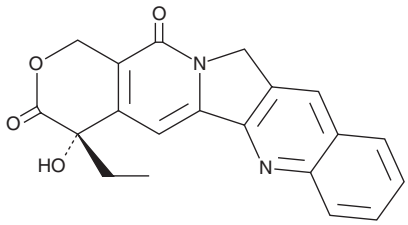
PRODUCT INFORMATION

Camptothecin

Item No. 11694

CAS Registry No.: 7689-03-4
Formal Name: (4S)-4-ethyl-4-hydroxy-1H-pyrano[3',4':6,7]indolizino[1,2-b]quinoline-3,14(4H,12H)-dione
Synonyms: MAG-CPT, NSC 94600
MF: $C_{20}H_{16}N_2O_4$
FW: 348.4
Purity: ≥98%
UV/Vis.: λ_{max}: 218, 253, 289, 359 nm
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

Camptothecin is supplied as a crystalline solid. A stock solution may be made by dissolving the camptothecin in the solvent of choice, which should be purged with an inert gas. Camptothecin is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of camptothecin in these solvents is approximately 3 and 2 mg/ml, repsectively.

Camptothecin is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, camptothecin should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Camptothecin 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

DNA topoisomerases relax DNA torsional strain created during replication, transcription, recombination, repair, and chromosome condensation. The relaxation of DNA supercoiling by topoisomerase I at single-strand breaks enables anticancer agents to reversibly trap the complex by intercalating between DNA base pairs at the cleavage site, thus inhibiting religation, which activates apoptotic and cell cycle arrest pathways.[1] Camptothecin is a cytotoxic, quinoline alkaloid, discovered as the active principle of extracts from the Chinese tree *C. acuminate*, that inhibits the DNA enzyme topoisomerase I (Top1). It binds the Top1-DNA cleavage complex, inducing DNA-strand breaks.[2,3] Camptothecin has strong anti-tumor activity against a wide range of experimental tumors and inhibits both DNA and RNA synthesis in mammalian cells.[4] It displays cytotoxity in HT-29 cells with an IC_{50} value of 10 nM and induces DNA damage at concentrations as low as 51 nM in whole cells and 12 nM in isolated nuclei in *in vitro* assays.[5]

References

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2. Hsiang, Y.-H., Hertzberg, R., Hecht, S., *et al*. *J. Biol. Chem*. **260(27)**, 14873-14878 (1985).
3. Marchand, C., Antony, S., Kohn, K.W., *et al*. *Mol. Cancer Ther*. **5(2)**, 287-295 (2006).
4. Dancey, J. and Eisenhauer, E.A. *Br. J. Cancer* **74(3)**, 327-338 (1996).
5. Rothenberg, M.L. *Ann. Oncol*. **8(9)**, 837-855 (1997).

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