Institute of Molecular and Cell Biology
A*STAR

SEMINAR ANNOUNCEMENT

We would like to invite you to attend this seminar hosted by Prof. Vinay Tergaonkar:

Date: 28 August 2019, Wednesday
Time: 11:00AM – 11:30AM
Venue: Level 3, IMCB Seminar Room 3-46, Proteos, Biopolis

Speaker: Prof. Sumit Chanda, Professor & Director, Infectious & Inflammatory Disease Program, Sanford Burnham Prebys Medical Discovery Institute
Title: Innate immune sensing of HIV-1 infection requires a two-step authentication process

Abstract
Dendritic cells (DCs) play a critical role in the immune response to viral infection through the facilitation of cell intrinsic antiviral activity and the activation of adaptive immunity. HIV-1 infection of DCs triggers cGAS dependent innate immune response. Innate immunity is the first line of defense against foreign pathogens and initiated by sensing of pathogen-associated molecular patterns (PAMPs) by cellular pattern recognition
receptors (PRRs). Both viral proteins and nucleic acids can serve as PAMPs and the efficiency of cellular PRR engagement with PAMPs regulates innate immune activation. We have recently identified PQBP1 protein as an essential cofactor of the cGAS sensing of retroviral DNA, but not of other DNA-encoding viruses. We now find that PQBP1 orchestrates a two-step authentication process that is required to license innate immune activation. Specifically, PQBP1 was found to recognize the incoming viral capsid, which in turn enables the recruitment of cGAS and its activation by HIV DNA.
This strategy enables the innate immune system to specifically and robustly respond to low abundance microbial PAMPs, including a single reverse transcribed HIV-1 DNA molecule, while protecting from aberrant immune activation.

Biography
Sumit Chanda earned his Ph.D. from Stanford University in 2001, and received his post-doctoral training at the Genomics Institute of the Novartis Research Foundation (GNF). He subsequently transitioned to a Group Leader position, and established his research group in the Division of Cellular Genomics at GNF. In 2007, he joined the Infectious and Inflammatory Disease Center at the Burnham Institute for Medical Research as an Associate Professor. Dr. Chanda was promoted to Professor in 2013. In 2015, he was appointed Director of the Immunity and Pathogenesis Program at Sanford Burnham Prebys Medical Discovery Institute.

ALL ARE WELCOME *(No registration required)*

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