May 20th, 12:30 PM

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Comments
Abstract of poster presented at the 2014 UMass Center for Clinical and Translational Science Research Retreat, held on May 20, 2014 at the University of Massachusetts Medical School, Worcester, Mass.

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:
$1x10^6$ 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.