Department of Biological Sciences

Graduate Seminar

Speaker- Akhilesh Kumar Advisor- Dr. Himanshu Kumar

Date/Time- 16/6/17, 3:30 pm Venue- L3, LHC

Identification of a novel microbial restriction factor

At sub-cellular level, the outcome of the host-pathogen interactions depends on intracellular molecules and signalling pathways activated in different cell-types. Some of these molecules play a key role in defending from microbial pathogens while others are exploited by pathogens for evasion and establishment within the host. During pathogen infections the plasma membrane and underlying actin cytoskeleton are the first barriers. For a successful infection, the pathogen needs to overcome these cellular barrier utilizing some surface receptor and subsequently, activation of these receptors leads to cytoskeletal rearrangement and internalization of the pathogen [1,2].

We have identified a membrane-associated membrane protein, known to participate in cell survival and growth and its dysregulation have been shown to be associated with the progression of cancer. However, its expression and functions during pathogenic infection are unknown. it is induced by various RNA viruses, and we have found that it helps cells in limiting viral pathogenesis. Also, we have data supporting that, this protein not only abolishes the viral load but also bacterial load suggesting it is a novel host restriction factor and could be a novel theraputic target during viral and bacterial infection.

References:

[1]. Cristoph et al. Virus Movements on the Plasma Membrane Support Infection and Transmission between Cells. PLoS Pathog. 2009 Nov.

[2]. [3]. Cossart P, Helenius A. Endocytosis of Viruses and Bacteria. Cold Spring Harb Perspect Biol. 2014; 6(8): 016972.