

The effect of the Sup35 prion protein on gene expression in *Saccharomyces cerevisiae*. *A. M. Sitterly and I. M. Evans**, Department of Biological Sciences, ams8150@rit.edu, imesbi@rit.edu

A prion protein is a protein that can change into an alternative conformation. This alternative conformation can form aggregates and cause proteins in the original shape to fold into this secondary shape. Prion proteins are known to cause diseases such as “mad cow” disease in cattle and Creutzfeldt-Jakob disease in humans. In yeast, the Sup35 protein acts as a prion, which is called [psi-] in its original form and [PSI+] in its prion conformation. The [PSI+] protein seems to cause an increase in the yeast growth rate, rather than causing disease as in other organisms. The Sup35 protein is involved in translational termination and in its [PSI+] form acts as a suppressor and reads through stop codons. The possible differences in gene expression were studied by extracting RNA from [PSI+] and [psi-] yeast, reverse transcribing the RNA into cDNA, labeling each with a different dye, and hybridizing onto a microarray printed with all of the *S. cerevisiae* genes. The microarrays were then scanned and the images produced were analyzed. Definite differences in gene expression exist between the [PSI+] and [psi-] strains. We are currently analyzing the degree of gene expression in each strain, as well as the reproducibility of the data.