

# Evaluating the Effects of Resveratrol on the Lysis of Skin Melanoma Cells

Holland, Kayla (School: Rockdale Magnet School for Science and Technology)

The prevalence of skin melanoma in humans has shown a substantial yearly increase, leading to skin melanoma comprising of almost all skin cancer deaths. The NKG2DL protein, an essential protein in the immune system, is missing from the surface of many types of cancers. Resveratrol, a plant-based compound, promotes the expression of the NKG2DL protein in cancerous cells. Resveratrol was used to investigate if the NKG2DL protein could potentially encourage the lysis of skin melanoma cells and increase cancerous cell death by promoting the expression of the NKG2DL protein. Both Trans-Resveratrol and a Resveratrol supplement were applied to skin cancer cells in low, medium, high, and control percentages. The cancer cells were incubated at 37 degrees Celsius for 48 hours and an MTT Assay was performed. The results showed that as the concentration of both forms of Resveratrol increased, cell viability decreased substantially. The cells with Resveratrol had a p-value of .03 compared to the significance value of .05 further supporting that Resveratrol increased the amount of cell death in the cancer cells. Further research on this project includes applying the NKG2DL protein directly to cancer cells to see how this would affect cell viability. Resveratrol shows promise as an aid in encouraging the lysis of melanoma cancer cells. It could be used globally to treat other types of cancers as well including breast cancer and small cell lung cancer. Doctors could find ways to include Resveratrol in a patient's diet or administer a drug with the NKG2DL protein intravenously.

## Awards Won:

NC State College of Engineering: Scholarship to attend NC State Engineering Summer Camp