

BD-AcAc 2

Chemical Properties

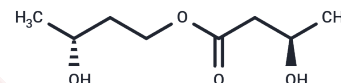
CAS No. : 1208313-97-6

Formula: C₈H₁₆O₄

Molecular Weight: 176.21

Storage: Pure form: -20°C for 3 years | In solvent: -80°C for 1 year

Actual storage temperature shall be subject to the COA.



Biological Description

Description	BD-AcAc 2 (Ketone Ester) is a ketone monoester and can be used as a source of oral nutritional ketones. BD-AcAc 2 can elevate plasma levels of acetoacetate and β -hydroxybutyrate, blood Na ⁺ , blood glucose levels and blood creatinine levels after oral administration in mice. BD-AcAc 2 can partly prevent muscle weakness in septic mice. BD-AcAc 2 exhibits potential to improve endurance and exercise performance in animal body. BD-AcAc 2 can also be used to research diabetes or Parkinson's disease.
Targets(IC50)	Others, Reactive Oxygen Species
In vivo	BD-AcAc(2) would delay CNS-OT seizures in rats breathing hyperbaric oxygen (HBO(2)). Adult male rats (n = 60) were implanted with radiotelemetry units to measure electroencephalogram (EEG). One week postsurgery, rats were administered a single oral dose of BD-AcAc(2), 1,3-butanediol (BD), or water 30 min before being placed into a hyperbaric chamber and pressurized to 5 atmospheres absolute (ATA) O ₂ [1]. Beginning at a presymptomatic age, 2 groups of male 3xTgAD mice were fed a diet containing a physiological enantiomeric precursor of ketone bodies (KET) or an isocaloric carbohydrate diet. The results of behavioral tests performed at 4 and 7 months after diet initiation revealed that KET-fed mice exhibited significantly less anxiety in 2 different tests. 3xTgAD mice on the KET diet also exhibited significant, albeit relatively subtle, improvements in performance on learning and memory tests. Immunohistochemical analyses revealed that KET-fed mice exhibited decreased A β deposition in the subiculum, CA1, and CA3 regions of the hippocampus, and the amygdala [2].

Solubility Information

Solubility	DMSO: 96 mg/mL (544.8 mM), Sonication is recommended. H ₂ O: 30 mg/mL (170.25 mM), Sonication and heating to 60°C are recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween-80+45% Saline: 5 mg/mL (28.38 mM), Sonication is recommended. <i>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</i>

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In vivo Formulation	<i>vary and should be modified based on specific experimental conditions.</i>
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	5.675 mL	28.3752 mL	56.7505 mL
5 mM	1.135 mL	5.675 mL	11.3501 mL
10 mM	0.5675 mL	2.8375 mL	5.675 mL
50 mM	0.1135 mL	0.5675 mL	1.135 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

D'Agostino DP, et al. Therapeutic ketosis with ketone ester delays central nervous system oxygen toxicity seizures in rats. *Am J Physiol Regul Integr Comp Physiol*. 2013 May 15;304(10):R829-36.

Kashiwaya Y, et al. A ketone ester diet exhibits anxiolytic and cognition-sparing properties, and lessens amyloid and tau pathologies in a mouse model of Alzheimer's disease. *Neurobiol Aging*. 2013 Jun;34(6):1530-9.

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