The Effects of Beta-Hydroxybutyrate on the Effects of Beta-Amyloid in Caenorhabditis elegans

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Alzheimer’s disease (AD) currently affects over 5 million people. As this number continues to rise, it becomes increasingly important to study AD and find therapeutic targets. The beta-amyloid peptide Aß is one such target and is widely seen as a key factor in the pathogenesis of AD. In order to further examine the role of Aß, the nematode C. elegans was used as a model organism to study AD. The GMC101 strain expresses human Aß in the body-wall muscles of the nematodes, presumably causing paralysis at 25°C. ß-hydroxybutyrate (BHB) is a naturally produced ketone body that has previously been shown to have neuroprotective properties. Paralysis assays that involved treating GMC101 nematodes with BHB indicated that BB protected the nematodes from paralysis. A concentration of 100 mM was most effective. Western blot analysis reflected that BHB may also lower the concentration of Aß oligomers. These results support the hypothesis that BHB affects the impact of Aß in C. elegans.

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