Dominique Martinez

Professor Rinehart-Kim

Biology 303 MWF

Writing Assignment #3

October 1, 2018

Summary of Primary Article

In the article “Polylysine-modified polyethylenimine polymer can generate genetically engineered mesenchymal stem cells for combinational suicidal gene therapy in glioblastoma” researchers were introducing a new way to treat the most aggressive brain cancer. Glioblastoma is known to be very difficult to treat with no known cure. In great detail the scientist explained what they did, how they did it, and what were the results.

When dealing with something of such a delicate nature such as brain cancer, a lot of thought and work had to be done to facilitate this study. To ensure a good study this experiment was performed not only on live animals but in a beaker as well. Materials such as cell bodies, reagents, antibodies, and plasmids were collected from around the globe. Various scientific test was performed to genetically modify cells so that they could treat tumor cells. The idea was the that the mesenchymal stem cells used would migrate and with the right modification they could target tumor cells to produce a new treatment therapy. The modifications made to the cells were introducing “polylysine-modified polyethylenimine copolymer” to the stem cell to produce a cancer killing cell[[1]](#footnote-1). This modification happened with different ratios of the copolymer to increase the chances of it working against the tumor. Once this experiment was performed in a beaker with positive results it was then tested on rats that had tumor cells injected in their brain.

The results of the study were that genetically modified cells had proven to increase the survival rate of the rats that had been injected with the tumor cells. This research has successfully generated a “cell-based gene delivery system for glioma treatment.” 1Since the mesenchymal stem cells led to the rate of apoptosis increasing, it is suggested that this could be a future treatment for humans that have glioblastomas.

1. Saeed,Malik Y. et al. Polylysine-modified polyethylenimine polymer can generate genetically engineered mesenchymal stem cells for combinational suicidal gene therapy in glioblastoma. *Acta Biomater* 10,1016; doi.org/10.1016/j.actbio.2018.09.015(2018). [↑](#footnote-ref-1)