

PRODUCT INFORMATION



Methylcobalamin

Item No. 29113

CAS Registry No.: 13422-55-4
Formal Name: co-methyl-cobinamide, dihydrogen phosphate (ester), inner salt, 3'-ester with (5,6-dimethyl-1- α -D-ribofuranosyl-1H-benzimidazole- κ N³)

Synonyms: Algobaz, Co-Methylcobalamin, Mecobalamin, MeCbl, Methyl Vitamin B₁₂

MF: C₆₃H₉₁CoN₁₃O₁₄P
FW: 1,344.4

Purity: $\geq 98\%$

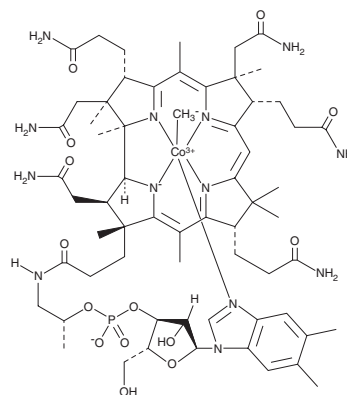
UV/Vis.: λ_{max} : 265 nm

Supplied as: A crystalline solid

Storage: -20°C

Stability: ≥ 4 years

Item Origin: Bacterium/*Pseudomonas denitrificans*



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Methylcobalamin is supplied as a crystalline solid. A stock solution may be made by dissolving the methylcobalamin in the solvent of choice, which should be purged with an inert gas. Methylcobalamin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of methylcobalamin in these solvents is approximately 3, 5, and 2 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of methylcobalamin can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of methylcobalamin in PBS, pH 7.2, is approximately 3 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Methylcobalamin is an analog of vitamin B12 (Item No. 18425) with diverse neurological activities.¹⁻⁴ It promotes neurite outgrowth and survival in primary cerebellar granule (CGN) and dorsal root ganglion (DRG) cells and activation of ERK1/2 and Akt when used at concentrations ranging from 0.1 to 100 μ M.¹ Methylcobalamin (1 mg/kg per day) improves sensory function in a pinch test and increases toe spreading in a rat model of sciatic nerve injury. It decreases the number of atypical mitochondria in the sciatic nerve and reduces mechanical allodynia and thermal hyperalgesia induced by vincristine (Item No. 11764) in a rat model of neuropathic pain.² Methylcobalamin (30 mg/kg) reduces muscle weakness and forelimb contracture and increases bicep muscle weight and the number of musculocutaneous nerves in the wobbler mouse model of amyotrophic lateral sclerosis (ALS).³ It also enhances the recovery of compound muscle action potentials and motor end plate innervation and decreases the time to sticker removal in the sticker removal grooming test in a rat model of bicep ulnar to musculocutaneous nerve transfer.⁴

References

1. Okada, K., Tanaka, H., Temporin, K., *et al. Exp. Neurol.* **222(2)**, 191-203 (2010).
2. Xu, J., Wang, W., Zhong, X.X., *et al. Mol. Pain* **12**, 1744806916657089 (2016).
3. Ikeda, K., Iwasaki, Y., and Kaji, R. *J. Neurol. Sci.* **354(1-2)**, 70-74 (2015).
4. Liao, W.C., Chen, J.R., Wang, Y.J., *et al. Neuroscience* **141(3)**, 934-949 (2010).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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