Investigating the Synergistic Effect of Ivermectin and C-Phycocyanin on Cell Viability in Human Triple Negative Breast Cancer Cells

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Triple negative breast cancer is notoriously difficult to treat bacause it lacks estrogen receptors, progesterone receptors, and HER2 protein that drive the majority of breast cancers and therefore is unresponsive to standard hormone therapy and drugs that target the HER2 protein. MDA-MB-31 cells are established as an aggressive cell line used to study the biology and treatment of TNBC. This study was intended to discover whether using ivermectin and C-Phycocyanin to target two different pathways in MDA-MB-231 cells could be helpful in minimizing TNBC progression. MDA-MB-231 cells were treated with different concentrations of ivermectin and C-Phycocyanin for 72 hours alone. Cell viability was measured with an MTS assay using a plate reader at 490 nm. Cells were then treated with different ratios of ivermectin and C-Phycocyanin to test whether the compounds work synergistically to reduce cell viability. A Bliss Independence Model suggested synergy between ivermectin and C-Phycocyanin in reducing cell viability in MDA-MB-231 cells by 79.7%, and an ANOVA test revealed both ivermectin and C-Phycocyanin to be effective independently in reducing cell viability in MDA-MB-231 cells. This research suggested a synergistic effect between ivermectin and C-Phycocyanin in reducing cell viability in human triple negative breast cancer cells.

Awards Won:

Drug, Chemical &amp

Associated Technologies Association (DCAT): DCAT First Prize