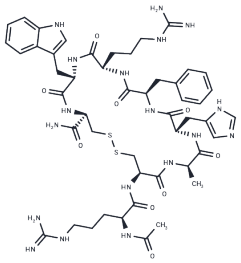
Data Sheet (Cat.No.T12882)

TargetMol

Setmelanotide

Chemical Properties



CAS No. : 920014-72-8

Formula: C49H68N18O9S2

Molecular Weight: 1117.31

Storage: 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	Setmelanotide (RM-493) is a selective melanocortin-4 receptor agonist with EC50 values of 0.27 and 0.28 nM for human and rat MC4R. Setmelanotide enhances cAMP signaling, demonstrates functional selectivity, activates sympathetic preganglionic neurons to influence blood pressure, and is widely used to probe MC4R-MRAP2 interactions. Setmelanotide contributes to obesity-related research by modulating hunger and satiety circuits, reversing risperidone-induced weight gain in mice, and helping characterize MC4R variants in pediatric metabolic disorders. The anti-inflammatory actions of Setmelanotide in astrocytoma cells and the utility in combination with calorie restriction further highlight its broad value in metabolic and neuroendocrine research.
Targets(IC50)	Melanocortin Receptor
In vitro	Melanocortin receptor agonists act in the brain to regulate food intake and body weight, and also exert additional independent effects. Setmelanotide exhibits agonistic activity toward the melanocortin 4 receptor (MC4R) in both humans and rats, with a Ki value of 2.1 nM and an EC_{50} value of 0.27 nM for human MC4R, and a Ki value of 2.7 nM and an EC_{50} value of 0.28 nM for rat MC4R[1].
In vivo	The inhibitory effect of Setmelanotide on refeeding behavior in mice fasted overnight is receptor-specific, which is dependent on the mediation of functional MC4R but independent of MC3R. Compared with the control group, Lep^0/Lep^0 mice treated with BIM-22493 exhibited significantly enhanced glucose clearance capacity. Moreover, chronic administration of BIM-22493 was associated with marked reductions in blood glucose levels and HOMA-IR index in mice[1]. In the diet-induced obese non-human primate model, an 8-week treatment with setmelanotide (13.5%) resulted in a transient 35% decrease in food intake and a concomitant sustained reduction in body weight[2].

Solubility Information

Solubility	H2O: 50 mg/mL (44.75 mM),Sonication is recommended. DMSO: 125 mg/mL (111.88 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

In vivo Formulation	10% DMSO+90% Saline: 10 mg/mL (8.95 mM),Solution. 10% DMSO+40% PEG300+5% Tween-80+45% Saline: 3.3 mg/mL (2.95 mM),Sonication is recommended. *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.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	0.895 mL	4.475 mL	8.9501 mL
5 mM	0.179 mL	0.895 mL	1.790 mL
10 mM	0.0895 mL	0.4475 mL	0.895 mL
50 mM	0.0179 mL	0.0895 mL	0.179 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

Kumar KG, et al. Analysis of the therapeutic functions of novel melanocortin receptor agonists in MC3R- and MC4R-deficient C57BL/6J mice. Peptides. 2009 Oct;30(10):1892-900.

Kievit P, et al. Chronic treatment with a melanocortin-4 receptor agonist causes weight loss, reduces insulin resistance, and improves cardiovascular function in diet-induced obese rhesus macaques. Diabetes. 2013 Feb;62 (2):490-7.