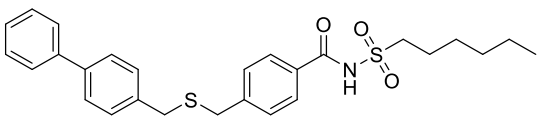
Product data sheet

MedKoo Cat#: 555704 Name: KY-226 CAS#: 1621673-53-7 Chemical Formula: $C_{27}H_{31}NO_3S_2$ Exact Mass: 481.1745 Molecular Weight: 481.669	
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:
KY-226 is a protein tyrosine phosphatase 1B (PTP1B) inhibitor that protects neurons from cerebral ischemic injury. KY-226 restores Akt (protein kinase B) phosphorylation and extracellular signal-regulated kinase (ERK) reduction in transient middle cerebral artery occlusion (tMCAO) damage. KY-226 protects BBB integrity by restoration of TJ proteins, an effect partly mediated by Akt/FoxO1 pathway activation.

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	173.0	359.17
Ethanol	1.5	3.11

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.08 mL	10.38 mL	20.76 mL
5 mM	0.42 mL	2.08 mL	4.15 mL
10 mM	0.21 mL	1.04 mL	2.08 mL
50 mM	0.04 mL	0.21 mL	0.42 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. Ito Y, Fukui M, Kanda M, Morishita K, Shoji Y, Kitao T, Hinoi E, Shirahase H. Therapeutic effects of the allosteric protein tyrosine phosphatase 1B inhibitor KY-226 on experimental diabetes and obesity via enhancements in insulin and leptin signaling in mice. J Pharmacol Sci. 2018 May;137(1):38-46. doi: 10.1016/j.jphs.2018.03.001. Epub 2018 Mar 6. PMID: 29731242.

In vivo study

1. Ito Y, Fukui M, Kanda M, Morishita K, Shoji Y, Kitao T, Hinoi E, Shirahase H. Therapeutic effects of the allosteric protein tyrosine phosphatase 1B inhibitor KY-226 on experimental diabetes and obesity via enhancements in insulin and leptin signaling in mice. J Pharmacol Sci. 2018 May;137(1):38-46. doi: 10.1016/j.jphs.2018.03.001. Epub 2018 Mar 6. PMID: 29731242.

7. Bioactivity
Biological target:

KY-226 is a potent, selective, orally active and allosteric protein tyrosine phosphatase 1B (PTP1B) inhibitor with an IC50 of 0.25 μM.

In vitro activity

Product data sheet

KY-226 inhibited PTP1B activity at 0.1–10 μM, and the IC_{50} value was 0.28 ± 0.01 μM (mean ± S.E.M, n = 6).

Reference: J Pharmacol Sci. 2018 May;137(1):38-46. https://pubmed.ncbi.nlm.nih.gov/29731242/

In vivo activity

KY-226 at 10 and 30 mg/kg/day did not exhibit toxicity, and significantly reduced non-fasting plasma glucose and TG levels without increasing body weight gain in db/db mice (Fig. 4A). HFD-feeding markedly increased body weight gain, fat volume gain, and reduced food consumption, possibly due to the high calorie diet. KY-226 did not exhibit toxicity, significantly reduced body weight gain at 30 and 60 mg/kg/day, and reduced total food consumption and visceral fat volume gain at 60 mg/kg/day (Fig. 7A–D).

Reference: J Pharmacol Sci. 2018 May;137(1):38-46. https://pubmed.ncbi.nlm.nih.gov/29731242/