



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Benjamin G. Jimenez</b>	<b>Project Number</b> <b>S0406</b>
<b>Project Title</b> <b>Spectroscopic Analysis of Crystal Violet in Chymotrypsinogen A-Surfactant Solutions</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective is to investigate the protein form-function relationship in photoresponsive surfactant and Crystal Violet solution after exposure to various light energies in order to observe possible changes in protein conformation.</p> <p><b>Methods/Materials</b> 10 Solutions were made with azoTAB surfactant concentrations ranging from 0-20 mM. Each solution was ~0.50 mL with 10 mg/mL chymotrypsinogen-A protein and 10 micromolar crystal violet. Solutions were analyzed with UV-Vis Spectroscopy under two conditions of visible light and UV-light. The CV peaks were curve fitted to determine the maximum wavelength and Absorbance at the max wavelength.</p> <p><b>Results</b> Different light illumination causes a shift in the max wavelength and a change in Absorbance of the solutions. Upon changing Visible to UV light environments, the observed max wavelength decreased and there was an increase in Absorbance.</p> <p><b>Conclusions/Discussion</b> My conclusion is that the differences in Absorbance and wavelength indicate there is a change in the form of the protein.</p>	
<b>Summary Statement</b> My project is about protein misfolding and how the protein form-function relationship may be manipulated through the use of photoresponsive surfactants.	
<b>Help Received</b> Used lab equipment at the University of Southern California under the supervision of USC graduate student Andrea Hamill.	