Small Molecules

Etoposide

Topoisomerase II inhibitor

Catalog #100-1163

500 mg

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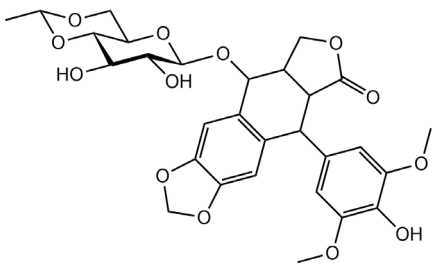
Product Description

Etoposide is a chemotherapeutic agent and an inhibitor of topoisomerase II (IC_{50} = 60.3 µM; Wu et al.). Topoisomerase II is an enzyme that facilitates the proliferation of eukaryotic cells by forming a double-stranded break in one DNA double-strand, allowing another double-stranded DNA segment to pass through, and then religating the broken strands (Burden et al.; Zhang et al.). Etoposide prevents topoisomerase II from religating broken DNA strands, leading to errors in DNA synthesis and promotion of apoptosis in cancer cells (Hande). Etoposide has also been used as a way to trigger and model cellular senescence in vitro (Bang et al.; Te Poele et al.; Teng et al.; Yang et al.).

Alternative Names:	NSC 141540; VP-16
CAS Number:	33419-42-0
Chemical Formula:	$C_{29}H_{32}O_{13}$
Molecular Weight:	588.6 g/mol
Purity:	≥ 98%
Chemical Name:	(5aR)-9S-[[4,6-O-ethylidene-β-D-glucopyranosyl]oxy]-5R,8,8aR,9-tetrahydro-5-(4-hydroxy-3,5 dimethoxyphenyl)-furo[3',4':6,7]naphtho[2,3-d]-1R,3-dioxol-6(5aH)-one

Structure:



Properties

Physical Appearance:	A white powder
Storage:	Product stable at -20°C as supplied. As a precaution, STEMCELL recommends storing all small molecules away from direct light. For long-term storage, store with a desiccant. Stable as supplied for 12 months from date of receipt.
Solubility:	• DMSO ≤ 40 mM For example, to prepare a 10 mM stock solution in DMSO, resuspend 10 mg in 1.70 mL of DMSO. Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported; however, as a general guide we recommend storage in absolute ethanol at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application. Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

CANCER RESEARCH
· Inhibits proliferation activity of adenocarcinoma cells and human umbilical vein endothelial (HUVEC) cells (Drevs et al.).
· Inhibits growth of murine angiosarcoma cell line (ISOS-1; Ma et al.).
· Induces cellular senescence in normal and cancer cells (Bang et al., Te Poele et al.; Teng et al.; Yang et al.).
· Supports treatment and disease modeling of small cell lung cancer (Gardner et al.; Kalemkerian et al.).

References

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Zhang W et al. (2021) Etoposide, an anticancer drug involved in therapy-related secondary leukemia: enzymes at play. Transl Oncol 14(10): 101169.

Related Small Molecules

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).