

## GsMTx4 TFA (1209500-46-8 free base)

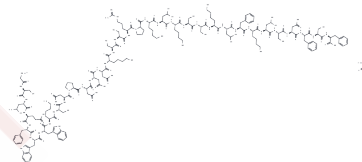
## Chemical Properties

CAS No. :

Formula: C187H279N48O48S6F3

Molecular Weight: 4216.93

Storage: Store at low temperature, Keep away from moisture,  
Keep away from direct sunlight  
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	GsMTx4 TFA (1209500-46-8 free base) is a spider venom peptide that selectively inhibits cation permeable mechanosensitive channels (MSCs) belonging to the Piezo and TRP channel families.
Targets(IC50)	Piezo Channel
In vitro	<p><b>METHODS:</b> GsMTx4 TFA (5 <math>\mu</math>M) was tested on outside-out patches of HEK cells transfected with mouse Piezo1 cDNA.</p> <p><b>RESULTS</b> GsMTx4 TFA reduced Piezo1-mediated charge transfer to 38% of its initial level. [1]</p> <p><b>METHODS:</b> Using C57BL/6 mice as samples, organotypic cerebellar slices (OCS) were prepared and treated with Piezo1 specific activator Yoda-1 (10 <math>\mu</math>M, 48 hours) or Piezo1 peptide inhibitor GsMTx4 (500 nM, 48 hours). Hours) organotypic cerebellar slices were processed to study how activating or blocking Piezo1 affects myelination.</p> <p><b>RESULTS</b> GsMTx4 TFA may rescue psychotin-induced demyelination. [3]</p> <p><b>METHODS:</b> MCF10A cells were incubated with adipokines for 24-72 hours. Use GSMTx4 TFA at a concentration of 2.5 <math>\mu</math>M as a mechanosensitive Ca<sup>2+</sup> channel inhibitor for 16 hours. <b>RESULTS</b> GSMTx4 TFA significantly reduced leptin-induced AMPK and MLC-2 phosphorylation. [4]</p>
In vivo	<p><b>METHODS:</b> The effects of blocking the Piezo1/CaN/NFAT1 signaling axis by intra-articular injection of GsMTx4 TFA on ACLT-induced osteoarthritis (OA) rats were studied. Taking into account the rapid clearance of synovial fluid, we performed 7, 14, 21, 28 ACLT + H-Gsmtx4 groups at two different frequencies (once a week in the H-GsMTx4 TFA group and once every two weeks in the L-GsMTx4 TFA group). , 35, 42 and 49 days and ACLT + L-Gsmtx4 group were intra-articularly injected with 100 <math>\mu</math>L of 40 <math>\mu</math>M Gsmtx4 TFA on 7, 21, 35 and 49 days after surgery.</p> <p><b>RESULTS</b> GsMTx4 TFA can improve OA in rats by inhibiting apoptosis and imbalance of anabolism and catabolism. [2]</p>

## Solubility Information

## A DRUG SCREENING EXPERT

Solubility	DMSO: 237.5 mg/mL (56.32 mM) H2O: 66.66 mg/mL (15.81 mM), Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
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### 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

Gnanasambandam R, et al. GsMTx4: Mechanism of Inhibiting Mechanosensitive Ion Channels. *Biophys J.* 2017 Jan 10;112(1):31-45.

Chen L, Yan Y, Kong F, et al. Contribution of Oxidative Stress Induced by Sonodynamic Therapy to the Calcium Homeostasis Imbalance Enhances Macrophage Infiltration in Glioma Cells. *Cancers.* 2022, 14(8): 2036  
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Ren X, et al. Gsmtx4 Alleviated Osteoarthritis through Piezo1/Calcineurin/NFAT1 Signaling Axis under Excessive Mechanical Strain. *Int J Mol Sci.* 2023 Feb 16;24(4):4022.

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Acheva A, et al. Adipokine Leptin Co-operates With Mechanosensitive Ca<sup>2+</sup>-Channels and Triggers Actomyosin-Mediated Motility of Breast Epithelial Cells. *Front Cell Dev Biol.* 2021 Jan 6;8:607038.

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