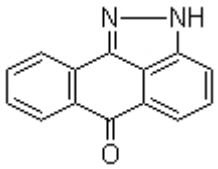
Product Introduction

SP600125

SP600125 is a broad-spectrum **JNK** inhibitor for JNK1, JNK2 and JNK3 with **IC50** of 40 nM, 40 nM and 90 nM, respectively; 10-fold greater selectivity against MKK4, 25-fold greater selectivity against MKK3, MKK6, PKB, and PKCα, and 100-fold selectivity against ERK2, p38, Chk1, EGFR etc.

Technical Data:

Molecular Weight (MW):	220.23	
Formula:	$C_{14}H_8N_2O$	
Solubility (25°C) * <1 mg/ml means slightly soluble or insoluble:	DMSO 44 mg/mL	
	Water <1 mg/mL	
	Ethanol <1 mg/mL	
Purity:	>98%	
Storage:	3 years -20℃Powder	
	6 months-80℃in DMSO	
CAS No.:	129-56-6	

Biological Activity

SP600125 is originally characterized as a selective ATP-competitive inhibitor of c-Jun N-terminal kinase JNK. In Jurkat T cells, SP600125 inhibits the phosphorylation of c-Jun with IC50 of 5 μM to 10 μM. In CD4+ cells, such as Th0 cells isolated from either human cord or peripheral blood, SP600125 blocks cell activation and differentiation and inhibits the expression of inflammatory genes COX-2, IL-2, IL-10, IFN-γ, and TNF-α, with IC50 of 5 μM to 12 μM. [1] However, later studies reveal that SP600125 also suppresses

aryl hydrocarbon receptor (AhR) [2], Mps1 [3], and a panel of other serine/threonine kinases, including Aurora kinase A, FLT3, MELK, and TRKA [4]. In a mouse beta cells MIN6, SP600125 (20 μM) induces the phosphorylation of p38 MAPK and its downstream CREB-dependent promoter activation. [5] In HCT116 cells, SP600125 (20 μM) blocks the G2 phase to mitosis transition and induces endoreplication. This ability of SP600125 is independent of JNK inhibition, but due to its inhibition of CDK1-cyclin B activation upstream of Aurora A and Polo-like kinase 1. [6]

In mice, SP600125 (15 mg/kg or 30 mg/kg) significantly inhibits lipopolysaccharide (LPS)-induced TNF-α expression and anti-CD3-induced apoptosis of $CD4^+$ $CD8^+$ thymocytes. [1]

References

[1] Bennett BL, et al. Proc Natl Acad Sci U S A, 2001, 98(24), 13681-13686.

[2] Joiakim A, et al. Drug Metab Dispos, 2003, 31(11), 1279-1282.

[3] Schmidt M, et al. EMBO Rep, 2005, 6(9), 866-872.

[4] Colombo R, et al. Cancer Res, 2010, 70(24), 10255-64.

[5] Vaishnav D, et al. Biochem Biophys Res Commun, 2003, 307(4), 855-860.

[6] Kim JA, et al. Oncogene, 2010, 29(11), 1702-1716.