FT-00924A

Cycloheximide

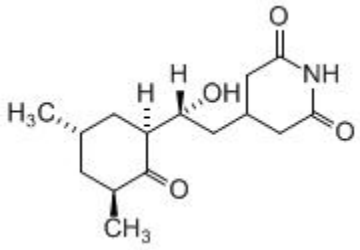
Description

Effective protein synthesis inhibitor

Catalog #: 009324A, 100mg 009324A, 1g
009324C, 5g 009324D, 25g

Name: **Cycloheximide**

4-{(2R)-2-[(1S,3S,5S)-3,5-dimethyl-2-oxocyclohexyl]-2-hydroxyethyl}piperidine-2,6-dione (IUPAC name); Synonyms Actidion, Naramycin A



MW: 281.35 g/mol

CAS [79580-28-2]; EC [200-636-0]

Off-white to light tan powder
Boiling Point: décompose / 491.79 °C at 760 mmHg (Predicted)
Melting Point : 110 °C.
Density: 1.14 g/cm3 (Predicted)
Refractinf index: 1.50 (Predicted)
Purity min. : 95 % (HPLC).
Packaging: crystalline solid in sealed ampoule under vacuum.

Soluble in water (20 mg/ml) at 2 °C, ethanol (50 mM), chloroform, and ether. Insoluble in saturated hydrocarbons.

Biological Activity: see technical inforamtion blow

Storage: +4°C >1 year. (L)

UN 2811, Class 6.1, Packing group I

Technical and Scientific Information

Cycloheximide is an effective inhibitor of protein biosynthesis in eukaryotic organisms.
It is produced by the bacterium *Streptomyces griseus*.

● Biological activity

Cycloheximide inhibits both the initation phase and the elongation phase of the protein synthesis. It interferes with the translocation step in protein synthesis (movement of two tRNA molecules and mRNA in relation to the ribosome) thus blocking translational elongation.

● Applications

Cycloheximide is widely used in biomedical research, typically to inhibit in vitro protein synthesis in eukaryotic cells. Its effects are rapidly reversed by simply removing it from the culture medium. Cycloheximide has been used in microbiology, to inhibit in culture media the growth of mycetes to select actinomycetes. Cycloheximide has even been used as a fungicide in agricultural applications. However, strong toxic side effects, including DNA damage, teratogenesis, and other reproductive effects. should prevents its use as antibiotic agent.

Since cycloheximide inhibits protein biosynthesis in eukaryotes only, it has been used to distinguish between proteins translated in the mitochondria and proteins translated in the cytosol. It abolishes expression of mRNA translated in cytosol or ER from mRNA derived from the nucleus., while mRNA continue to be expressed from mitochondrial genes.

● Tips of use

Decontamination of work surfaces and containers can be achieved by washing with a non-harmful alkali solution such as soap, because Cycloheximide is degraded by alkali (pH > 7).

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● Datas:
Vero (Kidney cells): IC50 = 530 nM (chlorocebus aethiops)
Saccharomyces cerevisiae: IC50 = 7420 nM
HeLa (Cervical adenocarcinoma cells): IC50 = 532.5 nM (human)
Plasmodium falciparum: IC50 = 150 nM
CEM (T-cell leukemia): IC50 = 120 nM (human)
60S ribosomal protein L19-A: EC50 = 644 nM (Saccharomyces cerevisiae S288c)

PPIase hFKBP12: Ki= 3.4 µM; FK506 binding protein 14: Ki= 76.2 µM (human)
FK506-binding protein 1A: Ki= 3.4 µM (human)

Bibliography :

1. Lotem, J. and Sachs, L. 1995. Cell Growth Differ. 6: 647-653. PMID: 7669718
2. Chow, S.C., et al. 1995. Exp. Cell Res. 216: 149-159. PMID: 7813615
3. Grand, R.J., et al. 1995. Exp. Cell Res. 218: 439-451. PMID: 7796880

Other Bioactive compounds:

▪ **Geldanamycin** GS775K (inhibits protein maturation)
▪ other **BioActive compounds search**[], i.e. Na+-Cl~ symporter agonists (Chlortalidone 221055); Trk Receptor Agonists (LM22A4 673030) , Neurotoxins (Bungarotoxins 38034A); …

Other Information

For in vitro R&D use only

Please contact InterBioTech – Interchim for any other information

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