



**CALIFORNIA STATE SCIENCE FAIR
2015 PROJECT SUMMARY**

Name(s) Lynn Lu	Project Number J2106
Project Title The Anti-Cancer Effect of Green Tea and Ashwagandha	
Abstract Objectives/Goals The object of this study is to investigate if there is a therapeutic benefit in combining green tea and ashwagandha, in the form of dietary supplements, to fight against cancer. Methods/Materials Three human cancer cell lines including breast cancer MCF-7, prostate cancer PC3 cells, and pancreatic cancer Hs766t cells were used. Two different concentrations of green tea (44.7 and 89.4 ug/ml) and ashwagandha (2.35 and 4.71 ug/ml) were used to evaluate the effect of the drug concentrations. The drug effect was studied by short-term MTT assay (immediate analysis of drug effect after 48 hour treatment) and long-term clonogenic assay. The experiment was conducted in duplicate to improve the accuracy of the results. Results For MTT assay, when combining green tea (44.7 ug/ml) and ashwagandha (2.35 ug/ml) together, the growth inhibitions are 71.9 %, <1% and 21.1% for MCF7, PC3 and Hs766t cells. When testing separately and combining green tea (89.4 ug/ml) and ashwagandha (4.71 ug/ml) together, the growth inhibitions are 82.7%, 64.0% and 76.6% respectively. For clonogenic assay, when separately testing and combining green tea (89.4 ug/ml) and ashwagandha (4.71 ug/ml) together, the decreases in colony formation are 89%, 99.9% and 83.2% respectively. Conclusions/Discussion The result first verified that green tea and ashwagandha had anticancer effects against three different cancer cells. Breast MCF-7 cancer cell line showed highest sensitivity followed by pancreatic cancer Hs766t cell line and finally the most resistant, the prostate PC3 cancer cell line. There were no synergetic effects observed in breast MCF-7 and PC3 cell line using the combination of the two drugs. The synergetic effects were observed in the pancreatic Hs766t cancer cell line using the combination at low concentrations.	
Summary Statement My project tests the anti-cancer effects of green tea and ashwagandha on breast MC-7, prostate PC3, and pancreatic Hs766t cell lines.	
Help Received Used lab equipment at Optimum Therapeutics under the supervision of Dr Ze Lu.	