



Pacific Center for  
Emerging Infectious Diseases  
Research



UNIVERSITY  
of HAWAII  
MĀNOA

## COBRE RESEARCH SEMINAR SERIES

# Pattern Recognition of Viral Diseases by Natural Killer Cells: Emphasis on Natural Cytotoxicity Receptors

Natural killer (NK) cells contribute substantially to the innate immune response by providing crucial early defense against viral infections and cellular transformation. NK cell activity is a balance between signals delivered by inhibitory and activating receptors. Major human NK activating receptors include NKG2D and the Natural Cytotoxicity Receptors (NCRs): NKp46 (NCR1), NKp44 (NCR2), and NKp30 (NCR3). The matter of the pathogen- and tumor-associated ligands recognized by the NCRs has been a subject of intense research ever since their identification more than a decade ago. Expression patterns recognized by NCRs include pathogen-derived, pathogen-induced and tumor-associated cellular "self" ligands. Virus-exposed cells may exhibit both types of virus-associated ligands. Transformed cells, in contrast, exhibit only "self" ligands which are derived from both the intracellular- and membrane-associated milieu of self molecules. These expression patterns allow for NCR-based NK cell discrimination between healthy and affected cells, in the realms of both pathogenic infection and potential tumorigenesis. The focus of this presentation is on the current knowledge regarding the identities of NCR ligands and the type of target cells expressing these ligands. **Emphasis will be given to NK involvement and recognition during influenza and flavivirus infections.**

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Wednesday, August 28, 2013 at 12:00 noon  
John A. Burns School of Medicine, Kaka'ako  
Medical Education Building, Room 304  
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