Bis(maltolato)oxovanadium(IV)

Cat. No.: HY-118567

CAS No.: 38213-69-3

Molecular Formula: $C_{12}H_{10}O_7V$

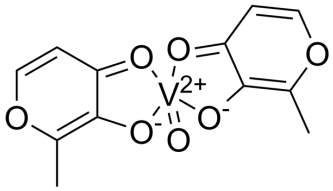
Molecular Weight: 317.15

Target: Phosphatase; SHP2

Pathway: Metabolic Enzyme/Protease; Protein Tyrosine Kinase/RTK

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 25 mg/mL (78.83 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.1531 mL	15.7654 mL	31.5308 mL
	5 mM	0.6306 mL	3.1531 mL	6.3062 mL
	10 mM	0.3153 mL	1.5765 mL	3.1531 mL

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

BIOLOGICAL ACTIVITY

Description

Bis(maltolato)oxovanadium(IV) (BMOV) is a potent, reversible, competitive and orally active pan-PTP (protein tyrosine phosphatases) inhibitor. Bis(maltolato)oxovanadium(IV) inhibits HCPTPA, PTP1B, HPTPβ and SHP2 with IC_{50}s of 126 nM, 109 nM, 26 nM and 201 nM, respectively. Bis(maltolato)oxovanadium(IV) is a potent insulin sensitizer[1][2].

IC_{50} & Target

IC50: 126 nM (HCPTPA), 109 nM (PTP1B), 26 nM (HPTPβ) and 201 nM (SHP2)[2]

In Vitro

Bis(maltolato)oxovanadium(IV) treatment enhances the phosphorylation of the insulin receptor and of the insulin signalling key intermediate Akt. Bis(maltolato)oxovanadium(IV) (BMOV; 50 μM) treatment also resultes in an increased glucose uptake in C2C12 cells[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Bis(maltolato)oxovanadium(IV) (BMOV; 0.75-3.0 mmol; intraperitoneal injection; twice weekly; for 6 weeks; C57BL/6J mice) treatment ameliorates the metabolic phenotype. Liver, skeletal muscle, and adipose tissue revealed a significantly reduced PTP activity in all analysed tissues compared to HFD mice[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	C57BL/6J mice (4-6 weeks) fed with high-fat diet (HFD)[1]
Dosage:	0.75-3.0 mmol
Administration:	Intraperitoneal injection; twice weekly; for 6 weeks
Result:	Ameliorated the metabolic phenotype, as evidenced by reduced body weight, improved insulin sensitivity and glucose tolerance.

REFERENCES

[1]. Janine Krüger, et al. Inhibition of Src homology 2 domain-containing phosphatase 1 increases insulin sensitivity in high-fat diet-induced insulin-resistant mice. FEBS Open Bio. 2016 Jan 4;6(3):179-89.

[2]. Kevin G Peters, et al. Mechanism of insulin sensitization by BMOV (bis maltolato oxo vanadium); unliganded vanadium (VO4) as the active component. J Inorg Biochem. 2003 Aug 1;96(2-3):321-30.

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