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Michael Y Li* (mli@math.ualberta.ca), Applied Mathematics Institute, University of Alberta, Edmonton, Alberta T6G 2G1, Canada. *Differential Equation Models of Immune Response to HTLV-I Infection of CD4 T Cells*. Preliminary report.

A mathematical model for HTLV-I infection of CD⁺4 T cells that incorporates the cytotoxic T-cell (CTL) response is investigated. Our mathematical analysis establishes that the global dynamics are determined by two threshold parameters R_0 and R_1 , which are termed as the basic reproduction numbers for viral persistence and for CTL response, respectively. We discuss how parameter R_1 could be used to distinguish asymptomatic carriers from patients with active diseases (HAM/TSP), and as an important control parameter for preventing the development of HAM/TSP. This is collaborative work with Horacio Gomez-Acevedo. (Received September 03, 2008)