Product Data Sheet

Product Name: Irinotecan
Cat. No.: GC11473

Chemical Properties

Cas. No.	97682-44-5		
Chemical Name	4,11-diethyl-4-hydroxy-3,14-dioxo-3,4,12,14-tetrahydro-1H-pyrano[3',4':6,7]indolizino[1,2-b]quinolin-9-yl [1,4'-bipiperidine]-1'-carboxylate		
SMILES	O=C(OC1)C(O)(CC)C2=C1C(N(CC3=C4N=C5C(C=C(OC(N6CCC(N7CCCCC7)CC6)=O)C=C5)=C3CC)C4=C2)=O		
Formula	$C_{33}H_{38}N_4O_6$	M.Wt	586.68
Solubility	>29.4mg/mL in DMSO	Storage	4°C, protect from light
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Caution: Product has not been fully validated for medical applications. For research use only.
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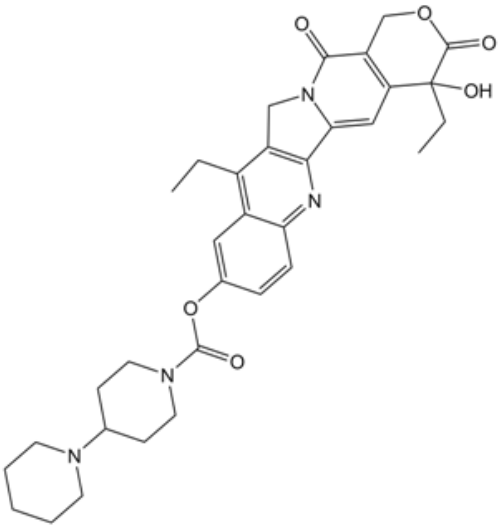
Product Data Sheet

Structure



Protocol

Cell experiment [1]:

Cell lines	LoVo and HT-29 cells
Preparation Method	LoVo and HT-29 cells were exposed to different concentrations of irinotecan(0-80μg/ml; 24h) to determine the IC_{50} values.
Reaction Conditions	Irinotecan(0-80μg/ml; 24h)
Applications	The IC_{50} values of LoVo cells is 6μg/ml, and for HT-29 cells is 12μg/ml.

Animal experiment [2]:

Animal models	Ehrlich ascites tumour cells model
Preparation Method	The mice were administered quercetin and naringin (100mg/kg) daily for 3 consecutive days, beginning on day 3 after i.p. injection of Ehrlich ascites tumour cells. Irinotecan was administered i.p. at a dose of 50mg/kg on days 1, 13 and 19 .
Dosage form	Irinotecan: 50mg/kg; ip; 1,13,19days
Applications	Mice given a combination of irinotecan and flavonoids had a significantly decreased number of tumour cells in the peritoneal cavity as compared to non-treated mice but counts on macrophages, lymphocytes and neutrophils were significantly higher than in non-treated mice.

References:
[1]. Huang YF, Zhu DJ, Chen XW, Chen QK, Luo ZT, Liu CC, Wang GX, Zhang WJ, Liao NZ. Curcumin enhances the effects of irinotecan on colorectal cancer cells through the generation of reactive oxygen species and activation of the endoplasmic reticulum stress pathway. Oncotarget. 2017 Jun 20;8(25):40264-40275.
[2]. Knežević AH, Dikić D, Lisičić D, Kopjar N, Oršolić N, Karabeg S, Benković V. Synergistic effects of irinotecan and flavonoids on Ehrlich ascites tumour-bearing mice. Basic Clin Pharmacol Toxicol. 2011 Nov;109(5):343-9.

Background

Irinotecan is a topoisomerase inhibitor used primarily for the treatment of colorectal cancer. Irinotecan binds to the topoisomerase I-DNA complex, preventing DNA strand reconnection and leading to DNA double-strand breaks and cell death[1].

Irinotecan(2μM; 48h) treatment with Panc-1 and MIA PaCa-2 resulted in 57.5% reduction of migratory in Panc-1 cells and in a 53.9% in MIA PaCa-2 cells [1]. In the cell cycle analysis, Irinotecan

(0.3 to 30μM for 24-48h) increased the proportions at the S and G2/M phases of cell cycling in parallel with a decreased population at the G1 phase in Caco-2 and CW2 cells [2].

For xenografted HCT116 cells, Irinotecan (10mg/kg; i.p; 5days) can reduced tumors by 80% and mice urvival was again improved (>16weeks vs 12weeks in mock) without any mouse toxicity[3]. Irinotecan (20mg/kg/day; ip; days 1–3, 8–10) were treat with Prostatic small cell carcinoma (SCC) arrested xenograft growth with a small reduction in tumor volume and only minor weight loss of the hosts (7%)[4]. Mice given a combination of Irinotecan (50mg/kg; ip; 1,13,19days) had a decreased number of tumour cells in the peritoneal cavity as compared to non-treated mice but counts on macrophages, lymphocytes and neutrophils were higher than in non-treated mice[5].

[1]. Rodriguez Lanzi C, Wei R, Luo D, Mackenzie GG. Phospho-Aspirin (MDC-22) inhibits pancreatic cancer growth in patient-derived tumor xenografts and KPC mice by targeting EGFR: Enhanced efficacy in combination with irinotecan. Neoplasia. 2022 Feb;24(2):133-144.
[2]. Kaku Y, Tsuchiya A, Kanno T, Nishizaki T. Irinotecan induces cell cycle arrest, but not apoptosis or necrosis, in Caco-2 and CW2 colorectal cancer cell lines. Pharmacology. 2015;95(3-4):154-9.
[3]. Sharma A, Vatapalli R, Abdelfatah E, Wyatt McMahon K, Kerner Z, A Guzzetta A, Singh J, Zahnow C, B Baylin S, Yerram S, Hu Y, Azad N, Ahuja N. Hypomethylating agents synergize with irinotecan to improve response to chemotherapy in colorectal cancer cells. PLoS One. 2017 Apr 26;12(4):e0176139.
[4]. Tung WL, Wang Y, Gout PW, Liu DM, Gleave M, Wang Y. Use of irinotecan for treatment of small cell carcinoma of the prostate. Prostate. 2011 May 15;71(7):675-81.
[5]. Sharma A, Vatapalli R, Abdelfatah E, Wyatt McMahon K, Kerner Z, A Guzzetta A, Singh J, Zahnow C, B Baylin S, Yerram S, Hu Y, Azad N, Ahuja N. Hypomethylating agents synergize with irinotecan to improve response to chemotherapy in colorectal cancer cells. PLoS One. 2017 Apr 26;12(4):e0176139.