lab' for the pharmacological characterization of new adenosine receptor ligands. Several radioligands for adenosine receptors were developed in his group. His work is documented in over 140 publications in international peer-reviewed journals.



Prof. Dr. Ranju Bansal is a Professor of Pharmaceutical Chemistry at University Institute of Pharmaceutical Sciences, Panjab University, Chandigarh, India. She is an active researcher and academician for last 25 years. She has published more than 75 original research papers in various international journals of repute and has 5 patents to her credit. She has been awarded with prestigious Commonwealth Academic Staff Fellowship to work at University of Strathclyde, United Kingdom where she worked towards the development of xanthine based antiasthmatic agents. Till now 10 students have been awarded Ph. D. under her guidance. She is an active member of various professional bodies like UGC, AICTE and PCI. She has been designated as deputy coordinator of UGC-CAS programme of UIPS. Recently she has published research in Chemical Reviews, a highest ranking journal in chemical sciences with an impact factor of 45.6. She has widely travelled in India and abroad and is also successfully collaborating with various national and international scientists. Her areas of research interest include design, synthesis and evaluation of xanthine- and steroid-derived new chemical entities of medicinal significance for asthma and cancer therapy.

Course Co-ordinator

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