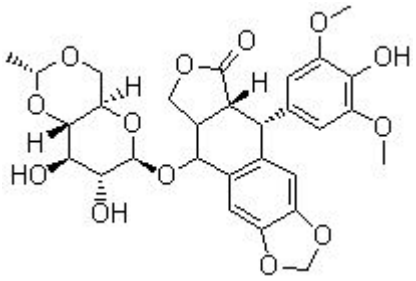
Product Introduction

Etoposide

Etoposide is a semisynthetic derivative of podophyllotoxin, which inhibits DNA synthesis via **topoisomerase II**inhibition activity.

Technical Data:

Molecular Weight (MW):	588.56	
Formula:	$C_{29}H_{32}O_{13}$	
Solubility (25°C) * <1 mg/ml means slightly soluble or insoluble:	DMSO 100 mg/mL	
	Water <1 mg/mL	
	Ethanol <1 mg/mL	
Purity:	>98%	
Storage:	3 years -20℃Powder	
	6 months-80℃in DMSO	
CAS No.:	33419-42-0	

Biological Activity

Etoposide inhibits DNA synthesis by forming a complex with topoisomerase II and DNA, which induces breaks in double stranded DNA and prevents repair by topoisomerase II binding. Accumulated breaks in DNA prevent entry into the mitotic phase of cell division, and lead to cell death. Etoposide acts primarily in the G2 and S phases of the cell cycle. [1] Etoposide inhibits the growth of murine angiosarcoma cell line (ISOS-1) in a 5 days-period with IC50 of 0.25 μg/mL. Cell growth of normal murine microvascular endothelial cells (mECs) is less sensitive to Etoposide with IC50 of 10 μg/mL). [2] Etoposide treated for 6 hr

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inhibits colonies of tetraploid variant of the human leukemic lymphoblast line CCRF-CEM with IC50 of 0.6 μM. [3] Etoposide treated for 2 hr inhibits growth of human pancreatic cancer cell line Y1, Y3, Y5, Y19, YM. YS, and YT with IC50s of 300 μg/mL, 300 μg/mL, 300 μg/mL, 91 μg/mL, 0.68 μg/mL, 300 μg/mL, 300 μg/mL, and 260 μg/mL, respectively. [4] Etoposide exposed for 1 hr inhibits growth of human glioma cell lines CL5, G142, G152, G111, and G5 with IC50 of 8, 9, 9.8, 10, and 15.8 μg/mL respectively for 12 days. Under same condition, the IC90 value is attained in cell lines CL5, G152, G142, and G111 at 26, 27, 32, and 33 μg/mL. Etoposide inhibition of topoisomerase II is homogeneous for each cell. The average inhibition rates are 15%, 21.8%, 31.8%, 41.5%, and 49.5% for 1, 2, 4, 8, and 16 μg Etoposide, respectively. [5]

Etoposide administrated as a single agent is found to been ineffective in many xenografts growth, such as Heterotransplanted Hepatoblastoma NMHB1, and NMHB 2, [6] human neuroblastoma xenograft, [7] and human gastrointestinal cancer xenograft, [8] while the dose of 10 mg/kg i.p. Etoposide inhibits murine angiosarcoma cell ISOS-1 tumors in 36% of controls. [2] Etoposide induces tumor immunity in Lewis lung cancer. A single administration of 50 mg/kg Etoposide i.p., induces a 60% survival of C57B1/6 mice injected with Lewis lung cancer cell (3LL) over 60 days. About 40% of these surviving mice reject a subsequent challenge with 3LL, while none of control mice survive beyond 30 days. 3LL cells which have survived an 90% lethal concentration of Etoposide in vitro kill 75% of recipient mice, but 60% surviving mice reject challenge with 3LL. Splenocytes harvested from tumor rejecting mice protect naive mice injected with 3LL. [9]

References

[1] van Maanen JM et al, J Natl Cancer Inst, 1988, 80(19), 1526-1533.

[2] Ma G, et al. J Dermatol Sci, 2000, 24(2), 126-133.

[3] Kalwinsky DK, et al. Cancer Res, 1983, 43(4), 1592-1597.

[4] Slater LM, et al. Cancer Chemother Pharmacol, 2001, 48(4), 327-332.

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[6] Fuchs J, et al. Cancer, 1998, 83(11), 2400-2407.

[7] Kaneko M, et al. Gan To Kagaku Ryoho, 1991, 18(7), 1155-1161.

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[9] Slater LM, et al. Cancer Chemother Pharmacol, 2001, 48(4), 327-332.

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