CANNABINOIDS IN NEUROINFLAMMATION AND NEUROGENESIS: FROM NORMAL AGEING TO ALZHEIMER'S DISEASE MODELS

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Introduction and aims: Our recent work clearly demonstrated the benefits from low chronic infusion of the synthetic cannabinoid WIN-55,212-2 in reducing the effect of normal ageing on memory function, inflammation and neurogenesis. As no cure for Alzheimer's disease is yet available, our project aims to evaluate the benefits of preventive WIN-55,212-2 treatment on amyloid production on cell cultures overexpressing the beta amyloid peptide (Abeta) as well as its potential on delaying the onset of AD in the 5xFAD transgenic mice model.

Methods: HEK cells expressing the APPswe mutation were used to determine the influence of WIN on amyloid production in presence or not of inflammation.

5xFAD mice were used to determine the influence of WIN on the formation of amyloid plaques and the memory impairments associated to it.

Results: WIN seems to modulate the inflammatory profile as well as influencing the balance between sAPPalpha and amyloid beta production in HEK cells overexpressing Abeta. 5xFAD mice characterization of inflammatory markers, neurogenic processes and behavioral impairments are being conducted to evaluate properly the effects of WIN on the onset of Alzheimer's disease pathology in this animal model.

Conclusions: Cannabinoids, because of their anti-inflammatory, neurogenic properties, may be good candidates for a new preventive therapeutical approach aiming at delaying the onset of AD in patients and thus potentially diminishing the appearance of new cases.