**2/26/2012**

**Abstract Draft**

**Escherichia *coli* is a common bacterium harbored by mammals in the lower intestine. It is commonly found in beef and some fruits thus entering the food chain often causing harmful but not fatal side effects. The study of the senescence in E. *coli* through isolation and manipulation using Rapamycin, caloric restriction, and hydrogen peroxide can provide a more solid understanding of the factors involved in the overall prevalence and replicative aging of the bacterium. The aim of this study is to grow E.*coli* (PRS413) under conditions favoring caloric restriction to observe and plot the overall replicative lifespan of E.*coli.* If theories developed regarding senescence in the presence of caloric restriction are applicable to E.*coli,* a longer replicative lifespan is expected when the availability of glucose is limited. Escherichia *coli* does not have a pathway for Rapamycin, therefore when introduced it is expected that the replicative lifespan of the bacterium will not increase. However, if this hypothesis is proven incorrect and the introduction of Rapamycin increases the replicative life span of E. *coli (*PRS413), further investigation would be warranted into the possible pathways Rapamycin could inhibit within the bacterium. If successful this experimental design could provide key information into the overall reduction of the prevalence of Escherichia *coli* within the food chain.**