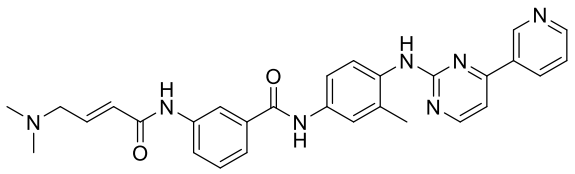
Product data sheet

MedKoo Cat#: 406740 Name: JNK-IN-8 CAS#: 1410880-22-6 Chemical Formula: $C_{29}H_{29}N_7O_2$ Exact Mass: 507.2383 Molecular Weight: 507.598	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
JNK-IN-8, also known as JNK Inhibitor XVI, is a selective JNK inhibitor that inhibits phosphorylation of c-Jun, a direct substrate of JNK, in cells exposed to submicromolar drug in a manner that depends on covalent modification of the conserved cysteine residue. Extensive biochemical, cellular, and pathway-based profiling establish the selectivity of JNK-IN-8 for JNK and suggests that the compound will be broadly useful as a pharmacological probe of JNK-dependent signal transduction.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	100	197.01

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.97 mL	9.85 mL	19.70 mL
5 mM	0.39 mL	1.97 mL	3.94 mL
10 mM	0.20 mL	0.99 mL	1.97 mL
50 mM	0.04 mL	0.20 mL	0.39 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Du J, Wang G, Luo H, Liu N, Xie J. JNK-IN-8 treatment alleviates lipopolysaccharide-induced acute lung injury via suppression of inflammation and oxidative stress regulated by JNK/NF-κB signaling. Mol Med Rep. 2021 Feb;23(2):150. doi: 10.3892/mmr.2020.11789. Epub 2020 Dec 23. PMID: 33355369; PMCID: PMC7789102.

In vivo study

1. Zheng J, Dai Q, Han K, Hong W, Jia D, Mo Y, Lv Y, Tang H, Fu H, Geng W. JNK-IN-8, a c-Jun N-terminal kinase inhibitor, improves functional recovery through suppressing neuroinflammation in ischemic stroke. J Cell Physiol. 2020 Mar;235(3):2792-2799. doi: 10.1002/jcp.29183. Epub 2019 Sep 20. PMID: 31541462; PMCID: PMC6916328.

2. Du J, Wang G, Luo H, Liu N, Xie J. JNK-IN-8 treatment alleviates lipopolysaccharide-induced acute lung injury via suppression of inflammation and oxidative stress regulated by JNK/NF-κB signaling. Mol Med Rep. 2021 Feb;23(2):150. doi: 10.3892/mmr.2020.11789. Epub 2020 Dec 23. PMID: 33355369; PMCID: PMC7789102.

7. Bioactivity
Biological target:

Product data sheet

JNK-IN-8 (JNK Inhibitor XVI) is the first irreversible JNK inhibitor for JNK1, JNK2 and JNK3 with IC50 of 4.7 nM, 18.7 nM and 1 nM, >10-fold selectivity against MNK2, Fms and no inhibition to c-Kit, Met, PDGFRβin A375 cell line.

In vitro activity

Before assessing the effects of JNK-IN-8 on primary murine peritoneal macrophages, the cytotoxic effect of JNK-IN-8 on cells was assessed using a CCK-8 assay (Fig. 4A). No significant cytotoxic effects of JNK-IN-8 were observed at concentrations of ⩽12.50 µM in primary macrophages (Fig. 4A). Based on these data, a maximal concentration of 10 µM was selected to analyze the effects of JNK-IN-8 in primary macrophages. In order to investigate the anti-inflammatory effect of JNK-IN-8, primary macrophages were pretreated with JNK-IN-8 for 1 h and then stimulated with LPS (100 ng/ml) for 6 h. mRNA expression levels and secretion of TNF-α, IL-6 and IL-1β in the LPS group were significantly increased compared with those in the Sham group, but these were decreased in the LPS + JNK-IN-8 group compared with the LPS group (Fig. 4B and C). Subsequently, the role of JNK-IN-8 in oxidative stress was investigated. JNK-IN-8 pretreatment significantly decreased MDA content and inhibited the LPS-induced decrease in SOD activity (Fig. 4D) in primary macrophages. The effects of JNK-IN-8 on the macrophage cell line RAW264.7 were assessed. In the CCK-8 assay, no cytotoxic effects of JNK-IN-8 were observed at concentrations ⩽12.50 µM in RAW264.7 cells (Fig. 5A). RAW264.7 cells were cultured and treated with JNK-IN-8 in vitro. The trend was the same as that of primary macrophages. RAW264.7 cells were pretreated with JNK-IN-8 for 1 h and then stimulated with LPS (100 ng/ml) for 6 h. The gene expression levels and secretion of TNF-α, IL-6 and IL-1β were decreased by JNK-IN-8 pretreatment compared with those in the LPS group (Fig. 5B and C). JNK-IN-8 administration significantly decreased the MDA content and inhibited the LPS-induced decrease in SOD activity (Fig. 5D).

Reference: Mol Med Rep. 2021 Feb;23(2):150. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/33355369/

In vivo activity

Male rats were treated with JNK-IN-8 after transient middle cerebral artery occlusion, and then the modified improved neurological function score (mNSS), the foot-fault test (FFT), interleukin-1β (IL-1β), IL-6, and tumor necrosis factor-α (TNF-α) levels were assessed. It was found that JNK-IN-8-treated rats with MCAO exerted an observable melioration in space learning as tested by the improved mNSS, and showed sensorimotor functional recovery as measured by the FFT. JNK-IN-8 also played anti-inflammatory roles as indicated through decreased activation of microglia and decreased IL-6, IL-1β, and TNF-α expression. Furthermore, JNK-IN-8 suppressed the activation of JNK and nuclear factor-κB (NF-κB) signaling as indicated by the decreased level of phosphorylated-JNK and p65. All data demonstrate that JNK-IN-8 inhibits neuroinflammation and improved neurological function by inhibiting JNK/NF-κB and is a promising agent for the prevention of ischemic brain injury.

Reference: J Cell Physiol. 2020 Mar;235(3):2792-2799. https://www.ncbi.nlm.nih.gov/pmc/articles/pmid/31541462/