Sea Cucumber Extracts (Holothuria cinerascens and Holothuria impatiens' Cuvierian Tubules) Decrease Cancer Cell Viability

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In traditional Chinese medicine, sea cucumbers are commonly eaten to treat blood and kidney problems, which is why it was hypothesized that the sea cucumber species Holothuria cinerascens and Holothuria impatiens' cuvierian tubules would posses anticancer properties, specifically against HCT-116 colorectal cancer. The sea cucumber extracts were prepared in methonal (MeOH) and boiling deionized water. The cancer cells were cultured in their respective media and maintained at 37˚C in a 5% CO2 humidified incubator. Cell viability was analyzed by cell counting via hemocytometer, Sulforhodamine B (SRB) Assay and Cyquant XTT Assay. DAPI dye was used to observe the DNA of the cells and the Keller Kiliani test was used to identify cardiac glycosides in the extracts. All data were compared and evaluated for significance via The Student's t-test. Compared to the MeOH controls, the H. cinerascens and Cuvierian tubule MeOH extracts significantly inhibited the growth of HCT-116, as well as at dilutions of 50% and 30% ($p<0.05$). However, the 30% dilution of H. cinerascens MeOH and full concentration of the Cuvierian tubule MeOH extracts did not show significant growth inhibition against HEK-293 human embryonic kidney cells. Both extracts have shown to inhibit growth in HCT-116 around it's G1 phase. The Keller Kiliani test confirmed the presence of cardiac glycosides within both extracts. Overall, H. cinerascens and H. impatiens' cuvierian tubules MeOH extracts show signs of significant cancer growth inhibition, which correlate with the apoptotic inducing effects from the identified cardiac glycosides in both extracts.