



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

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| Name(s) Natalya Kostandova; Akhila Pamula | Project Number S1419 |
| Project Title The Effect of Curcumin on the Synthesis of Leukotriene B4: Phase II | |
| <p style="text-align: center;">Abstract</p> <p>Objectives/Goals The goal of this project is to determine the effect of curcumin, a component in a common South Asian spice, on a chemical that plays a major role in the inflammatory process. Curcumin, which is found in turmeric, has many potential benefits. Most importantly, it is a natural product, meaning that if found to have beneficial pharmaceutical properties, it will be more readily accessible in terms of quantity and price to the majority of the world's population.</p> <p>Methods/Materials ELISA testing was used in order to test the effect of curcumin on human Microvascular Endothelial Cells (hMVEC) and to compare it to a positive control in the form of a known inhibitor of leukotriene B4 (LTB4): nordihydroguaiaretic acid, or NDGA.</p> <p>Results Raw data appears to indicate that curcumin inhibits the biosynthesis of LTB4. However, statistical analysis shows that it is not significant.</p> <p>Conclusions/Discussion While statistical analysis indicates that we cannot conclude that curcumin inhibits the synthesis of LTB4, there is reason to believe that curcumin does in fact inhibit the process. Over time, for example, the p-values decrease, thus indicating increasing significance. Furthermore, there is still over a 50 percent chance that curcumin inhibits the synthesis of LTB4. Also, it is interesting to note that, according to the ELISA testing and statistical analysis, that curcumin appears to be more effective than NDGA. This is significant in that NDGA is a known inhibitor of the synthesis of LTB4. Thus, it can be stipulated that curcumin is an even more potent inhibitor of the synthesis of LTB4.</p> | |
| Summary Statement The project analyzes the effect of a natural compound on Leukotriene B4, a moderator of the inflammatory process. | |
| Help Received Used lab equipment at University of California, Riverside under the supervision of Dr. Martins-Green, Dr. Yan, and Dr. Yao. | |