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Brynja Raquel Kohler* (Brynja.Kohler@usu.edu), Department of Mathematics and Statistics,
3900 Old Main Hill, Logan, UT 84321. *Incorporating Continuous, Antigen-Dependent T-Cell
Differentiation in Viral Infection Dynamics.*

We report on the derivation and analysis of a model for tracking the distribution of T cell populations as a function of antigen experience gained through interactions with dendritic cells in lymph nodes during the activation phase of an immune response. This model is motivated by the heterogeneity of specific T cell lineages which have been observed from early stages in an immune response with different characteristics including the capacity to become short lived effector cells or memory cells. Linear reaction-hyperbolic systems of partial differential equations in one space dimension arise in the model formulation. We also incorporate this model in a viral dynamics simulation and discuss the fit with experimental systems such as Murine Lymphocytic Choriomeningitis Virus. (Received February 01, 2009)