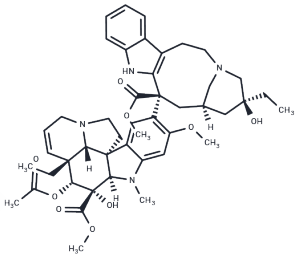
Data Sheet (Cat.No.T6721)

TargetMol

Vinblastine

Chemical Properties



CAS No. : 865-21-4

Formula: C46H58N4O9

Molecular Weight: 810.97

Storage: Store at low temperature
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Vinblastine inhibits microtubule formation and suppresses nAChR activity with IC50 of 8.9 μM, used to treat certain kinds of cancer.
Targets(IC50)	Microtubule Associated,AChR
In vitro	Vinblastine does not depolymerize spindle microtubules, yet it powerfully blocks mitosis (for example, IC50 0.8 nM in HeLa cells) and cells die by apoptosis[2]. In NB4 cells, vinblastine produces alteration of p53 and DNA fragmentation. Vinblastine treatment has an antiproliferative effect via the induction of apoptosis producing Bax/Bcl-2 imbalance. Vinblastine treatment suppresses NFκB expression and depresses NFκB-DNA binding activity while maintaining JNK activation that subsequently results in apoptotic response through caspase-dependent pathway[3]. Vinblastine is found to trigger apoptosis as evidenced by the loss of mitochondrial membrane potential, the release of both cytochrome c and apoptosis inducing factor, activation of caspase-9 and 3, and cleavage of Poly (ADP-ribose)-Polymerase[4].
In vivo	Vinblastine is a widely used anticancer drug with undesired side effects. Its conjugation with carrier molecules could be an efficient strategy to reduce these side effects[5].
Cell Research	Six-well treatment plates are set up that contained 5 × 104 cells/mL in each well, suspended in 3 mL culture medium, and these are treated with vinblastine for 3 h followed by 21 h growth. (Only for Reference)

Solubility Information

Solubility	Ethanol: 6 mg/mL (7.4 mM),Sonication is recommended. DMSO: 250 mg/mL (308.27 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.2331 mL	6.1655 mL	12.3309 mL
5 mM	0.2466 mL	1.2331 mL	2.4662 mL
10 mM	0.1233 mL	0.6165 mL	1.2331 mL
50 mM	0.0247 mL	0.1233 mL	0.2466 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

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Khan U, Lata R, Kumar H, et al.Exploration of oncolytic drugs from endophytic fungi of Catharanthus roseus.South African Journal of Botany.2024, 173: 330-337.
Pandya P, et al. Molecular recognition pattern of cytotoxic alkaloid vinblastine with multiple targets. J Mol Graph Model. 2014 Nov;54:1-9.
Calviño E, et al. JNK and NFκB dependence of apoptosis induced by vinblastine in human acute promyelocytic leukaemia cells. Cell Biochem Funct. 2015 Jun;33(4):211-9.
Selimovic D, et al. Vinblastine-induced apoptosis of melanoma cells is mediated by Ras homologous A protein (Rho A) via mitochondrial and non-mitochondrial-dependent mechanisms. Apoptosis. 2013 Aug;18(8):980-97.
Bánóczi Z, et al. Synthesis and in vitro antitumor effect of vinblastine derivative-oligoarginine conjugates. Bioconjug Chem. 2010 Nov 17;21(11):1948-55.