Revision 7

#2200 Store at -20C

Etoposide

5.9 mg

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Background

An anti-tumor agent that is commonly used as an apoptosis inducer, etoposide (VP-16) is a topoisomerase II inhibitor with an IC_{50} of 59.2 µM (1). Etoposide stabilizes a covalent topoisomerase II-cleaved DNA intermediate complex in the catalytic cycle of the enzyme, leading to genomic instability and cell death (2,3). This mechanism of action has been shown to delay progression of the cell cycle through the late S and early G2 phase (4,5).

Molecular Formula

$C_{29}H_{32}O_{13}$

Molecular Weight

588.56 g/mol

Purity

>98%

CAS

33419-42-0

Solubility

Soluble in DMSO at 25mg/ml.

Storage

Store lyophilized or in solution at -20ºC, desiccated. In lyophilized form, the chemical is stable for 24 months. Once in solution, use within 3 months to prevent loss of potency. Aliquot to avoid multiple freeze/thaw cycles.

Directions for Use:

Etoposide is supplied as a lyophilized powder. For a 50 mM stock, reconstitute the 5.9 mg in 200 µl DMSO. Working concentrations and length of treatments vary depending on the desired effect, but it is typically used at 5-50 µM for 4-24 hr. Soluble in DMSO at 25 mg/ml; very poorly soluble in ethanol and water with maximum solubility in water ~20-50 µM.

Wear personal protective equipment. Do not handle until all safety precautions have been read and understood.

Safety Information: Etoposide has been classified by the International Agency for Research on Cancer (IARC) as a known human carcinogen (Group 1). It may cause adverse reproductive effects - such as birth defect, miscarriages, or infertility. Avoid contact during pregnancy and while nursing. If exposed or concerned, get medical advice. See Safety Data Sheet (SDS).

Background References

1. Terada, T. et al. (1993) *J Med Chem* 36, 1689-99.
2. Baldwin, E.L. and Osheroff, N. (2005) *Curr Med Chem Anticancer Agents* 5, 363-72.
3. Li, T.K. and Liu, L.F. (2001) *Annu Rev Pharmacol Toxicol* 41, 53-77.
4. Dołega, A. (1998) *Postepy Hig Med Dosw* 52, 67-87.
5. Smith, P.J. et al. (1994) *Br J Cancer* 70, 914-21.

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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Limited Uses

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