

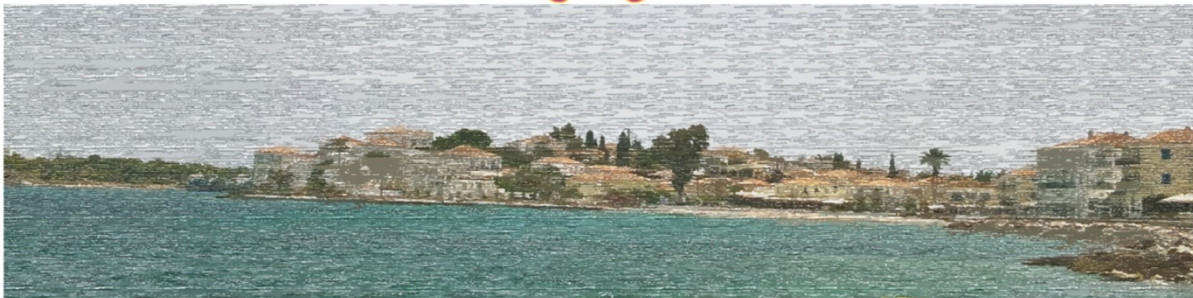
Book of Abstracts



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Molecular targets for anti-aging interventions
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Short term fish oil supplementation changes glial cells function in 5xFAD mice

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The presence of large amounts of amyloid beta (A β) oligomers, amyloid plaques formation, and inflammation in the brain are one of the neuropathological characteristics of Alzheimer's disease (AD). The use of supplements with omega-3 fatty acids has been associated with reduced risk and lessened AD pathology. The purpose of this study was to elucidate whether such a treatment could affect glial cells and macrophages behavior in the early phase of the disease.

We examined influence of fish oil (FO) treatment in 5xFAD mice, an animal model which rapidly recapitulates major hallmarks of AD amyloid pathology. Three-month old female 5xFAD mice received FO (100 μ l/animal/day) via oral gavage during 3 weeks period. Histological analysis was used to detect changes in pathological features of AD in parietal cortex of 5xFAD mice. A β peptide, macrophages, microglial cells and astrocytes were detected by anti-A β 42-, anti-Iba-1, anti-TMEM119- and anti-GFAP-antibody, respectively. Immunostaining was observed by confocal microscopy. Quantification was done by ImageJ. FO supplementation alters the behaviour of macrophages prompting them to establish a physical barrier around amyloid plaques and leads to changes in number of over all astrocytes and microglial cells.

These results confirmed and extended previous findings suggesting that FO supplementation suppresses brain aging and has a typical pleiotropic effect, suggesting that FO in combination with other drugs could be good approach for long-term treatment in AD suppression.