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Press release

Caffeine and Alzheimer's disease: a link with tau protein

Researchers at Inserm and University of Lille 2/University of Lille Nord de France directed by David Blum, Inserm Research Fellow, have provided experimental evidence of the beneficial effects of caffeine in an animal model of Alzheimer's disease. This work, carried out on mice and published in [*Neurobiology of Aging*](#), supports the idea that caffeine has a protective effect in some brain pathologies.

Affecting more than 800,000 people in France, Alzheimer's disease and related diseases are the leading cause of age-related loss of intellectual function. The cognitive impairment seen in Alzheimer's disease mainly results from the accumulation of abnormal tau proteins in degenerating nerve cells. Regular caffeine consumption is known to reduce age-related cognitive decline, and the risk of developing dementia. However, the effects of caffeine on pathologies associated with tau protein, known as tauopathies, one of which is Alzheimer's disease, had not been clearly elucidated.

Dr. David Blum, from the Alzheimer & Tauopathies laboratory at Joint Research Unit 837 (Inserm/University of Lille 2/University of Lille Nord de France), directed by Dr. Luc Buée, has just shown in mice that regular caffeine consumption prevents memory deficits and some of the modifications to tau protein. To arrive at this result, young transgenic mice that progressively develop age-related neurodegeneration associated with tau protein were given caffeine orally for 10 months.

"Mice treated with caffeine developed a less severe pathology from the point of view of memory, tau protein modifications, and neuroinflammation," explains David Blum, a research fellow at Inserm.

This study provides experimental evidence of a link between caffeine consumption and pathologies associated with tau protein in a neurodegeneration model of Alzheimer's disease. This study also indicates that caffeine may act on different types of brain dysfunction involved in Alzheimer's disease in order to exert its beneficial effects.

"This work indicates a significant role for environmental factors in the development of Alzheimer's disease, emphasises the researcher. In the light of these results, we now hope to identify the molecular target responsible for these beneficial effects of caffeine on the one hand, and initiate a clinical trial to test the effects of caffeine on patients with Alzheimer's disease on the other hand," he adds.

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Sources

Beneficial effects of caffeine in a transgenic model of Alzheimer's disease-like Tau pathology

Laurent C, Eddarkaoui S, Derisbourg M, Leboucher A, Demeyer D, Carrier S, Schneider M, Hamdane M, Müller CE, Buée L & Blum D

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