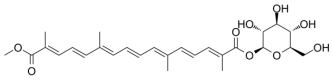
Crocin-4

Cat. No.:	HY-N10183
CAS No.:	55750-86-2
Molecular Formula:	$C_{27}H_{36}O_9$
Molecular Weight:	504.57
Target:	Reactive Oxygen Species
Pathway:	Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Crocin-4, a carotenoid constituent of saffron, is a potent and brain-penetrant antioxidant agent. Crocin-4 can inhibit the aggregation and the concomitant deposition of Aβ fibrils in the brain. Crocin-4 can be used for the research of Alzheimer's Disease. Crocin-4 also exhibits antitumor and anti-inflammatory activities[1][2][3].

In Vitro

Crocin-4 (0.1-1000 μM; 24-72 h) do not compromise cell viability of neuron-like cells[1].
Crocin-4 (1 mM; 72 h) reduces total PSEN1, PSEN1 and PSEN2 complexes, BACE1, APP-C99 and sAPPα, while it increases PSEN1-CTF and PSEN2 in SH-SY5Y-APP cells[1].
Crocin-4 (1 mM; 72 h) suppresses GSK3β and ERK1/2 kinases in PC12-htau cells, and significantly reduces the levels and phosphorylation of tau on the pThr231 and pSer199/Ser202 epitopes[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[1]

Cell Line:	Differentiated SH-SY5Y-APP cells
Concentration:	1 mM
Incubation Time:	72 hours
Result:	Significantly reduced total PSEN1 by 19%, and the PSEN1 and PSEN2 complexes by 81 and 65%, while it increased PSEN1-CTF (26%) and PSEN2 (43%). The key molecules of the amyloidogenic pathway, BACE1 and APP-C99 were significantly reduced by 20 and 28%, respectively. The non-amyloidogenic pathway product sAPPα was also reduced, by 44%, while APP-C83 remained unaltered.

Western Blot Analysis[1]

Cell Line:	Differentiated PC12-htau cells
Concentration:	1 mM
Incubation Time:	72 hours
Result:	Significantly reduced total tau levels (by 32%) and tau phosphorylation (pThr231 and pSer199/Ser202-tau by 22 and 75%, respectively).

	Downregulates the active and inactive forms of GSK3β (total GSK3β by 34%, pSer9-GSK3β by 30%) and ERK1/2 (total ERK2 by 37%, pERK1 by 40%, pERK2 by 50%).
In Vivo	Crocin-4 (50 mg/kg; i.p.) is capable of crossing the Blood Brain Barrier (BBB) and build up levels in the mouse brain[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Chalatsa I, et, al. The Crocus sativus Compounds trans-Crocin 4 and trans-Crocetin Modulate the Amyloidogenic Pathway and Tau Misprocessing in Alzheimer Disease Neuronal Cell Culture Models. Front Neurosci. 2019 Mar 26;13:249.

[2]. Koulakiotis NS, et, al. Crocus-derived compounds alter the aggregation pathway of Alzheimer's Disease: associated beta amyloid protein. Sci Rep. 2020 Oct 23;10(1):18150.

[3]. Karkoula E, et, al. Trans-crocin 4 is not hydrolyzed to crocetin following i.p. administration in mice, while it shows penetration through the blood brain barrier. Fitoterapia. 2018 Sep;129:62-72.

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