



**CALIFORNIA STATE SCIENCE FAIR  
2005 PROJECT SUMMARY**

<b>Name(s)</b> Morgan S. Keefe	<b>Project Number</b> <b>J1317</b>
<b>Project Title</b> <b>The Use of Alloplastic Implants as Antibiotic Delivery Devices in Facial Reconstructive Surgery</b>	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> The objective of this project was to determine whether alloplastic implants can be used to deliver antibiotics to the site of implantation during facial reconstructive surgery.</p> <p><b>Methods/Materials</b> Using controls and an identified bacterial population plated on Mueller Hinton Agar, I tested the variables of time and type of immersion of the implant in antibiotic with regards to the effectiveness of bacterial killing for the alloplasts e-ptfe and Phdpe.</p> <p><b>Results</b> Negative pressure infultration of the implants showed a highly significant bacterial killing over the controls.</p> <p><b>Conclusions/Discussion</b> Alloplastic implants bieng used in surgical reconstruction can be used to deliver antibiotics to an implant site, which can subsequently decrease the risk of infesction.</p>	
<b>Summary Statement</b> Determining if alloplastic implants can be used to potentially deliver antibiotics to a surgical implant site. (in-vitro)	
<b>Help Received</b> Captain Michael Keefe helped with protocol design; Microbiology Laboratory at Naval Medical Center San Diego helped with materials and design of culture technique; Dr. Derrin Wester helped with statistical analysis; Captain Kelly S. Keefe helped with board design.	