

EASTERN MICHIGAN UNIVERSITY

Chemistry Department Seminar

Monday, March 30, 2015

4:00 p.m.

Science Complex 156

Dr. Peter Toogood

Lycera Corp., Ann Arbor, MI

Restoring Immune Balance Through Modulation of Immune Metabolism

Autoimmune diseases and cancer both occur in part as a result of dysregulation of the natural immune response. Autoimmune disease is characterized by chronic activation of lymphocytes that recognize and attack naturally occurring, endogenous targets. These chronically activated lymphocytes exhibit a distinct bioenergetic profile in comparison to acutely activated immune cells, which provides a target for therapeutic intervention. Lycera is employing modulators of the mitochondrial ATPase to treat autoimmune conditions such as inflammatory bowel disease (IBD). The talk will include a description of the identification and characterization of Lycera's current lead candidate for treating IBD. In contrast, it is increasingly recognized that cancer cells exploit mechanisms to suppress the normal immune response that would otherwise recognize and clear these cells as foreign. Retinoid-related Orphan Receptor gamma (ROR γ) is a nuclear hormone receptor that functions as the master transcription regulator for type 17 T cells. The identification of endogenous ROR γ ligands will be described and data will be presented to demonstrate that activation of ROR γ increases the ability of type 17 T cells to inhibit tumor growth.