

Keck Seminar
Friday, January 25, 4pm
BRC Auditorium
6500 Main, Corner of University & Main



Systems Approaches to Understand the Innate Immune Response

by

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Abstract:

The innate immune response (IIR) is a stereotypic metazoan cellular response pathway rapidly triggered when invading microorganisms are identified or cell damage is incurred. The IIR is composed of inducible intracellular protein-protein interaction networks whose association is mediated by specific post-translational modifications (PTMs). Activation of the IIR results in an intracellular signaling cascade that leads to rapid activation of two essential transcription factors, the nuclear factor- κ B (NF- κ B) and the IFN regulatory factor (IRF), that, in turn, activate the expression of protective and pro-inflammatory gene networks. Understanding the IIR at the systems level will result in novel insight into host-defence mechanisms. In this talk, I will describe our recent studies to understand the dynamic connectivity of the transcriptional effectors of the IIR and the genetic networks under their control. These studies incorporate experiment approaches using quantitative proteomics, dynamic imaging, mathematical modeling and chromatin immunoprecipitation-next generation sequencing.



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