Product Data Sheet

Product Name: Maxadilan TFA
Cat. No.: GC81559

Chemical Properties

Cas. No.			
Formula	$C_{291}H_{466}N_{86}O_{94}S_6 \cdot xC_2HF_3O_2$	M.Wt	6865.72
Solubility	DMSO: 100 mg/mL (Need ultrasonic)	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	Cys-Asp-Ala-Thr-Cys-Gln-Phe-Arg-Lys-Ala-Ile-Asp-Asp-Cys-Gln-Lys-Gln-Ala-His-His-Ser-Asn-Val-Leu-Gln-Thr-Ser-Val-Gln-Thr-Thr-Ala-Thr-Phe-Thr-Ser-Met-Asp-Thr-Ser-Gln-Leu-Pro-Gly-Asn-Ser-Val-Phe-Lys-Glu-Cys-Met-Lys-Gln-Lys-Lys-Lys-Glu-Phe-Lys-Ala-NH2 (disulfide bridge:Cys1-Cys5, Cys14-Cys51) (TFA salt)		

Background

Maxadilan TFA is a specific irreversible PAC1 receptor agonist and a potent vasodilator peptide present in the salivary glands of sand flies. Maxadilan TFA exhibits anti- apoptotic activity in hADSCs. Maxadilan TFA inhibits pro-inflammatory cytokines (TNF-α) and enhances anti-inflammatory mediators (IL-10). Maxadilan TFA can activate leukocytes and inhibit vascular permeability through PAC1 receptors. Maxadilan TFA promotes neural differentiation of human adipose-derived stem

cells. Maxadilan TFA can be used to study endotoxin shock, atherosclerosis, and neurodegenerative diseases [1] [2] [3] [4] [5].

In Vivo, Maxadilan (0.137 mg/kg, i.p., 3 times a week) TFA reduces atherosclerosis in the aortic arch and brachiocephalic trunk of ApoE−/− mice under SC and CED with preserved or further enhanced hypercholesterolemia[1]. Maxadilan (0.137 mg/kg, i.p., once, 0-90 min) TFA increases blood sugar in NIH mice[4]. Maxadilan (0.172-0.343 mg/kg, i.p., once a day, 21 days) TFA increases body weight, reduces basal blood sugar, and promotes the increase of plasma insulin in NIH mice[4]. Maxadilan (0.5-10 μg, i.p., once) TFA reduces LPS -induced mortality in BALB/c mice[5]. Maxadilan (3 μg, i.p., once) TFA inhibits serum levels of TNF-4 while elevates IL-6 and IL-10 levels and prevents LPS-induced thrombocytopenia in LPS-induced BALB/c mice[5].

In Vitro, Maxadilan (20-200 nM, 24 h) TFA enhances the proliferation and migration of human adipose-derived stem cells (hADSCs), and enhances cytokine-induced neural redifferentiation of hADSCs into functional neurons[2]. Maxadilan (80 nM, 24-48 h) TFA decreases the ratio of apoptosis with serum withdrawal treatment in hADSCs through PAC1R ligand-dependent activity mediated by the PKA signaling pathway and PAC1R dimer-dependent activity mediated by the Wnt/β-catenin signaling pathway[2]. Maxadilan (80 nM, 1-3 days) TFA induces an efficient differentiation of hADSCs into neural-like cell morphology in chemical neural induction medium[2]. Maxadilan (5-100 ng/mL) TFA induces human neutrophil chemotaxis[3]. Maxadilan (134 nM, 30 min) TFA increases arteriolar dilation, associated with plasma leakage and leukocyte accumulation in one hamster cheek pouch[3].

References:
[1]. Mey L, et al. PAC1 Agonist Maxadilan Reduces Atherosclerotic Lesions in Hypercholesterolemic ApoE-Deficient Mice. Int J Mol Sci. 2024 Dec 10;25(24):13245.
[2]. Guo X, et al.PAC1R agonist maxadilan enhances hADSC viability and neural differentiation potential. J Cell Mol Med. 2016 May;20(5):874-90.
[3]. Svensjö E, et al.Maxadilan, the Lutzomyia longipalpis vasodilator, drives plasma leakage via PAC1-CXCR1/2-pathway. Microvasc Res. 2012 Mar;83(2):185-93.
[4]..Yu R, et al. Long-term administration of maxadilan improves glucose tolerance and insulin sensitivity in mice. Peptides. 2008 Aug;29(8):1347-53.

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[5]. Bozza M, S et al The PACAP-type I receptor agonist maxadilan from sand fly saliva protects mice against lethal endotoxemia by a mechanism partially dependent on IL-10. Eur J Immunol. 1998 Oct;28(10):3120-7.

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