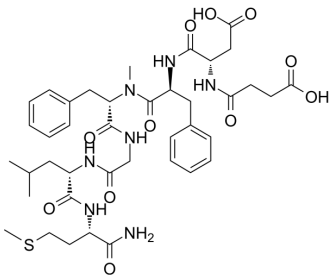
Senktide

Cat. No.:	HY-P0187
CAS No.:	106128-89-6
Molecular Formula:	$C_{40}H_{55}N_7O_{11}S$
Molecular Weight:	841.97
Sequence:	Suc-Asp-Phe-{Me-Phe}-Gly-Leu-Met-NH2
Sequence Shortening:	Suc-DF-{Me-Phe}-GLM-NH2
Target:	Neurokinin Receptor
Pathway:	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)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (59.38 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.1877 mL	5.9385 mL	11.8769 mL
	5 mM	0.2375 mL	1.1877 mL	2.3754 mL
	10 mM	0.1188 mL	0.5938 mL	1.1877 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (2.97 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (2.97 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (2.97 mM); Clear solution

BIOLOGICAL ACTIVITY

Description	Senktide is a tachykinin NK_3 receptor agonist.
IC_{50} & Target	NK_3 receptor[1]
In Vitro	The selective NK_3 receptor agonist Senktide excites 24 of 31 dopaminergic neurons in the substantia nigra pars compacta in

	a concentration-dependent manner. The effective concentration range is between 3 to 3000 nm. The mean EC_{50} for Senktide is 41.2±9 nm (n=5)[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	I.c.v. injection of Senktide causes a dose-dependent increase in total distance traveled ($F_{6,72}$=6.344, P<0.001). This increase reaches statistical significance compare to the vehicle-treated group at 0.06 nmol and higher. The Senktide-induced increase in locomotor activity brought about by 0.1 nmol of Senktide is significantly and dose-dependently decreased by the tachykinin NK_3 receptor antagonists talnetant at 30 mg/kg and SB222200 at 30 mg/kg, but not by osanetant, when tested in parallel in a single experiment ($F_{7,78}$=10.32, P<0.001), although a non-significant reduction is observed. However, when tested using another vehicle (Vitamin E and glycofurol), osanetant does decrease activity significantly compare to Senktide-treated gerbils ($F_{2,30}$=10.10, P<0.001)[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [2]	Experiments are performed on brain slices (300 μM thick) from 150 g male Wistar rats and extracellular recordings are made by conventional techniques. Drugs (including Senktide) are applied by bath perfusion and removal is achieved simply by returning to the control drug-free solution. Extracellular electrodes are filled with aCSF and have resistances of 5 to 14 MΩ. For intracellular recordings, electrodes are filled with 1 M potassium acetate and have d.c. resistances of 70 to 110 MΩ. Neurons are considered to be dopaminergic if they have a characteristic waveform, slow firing rate (~5 Hz) and inhibitory response to dopamine[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	For the Senktide dose-response curve, gerbils are first allowed to habituate to the test area for 30 min. Animals (n=10 to 12 per drug treatment group) are anesthetized with isoflurane, a small incision is made in the skin over bregma, and an injection of Senktide at 0.01, 0.03, 0.06, 0.1, 0.3 or 0.6 nmol in 5 μL of vehicle is placed i.c.v. using a syringe with a 4.5 mm long needle. Wounds are clipped shut, and animals allowed to awaken from anesthesia, then placed directly into the locomotor activity boxes and recording commenced. For testing of the NK_1 receptor antagonist aprepitant (1, 3 or 10 mg/kg p.o.), gerbils are first treated with aprepitant or vehicle (0.9% NaCl with 0.3% Tween80) and returned to the home cage for 90 min. Animals are then placed in the open field for 30 min of habituation. During the last 5 min of habituation, 0.03 nmol Senktide is injected i.c.v[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Protein Cell. 2023 Nov 27:pwad056.

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REFERENCES

[1]. Nordquist RE, et al. The tachykinin NK3 receptor agonist senktide induces locomotor activity in male Mongolian gerbils. Eur J Pharmacol. 2008 Dec 14;600(1-3):87-92.

[2]. Keegan KD, et al. The selective NK3 receptor agonist senktide excites a subpopulation of dopamine-sensitiveneurones in the rat substantia nigra pars compacta in vitro. Br J Pharmacol. 1992 Jan;105(1):3-5.

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

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