

**THE UNIVERSITY OF ALBERTA**

**Department of Mathematical and Statistical Sciences**

# **Special Talk**

**“Mathematical approaches to understanding T cell activation by specific antigen”**

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**Monday, January 21, 2008  
CAB 657 @ 3:00 p.m.**

**Abstract:**

T cells of the immune system are activated by interactions with antigen-presenting cells (APC). T cell receptors (TCR) on the T cell surface transiently bind to defined signatures of infection (antigens) on the APC. Productive TCR-antigen binding leads to biochemical signals within the T cell and an immune response. T cell responses occur even when the antigen is present at very low concentrations. It has been suggested that during the T cell-APC interaction, over the course of minutes to hours, each antigen can bind to a series of TCR and that such "serial engagement" is a key determinant of the T cell response. In this talk I will describe the biological questions in more detail and show how mathematical tools can be used to better understand the experimental data.