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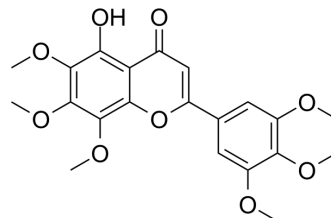
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Gardenin A

Cat. No.:	HY-N8303
CAS No.:	21187-73-5
Molecular Formula:	C ₂₁ H ₂₂ O ₉
Molecular Weight:	418.39
Target:	ERK; PAK
Pathway:	MAPK/ERK Pathway; Stem Cell/Wnt; Cell Cycle/DNA Damage; Cytoskeleton
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Gardenin A is an orally active and synthetic PMF analogue with the neurotrophic effect for neurite outgrowth and neuronal differentiation. Gardenin A promotes neuritogenesis via activating MAPK/ERK, PKC, and PKA, but not TrkA, CREB signaling pathways. Gardenin A also has sedative, anxiolytic, antidepressant, and anticonvulsant effects ^{[1][2]} .																
In Vitro	<p>Gardenin A (10-20 μM; 48 h) potently induces neurite outgrowth in PC12 cells, and (10 μM; 24 h and 48 h) increases expression of neuronal differentiation and synapse formation marker proteins, growth-associated protein-43 (GAP-43), and synaptophysin^[1].</p> <p>Gardenin A (10 μM; 30-120 min) markedly induces the phosphorylation of both cyclic AMP response element-binding protein (CREB) and CRE-mediated transcription, which was suppressed through the administration of the inhibitor 2-naphthol AS-E phosphate (KG-501) or using CREB siRNA^[1].</p> <p>Gardenin A (10 μM; 15-120 min) increases ERK phosphorylation and PKA and PKC activities^[1].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Viability Assay^[1]</p> <table border="1"> <tr> <td>Cell Line:</td> <td>PC12 cells</td> </tr> <tr> <td>Concentration:</td> <td>2, 5, 10, 20 μM</td> </tr> <tr> <td>Incubation Time:</td> <td>48 hours</td> </tr> <tr> <td>Result:</td> <td>showed cell growth supporting effect at higher concentrations (10-20 μM) and did not exert detectable cytotoxicity on PC12 cells after 48 h incubation in low serum medium.</td> </tr> </table> <p>Western Blot Analysis^[1]</p> <table border="1"> <tr> <td>Cell Line:</td> <td>PC12 cells</td> </tr> <tr> <td>Concentration:</td> <td>10 μM</td> </tr> <tr> <td>Incubation Time:</td> <td>0, 15, 30, 60, and 120 min</td> </tr> <tr> <td>Result:</td> <td>Significantly increased the phosphorylation of ERK1/2 (Thr202/Tyr204) at 15 min, subsequently reduced after 30 min. Increased PKC and PKA activity peaked at 15 min. Increased CREB phosphorylation.</td> </tr> </table>	Cell Line:	PC12 cells	Concentration:	2, 5, 10, 20 μM	Incubation Time:	48 hours	Result:	showed cell growth supporting effect at higher concentrations (10-20 μM) and did not exert detectable cytotoxicity on PC12 cells after 48 h incubation in low serum medium.	Cell Line:	PC12 cells	Concentration:	10 μM	Incubation Time:	0, 15, 30, 60, and 120 min	Result:	Significantly increased the phosphorylation of ERK1/2 (Thr202/Tyr204) at 15 min, subsequently reduced after 30 min. Increased PKC and PKA activity peaked at 15 min. Increased CREB phosphorylation.
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In Vivo

Gardenin A (0.1-25 mg/kg; p.o.; single dose) has neuropharmacological, including sedative, anxiolytic, antidepressant, and anticonvulsant actions in mice^[2].

Gardenin A (1-10 mg/kg; p.o.; single dose) does not affect locomotor coordination in mice and delayed the onset of convulsions^[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male Balb/c mice (24-32 g) ^[2]
Dosage:	1 mg/kg, 10 mg/kg, 25 mg/kg
Administration:	Oral gavage; single dose
Result:	Showed sedative effects at a dose of 25 mg/kg, which increased the duration of sleep but did not alter sleep onset.

REFERENCES

[1]. Chiu SP, et al. Neurotrophic action of 5-hydroxylated polymethoxyflavones: 5-demethylnobiletin and gardenin A stimulate neuritogenesis in PC12 cells. J Agric Food Chem. 2013 Oct 2;61(39):9453-63.

[2]. Alonso-Castro AJ, et al. Evaluation of the neuropharmacological effects of Gardenin A in mice. Drug Dev Res. 2020 Aug;81(5):600-608.

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

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