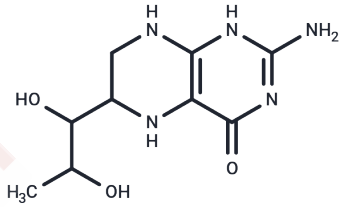
Data Sheet (Cat.No.T17056)

TargetMol

Tetrahydrobiopterin

Chemical Properties



CAS No. : 17528-72-2

Formula: C9H15N5O3

Molecular Weight: 241.25

Storage: Store at low temperature,Keep away from direct sunlight
Powder: -20°C for 3 years
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Tetrahydrobiopterin (BH4) is a cofactor for aromatic amino acid hydroxylases and an essential cofactor for nitric oxide synthase (NOS), which is used in the study of endothelial dysfunction such as hypertension, hypercholesterolemia, and diabetes.
Targets(IC50)	NOS,Endogenous Metabolite,NO Synthase
In vitro	Microglia cultures under hyperoxic conditions were supplemented with or without Tetrahydrobiopterin (100 μM). Exposure of microglia to hyperoxia-induced oxidative stress for 24 h showed a significant increase in TSP-1 mRNA expression and protein compared with normoxia (21% O2). Tetrahydrobiopterin supplementation significantly prevents hyperoxia-induced microglial activation and prevents microvascular damage in choroidal explants by reducing Iba-1 and TSP-1 expression.[1]
In vivo	To assess the levels of tetrahydrobiopterin in the retina, three to five retinal pools were collected from WT and HPH-1 mice at postnatal ages 7, 14, and 22 years and evaluated by LC-MS/MS. LC-MS/MS analysis confirmed that the concentration level of tetrahydrobiopterin in the retinal tissue of HPH-1 mice was significantly reduced by approximately 90% compared with WT groups P7, P14, and P22, respectively.[1]

Solubility Information

Solubility	DMSO: 40 mg/mL (165.8 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (8.29 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	4.1451 mL	20.7254 mL	41.4508 mL
5 mM	0.829 mL	4.1451 mL	8.2902 mL
10 mM	0.4145 mL	2.0725 mL	4.1451 mL
50 mM	0.0829 mL	0.4145 mL	0.829 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

Rivera JC, et al. Tetrahydrobiopterin (BH4) deficiency is associated with augmented inflammation and microvascular degeneration in the retina. J Neuroinflammation. 2017 Sep 6;14(1):181.