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Antineoplastic Effects of *Rhodiola crenulata* on B16F10 Melanomas
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Abstract

Hypothesis:

Rhodiola crenulata extract is derived from Tibetan plant's roots and has been shown to have anti-cancer properties. Previously, we have shown that Rhodiola extract has toxic effects on B16 F10 mouse melanoma cells in vitro. The purpose of this project was to determine if a daily topical application of Rhodiola extract on melanoma tumors in mice leads to a reduction in tumor size and improved survival.

Methods:

1×10^6 B16F10 melanoma cells were subcutaneously injected above the scapular fat pad in C57/BL6 mice. Rhodiola extract was dissolved in a 10% DMSO Eucerine based cream. Twenty-four hours following tumor implantation, daily topical Rhodiola treatment began. Tumor volume measurements began on the fifth day of therapy and were measured daily thereafter.

Results:

Tumors treated with the topical Rhodiola cream tended to grow more radially, rather than vertically when compared to vehicle control. Mice treated with the vehicle control reached a tumor volume of 500mm^3 in 10 days, whereas mice treated with the 5% and 10% Rhodiola reached a tumor volume of 500mm^3 in 11 and 15 days respectively. All mice treated with vehicle control met requirements for euthanasia by day 14. In contrast, mice treated with the 5% Rhodiola met requirements for euthanasia by day 15 except for one mouse who exhibited tumor regression and survived for over 30 days. All mice treated with the 10% Rhodiola cream met requirements for euthanasia by day 20.

Conclusion:

Although analysis from our experiment is still in progress, we have observed a gross difference in tumors of mice treated with topical application of Rhodiola cream in comparison with mice treated with a topical application of a vehicle control cream. Future work will focus on histological evaluation of harvested tumors to determine microscopic differences in tumor characteristics.