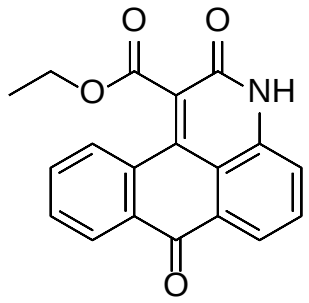
Product data sheet

MedKoo Cat#: 522544 Name: NQDI-1 CAS: 175026-96-7 Chemical Formula: $C_{19}H_{13}NO_4$ Exact Mass: 319.0845 Molecular Weight: 319.316	
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:

NQDI-1 is an inhibitor of ASK1, which attenuates acute ischemic renal injury by modulating oxidative stress and cell death. NQDI-1 was used to study LPS-induced activation and role of ASK1 and p38 in anti-inflammatory cytokine production by macrophages Apoptosis signal-regulating kinase 1 (ASK1) is among the signaling events that lead to postischemic cell death. Inhibition of ASK1 pathway protected hearts from ischemic damage.

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
DMF	1.0	3.13
DMF:PBS (pH 7.2) (1:2)	0.3	0.94
DMSO	10.67	33.40

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.13 mL	15.66 mL	31.32 mL
5 mM	0.63 mL	3.13 mL	6.26 mL
10 mM	0.31 mL	1.57 mL	3.13 mL
50 mM	0.06 mL	0.31 mL	0.63 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. Feng H, Li Z, Du J, Sun J, Feng W, Li D, Liu S, Wang W, Liu H, Amizuka N, Li M. Dual function of peroxiredoxin I in lipopolysaccharide-induced osteoblast apoptosis via reactive oxygen species and the apoptosis signal-regulating kinase 1 signaling pathway. Cell Death Discov. 2018 Apr 27;4:47. doi: 10.1038/s41420-018-0050-9. PMID: 29707240; PMCID: PMC5919897.
2. Volynets GP, Chekanov MO, Synyugin AR, Golub AG, Kukharenko OP, Bdzhola VG, Yarmoluk SM. Identification of 3H-naphtho[1,2,3-de]quinoline-2,7-diones as inhibitors of apoptosis signal-regulating kinase 1 (ASK1). J Med Chem. 2011 Apr 28;54(8):2680-6. doi: 10.1021/jm200117h. Epub 2011 Mar 30. PMID: 21449566.

In vivo study

1. Xie X, Yuan C, Yin L, Zhu Q, Ma N, Chen W, Ding Y, Xiao W, Gong W, Lu G, Xu Z, Li W. NQDI-1 protects against acinar cell necrosis in three experimental mouse models of acute pancreatitis. Biochem Biophys Res Commun. 2019 Nov 26;520(1):211-217. doi: 10.1016/j.bbrc.2019.09.125. Epub 2019 Oct 3. PMID: 31587872.

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2. Hao H, Li S, Tang H, Liu B, Cai Y, Shi C, Xiao X. NQDI-1, an inhibitor of ASK1 attenuates acute perinatal hypoxic-ischemic cerebral injury by modulating cell death. Mol Med Rep. 2016 Jun;13(6):4585-92. doi: 10.3892/mmr.2016.5123. Epub 2016 Apr 13. PMID: 27081917; PMCID: PMC4878550.

7. Bioactivity

Biological target:

NQDI-1 inhibits apoptosis signal-regulating kinase 1 (ASK1) with a K_i of 500 nM and an IC_{50} of 3 μM.

In vitro activity

In vitro kinase assay revealed that ethyl 2,7-dioxo-2,7-dihydro-3H-naphtho[1,2,3-de]quinoline-1-carboxylate (NQDI-1) inhibited ASK1 with a K(i) of 500 nM.

Reference: J Med Chem. 2011 Apr 28;54(8):2680-6. https://pubmed.ncbi.nlm.nih.gov/21449566/

In vivo activity

NQDI-1, a specific inhibitor of ASK1 was intracerebroventricularly injected following neonatal rats brain insult for neuroprotection. Notably, NQDI-1 significantly inhibited the in vivo expression levels of ASK1, phosphorylated (p-)JNK, p-c-Jun, p53 and caspase 3. Reduced acute hypoxic-ischemic cerebral injury and cell apoptosis was observed following the injection of NQDI-1. Collectively, NQDI-1 attenuated acute perinatal hypoxic-ischemic cerebral injury by inhibiting the expression of ASK1 and cell apoptosis.

Reference: Mol Med Rep. 2016 Jun;13(6):4585-92. https://pubmed.ncbi.nlm.nih.gov/27081917/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.