Nutr Res. 2011 Nov;31(11):863-72. doi: 10.1016/j.nutres.2011.09.011.

Hippocampal gene network analysis suggests that coral calcium hydride may reduce accelerated senescence in mice

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PMID: 22118758 DOI: 10.1016/j.nutres.2011.09.011

Abstract

Recent studies strongly support the hypothesis that an antioxidant diet inhibits the pathologic aging process as shown in senescence-accelerated mouse prone 8 (SAM/P-8). In our previous study in coral calcium hydride (CCH), we reported that a diet rich in antioxidants inhibited the pathologic aging process, increased the endogenous antioxidant ability, and contributed to prolonging the lifespan of SAM/P-8. To test the hypothesis that antioxidant CCH supplementation to SAM/P-8 mice would change the gene expression and to understand how CCH reverses the acceleration of aging in SAM/P-8 mice, we used a DNA array to compare the expression levels in the hippocampus of the brains from 16-week-old SAM/P-8 mice that were either treated or not treated with CCH. The most significant up-regulated changes in the gene network of SAM/P-8 mice were free radical scavenging and molecular transport, whereas genes associated with cell death, cancer, and cell cycle were down-regulated. Our findings regarding the changes in these messenger RNA might be associated with the inhibition of the acceleration of aging, as observed in SAM/P-8 mice fed a CCH diet.

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