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*Nicotine and Cancer: The Effects of Nicotine on Carcinoma Cell Proliferation*

The purpose of this experiment was to determine whether nicotine increases proliferation of cancer cells. The hypothesis was that nicotine would measurably increase cell proliferation. The original idea was to prove that smoking caused cancer, and progressed to the current form, to test if nicotine promoted proliferation of already cancerous cells.

Human lung, colon, pharynx and pancreas cancer cells were tested for proliferation with varying nicotine concentrations. The cells were grown in normal and starved conditions to assess proliferation from nicotine vs. proliferation from media. After treatment and incubation, the cells were assayed and calculated using a micro-plate reader. The results from the plate read were normalized to the control (untreated) wells and averages of each set of wells were taken.

The nicotine stimulated proliferation in three of the six cell lines. The plate reader measured cell viability using fluorescence; the lung, pancreas and one pharynx line showed increased proliferation with the presence of nicotine. The other three lines showed little change in fluorescence between the treated and untreated cells.

Little is currently known about the effects of nicotine on carcinoma cell proliferation. It measurably increased proliferation in certain lines, but not others. It is for this reason that much more experimentation is needed. Other carcinoma cell lines should be tested to evaluate whether or not they show increased proliferation with the presence of nicotine. Testing the lung, colon, pharynx and pancreas lines has given great baseline information and set a standard that testing on other lines might be established.