



**CALIFORNIA STATE SCIENCE FAIR
2011 PROJECT SUMMARY**

Name(s) Jack H. Beck	Project Number J2101
Project Title Blocking UV Rays: Investigating Sunguard Treated Fabric	
Abstract Objectives/Goals Skin cancer is a problem in the state of California. Sunscreens don't always get the job done because the UV rays can get through your clothing. I heard about a new product called Rit Sunguard, a laundry additive that adds an extra 25 UPF to an ordinary piece of clothing's original 5 UPF (ultraviolet protection factor) by using a special UV blocking chemical. I decided I would test Rit Sunguard to see if it is as effective as advertised. My hypothesis was that the product would be effective in blocking UV rays. Methods/Materials In my experiment I used a UV-C lamp (5 cm from plates) and placed testing plates loaded with bacteria in it and covered it with treated and untreated shirts and in each trial I had two plates open to direct exposure. The bacteria source was contaminated creek water added to coli scan easy gel. I then placed the plates and two positive controls in an incubator for several days. Then removed the plates and counted the colonies. Results The shirts were white, gray, red or navy and cotton or polyester. The results were inconclusive, but it appeared the Rit Sunguard enhanced the UV protection in many cases. The shirts all provided protection since the plates exposed to UVC light alone were sterile or showed little growth. Conclusions/Discussion Though the results were inconclusive, they still proved valuable. I learned that the Sunguard product may work to a certain extent, and that all the shirts seemed to provide protection. Difficulty in controlling how much fabric was stretched when placed over the Petri dish may have affected the results. I would recommend performing more tests to confirm the results.	
Summary Statement I tested Rit Sunguard on shirt fabric and used a UV-C lamp and bacteria to investigate whether Rit Sunguard was effective in blocking UV rays	
Help Received Thanks to my teacher who provided guidance, appropriate equipment for my tests and supervised safety. Thanks to my mother and father for support and transportation.	