

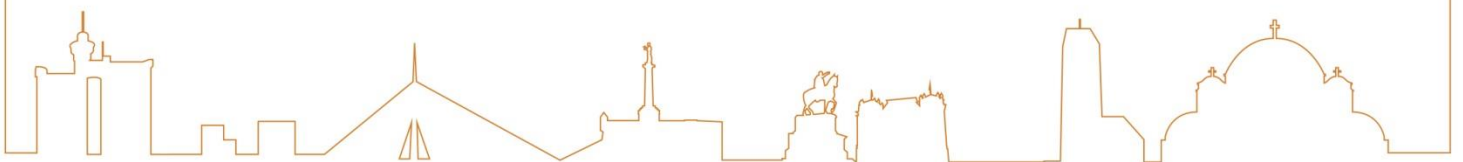
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## FISH OIL SUPPLEMENTATION SUPPRESSES NEURITIC DYSTROPHY AND A $\beta$ PATHOLOGY IN PARIETAL CORTEX OF 5xFAD MICE

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**Introduction:** Alzheimer's disease (AD) is the most prevalent neurodegenerative disease in elderly. Defining feature of AD pathology is the formation of amyloid plaques, structures that are composed of fibrillar Amyloid- $\beta$  organized in a  $\beta$ -sheet conformation. In AD pathology the clinical symptoms mirror the pathological changes in the brain, where the neuronal loss and plaque pathology occur in the memory related areas. The onset of neuritic dystrophy represents the initial phase of neurodegeneration. It occurs in an early phase of pathology called latent phase, which leaves time frame for potential treatments. So far, omega 3 fatty acids (omega-3 FA), one of the main compounds of fish oil (FO), represent one of the most promising treatment. Here we investigated influence of omega-3 FA supplementation on number of plaques, A $\beta$  load and neuritic dystrophy in parietal cortex in 5XFAD mice.

**Methods:** Three-month old female 5xFAD mice received FO (100  $\mu$ l/animal/day) via oral gavage during a 3-week period. Number of plaques, total A $\beta$  levels and neuritic dystrophy were visualized by immunohistochemistry and quantification was done by Image J software.

**Results:** Our results showed that 3 weeks of FO supplementation significantly decreased number of plaques, total A $\beta$  levels and neuritic dystrophy in the parietal cortex of FO-supplemented 5xFAD animals as compared to non-supplemented 5xFAD animals.

**Conclusion:** Since fish oil supplementation proved to be able to stop neuritic dystrophy in the parietal cortex of 5xFAD mice it may represent good approach for long term treatment in AD prevention.

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