

Jamie Lou Mallonga

INVESTIGATION OF THE PROTEIN EXPRESSION FOR *PSEUDOMONAS PUTIDA KT2440* GROWN ON SUCCINIC ACID IN THE PRESENCE OF CAFFEINE, UTILIZING TWO DIMENSIONAL ELECTROPHORESIS. *Jamie Lou Mallonga, L. Tubbs**, *P. Craig**, Department of Chemistry, jrm5109@rit.edu, letsch@rit.edu, pacsch@rit.edu.

The Proteomics Lab is working to develop a method that can compliment or replace the Ames Test and can detect carcinogens and mutagens. The proteomics method is based on studying the effects of test compounds on the protein expressions of the bacteria, *Pseudomonas putida KT2440*, using two-dimensional gel electrophoresis. This specific project observes the protein expression of the bacteria when grown in succinic acid in the presence of caffeine. Caffeine was chosen as a test compound because it appears as a false positive on the Ames Test. The work includes growing the bacteria in the presence of caffeine until it reaches the point where bacterial growth is exponential, commonly referred to as the mid-log point. Once the bacteria are grown up to the mid-log point, the proteins will be extracted and quantified using the two dimensions of separation. Analysis of the proteins produced in this process will be used to create the proteomic signature needed to compare to the proteomic signature produced by the other test compounds used in the overall project.