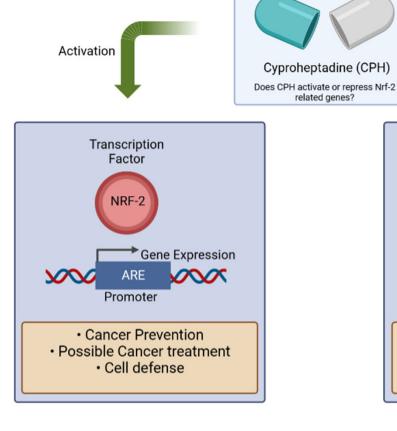
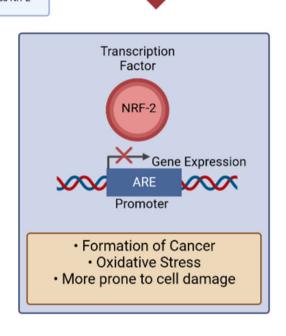
## Investigating Cyproheptadine as an NRF2 Activator in Human Liver Cancer Cells

Mohammed Khedr, Pochung Jordan Chou, Ah-nNg Tony Kong Rutgers, The State University of New Jersey

The buildup of free radicals due to UV radiation and the body's metabolism can cause damage and mutations in DNA, leading to the formation of tumors and cancers. The NRF2-ARE pathway has been studied and is identified as a pathway against oxidative stress. Cyproheptadine (CPH), an FDA-approved allergy medication, has reported its effects on histamine and serotonin. We sought to investigate the antioxidant properties of Cyproheptadine and its mechanism by studying the NRF2-ARE pathway in HepG2 cells. The cytotoxicity of CPH was first tested by treating the cells with different concentrations (0- 30 uM) of CPH for 24h using the MTS assay. The influence of CPH on the NRF2-ARE pathway was investigated by ARE-Luciferase assay and gPCR assay. The cytotoxic result indicated CPH exhibited above 70% cell viability at 20 uM. At 15 uM of CPH, it was observed to have an activity fold change 3 times higher than the control group (p < 0.01) in the ARE-Luciferase assay, suggesting CPH is a potential Nrf2 activator. Therefore, we next examined the expression of Nrf2-related genes (HO-1, NQO1) using qPCR. These genes (NRF2, HO-1, NQO1) were more expressed with higher concentrations of CPH (15 -20 uM) than the control. In this study, CPH plays an activator of the NRF2-ARE pathway, indicating its potential role against cancer. Supported by R25ES020721.

related genes?





Repression