Product Data Sheet

Product Name: 7,8-dihydro-L-Biopterin
Cat. No.: GC10533

Chemical Properties

Cas. No.	6779-87-9		
Chemical Name	2-amino-6-((1R,2S)-1,2-dihydroxypropyl)-7,8-dihydropteridin-4(1H)-one		
SMILES	NC(N(C1=C2N=C(CN1[H])[C@H]([C@H](C)O)O)[H])=NC2=O		
Formula	$C_9H_{13}N_5O_3$	M.Wt	239.23
Solubility	DMSO : 150 mg/mL (627.01 mM; Need ultrasonic); H_2O : 5 mg/mL (20.90 mM; Need ultrasonic)	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	7,8-dihydro-L-Biopterin		

Background

7,8-dihydro-l-biopterin (BH2), an analogue of the natural cofactor BH4, is a precursor in the synthesis of BH4 [1].

Tetrahydrobiopterin (BH4) is a key redox-active cofactor involved in endothelial isoform of NO synthase (eNOS) catalysis. BH4 is an important determinant of NO-dependent signaling pathways. Oxidation of BH4 has been observed in vascular cells in the setting of the oxidative stress associated with diabetes [1,2].

In cultured aortic endothelial cells, supplementation with BH2 abolished VEGF-induced NO production. DHFR but not GTPCH1 knockdown increased reactive oxygen species (ROS) production. BH2 abolished the increase in ROS production induced by DHFR knockdown. Intracellular BH2, as well as the relative concentrations of BH4 and BH2, together play a determining role in the redox regulation of eNOS-modulated endothelial

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responses [2]. 7,8-dihydro-L-biopterin was a reduced form of pterins. Pterins noncompetitively inhibited rat liver GTP cyclohydrolase I activity. 7,8-dihydro-L-biopterin exhibited approximately 12-times more potent than oxidized pterins. The Ki values for 7,8-dihydro-L-biopterin was 14.4 μM [1].

References:

[1] Shen R, Alam A, Zhang Y. Inhibition of GTP cyclohydrolase I by pterins[J]. Biochimica et Biophysica Acta (BBA)-General Subjects, 1988, 965(1): 9-15.
[2] Sugiyama T, Levy B D, Michel T. Tetrahydrobiopterin recycling, a key determinant of endothelial nitric-oxide synthase-dependent signaling pathways in cultured vascular endothelial cells[J]. Journal of Biological Chemistry, 2009, 284(19): 12691-12700.