CALIFORNIA STATE SCIENCE FAIR
2012 PROJECT SUMMARY

Name(s)

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Project Number

S1719

Project Title

Investigating the Inhibitory Effect of Resveratrol on Ovarian Cancer Cells

Abstract

Objectives/Goals

The experimental approach was formulated in order to investigate resveratrol#s pharmacologic influence on ovarian ascites cancer and to determine whether resveratrol can be used as a therapeutic drug for treating ovarian cancer.
i. Determine if Resveratrol inhibits Ovarian Cancer Cells
ii. Determine if Resvertrol's inhibitory effect acts dose-dependently
iii. Determine if SIRT1 expression is vital to Resveratrol's inhibitory effect
Hypothesis: SIRT1 is vital to the inhibitory effect of resveratrol on the growth of human ovarian ascites cancer cells

Methods/Materials

Drug Administration: 25um, 50um, and 100um doses of Resveratrol, Sirtinol, an SIRT1 inhibitor, and combined treatment were used to treat normal ovarian ascites cells, and ovarian ascites cancer cells
Cell Culture: Cells were incubated after treatment for 72 hours in order for the drugs to take an effect. Three tests were conducted on the samples after; Trypan Blue hemocytometr cell count test, MTT assay, and flow cytometry test. The experiment design integrates the use of these tests, and the results are cross referenced, which is original in this field.
Trypan Blue hemoctyometer: Plated cells are extracted and diluted with pbs and trypan blue then counted with a hemacytometer under a microscope.
MTT Assay: Samples are treated with MTT and undergo a spectrophotometer which indicates optical density that correlates with cell viability
Flow Cytometry: Samples undergo a flow cytometer and are examined for CD34 markers, which are exhibited by Cancer stem cells.

Results

Resveratrol resulted in inhibition of ovarian ascites cancer cells as suggested by the Cell Count data, optical density, and flow cytometry scatters. In addition, this inhibitory effect increases with increasing dosages. Combined treatment of Resveratrol and Sirtinol indicated less inhibition for all three tests

Conclusions/Discussion

These findings are consistent with the hypothesis that resveratrol inhibits the growth of ovarian cancer cells and SIRT1 expression influences the inhibiton process of Resveratrol. In conclusion, resveratrol may help to activate apoptosis in cancer cells, and its inhibitory effect on cancer cell growth can be applied in the development of anticancer therapies.

Summary Statement

Determine if Resveratrol inhibits ovarian cancer and see if SIRT1 is important in its process

Help Received

Used lab equipment at Taipei Medical University under the supervision of Dr. Daniel Tzu-Bi Shih