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Title: Cannabinoid receptor stimulation is anti-inflammatory and improves memory in old rats.

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*MICROGLIA
*HIPPOCAMPUS (Brain)
*NEUROGLIA
*CEREBRAL cortex

Author-Supplied Keywords:
Δ⁹-tetrahydrocannabinol (Δ⁹-THC)
(R)-(+)-[2
(R)-(+)-[2,3-dihydro-5-methyl-3-(4-morpholinylmethyl)-pyrrolo[1,2,3-de]-1,4benzoxazin-6-yl]-1-naphthalenyl-methanone mesylate (WIN-55212-2)
2
3-de]-1
3-dihydro-5-methyl-3-(4-morpholinylmethyl)-pyrrolo[1
4benzoxazin-6-yl]-1-naphthalenyl-methanone mesylate (WIN-55212-2)
Alzheimer's disease (AD)
artificial cerebral spinal fluid (aCSF)
cannabinoid receptor 1 (CB1)
cannabinoid receptor 2 (CB2)
cannabinoid receptors (CBr)
dentate gyrus (DG)
entorhinal cortex (EC)
lipopolysaccharide (LPS)
N-methyl-d-aspartate (NMDA)
phosphate buffer saline (PBS)
Tris buffer saline (TBS)

Abstract: Abstract: The number of activated microglia increase during normal aging. Stimulation of endocannabinoid receptors can reduce the number of activated microglia, particularly in the hippocampus, of young rats infused chronically with lipopolysaccharide (LPS). In the current study we demonstrate that endocannabinoid receptor stimulation by administration of WIN-55212-2 (2mg/kgday) can reduce the number of activated microglia in hippocampus of aged rats and attenuate the spatial memory impairment in the water pool task. Our results suggest that the action of WIN-55212-2 does not depend upon a direct effect upon microglia or astrocytes but is dependent upon stimulation of neuronal cannabinoid receptors. Aging significantly reduced cannabinoid type 1 receptor binding but had no effect on cannabinoid receptor

protein levels. Stimulation of cannabinoid receptors may provide clinical benefits in age-related diseases that are associated with brain inflammation, such as Alzheimer's disease. [Copyright 2008 Elsevier]

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