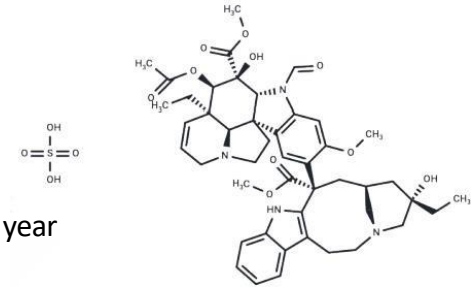
Vincristine sulfate [2068-78-2]

#Cat: NB-64-04194-20g Size: 20g
#Cat: NB-64-04194-1ml Size: 1ml

Chemical Properties



Cas No: 2068-78-2
Formula: $C_{46}H_{58}N_4O_{14}S$
Molecular weight: 923.04
Appearance: no data available
Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Vincristine sulfate is an alkaloidal natural product that binds to microtubule proteins and inhibits the formation of microtubules, thereby inhibiting mitosis in tumor cells. Vincristine sulfate is used as a microtubule destabilizing agent in research studies for the treatment of hematologic neoplasms such as leukemias and lymphomas, as well as in studies related to sarcomas in children.
Targets (IC50)	Apoptosis,Microtubule Associated
In vitro	**METHODS:** Neuroblastoma cells SH-SY5Y were treated with Vincristine sulfate (0.001-10 μM) for 24-72 h. Cell viability was measured by MTT assay. **RESULTS:** Vincristine inhibited the proliferation of SH-SY5Y cells in a dose- and time-dependent manner, with IC50s of 0.113 μM, 0.078 μM, and 0.051 μM at 24, 48, and 72 h, respectively. [1] **METHODS:** Human leukemia cells MOLT-4 were treated with Vincristine sulfate (0.3-3 μM) and SAHA (500 nM) for 24-48 h. Cell cycle was detected using Flow cytometry. **RESULTS:** Vincristine treatment induced an increase in the G2/M phase of the cell cycle compared to SAHA. the combination of Vincristine plus SAHA resulted in almost complete cell arrest in the G2/M phase after short-term treatment (24 h), followed by induction of the cells into the sub-G1 phase after long-term treatment (48 h). the combination of Vincristine and SAHA resulted in an increase in the G2/M phase of the cell cycle compared to SAHA. [2]
In vivo	**METHODS:** To assay antitumor activity in vivo, Vincristine sulfate (0.025 mg/kg, intravenously, once weekly) and SAHA (200 mg/kg, orally, once daily) were administered to SCID mice bearing MOLT-4 xenografts for 24 days. **RESULTS:** TGD did not improve in mice treated with Vincristine or SAHA alone. However, log-rank analysis showed that co-treatment exhibited significant anti-tumor activity in the MOLT-4 xenograft model. [2]

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Cell Research	SH-SY5Y cells at a logarithmic phase were seeded in 96-well plates (at 2x10^6/l) and incubated for 12 h until cells formed a monolayer. Wells were randomly chosen for treatment groups and a control group. For the treatment groups, cells were incubated with 200 µl of cell culture medium containing 0.001, 0.01, 0.1, 1 or 10 µM of VCR. In the control group, cells were grown in 200 µl cell culture medium only. Cells were incubated for another 24, 48 and 72 h and then 20 µl of 5 g/l MTT (0.1 mg/l final concentration) was added to each well. After 4 h of incubation, the cell culture supernatant was removed, 150 µl of DMSO was added to each well and the plate was shaken for 10 min. The absorbance of each well was detected at 490 nm (A value) on an ELISA plate reader. The growth inhibition rate of VCR-treated cells was calculated as: Growth inhibition rate % = [(average A value of control group - average A value of VCR-treated group)/average A value of control group] x 100%. This experiment was performed in triplicates [2].
Animal Research	Vincristine (1?mg/ml) was diluted in saline and administered i.v. to wild-type and Mdr1ab/Mrp1 TKO mice, aged 10–14 weeks, at dose levels ranging between 0.125 and 4?mg/kg. Animals were monitored daily and killed when they lost more than 20% of their initial body weight. The MTD was defined as one dose step below the dose where more than one animal in that group had to be killed. Necropsies were performed in wild-type and Mdr1ab/Mrp1 TKO mice receiving vincristine at or near the MTD and killed 2 days later [5].

Solubility Information

Solubility	DMSO: 50 mg/mL (54.17 mM), Ethanol: 1 mg/mL (insoluble or slightly soluble), H_2O: 92.3 mg/mL (100 mM), (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.0834 mL	5.4169 mL	10.8338 mL
5 mM	0.2167 mL	1.0834 mL	2.1668 mL
10 mM	0.1083 mL	0.5417 mL	1.0834 mL
50 mM	0.0217 mL	0.1083 mL	0.2167 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.

Reference

Wang D, Wang Y, Di X, et al.Cortical tension drug screen links mitotic spindle integrity to Rho pathway. Current Biology.2023