

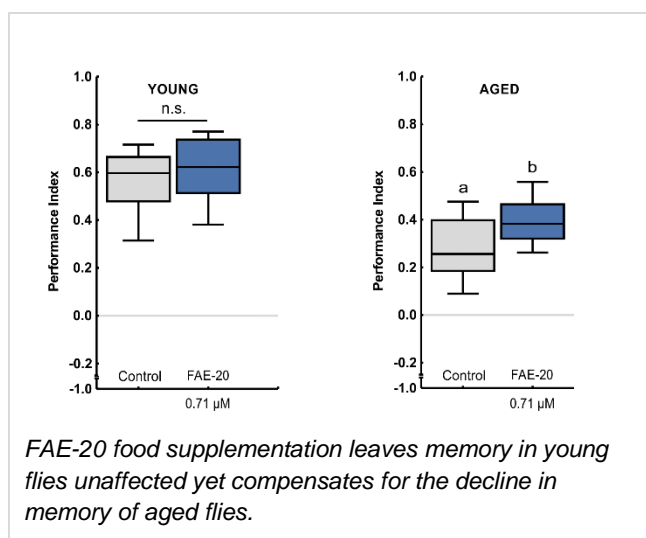


# Ferulic acid derivatives as efficient neuroprotective agent and memory

**Keywords:** ferulic acid, memory enhancer, neuroprotection, neurodegeneration

## INVENTION NOVELTY

Ferulic acid (FA) is a common phenolic phytochemical occurring in free or bound form in plants. Previous studies showed antioxidant properties of FA due to its ability to neutralize free radicals. In accordance with these results a protective function of FA against oxidative cellular stress is suggested. Since oxidative cellular stress is believed to be one of the major causes for age-related brain degeneration, intensive research is spent on novel approaches to protect the brain from oxidative neurotoxicity. Thus, FA represents an excellent starting point for derivatization and development of novel bioavailable compounds with neuroprotective and memory enhancing functions.



## VALUE PROPOSITION

A therapeutically relevant effect for FAE-20 and derivatives in memory acquisition and neurocognitive performance has been identified. Interestingly, FAE-20 can be produced by chemical synthesis or purified from natural sources, as well. In conclusion, we suggest FAE-20 as a food supplement to enhance memory function in elderly people.

## TECHNOLOGY DESCRIPTION

Here we present Ferulic Acid Eicosyl Ester (FAE-20 and derivatives) as a novel pharmacologically active compound with a significant memory enhancing effect across species. Learning tests with FAE-20 as a food supplement in the fruit fly *Drosophila* demonstrated compensatory effects for FAE-20 in age-dependent decline of associative memory. Moreover, analysis of FAE-20 in mice revealed better contextual associative memory in aged animals.

## COMMERCIAL OPPORTUNITY

In-licensing or collaboration for further development is possible.

## DEVELOPMENT STATUS

Proof of principle analysis by in vitro and in vivo studies.

## PATENT SITUATION

EP patent has been granted in 2023. Patent applications in US, CA and JP (based on WO2019/101952 A1) with priority of 2017 are pending.

## FURTHER READING

Michels B, Zwaka H, Bartels R, Lushchak O, Franke K, Dityatev A, Wessjohann L, Gerber B et al. 2018. Memory enhancement by ferulic acid ester across species. *Sci Adv.* 4(10):eaat6994. doi: 10.1126/sciadv.aat6994.

Michels B, Franke K, Weiglein A, Sultani H, Gerber B, Wessjohann LA. 2020. Rewarding compounds identified from the medicinal plant *Rhodiola rosea*. *J Exp Biol.* 223(Pt 16):jeb223982. doi: 10.1242/jeb.223982.

