Methylcobalamin (mecobalamin, MeCbl, or MeB12) is a cobalamin, a form of vitamin B12. It differs from cyanocobalamin in that the cyanide is replaced by a methyl group.

Methylcobalamin features an octahedral cobalt(III) centre. Methylcobalamin can be obtained as bright red crystals.

From the perspective of coordination chemistry, methylcobalamin is notable as a rare example of a compound that contains metal-alkyl bonds. Nickel-methyl intermediates have been proposed for the final step of methanogenesis.

Methylcobalamin is equivalent physiologically to vitamin B12, and can be used to prevent or treat pathology arising from a lack of vitamin B12 (vitamin B12 deficiency), such as pernicious anemia.

Methylcobalamin is also used in the treatment of peripheral neuropathy, diabetic neuropathy, and as a preliminary treatment for amyotrophic lateral sclerosis.

Optic nerve crush injury in rats causes the loss of the axons and RGCs but this may be ameliorated by treatment with Mecobalamin [1)].

1)
Kong X, Sun X, Zhang J. The protective role of Mecobalamin following optic nerve crush in adult rats. Yan Ke Xue Bao. 2004 Sep;20(3):171-7. PubMed PMID: 15499726.