

Type : Seminar
Date & Time : September 5th, 3:30 pm
Venue : VCR, IET campus
Speaker : Dr. S. Jha
Title : “Understanding Inflammation in the Brain: Implications for the Therapy of Multiple Sclerosis”

Abstract:

Inflammation in the brain (neuroinflammation) is recognized as a key component of many neurological diseases including multiple sclerosis (MS), Parkinson’s disease, and Alzheimer’s disease. An understanding of the mechanisms by which neuroinflammation occurs and the molecular mediators involved in this process is necessary for identification of potential therapeutic targets. Our laboratory and others discovered the NLR gene family, which consists of important regulators of inflammation and immunity. One family member, NLRP3 is important for processing and release of several pro-inflammatory molecules including the cytokines IL-1 β and IL-18. Since mutations in the human NLRP3 gene are linked with several autoinflammatory syndromes, some of which present with chronic neuroinflammation and MS-like lesions, we hypothesized that NLRP3 may mediate a role in neuroinflammation and in MS. This study sought to assess the physiologic role of NLRP3 and other components of the inflammasome complex in neuroinflammation in vivo in a mouse model of Multiple sclerosis. Additionally, we also investigated the role of NLRP3 in reparative processes in the brain. This study is the first to demonstrate that the NLRP3 inflammasome plays an important role in vivo in neuroinflammation. The specific benefit of this research is the identification of a novel pathway for therapeutic intervention, since inhibition of IL-18 by small molecule compounds might not only reduce neuroinflammation but also enhance repair.