The Singapore Bioimaging Consortium (SBIC)
presents a seminar

on

"Imaging α7 Nicotinic Acetylcholine Receptors: Focus on cognitive deficits in Neuropsychiatric disorders"

Speaker: **Dr Mohammed Shoaib**
Newcastle University, UK
Host : **Dr Sakthivel Sekar**
Date : **Friday, 30 October 2015**
Time : **2.00pm – 3.00pm**
Venue : **SBIC Seminar Room**
11 Biopolis Way
Level 2, Helios Building, Singapore 138667
(Please enter via Level 1)

Abstract

Non-invasive approaches to understand the role of α7 nicotinic acetylcholine receptors (nAChRs) in various disease states will provide tools to develop novel therapeutic treatments. Specifically, most forms of neuropsychiatric disorders present cognitive decline as a common symptom and early detection using MRI/PET imaging may provide a biomarker before the quantifiable deposition of protein markers. Thus the strategy will be to demonstrate that quantification of α7 subtype of nAChRs may provide insights into the cognitive profile of patients. Preclinical evidence will be presented with a range of selective ligands that target the α7 or the α4β2 subtypes of nAChRs that are capable of enhancing various cognitive domains. Specifically, the attention set-shifting task will be used to demonstrate nicotinic agonists to enhance decision-making in rats, while the odour span task will focus on memory capacity of working memory to demonstrate that this domain can also be enhanced by targeting α7 and α4β2 nAChR subtypes. Functional MR-Imaging/spectroscopy has a key role to complement research advancements in this arena and lead candidate ligands for development as PET tracers, shall be evaluated in the behavioural models before they are labelled for microPET investigations.

About the Speaker

Dr Mohammed Shoaib is a senior lecturer at the Institute of Neuroscience of Newcastle University. For the past 25 years, he has been actively involved with the study of drugs of abuse in animals. Having completed his PhD on nicotine addiction under the supervision of Dr Ian P. Stolerman at the Institute of Psychiatry, King's College London, his interests with other drugs were generated from the post-doctoral experience at the Max-Planck Institute for Psychiatry, in Munich working with Dr Toni Shippenberg, and at the Addiction Research Centre in Baltimore, where he worked

with Dr Steve Goldberg. Dr Shoaib has been supported by postdoctoral and research grants from The Wellcome Trust, the Medical Research Council and National Institute of Drug Abuse (US). Over the past 25 years, Dr Shoaib has been conducting research on the neurobiological determinants of nicotine dependence with particular emphasis on developing more appropriate models to examine the clinical efficacy of smoking cessation agents. In addition to the dependence-producing effects, another line of research he has developed in his laboratory focuses on cognitive enhancement. The laboratory is also examining the beneficial effects of nicotine and related analogues on various cognitive domains such as attention, working memory and cognitive flexibility and its potential use for treating impairments associated with neuropsychiatric disorders such as schizophrenia and dementia.

--- Admission is free and all are welcome ---