Specification

Staurosporine *BioChemica* A7626

Physical Description:	Solid
Product Code:	A7626
Product Name:	Staurosporine *BioChemica*
Specifications:	Assay (HPLC): min. 97 % $\lambda_{max.}$ (MeOH): 208, 241, 292, 334, 355, 373 nm Solubility (5 mg/ml EtOAc): clear, colorless
Hazard pictograms	
WGK:	3
Storage:	2-8°C protected from light
Signal Word:	Danger
GHS Symbols:	GHS08
H Phrases:	H350
P Phrases:	P201 P308+P313
Origin:	from *Streptomyces staurosporeus*
Molecular Formula:	$C_{28}H_{26}N_4O_3$
M:	466.53 g/mol
CAS:	62996-74-1
CS:	29419000

AppliChem GmbH
Ottoweg 4 • D-64291 Darmstadt • Phone +49 6151 9357 0 • Fax +49 6151 9357 11 • **info.de@itwreagents.com** • **www.itwreagents.com**
CEO Joan Roget • Commerzbank Darmstadt • Bank 508 800 50 • Account 0186989900 IBAN DE24 5088 0050 0186 9899 00 • Swiftcode DRESDEFF508 • Finanzamt Darmstadt 07 228 16476 • Register court Darmstadt HRB Nr. 7340

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Comment

Originally, Staurosporine was isolated from *Streptomyces staurosporeus*. It has antifungal but not antibacterial properties. In the meantime, a variety of structurally related alkaloids (indolcarbazoles) could be isolated, binding to the ATP-binding site in enzymes. Staurosporine is cell-permeable and inhibits several kinases at very low concentrations (PKC K_i 0.7 nM; PKA K_i 7 nM; MLCK K_i 1.3 nM; according to ref. 1). The large number of targets explains the different, in some cases cell-type specific, physiological effects: e.g. Induction of apoptosis, Ca^{2+} release, Phospholipase D activation or activation of genes. In addition, Topoisomerase II is inhibited by blocking of the transfer of the phosphodiester binding of ATP to the tyrosine in the active center.**Solubility and stability**: Staurosporine is soluble in DMSO, methanol or ethanol, but not in water. Stock solutions may be prepared with a concentration of 1 mM and are stored at -20°C, protecetd from light. Solutions are stable for at least 6 months. The working concentration may vary between 10 to 200 nM.

Bibliography

(1)Ausubel, F.A., Brent, R., Kingston, R.E., Moore, D.D., Seidman, J.G., Smith, J.A. & Struhl, K. (eds.) (1995) *Current Protocols in Molecular Biology.* page A.1K.24 (Suppl. 59). Greene Publishing & Wiley-Interscience, New York.(2)Kocher, M. & Clemetson, K.J. (1991) *Biochem. J.* **275**, 301-306Staurosporine both activates and inhibits serine/threonine kinases in human platelets.(3)Kanaho, Y. *et al.* (1992) *J. Biol. Chem.* **267**, 23554-23559A Protein Kinase C Inhibitor, Staurosporine, Activates Phospholipase D via Pertussis Toxin sensitive GTP-binding Protein in Rabbit Peritoneal Neutrophils.(4)Ramamoorthy, J.D. *et al.* (1995) *J. Biol. Chem.* **270**, 17189-17195Cyclic AMP-independent Up-regulation of the Human Serotonin Transporter by Staurosporine inChoriocarcinoma Cells.(5)Kim, Y.J. *et al.* (2002) *J. Dent. Res.* **81**, 788-793Staurosporine Mobilizes Ca^{2+} from Secretory Granules by Inhibiting Protein Kinase C in Rat Submandibular Acinar Cells.(6)Zhang, X.D. *et al.* (2004) *Mol. Cancer Ther.* **3**187-197Staurosporine induces apoptosis of melanoma by both caspase-dependent and -independent apoptotic pathways.(7)Lassota, P. *et al.* (1996) *J. Biol. Chem.* **271**26418-26423Mechanism of Topoisomerase II Inhibition by Staurosporine and Other Protein Kinase Inhibitors.(8)Shinozuka, Y. *et al.* (2003) *Nucleic Acids Res.* **Suppl. 3**301-302Staurosporine stimulates insulin gene expression via CRE dependent manner.

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