

#

Judging Dept.

Thomas Zieziulewicz

Student

EHT

5

David Lawrence

Dept or Program Years in program

Mentor

Use of Micro-Fabricated Devices to View Horizontal Chemotaxis of Leukocyte Subsets from Stressed and Listeria Infected Mice

Author (s)

Thomas Zieziulewicz, David Inglis, Niru Mishra, Robert Austin and David Lawrence

It has been well documented that there is an increase in susceptibility to infection associated with stress. However the reason for this increase in susceptibility is largely unknown and will no doubt be multifaceted in nature, but differential leukocyte trafficking, which is altered following stress (i.e. leukocytopenia), may play a critical role. We have been using micro-fabricated devices to evaluate alterations of immune cell parameters such as deformability and chemotaxis in response to Acute Cold Restraint Stress (ACRS) with or without *Listeria monocytogenes* infection. These devices which have allowed us to mimic several in vivo physiological conditions such as capillary size, fluid flow and the three-dimensional extra cellular matrix could potentially allow for microscopic evaluation and analysis of alterations in cellular adhesion, deformability, diapedesis and chemotaxis in an in vitro capillary model.