



CALIFORNIA STATE SCIENCE FAIR 2016 PROJECT SUMMARY

Name(s) Sabreen Alam	Project Number 36793
Project Title Natural Foods: Better to Fight Angiogenesis than Cancer Drugs?	
Abstract Objectives/Goals The objective of this project is to test if natural foods are just as effective as cancer drugs in stopping the growth of a cancerous tumor at its different stages. Methods/Materials A variety of foods were selected to be tested for their kaempferol, myricetin, and quercetin amounts. The USDA Flavonoid Content Database was used to find the amount of each flavonoid in the selected foods. Two scientific papers that had scans of a cancerous tumor and its blood vessels were used to find the growth pattern of the tumor at three key stages as well as the number of major blood vessels connecting to the tumor at each stage. The amount of quercetin, kaempferol, and myricetin needed to stop the growth of the tumor at each stage was then found, as well as food combinations that would help the person recover or stop benign tumor growth. All of the information collected was used to compare the effectiveness of natural foods with cancer drugs. Then, I created an app using Android SDK to provide the food combinations to the public. The combinations were generated based on the region they live in, the size of their tumor, and their dietary restrictions. Results Green chili, red onion, and ginger had inhibitor levels that met the average amount of angiogenesis inhibitors in cancer drugs. Other foods did not have as much angiogenesis inhibitors in them individually as cancer drugs did, but when they were combined, they had equal inhibitor levels as modern cancer drugs. Unlike cancer drugs, natural foods do not have any dangerous side effects, such as liver and kidney damage. This indicates that eating the proper amount of natural foods will stop the growth of a tumor just as well as cancer drugs would. In addition, this shows that an inexpensive and safer option than cancer drugs is available to stop cancer. Conclusions/Discussion Using this data, cancer can be eradicated from the human body. To do this, the patient would have to eat angiogenesis inhibitor-containing foods on a daily basis. These foods would be just as effective as cancer drugs, but safer because they contain none of the adverse side effects of modern drugs, nor do they have to be assisted with sessions of chemotherapy. Being of low cost to grow, these foods could be cultivated all around the world. Third world countries would especially benefit from this since cancer drugs are inaccessible to citizens because of the extremely high price of these medicines.	
Summary Statement This investigation clearly demonstrates that natural foods are just as effective, but safer than modern cancer drugs in stopping the growth of a cancerous tumor.	
Help Received The USDA Flavonoid Content Database (v. 3.2) was used to find the amounts of angiogenesis inhibitors in natural foods. Dave Barney, a Product Manager in Google, suggested that I use the Android SDK to develop my app. I would like to thank my parents, Dr. Li, and Mr. Grubb for their moral support.	