1039-92-82 **Lisette dePillis** (depillis@hmc.edu), Department of Mathematics, 301 Platt Blvd., Claremont, CA 91711, and **Angela Gallegos*** (angela@oxy.edu), Department of Mathematics, 1600 Campus Road, Los Angeles, CA 90041. *A Mathematical Model of Circulating Dendritic Cells in Cancer.* Preliminary report.

The use of dendritic cells (DCs) as a key part of immunotherapy for cancer has become a focus of clinical research in recent years. Dendritic cells, a type of antigen presenting cell, are recognized as being potent immunostimulatory cells. DC-based immunotherapies have already been tested in both mice and humans with sometimes promising results against a variety of cancers. The potential of DC-based therapy gives rise to a number of still unanswered questions. For example, ideal dosing levels as well as the effect of injection site have yet to be determined. The goal of our work is to develop a model that can be used to test hypotheses about DCs in a virtual environment. To this end, we have created a delay differential equations model representing the interaction of a growing tumor mass with immune system components. We incorporate activated and inactivated effector killer cells that are stimulated both by the presence of the tumor itself, and by DCs. The model tracks the circulation of the DCs and the effector cell populations through the spleen, blood and tumor. Our model provides a structure through which we may test treatment questions including those of injection site and dosage efficacy. (Received March 06, 2008)