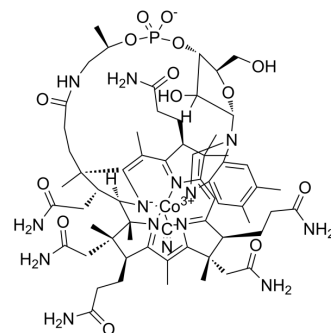


Vitamin B12

Cat. No.:	HY-B0315
CAS No.:	68-19-9
Molecular Formula:	C ₆₃ H ₈₈ CoN ₁₄ O ₁₄ P
Molecular Weight:	1355.37
Target:	Endogenous Metabolite
Pathway:	Metabolic Enzyme/Protease
Storage:	4°C, protect from light * In solvent : -80°C, 1 year; -20°C, 6 months (protect from light)



SOLVENT & SOLUBILITY

In Vitro	DMSO : 20.83 mg/mL (15.37 mM; ultrasonic and warming and heat to 60°C)					
	H ₂ O : 6.25 mg/mL (4.61 mM; ultrasonic and warming and heat to 60°C)					
	Preparing Stock Solutions	Solvent	Mass	1 mg	5 mg	10 mg
		Concentration				
		1 mM		0.7378 mL	3.6890 mL	7.3781 mL
5 mM			0.1476 mL	0.7378 mL	1.4756 mL	
	10 mM		0.0738 mL	0.3689 mL	0.7378 mL	
Please refer to the solubility information to select the appropriate solvent.						
In Vivo	1. Add each solvent one by one: PBS Solubility: 50 mg/mL (36.89 mM); Clear solution; Need ultrasonic					
	2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (1.84 mM); Clear solution					
	3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (1.84 mM); Clear solution					

BIOLOGICAL ACTIVITY

Description	Vitamin B12 is a vitamin. Vitamin B12 plays a key role in the normal functioning of the brain and nervous system, and for the formation of blood ^{[1][2]} .	
IC₅₀ & Target	Human Endogenous Metabolite	Microbial Metabolite
In Vitro	Vitamin B12 is one of the eight B vitamins. It is normally involved in the metabolism of every cell of the human body, especially affecting DNA synthesis and regulation, but also fatty acid synthesis (especially odd chain fatty acids) and energy	

production. However, many (though not all) of the effects of functions of B12 can be replaced by sufficient quantities of folic acid (vitamin B9), since B12 is used to regenerate folate in the body. Most vitamin B12 deficiency symptoms are actually folate deficiency symptoms, since they include all the effects of pernicious anemia and megaloblastosis, which are due to poor synthesis of DNA when the body does not have a proper supply of folic acid for the production of thymine due to methyl trapping. When sufficient folic acid is available, all known B12 related deficiency syndromes normalize, save those narrowly connected with the vitamin B12-dependent enzymes Methylmalonyl Coenzyme A mutase, and 5-methyltetrahydrofolate-homocysteine methyltransferase (MTR), also known as methionine synthase; and the buildup of their respective substrates (methylmalonic acid, MMA) and homocysteine. Coenzyme B12's reactive C-Co bond participates in three main types of enzyme-catalyzed reactions^{[1][2]}.

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

CUSTOMER VALIDATION

- Journal of Pharmaceutical Investigation. 2021 Mar 31.
- Journal of Pharmaceutical Investigation. 2021 Apr.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. http://en.wikipedia.org/wiki/Vitamin_B12

[2]. Banerjee, R. and S.W. Ragsdale, The many faces of vitamin B12: catalysis by cobalamin-dependent enzymes. *Annu Rev Biochem*, 2003. 72: p. 209-47.

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