



**CALIFORNIA STATE SCIENCE FAIR
2007 PROJECT SUMMARY**

Name(s) Jeffrey C. Peterson	Project Number S1416
Project Title Yeast Lipoprotein Resistivity to Sulfide Inhibition	
Abstract Objectives/Goals To see if a state of anaerobic respiration can be induced into <i>S. cerevisiae</i> . Methods/Materials FeS was ionized using muriatic acid to create H ₂ S gas. Yeast and sugar mixtures were then exposed to this gas in 4 trials. Two contain some baking soda to neutralize the acidity of the gas. 6 others were then used as control. These consisted of sodium sulfate, sodium bisulfite, and untreated, having 2 of each. Every other trial is sealed. Measurements of the density of each solution is taken every 12 hours, while each is also aerated each time as well. Results The baking soda free H ₂ S gas and the untreated control both decreased in density. However, the H ₂ S gas exposed solution settled at a much lower density than that of the control. The other controls didn't show a great enough change in water density to be accounted for. Conclusions/Discussion The yeast and sugar solution exposed to the H ₂ S without any baking soda had the greatest decrease in density. This means that the sulfide ions had indeed inhibited the ETC in the mitochondria of the yeast, shutting off aerobic respiration and producing alcohol. Because alcohol has a lower density than water, the decrease was greater than that of the control. The other controls simply killed the yeast.	
Summary Statement This project explores the induction of an artificial suspended animation on yeast.	
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