



**REGIONAL CENTRE FOR BIOTECHNOLOGY**  
**Seminar series**

---

**Innate Sensing, Inflammasomes and NLRs:  
New Insights Revealed by Imaging and Systems  
Approaches**

**Naeha Subramanian, PhD**

**National Institute of Allergy and Infectious Diseases, NIH  
Bethesda, USA**

**Tuesday, April 23, 2013  
11:00 am  
Seminar Room**

---



# Naeha Subramanian, PhD

## Abstract

Nod-like receptors (NLRs) form the largest family of intracellular innate immune sensors comprising more than 20 members in humans. Their most well recognized function is as cytosolic sensors for pathogen-associated and danger-associated signals. Upon activation, some NLRs such as NLRP3, form a macromolecular signaling complex called the 'inflammasome' that promotes production of the potent cytokine IL-1 $\beta$ . My talk will describe recent new insights into the mechanism and intracellular location of inflammasome activation using imaging approaches. Apart from the inflammasome-forming NLRs that have been studied intensively, the physiological roles of most of the more than 20 human NLRs remain unknown or poorly defined. Because gain-of-function mutations and polymorphisms in NLRs are linked to a variety of autoinflammatory and autoimmune diseases, there is a clear medical need to understand NLR response pathways. Therefore, another aspect of my talk will describe a systems approach to decipher the biological functions of several different NLRs from transcriptional data that can be informatically mined to gain insight into function. Together, these approaches should help gain a comprehensive understanding of signaling through NLRs and their roles in immunity.

---