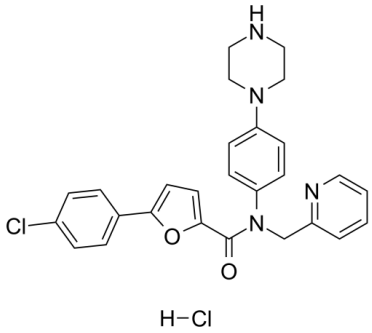
Data Sheet

Product Name:	MK2-IN-1 (hydrochloride)
Cat. No.:	CS-4584
CAS No.:	1314118-94-9
Molecular Formula:	C27H26Cl2N4O2
Molecular Weight:	509.43
Target:	MAPKAPK2 (MK2)
Pathway:	MAPK/ERK Pathway
Solubility:	DMSO : 100 mg/mL (196.30 mM; Need ultrasonic)



BIOLOGICAL ACTIVITY:

MK2-IN-1 hydrochloride is a potent and selecitve MAPKAPK2(MK2) inhibitor(IC50=0.11 uM) with a non-ATP competitive binding mode. IC50 value: 0.11 uM [1] Target: MAPKAPK2(MK2) inhibitor MK2-IN-1 was profiled for kinase selectivity by screening against a broad panel of 150 protein kinases at a concentration of 10 μM, and only CK1γ3 was significantly inhibited at greater than 50%. MK2-IN-1 inhibited pro-inflammatory cytokine secretion from the human THP1 acute monocytic leukemia cell line, causing dose-dependent inhibition of LPS-stimulated TNFα and IL6 secretion. MK2-IN-1 also dose dependently inhibited IL1β-stimulated matrixmetalloprotease (MMP)13 secretion from the SW1353 chondrosarcoma cell line and human primary chondrocyte cultures. Of note, given its high degree of selectivity, our data suggest that MK2-IN-1 may be an excellent pharmacologic tool for specifically exploring and validating MK2 biology [3].

PROTOCOL (Extracted from published papers and Only for reference)

Cell assay [3] THP1 cells were obtained from ATCC (Cat. No. TIB-202) and cultured in medium consisting of RPMI1640 supplemented with 2mM L-glutamine, 1.5g/L sodium bicarbonate, 4.5 g/L glucose, 10% fetal bovine serum, 10 mM HEPES, 1 mM sodium pyruvate and 50 μM 2-mercapatoethanol. Cells were plated into the wells of 96-well culture plates at 0.5 X 105 and 0.5 X 104 cells/well for TNF α and IL6 assays, respectively , then cultured for 60 mins to allow pre-equilibration, and the treated with varying concentrations of compound 25 for 30 mins prior to addition of LPS (Sigma-Aldrich, Cat. No. L2654) at 1 ug/mL. After 3 and 18 hours of culture for TNF α and IL6 assays, respectively, supernatants were removed and secreted cytokines were measured using commercially available kits and manufacturer's protocols. Secreted TNFα was specifically measured by an ELISA method.

References:

[1]. Rao AU, et al. Facile synthesis of tetracyclic azepine and oxazocine derivatives and their potential as MAPKAP-K2 (MK2) inhibitors. Bioorg Med Chem Lett. 2012 Jan 15;22(2):1068-72.

[2]. Huang X, et al. A three-step protocol for lead optimization: quick identification of key conformational features and functional groups in the SAR studies of non-ATP competitive MK2 (MAPKAPK2) inhibitors. Bioorg Med Chem Lett. 2012 Jan 1;22(1):65-70.

[3]. Huang X, et al. Discovery and Hit-to-Lead Optimization of Non-ATP Competitive MK2 (MAPKAPK2) Inhibitors. ACS Med Chem Lett. 2011 Jun 24;2(8):632-7.

CAIndexNames:

2-Furancarboxamide, 5-(4-chlorophenyl)-N-[4-(1-piperazinyl)phenyl]-N-(2-pyridinylmethyl)-, hydrochloride (1:1)

SMILES:

O=C(C1=CC=C(C2=CC=C(Cl)C=C2)O1)N(C3=CC=C(N4CCNCC4)C=C3)CC5=NC=CC=C5.[H]Cl

Caution: Product has not been fully validated for medical applications. For research use only.

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