

In Vitro Study of Polyamide on Cancer Cell Migration and Proliferation

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Microplastics are a worldwide pollutant and are important for investigative research to better understand health impacts due to microplastic exposure. Studies show how microplastics can have harmful effects on our bodies, cells, and environment; specifically, that microplastics can cause an inflammatory response in our cells and increase proliferation. However, previous work in our lab suggests that the microplastic polyamide (PA) inhibits migration and possibly proliferation of MCF-7 breast cancer cells. We chose to incorporate A2058 melanoma cells into our study to get a better understanding if migration inhibition due to PA can be seen across multiple cancer cell lines. Our hypothesis is that PA will inhibit migration and proliferation of MCF-7 breast cancer cells and A2058 melanoma cells. Through scratch assays, our data showed that for A2058 cells, percent regrowth at 48 hours increased with the presence of PA compared to MCF-7 cells where there was relatively no effect/change compared to control. Increased migration rate of A2058s in the presence of PA but no change in MCF-7s migration rate is interesting and requires further investigation especially since it contradicts previous data from our lab. Utilizing RT-qPCR and confocal microscopy in the future could help us to understand the mechanism as to how and why PA is increasing migration in one cancer cell line but has no effect on the other. Supported by NIH R25ES020721.

