Heptelidic Acid
Item No. 14079

CAS Registry No.: 57710-57-3
Formal Name: (2'S,5aS,6R,9aS)-1,5a,6,7,8,9a-hexahydro-6-(1-methylethyl)-1-oxo-spiro[2-benzoxepin-9(3H),2'-oxirane]-4-carboxylic acid

Synonyms: Avocettin, BRN 5091359, FO-4443, Koningic Acid

MF: C_{15}H_{20}O_{5}
FW: 280.3
Purity: ≥95%
Supplied as: A solid
Storage: -20°C
Stability: ≥2 years

Special Conditions: Keep cool and dry

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

Laboratory Procedures

Heptelidic acid is supplied as a solid. A stock solution may be made by dissolving the heptelidic acid in the solvent of choice. Heptelidic acid is soluble in the organic solvents ethanol, methanol, and DMSO, which should be purged with an inert gas. It is also soluble in water. We do not recommend storing the aqueous solution for more than one day.

Description

Glyceraldehyde 3-phosphate dehydrogenase (GAPDH), a key enzyme in carbohydrate metabolism, reversibly catalyzes the conversion of GAP to 1,3-bisphosphoglycerate and NAD^+. Heptelidic acid is a sesquiterpene lactone produced by the fungus *T. koningii* that was shown to have antibiotic activity against anaerobic bacteria such as *Bacteroides*.\(^1\) It acts as an irreversible inhibitor of GAPDH that binds to the cysteine-149 residue at the active site of the enzyme (K_i = 1.6 µM).\(^2\) It can selectively induce apoptosis in high-glycolytic cancer cells by inhibiting the generation of ATP in the glycolytic pathway.\(^3\) Heptelidic acid is also a selective and competitive inhibitor of mammalian DNA polymerases β and λ as well as terminal deoxynucleotidyl transferase in family X of DNA polymerases (K_i's range from 5.2-9.5 µM).\(^4\)

References