

Product Information

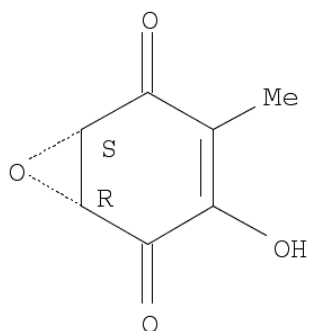
Terreic acid from *Aspergillus terreus*

Catalog Number **SML0480**

Storage Temperature -20 °C

CAS RN: 121-40-4

Synonyms: (1R,6S)-3-Hydroxy-4-methyl-7-oxabicyclo[4.1.0]hept-3-ene-2,5-dione



Product Description

Molecular formula: C₇ H₆ O₄

Molecular weight: 154.12

Purity: ≥98% (HPLC)

Terreic acid (TA) is a covalent inhibitor of the bacterial cell wall biosynthetic enzyme MurA. The survival of most bacteria depends on the functionality of this cytosolic enzyme.¹ The inactivation of MurA requires the presence of UDP-N-acetylglucosamine 1-Carboxy-vinyl transferase, which catalyzes the first step in the biosynthesis of the bacterial cell wall.¹ TA is more potent than the known MurA inhibitor fosfomycin.¹ TA was also found to severely inhibit the transcription of TNFα and IL-2. It inhibits protein synthesis by blocking the formation of leucyl-tRNA in sensitive bacteria and inhibits the catalytic effect of Bruton's tyrosine kinase (Btk), an important factor in B-cell and mast cell activation, by inducing conformational changes that prevent Protein Kinase C (PKC) from interacting with the Btk domain.¹⁻³ Moreover, recent studies have demonstrated that TA exhibits a very high level of radical scavenging activity.⁴

Reconstitution instructions

Soluble in water at 2 mg/mL and in DMSO at 10 mg/mL.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store the product sealed at -20 °C. Under these conditions the product is stable for at least 2 years. Solution of product in water is not stable and should be prepared immediately before use. Solution of product in DMSO is stable for at least 2 months at 2-8 °C.

References

1. Han, H., et al., The fungal product Terreic Acid is a covalent inhibitor of the bacterial cell wall biosynthetic enzyme UDP-N-Acetylglucosamine 1-Carboxyvinyltransferase (MurA). *Biochemistry*, **49**, 4276-4282 (2010).
2. Kawakami, Y., Regulation of protein kinase Cβ1 by two protein-tyrosine kinases, Btk and Syk. *Proc. Natl. Acad. Sci. USA*, **97**, 7423-7428 (2000).
3. Kawakami, Y., et al., Terreic acid, a quinone epoxide inhibitor of Bruton's tyrosine kinase. *Proc. Natl. Acad. Sci. USA*, **96**, 2227-2232 (1999).
4. Dewi, R.T., et al., Isolation of antioxidant compounds from *Aspergillus terreus* LS01. *J. Microbial. Biochem. Technol.*, **4**, 10-14 (2012).

DWF.KAA,PHC 11/12-1