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Can Cannibinoids be Used to Prevent Lung Damage From Utah Air Pollution?

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CBD as an antioxidant

Diesel exhaust particles (or DEP) are a big part of Utah air pollution and can cause major health problems from lung cancer to infertility to ADHD in children.

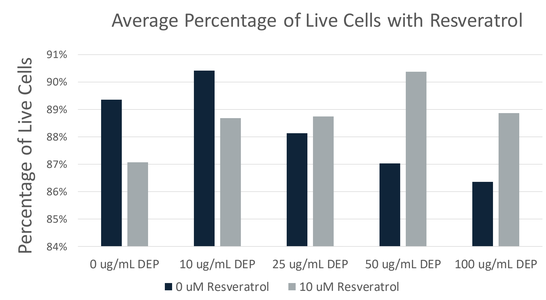
CBD and resveratrol are naturally occurring antioxidants extracted from cannabis plants and fruits such as grapes and berries.

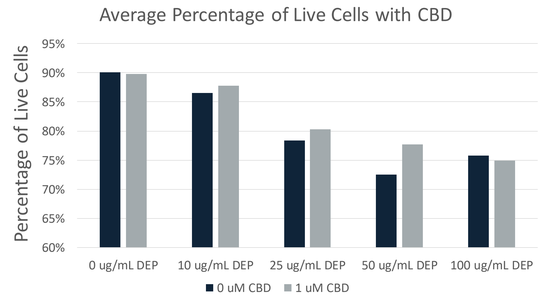
Testing on cancer cells

Antioxidant treatments of CBD and resveratrol were added to A549 human lung carcinoma cells before exposure to different concentrations of DEP. Flow cytometry and Raman spectroscopy data were collected to determine the health of the cells.

Positive results for CBD—and a new research method

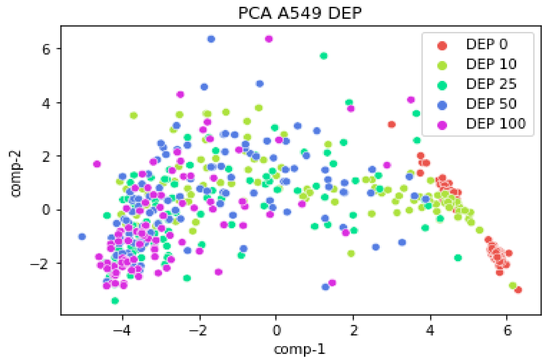
Machine learning analyses of Raman data allow the spectral emissions to be grouped together to determine differences in cell health. The less defined groups in conditions with resveratrol and CBD show that these **antioxidants are protecting the cells from DEP damage**.

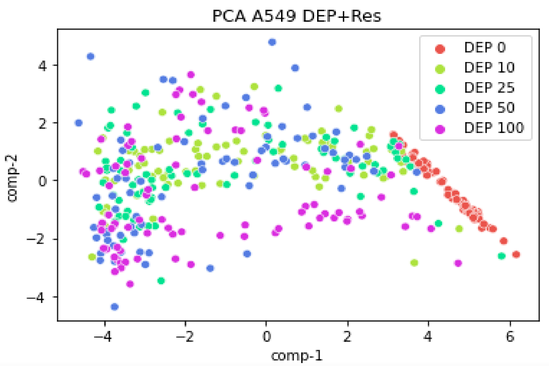


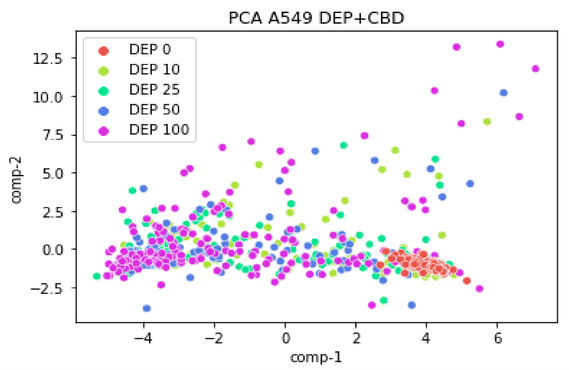


The results showed that not only do **cannabinoids effectively prevent lung cell damage** from diesel exhaust particles, but cellular health can also be **measured with more sensitivity using Raman spectroscopy** as compared to traditional measures.

This discovery could **speed up future research** in preventative care against damage caused by air pollution, as Raman spectroscopy can be used to quickly and efficiently test the effects of other cannabinoids and antioxidants on cell health.







Next steps: Testing neuroblastoma cells for brain health

Air pollution and diesel exhaust particles have also been linked to neurological disorders such as **ADHD, learning disabilities, and early onset Alzheimer's**. In my future research later this year, I will use human neuroblastoma cells to study the protective capabilities of cannabinoids in preventing brain damage from high pollution levels.

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