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Spadin

Cat. No.:	HY-P1422
CAS No.:	1270083-24-3
Molecular Formula:	$C_{96}H_{142}N_{26}O_{22}$
Molecular Weight:	2012.34
Sequence Shortening:	YAPLPRWSGPIGVSWGLR
Target:	Potassium Channel; 5-HT Receptor
Pathway:	Membrane Transporter/Ion Channel; GPCR/G Protein; Neuronal Signaling
Storage:	Sealed storage, away from moisture Powder -80°C 2 years -20°C 1 year * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)

YAPLPRWSGPIGVSWGLR

SOLVENT & SOLUBILITY

In Vitro

H_2O : ≥ 100 mg/mL (49.69 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	0.4969 mL	2.4847 mL	4.9693 mL
	5 mM	0.0994 mL	0.4969 mL	0.9939 mL
	10 mM	0.0497 mL	0.2485 mL	0.4969 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

Spadin, a natural peptide derived from a propeptide released in blood, is a potent TREK-1 channel blocker with IC_{50} value of 10 nM. Spadin enhances dorsal raphe nucleus 5-HT neurotransmission in mice and induces hippocampal CREB activation and neurogenesis. Spadin can be used for antidepressant research[1][2].

In Vitro

Spadin (100 nM; COS-7 cells) has inhibitory effect of spadin on the TREK-1 channel and blocks 63% of the TREK-1 current stimulated by arachidonic acid[1].

Spadin (100 nM) blocks the TREK-1 channels activity in CA3 hippocampal neurons on brain slices of wild-type mice[1].

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

In Vivo

Spadin (10 μM; i.p.; for 30 min; male C57Bl/6J and TREK-1 deficient mice) increases of the 5-HT neuron firing rate in the dorsal raphe nucleus (DRN)[2].

Spadin (0.01-100 μM; ICV, i.p. and i.v.; daily, for 7 days; male C57Bl/6J and TREK-1 deficient mice) has anti-depressant behavior in mice[2].

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

Animal Model:	Male C57Bl/6J and TREK-1 deficient mice[2]
Dosage:	10 μM
Administration:	Intraperitoneal injection; for 30 min
Result:	Increased of the 5-HT neuron firing rate in the dorsal raphe nucleus (DRN).

Animal Model:	Male C57Bl/6J and TREK-1 deficient mice[2]
Dosage:	0.01-100 μM
Administration:	Intracerebroventrical injection, intraperitoneal injection and intravenous injection; daily, for 7 days
Result:	Had any effect on mouse locomotion analyzed in short- or long-time after the drug injection.

CUSTOMER VALIDATION

- Biol Chem. 2023 Feb 14.

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REFERENCES

[1]. Borsotto M, et, al. Targeting two-pore domain K(+) channels TREK-1 and TASK-3 for the treatment of depression: a new therapeutic concept. Br J Pharmacol. 2015 Feb;172(3):771-84.

[2]. Mazella J, et, al. Spadin, a sortilin-derived peptide, targeting rodent TREK-1 channels: a new concept in the antidepressant drug design. PLoS Biol. 2010 Apr 13;8(4):e1000355.

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