

## D-GsMTx4 TFA

## Chemical Properties

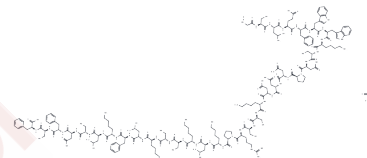
CAS No. :

Formula: C187H279F3N48O48S6

Molecular Weight: 4216.93

Storage: Store at low temperature, Keep away from moisture  
Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Actual storage temperature shall be subject to the COA.



## Biological Description

Description	D-GsMTx4 TFA belongs to natural products and is a TRPC1/6 and Piezo2 channel inhibitor with high selectivity and cell permeability, inhibiting Ca <sup>2+</sup> influx and the mTOR pathway. This compound is used in research on myocardial infarction, chronic pain, and pulmonary fibrosis.
Targets(IC50)	Calcium Channel, Akt, mTOR, PI3K, Piezo Channel, TRP/TRPV Channel
In vitro	<p><b>Methods:</b> In isolated mouse cardiomyocytes, D-GsMTx4 TFA (10 μM) was incubated for 15 minutes, followed by assessment via contractility measurement and Fura-2AM calcium imaging.</p> <p><b>Results:</b> It significantly improved hypoxia-induced contractile dysfunction, restored calcium transient peak and kinetics, and inhibited activation of the JNK/c-Jun apoptotic signaling pathway. [1]</p> <p><b>Methods:</b> In bEnd.3 mouse brain microvascular endothelial cells, pretreatment with D-GsMTx4 TFA (0.1-10 μM) for 24 hours was performed before OGD/R injury.</p> <p><b>Results:</b> CCK-8 assay showed significantly improved cell viability in the 10 μM group; wound healing and Transwell experiments demonstrated markedly enhanced cell migration capacity at this concentration.[2]</p>
In vivo	<p><b>Methods:</b> In a C57BL/6j mouse myocardial ischemia-reperfusion model, D-GsMTx4 TFA was administered via tail vein injection (0.1, 1, 10 mg/kg) 20 minutes before ischemia or via intraperitoneal injection (50 mg/kg/day) for 2 days before surgery (vehicle: saline).</p> <p><b>Results:</b> Intravenous injection of 1 mg/kg reduced infarct area by approximately 40%, improved cardiac function, and significantly decreased the incidence of premature ventricular contractions during early reperfusion. [1]</p> <p><b>Methods:</b> In a male SD rat chronic cerebral hypoperfusion model induced by bilateral common carotid artery ligation, D-GsMTx4 TFA (0.1, 1, 10 ng/kg) was administered once daily via lateral ventricle cannulation from 3 days before surgery until 28 days after surgery.</p> <p><b>Results:</b> The 10 ng/kg dose significantly improved cognitive function, reduced brain water content and Evans blue extravasation, and upregulated the expression of tight junction proteins Claudin-1, Occludin, and ZO-1. [2]</p> <p><b>Methods:</b> In isolated mouse bladder preparations, D-GsMTx4 TFA (1 μM, dissolved in KBS) was administered via bath application during the filling phase to examine its effects on soluble nucleotidase release.</p>

## A DRUG SCREENING EXPERT

In vivo	<b>Results:</b> Combined use of GsMTx4 and D-GsMTx4 significantly increased stretch-induced eATP degradation and eADP, eAMP, and eADO production, indicating that inhibition of PIEZO channels relieves the restriction on enzyme release. [3]
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### Solubility Information

Solubility	DMSO: 250 mg/mL (59.28 mM) H2O: 36 mg/mL (8.54 mM), Sonication is recommended. ( $< 1$ mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Saline: 3.3 mg/mL (0.78 mM), Sonication is recommended. <i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i>

### Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	0.2371 mL	1.1857 mL	2.3714 mL
5 mM	0.0474 mL	0.2371 mL	0.4743 mL
10 mM	0.0237 mL	0.1186 mL	0.2371 mL
50 mM	0.0047 mL	0.0237 mL	0.0474 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

### Reference

- Wang, Jinli et al. GsMTx4-D is a cardioprotectant against myocardial infarction during ischemia and reperfusion. *Journal of molecular and cellular cardiology* vol. 98 (2016): 83-94.
- Xu, Fei et al. Inhibition of piezo1 prevents chronic cerebral hypoperfusion-induced cognitive impairment and blood brain barrier disruption. *Neurochemistry international* vol. 175 (2024): 105702.
- Aresta Branco, Mafalda S L et al. Sensory Neurons, PIEZO Channels and PAC1 Receptors Regulate the Mechanosensitive Release of Soluble Ectonucleotidases in the Murine Urinary Bladder Lamina Propria. *International journal of molecular sciences* vol. 24,8 7322. 15 Apr. 2023.

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