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Libin Rong* (rong2@oakland.edu), Department of Math and Stats, Rochester, MI 48309.

Modeling viral control by CD8+ T cells. Preliminary report.

CD8+ T cells play an important role in controlling HIV or SIV (simian immunodeficiency viruses) replication. The most convincing evidence comes from the experiment of CD8+ T cell depletion in SIV-infected nonhuman primates. Despite an obvious temporal relationship between CD8 decrease (increase) and viral load increase (decrease), there are still debates about the underlying explanation for the experimental data. In this talk, I will use a mathematical model to study the dynamics of both T cells and virus during CD8+ T cell depletion and subsequent recovery. The relative contributions to viral control by the target cell availability and specific CD8+ T cell immune responses (direct cell killing vs. non-killing) will be evaluated. (Received August 28, 2016)