

1135-34-2581 **Jennifer A Anderson*** (janderson34@twu.edu), Denton, TX , and **Ellina Grigorieva.**
Modeling Autoimmune Disease with Differential Equations. Preliminary report.

We will build a mathematical model of a developed autoimmune process considering cell autoimmunity that plays the main role in any autoimmune disorder using a system of three non-linear differential equations. As model variables, we will use the concentration of target cells not bearing damage, concentration of cytotoxic T lymphocytes against given cells, and the concentration of the tissue-specific antigen formed because of the destruction of the target cells. All concentrations will be expressed in the moles per liter. We will investigate the model over the time interval $[0, T]$ given either by months or days. (Received September 26, 2017)