



**CALIFORNIA STATE SCIENCE FAIR
2017 PROJECT SUMMARY**

Name(s) Ilene M. Shturman	Project Number S0523
Project Title The Effect of the Genistein, an Isoflavone Commonly Produced from Soy, on the Growth of Breast Cancer Cell Lines	
<p style="text-align: center;">Abstract</p> <p>Objectives/Goals Studies say that the isoflavones cause an increase of cellular proliferation while other studies disagree and conclude that the isoflavones either have no effect on the growth of breast cancer cell lines or that the isoflavones actually decrease the rate of cell division of certain breast cancer cell lines. A 24 hour and a 48 hour period was conducted to see the short term and a longer term effect of the genistein on human breast cancer cells, as well as controls to compare the dosage wells.</p> <p>Methods/Materials Breast cancer cell line MDA-MB-231</p> <p>Since the concentration of the genistein is 20 ug/ml which equals to 8mM which is a 1:4 ratio with media. All together, for the dosage wells, dose 20 ul per well with a ratio of 2:20 genistein to 1% PCP buffer. For the control wells pipette 20 ul of 1% PCP buffer into each well. Follow the cell prep on the cell counting protocol after the 24 and 48 hour periods and take pictures of the cells under a microscope.</p> <p>Results In the 24 hour period wells, the average was 101,667 cells. The dead cell average was 20,000 cells. The alive cell average was 231,667 cells. Lastly for the 24 hour period wells, the control dead cell average was 15,000. For the alive, dosed cells for the 48 hour period, the average cell count was 200,000. The dead cells for the 48 hour period that were dosed had an average cell count of 11,667. The alive cells for the control 48 hour period had an average count of 260,000. The dead control cells also for the 48 hour period had an average cell count of 10,000.</p> <p>Conclusions/Discussion Firstly, in the 24 hour period trial one well for the genistein cells had an extremely low cell count most likely because the cell pellet during the cell counting procedure was probably accidentally washed away by pipetting. However the other two trials for the genistein for the 24 hour period had a lower average than the control cell average for the 24 hour period which means that the genistein still proves to be antiproliferative. The 48 hour period wells still prove that the genistein is antiproliferative. In order to test how genistein really affects the cancerous cells in the long run, it would be optimal to conduct another set of wells that would be exposed to the genistein for a longer period of time which is useful because of the controversy about this subject with different credible sources.</p>	
Summary Statement I discovered that genistein, an isoflavone produced from soy, has antiproliferative effects on breast cancer cells.	
Help Received Brown University allowed me to use the laboratory for my project and Dr. Sanders provided support in making sure the research was completely safe.	