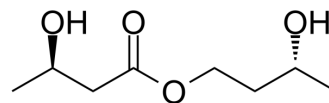


(R,R)-BD-AcAc 2

Cat. No.:	HY-15344		
CAS No.:	1208313-97-6		
Molecular Formula:	C ₈ H ₁₆ O ₄		
Molecular Weight:	176.21		
Target:	Others		
Pathway:	Others		
Storage:	Pure form	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

H₂O : 100 mg/mL (567.50 mM; Need ultrasonic)
 DMSO : 100 mg/mL (567.50 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent		Mass		
	Concentration		1 mg	5 mg	10 mg
	1 mM		5.6750 mL	28.3752 mL	56.7505 mL
	5 mM		1.1350 mL	5.6750 mL	11.3501 mL
	10 mM		0.5675 mL	2.8375 mL	5.6750 mL

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

In Vivo

- Add each solvent one by one: PBS
Solubility: 100 mg/mL (567.50 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 5.5 mg/mL (31.21 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 5.5 mg/mL (31.21 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 5.5 mg/mL (31.21 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

(R,R)-BD-AcAc 2 ((R,R)-Ketone Ester), a ketone monoester, can be used as a source of oral nutritional ketones. (R,R)-BD-AcAc 2 can elevate plasma levels of β-hydroxybutyrate and acetoacetate, blood glucose, blood Na⁺ levels and blood creatinine levels after oral administration in mice. (R,R)-BD-AcAc 2 can partly prevent muscle weakness in septic mice. (R,R)-BD-AcAc 2 has potential to improve exercise performance and endurance in animal body. (R,R)-BD-AcAc 2 can also be used to research

Parkinson's disease or diabetes^{[1][2][3]}.

In Vivo

(R,R)-BD-AcAc 2 (D-3HHB) increases specific muscle force, moderately raises blood glucose concentrations, lowers Aldh3b2 gene expression, increases blood Na⁺ levels and blood creatinine levels, and reduces plasma free fatty acid concentrations [1].

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

Animal Model:	Septic mice ^[1]
Dosage:	10, 20, 40 and 80 mmol/kg/day
Administration:	PO
Result:	Increased specific muscle force as compared with placebo to 93% of healthy control levels at 40 mmol/kg/day. Resulted in moderately higher blood glucose concentrations as compared with placebo at 40 mmol/kg/day. Lowered Aldh3b2 gene expression than with placebo at 40 mmol/kg/day. Evoked a moderate further increase in blood Na ⁺ levels and increased blood creatinine levels at 20 mmol/kg/day. Reduced plasma free fatty acid concentrations by 10 or 20 mmol/kg/day. Hepatic gene expression levels of Aldh1a7 was also reduced by sepsis but increased by D-3HHB.

CUSTOMER VALIDATION

- Pharmaceuticals. 2023 Jun 3, 16(7), 953.

See more customer validations on www.MedChemExpress.com

REFERENCES

- [1]. Weckx R, et al. Efficacy and safety of ketone ester infusion to prevent muscle weakness in a mouse model of sepsis-induced critical illness. *Sci Rep.* 2022 Jun 22;12(1):10591.
- [2]. Williams MS, et al. The Chemistry of the Ketogenic Diet: Updates and Opportunities in Organic Synthesis. *Int J Mol Sci.* 2021 May 15;22(10):5230.
- [3]. Clarke K, et al. Oral 28-day and developmental toxicity studies of (R)-3-hydroxybutyl (R)-3-hydroxybutyrate. *Regul Toxicol Pharmacol.* 2012 Jul;63(2):196-208.

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA