

# **Inhibition of tumor cell proliferation by normal fibroblasts**

## **A high throughput live cell imaging study**

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### **Abstract**

Increasing evidence indicates that cancer development depends on changes in the precancerous cell and also its microenvironment. In order to study one aspect of microenvironmental control, we have departed from Michael Stoker's observation (1966) that normal fibroblasts can inhibit the growth of admixed cancer cells (neighbour suppression). Using a new high throughput microscopy and image analysis method we have studied the effect of 108 different primary fibroblasts, from different donors, on the growth of 6 tumor cell lines. The fibroblasts were taken from the skin, the inguinal canal or from the prostate. Our results show an inhibition of tumor cell proliferation, compared to the control where labelled and unlabelled tumor cells were mixed with each other. The inhibited tumor cells shifted towards a higher DNA content. In tumor lines that constitutively expressed GFP an increased production of the dye and increase in tumor cell size was observed. Our new high throughput method allows population wide studies of cancer-fibroblast interactions.