1002-37-247   **Judy Day*** (`jum18@pitt.edu`), 301 Thackeray Hall, Mathematics Department, Pittsburgh, PA 15260, **Jonathan Rubin**, University of Pittsburgh, **Claudio Lagoa**, University of Pittsburgh, **Yoram Vodovotz**, University of Pittsburgh, **Gilles Clermont**, University of Pittsburgh, and **Carson C. Chow**, Lab. for Biological Modeling, NIDDK, NIH. *A Reduced Model of the Immune Response to Endotoxin and Trauma with a Geometric Approach.*

When a host is exposed to bacterial toxins or is compromised by a traumatic insult, an inflammatory response is initiated to restore the system back to health. Experiments have established that multiple doses of endotoxin can result in a temporary condition known as endotoxin tolerance. Understanding this phenomenon could be important to understanding aspects of the inflammatory response during a bacterial infection. In addition, literature has confirmed that the immune response is suppressed following a traumatic injury, making the host more susceptible to infection. By considering a mathematical model that captures these scenarios and by calculating the separatrix between a "healthy" fixed point and an "unhealthy" fixed point, we hope to offer insight into possible therapeutic interventions. (Received September 20, 2004)