25-hydroxy Cholesterol
Item No. 11097

CAS Registry No.: 2140-46-7
Formal Name: cholest-5-ene-3β,25-diol
MF: C27H46O2
FW: 402.7
Purity: ≥98%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years

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

Laboratory Procedures

25-hydroxy Cholesterol is supplied as a crystalline solid. A stock solution may be made by dissolving the 25-hydroxy cholesterol in the solvent of choice, which should be purged with an inert gas. 25-hydroxy Cholesterol is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 25-hydroxy cholesterol in ethanol and DMF is approximately 20 and 2 mg/ml, respectively and approximately 100 µg/ml in DMSO.

25-hydroxy Cholesterol is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 25-hydroxy cholesterol should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. 25-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

25-hydroxy Cholesterol is an oxysterol. It is formed from cholesterol by cholesterol-25-hydroxylase, and its production can be induced by inflammation or infection. 25-hydroxy Cholesterol suppresses endogenous cholesterol synthesis by binding to insulin-induced gene (INSIG) proteins and preventing sterol regulatory element binding proteins (SREBPs) from being transported to the Golgi. It inhibits IgA class switching induced by LPS and various cytokines in B cells (IC50 = ~50 nM). 25-hydroxy Cholesterol inhibits replication of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in Vero cells (EC50 = 3.675 µM) and reduces increases in viral protein production in infected Vero cells when used prior to infection. It reduces viral RNA loads in the lung and trachea in a mouse model of SARS-CoV-2 infection when administered at a dose of 100 mg/kg per day. Serum levels of 25-hydroxy cholesterol are increased in mice expressing human angiotensin-converting enzyme 2 (hACE2), the functional receptor for SARS-CoV-2, in a model of SARS-CoV-2 infection and in a patient with COVID-19, the primarily respiratory disease caused by SARS-CoV-2.

References