The Effect of Folic Acid on Adipose Derived Mesenchymal Stem Cells Migration and Proliferation with Gamma Secretase Inhibitor

Richards, Kathryn (School: Sarasota High School)

The research conducted was to find if vitamin B-9 (VB9) increases the migration and/or proliferation in mesenchymal stem cells (MSCs) as well as if the migration of MSCs can be inhibited by a gamma secretase inhibitor(dibenzazepine). It is reported that VB9 increase Notch signaling. However, the effects of dibenzazepine on MSCs are unknown with the aid of folic acid. After seeding 30,000 cells in a 96 well plate, a scratch assay was preformed and MSCs were treated in vitro with a various concentration of VB9 with and without a gamma secretase. Pictures were taken every two hours while the experiment was being conducted the area was then measured with image J. The results did support my hypothesis however, the results are not directly consistent to the findings that the Gamma Secretase Inhibitor has a detrimental effect on stem cells. The results show a small effect while the cells still proliferate healthily. The results show that one concentration of VB9 has a greater effect on the stem cells than the other concentrations. The ideal concentration of VB9 was the 30 ng solution. Hour 30 the VB9 30 ng solution's stage of migration was 16% greater than the VB9 10 ng solution's stage of migration. Although the results were not conclusive VB9 by itself does dependently suppress migration while dibenzazepine seems to reverse this effect. These lines of studies are important because they can help reduce infections and healing time, also potential create an easier and more convenient way to treat wounds.

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