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Dynamics of killer T cells and immunodominance in the influenza infection

Abdessamad Tridane
Arizona State University

Abstract: Antigen-specific killer T cells ($CD8^+$ cells) play an important role in virus clearance. The aim of this talk is to introduce and analyze mathematical models of the dynamics of killer T -cells and the differential expansion of antigen-specific $CD8^+$ cell, called immunodominance, in the influenza infection. Understanding qualitative impact of killer T cells is very important for the design of T-cell-based vaccines that promote early virus clearance. The systematical analysis of these model systems show that the behaviors of the models are similar for high killer T cells density generating reasonable dynamics. Our models try to shed some light on possible explanations of the some aspect immunodominance in influenza infection by studying the effect of the epitope of the antigen presented on the surface of the infected cells and the effect of Interferon-γ

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