



**CALIFORNIA STATE SCIENCE FAIR  
2002 PROJECT SUMMARY**

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<b>Project Title</b> Researching the Future: Bionic Humans	
<p style="text-align: center;"><b>Abstract</b></p> <p><b>Objectives/Goals</b> It seems inevitable that the widespread availability of more powerful computer chips will lead to their incorporation into the human body. Scientists should figure out what negative effects this might have on the human body before such experiments are done. This set of experiments tested whether or not the presence of two types of silicon affected a key biological process.</p> <p><b>Methods/Materials</b> Every cell moves using cytoplasmic flow. A slime mold was used as the model organism for cytoplasmic flow. Physarum plasmodia were exposed to two types of silicon. Effects of this exposure on result oscillations in cytoplasmic strands and gross plasmodial migration were measured by microscopy, digital movies, and comparison of areas of growth.</p> <p><b>Results</b> These measures indicated that the presence of silicon does not inhibit cytoplasmic flow or plasmodial migration.</p> <p><b>Conclusions/Discussion</b> The initial results suggest that the use of silicon chips in human tissue wouldn't have a negative effect on human health.</p>	
<b>Summary Statement</b> Testing the effects of silicon on a key biological process called cytoplasmic flow.	
<b>Help Received</b> Used lab equipment at Cal Poly Pomona University under supervision of Dr. Len Troncale; Microinjection help by Dr. Sep Eskandari; Digital movie editing aid by Kevin Frank	