Podophyllotoxin

Item No. 19575

CAS Registry No.: 518-28-5
Formal Name: (5R,5aR,8aR,9R)-5,8,8a,9-tetrahydro-9-hydroxy-5-(3,4,5-trimethoxyphenyl)-furo[3′,4′:6,7]naphtho[2,3-d]-1,3-dioxol-6(5aH)-one
Synonyms: NSC 24818, PPT
MF: C_{22}H_{22}O_{8}
FW: 414.4
Purity: ≥ 98%
UV/Vis.: λ_{max} 294 nm
Supplied as: A powder
Storage: -20°C
Stability: ≥ 2 years

Special Conditions: Hygroscopic. Keep under inert gas. Protect from moisture.

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

Laboratory Procedures

Podophyllotoxin is supplied as a powder. A stock solution may be made by dissolving the podophyllotoxin in the solvent of choice. Podophyllotoxin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of podophyllotoxin in ethanol is approximately 0.14 mg/ml and approximately 15 mg/ml in DMSO and DMF.

Podophyllotoxin is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, podophyllotoxin should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Podophyllotoxin has a solubility of approximately 0.25 mg/ml in a 1:3 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Podophyllotoxin is a non-alkaloid toxin lignan extracted from the roots and rhizomes of Podophyllum species.\(^1,2\) It binds to topoisomerase II during the late S and early G\(_2\) stage, blocking tubulin polymerization and, thus, inhibiting mitosis. In addition to being used as a cathartic, purgative, antiviral agent, vesicant, and anthelmintic, podophyllotoxin is the starting material for the semi-synthesis of the anti-cancer drugs etoposide (Item No. 12092), teniposide (Item No. 14425), and etopophos.\(^1,2\)

References

2. Lau, W. and Sattely, E.S. Six enzymes from mayapple that complete the biosynthetic pathway to the etoposide aglycone. *Science* 349(6253), 1224-1228 (2015).