Revision 1

#13637 Store at -20C

Camptothecin

10 mg

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Background

Camptothecin is a cytotoxic plant alkaloid originally isolated from *C. acuminate* that inhibits DNA and RNA synthesis in mammalian cells and is an effective anti-tumor agent (1). Research studies indicate that camptothecin inhibits topoisomerase I with an IC_{50} of 679 nM (2). Camptothecin binds and stabilizes topoisomerase I–DNA cleavage complexes, which leads to DNA strand breaks (1,3,4). The resultant DNA damage can induce cell cycle arrest in many cancer cell lines (5,6). Inactivation of the tumor suppressor protein p53 can increase the cytotoxicity of camptothecin (6).

Molecular Formula

$C_{20}H_{16}N_2O_4$

Molecular Weight

348.4 g/mol

Purity

>98%

CAS

7689-03-04

Solubility

Soluble in DMSO at 10mg/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:

Camptothecin is supplied as a lyophilized powder. For a 10 mM stock, reconstitute the 10 mg in 2.87 ml DMSO. Working concentrations and length of treatment can vary depending on the desired effect, but it is typically used at 1-10 µM for 1-24 hr.

Background References

1. Hsiang, Y.H. et al. (1985) *J Biol Chem* 260, 14873-8.
2. Luzzio, M.J. et al. (1995) *J Med Chem* 38, 395-401.
3. Marchand, C. et al. (2006) *Mol Cancer Ther* 5, 287-95.
4. Jaxel, C. et al. (1991) *J Biol Chem* 266, 20418-23.
5. Jaks, V. et al. (2001) *Oncogene* 20, 1212-9.
6. Gupta, M. et al. (1997) *Clin Cancer Res* 3, 1653-60.

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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