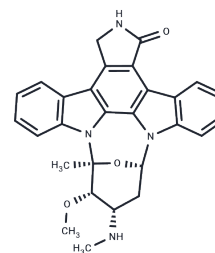


## Staurosporine

## Chemical Properties

CAS No. :	62996-74-1
Formula:	C <sub>28</sub> H <sub>26</sub> N <sub>4</sub> O <sub>3</sub>
Molecular Weight:	466.53
Appearance:	no data available
Storage:	Powder: -20°C for 3 years   In solvent: -80°C for 1 year



## Biological Description

Description	Staurosporine (AM-2282) is a protein kinase inhibitor with ATP-competitive and non-selective inhibitory activity (IC <sub>50</sub> =6/15/2/3/3000 nM) against PKC, PKA, c-Fgr, phosphorylase kinase and TAOK2. Staurosporine also induces apoptosis.
Targets(IC <sub>50</sub> )	Apoptosis,Antibacterial,Antibiotic,Antifungal,PKA,PKC,Src
In vitro	<p><b>METHODS:</b> Human cervical cancer cells HeLa were treated with Staurosporine (1-10 nM) for 72 h, and cell viability was measured by MTT.</p> <p><b>RESULTS:</b> Staurosporine inhibited the proliferation of Hela cells in a dose-dependent manner, with an IC<sub>50</sub> of about 10 nM. [1]</p> <p><b>METHODS:</b> Human pancreatic cancer cells PaTu 8988t and Panc-1 were treated with Staurosporine (1 μM) for 3-24 h, and cell death was detected by Flow Cytometry.</p> <p><b>RESULTS:</b> For PaTu 8988t cells, incubation with Staurosporine for 3-24 h significantly increased apoptosis and significantly decreased the number of viable cells; necrosis increased after 6-16 h. For Panc-1 cells, Staurosporine treatment significantly increased apoptosis and significantly decreased the number of viable cells after 9-24 h. The RESULTS were summarized as follows. [2]</p> <p><b>METHODS:</b> Human hepatocellular carcinoma cells HepG2 were treated with Staurosporine (20 nmol/L) for 6-24 h. The expression levels of target proteins were detected by Western Blot.</p> <p><b>RESULTS:</b> Staurosporine significantly inhibited the phosphorylation of mTOR and increased the expression of LC3-II, an autophagy marker protein, suggesting that Staurosporine activates autophagy effectively by inhibiting mTOR. [3]</p>
In vivo	<p><b>METHODS:</b> To assay anti-tumor activity in vivo, Staurosporine (3 mg/kg) and Lapatinib (50 mg/kg) were administered by gavage twice a week for two weeks to Nu/J-Foxn1 Nu/Nu mice harboring human mammary carcinoma tumors JIMT-1.</p> <p><b>RESULTS:</b> The combination of Staurosporine and Lapatinib inhibited tumor growth in a statistically significant manner. [4]</p> <p><b>METHODS:</b> To examine the effects on islet β-cell function, Staurosporine (0.4 mg/kg in 0.5% sodium carboxymethyl cellulose) was administered intraperitoneally to iPLA2β-/- C57BL6 mice once daily for two weeks. for two weeks.</p> <p><b>RESULTS:</b> Staurosporine impairs glucose tolerance and glucose-stimulated insulin secretion in pancreatic islets. [5]</p>
Kinase Assay	Enzyme assay and binding assay: Protein kinase C is assayed in a reaction mixture (0.25 mL) containing 5 μmol of Tris/HCL, pH 7.5, 2.5 μmol of magnesium acetate, 50 μg of

histone H2B, 20 µg of phosphatidylserine, 0.88 µg of dioleoin, 125 nmol of CaCl<sub>2</sub>, 1.25 nmol of [γ-<sup>32</sup>P]ATP (5-10 × 10<sup>4</sup> cpm/nmol) and 5 µg of partially purified enzyme. The binding of [3H]PDBu to protein kinase C is determined: Reaction mixture (200 µL contained 4 µmol of Tris/malate, pH 6.8, 20 µmol of KCl, 30 nmol of CaCl<sub>2</sub>, 20 µg of phosphatidylserine, 5 µg of partially purified protein kinase C, 0.5% (final concentration) of DMSO, 10 pmol of [3H]PDBu (1-3 × 10<sup>4</sup> cpm/pmol) and 10 µL of various amounts of Staurosporine.

## Cell Research

Cells are exposed to Staurosporine for ~32 hours. Cells are fixed in 4% paraformaldehyde and stained with the DNA-binding dye Hoechst 33342. Cells are visualized under epifluorescence illumination, and the percentage of apoptotic cells (cells with condensed and fragmented DNA) is determined. (Only for Reference)

## Solubility Information

## Solubility

H<sub>2</sub>O: < 0.1 mg/mL (insoluble),  
DMSO: 13.75 mg/mL (29.47 mM), Sonication is recommended.  
10% DMSO+40% PEG300+5% Tween 80+45% Saline: 3.1 mg/mL (6.64 mM), Solution.  
(< 1 mg/mL refers to the product slightly soluble or insoluble)

## Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.1435 mL	10.7174 mL	21.4348 mL
5 mM	0.4287 mL	2.1435 mL	4.287 mL
10 mM	0.2143 mL	1.0717 mL	2.1435 mL
50 mM	0.0429 mL	0.2143 mL	0.4287 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.

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