

## **Colloquium**

### **Immunogen design for HIV-1 and influenza**

### **Raghavan Varadarajan**

### **IISc, Bangalore**

Human immunodeficiency virus 1 (HIV-1) is an important human pathogen which causes over a million deaths annually. Despite extensive efforts for several decades, we are far from an HIV-1 vaccine. While some infected people have antibodies that can neutralize many different strains of HIV-1, it has so far not been possible to elicit such antibodies through vaccination. We have used structure guided protein design to develop immunogens derived from Env, the major surface protein of the virus. One such design successfully elicited antibodies that could protect non-human primates against HIV-1 infection. Respiratory viruses are arguably one of the biggest human global health threats. Influenza is one such respiratory virus that can cause millions of deaths during a pandemic. In contrast to HIV-1, there are good vaccines against seasonal influenza but these need to be updated annually because of rapid viral evolution. These vaccines elicit antibodies against variable regions of hemagglutinin (HA), the major surface protein of influenza virus. We have designed immunogens based on the conserved stem of HA. In mice, these molecules are able to confer protection to homologous and heterologous, lethal influenza challenge. Targeting the highly conserved HA stem domain with a microbially produced immunogen is a novel, scalable vaccine strategy which can both improve current seasonal vaccines and enhance our ability to combat future influenza pandemics.

***Thursday, Jun 27<sup>th</sup> 2019***

***4:00 PM (Tea/Coffee at 3:30 PM)***

***Auditorium, TIFR-H***