24(S)-hydroxy Cholesterol
Item No. 10009931

CAS Registry No.: 474-73-7
Formal Name: cholest-5-ene-3β,24S-diol
Synonym: Cerebrosterol
MF: C_{27}H_{46}O_{2}
FW: 402.7
Purity: ≥95%
Supplied as: A crystalline solid
Storage: -20°C
Stability: As supplied, 2 years from the QC date provided on the Certificate of Analysis, when stored properly

Laboratory Procedures

24(S)-hydroxy Cholesterol is supplied as a crystalline solid. A stock solution may be made by dissolving the 24(S)-hydroxy cholesterol in the solvent of choice. 24(S)-hydroxy Cholesterol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of 24(S)-hydroxy cholesterol in ethanol and DMF is approximately 20 and 2 mg/ml, respectively, and approximately 100 µg/ml in DMSO.

24(S)-hydroxy Cholesterol is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 24(S)-hydroxy cholesterol should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. 24(S)-hydroxy Cholesterol has a solubility of approximately 500 µg/ml in a 1:2 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

4(S)-hydroxy Cholesterol is a side-chain substituted oxysterol that has important roles in cholesterol homeostasis. It is generated by the action of CYP46 on cholesterol in the brain and diffuses across the blood-brain barrier to the systemic circulation where it can modulate cell signaling, be used for further sterol biosynthesis, or be metabolized in the liver.\(^1\) 24(S)-hydroxy cholesterol potently activates LXRα and LXRβ nuclear receptors (EC\(_{50}\) = 4 and 3 µM, respectively), causing upregulation of cholesterol-lowering genes.\(^1-3\)

In the brain, this oxysterol controls cholesterol processing to facilitate neurological repair during Alzheimer’s disease and other neuropathological conditions.\(^1\)

References