Antioxidant agent-8

Cat. No.: HY-152506

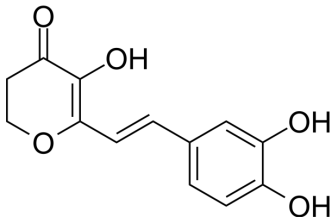
Molecular Formula: $C_{13}H_{12}O_5$

Molecular Weight: 248.23

Target: Amyloid-β

Pathway: Neuronal Signaling

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Antioxidant agent-8 is an orally active inhibitor of $A\beta_{1-42}$ deposition. Antioxidant agent-8 inhibits fibril aggregation (IC_{50} =11.15 μM) and promotes fibril disaggregation (IC_{50}=6.87 μM). Antioxidant agent-8 also inhibits Cu^{2+}-induced $A\beta_{1-42}$ fibril aggregation (IC_{50}=3.69 μM) and promotes Cu^{2+}-induced $A\beta_{1-42}$ fibril disaggregation (IC_{50}=3.35 μM). Antioxidant agent-8 has antioxidant activity, anti-inflammatory activity, biosafety, blood-brain barrier permeability and neuroprotective effect[1].

In Vitro

Antioxidant agent-8 (compound 30) (50 μM; 24 h) selectively chelates with Cu^{2+}, Fe^{2+}, Zn^{2+}, Fe^{3+} and Al^{3+} metal ions, significantly inhibits self- and Cu^{2+}-induced $A\beta_{1-42}$ fibril aggregation and disaggregation[1].
Antioxidant agent-8 (2.5, 5 and 10 μM; 24 h) promotes BV-2 cells to clear $A\beta_{1-42}$, reduces $A\beta_{1-42}$ induced apoptosis and protects nerves with concentration-dependent manner[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[1]

Cell Line:	Mouse microglia BV-2 cells.
Concentration:	2.5, 5 and 10 μM.
Incubation Time:	24 h.
Result:	Reduced the expression level of $A\beta_{1-42}$ in cells.

Apoptosis Analysis[1]

Cell Line:	Mouse microglia BV-2 cells.
Concentration:	2.5, 5 and 10 μM.
Incubation Time:	24 h.
Result:	Significantly reduced $A\beta_{1-42}$ induced apoptosis (cell apoptosis rate were below 30%).

Cell Viability Assay[1]

Cell Line:	Mouse microglia BV-2 cells.
Concentration:	2.5, 5 and 10 μM.

Incubation Time:	24 h.
Result:	Promoted cell viability and the cell survival was 75.50 % (10 μM).

In Vivo

Antioxidant agent-8 (compound 30) (15 mg/kg; i.g.; single dose) shows blood-brain barrier permeability and accumulates in the hippocampus[1].
Antioxidant agent-8 (2000 mg/kg; i.g.; single dose) exhibits biosafety[1].
Antioxidant agent-8 (20 mg/kg; p.o.; once daily for 25 d) significantly improves anxiety, memory impairment and cognitive impairment caused by Scopolamine (HY-N0296)[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Sprague-Dawley rats[1].
Dosage:	15 mg/kg.
Administration:	Intragastric administration; single dose.
Result:	Appeared in plasma and hippocampus at 0.083, 0.167, 0.25, 0.5, 1, 2 and 4 hours after administration, and then gradually gathered in hippocampus.

Animal Model:	Mice[1].
Dosage:	2000 mg/kg.
Administration:	Intragastric administration; single dose.
Result:	Showed insignificant toxic and side effects on heart, liver, spleen and brain.

Animal Model:	SCOP-induced cognitive impairment in ICR mice (25-28 g)[1].
Dosage:	20 mg/kg.
Administration:	Oral gavage; from day 7 to day 31, after 30 min of SCOP administration.
Result:	Improved animal behavior, learning and memory.

REFERENCES

[1]. Liu X, et al. Novel neuroprotective pyromeconic acid derivatives with concurrent anti-Aβ deposition, anti-inflammatory, and anti-oxidation properties for treatment of Alzheimer's disease. Eur J Med Chem. 2023 Feb 15;248:115120.

Caution: Product has not been fully validated for medical applications. For research use only.

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