Methylenediphosphonic acid

Product Number: M 9508
Storage Temperature: -0 °C

**Product Description**
Molecular Formula: CH₆O₆P₂
Molecular Weight: 176.0
CAS Number: 1984-15-2
Melting Point: 199-200 °C¹
Synonyms: medronic acid, methylenebisphosphonic acid, methanebisphosphonic acid, methanediphosphonic acid, MDP³

Methylenediphosphonic acid, or medronic acid, is a diphosphonic acid that is commonly used in imaging studies of such systems as bone and neuroblastoma, in conjunction with such radioisotopes as ⁹⁹ᵐTc.¹ The distribution of ⁹⁹ᵐTc derivatives with MDP has been studied in blood components *in vitro.*² Other reports have investigated the effect of the alkylating agent cyclophosphamide and the plant alkaloid vincristine on the *in vivo* biodistribution of the Tc-MDP chelate in mice.³,⁴

MDP has been used as a chelating agent to vary calcium levels in cell culture in a study of caffeine storage in bovine chromaffin cells.⁵ Rat osteoblast cells have been investigated for their proliferation, differentiation, and protein production on MDP-modified titanium surfaces.⁶ MDP has been shown to enhance growth yield and cAMP synthesis in *Escherichia coli* in stationary phase.⁷

Derivates of MDP with cis-platin have been synthesized and investigated by ³¹P NMR spectroscopy.⁸ Several xanthosine triphosphate derivatives have been prepared using MDP, and their effect on the prenylation of the GTPase Rab5 mutant Rab5D136N has been studied.⁹

**Precautions and Disclaimer**
For Laboratory Use Only. Not for drug, household or other uses.

**Preparation Instructions**
This product is soluble in water (50 mg/ml), with heat as needed, yielding a clear to slightly hazy, colorless solution.

**References**
1. The Merck Index, 12th ed., Entry# 5837.