Pirinixic acid

Cat. No.: HY-16995

CAS No.: 50892-23-4

Molecular Formula: $C_{14}H_{14}ClN_3O_2S$

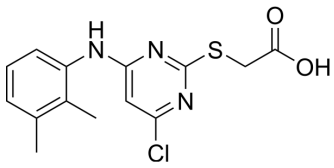
Molecular Weight: 323.8

Target: PPAR

Pathway: Cell Cycle/DNA Damage; Metabolic Enzyme/Protease; Vitamin D Related/Nuclear Receptor

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (308.83 mM; Need ultrasonic)

H_2O : 1 mg/mL (3.09 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.0883 mL	15.4416 mL	30.8833 mL
	5 mM	0.6177 mL	3.0883 mL	6.1767 mL
	10 mM	0.3088 mL	1.5442 mL	3.0883 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: 10 mg/mL (30.88 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (6.42 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (6.42 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Pirinixic acid (Wy-14643) is a potent agonist of PPARα, with EC_{50}s of 0.63 μM, 32 μM for murine PPARα and PPARγ, and 5.0 μM, 60 μM, 35 μM for human PPARα, PPARγ and PPARδ, respectively.

IC_{50} & Target	PPARα	PPARγ
	0.63 μM (EC50)	32 μM (EC50)

In Vitro	Pirinixic acid (Wy-14643) is an agonist of PPARα, with EC_{50}s of 0.63 μM, 32 μM for murine PPARα and PPARγ, and 5.0 μM, 60 μM, 35 μM for human PPARα, PPARγ and PPARδ, respectively[1]. Pirinixic acid (Wy-14643; 0, 10, 100 μM) enhances protein expression of PPAR-α in synovial fibroblasts. Pirinixic acid (0, 10, 100 μM) shows inhibitroy effects on NO and PGE2 production in LPS-stimulated synovial fibroblasts. Pirinixic acid also effectively downregulates expression of inflammatory mediators such as VCAM-1, ICAM-1, ET-1, and TF in synovial fibroblasts, blocks LPS-induced NF-kB activation, IkB phosphorylation, and NF-kB nuclear translocation in synovial fibroblasts, but Pirinixic acid shows no effects in PPAR-α silenced cells[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Pirinixic acid (Wy-14643; 10 mg/kg, i.v.) decreases hepatic injury and lipid peroxidation (MDA) levels in obese rats. Pirinixic acid also causes increased SIRT1 activity in Sham and ischemia-reperfusion (IR) group, but shows no effects on SIRT3 protein expression. Pirinixic acid enhances NAD^+, and ATP levels, and prevents endoplasmic reticulum stress (ERS) in rats[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [2]	Synovial fibroblasts are treated with LPS (100 μg/mL) in the presence or absence of Pirinixic acid. PPAR-α siRNA-transfected cells are also treated with LPS (100 μg/mL) together with Pirinixic acid. After stimulation, the production of NO is determined using Griess reagents. Briefly, 300 μL of supernatant is mixed with 100 μL of Griess reagent and 2.6 mL of deionized water. The mixture is incubated for 30 min at room temperature, and the absorbance at 548 nm is measured. The concentrations of NO in the supernatants are calculated from a standard curve[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [2]	Synovial fibroblasts are treated with LPS (100 μg/mL) in the presence or absence of Wy-14643. PPAR-α siRNA-transfected cells are also treated with LPS (100 μg/mL) together with Wy-14643. After stimulation, the production of NO is determined using Griess reagents. Briefly, 300 μL of supernatant is mixed with 100 μL of Griess reagent and 2.6 mL of deionized water. The mixture is incubated for 30 min at room temperature, and the absorbance at 548 nm is measured. The concentrations of NO in the supernatants are calculated from a standard curve[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell Stem Cell. 2022 Sep 1;29(9):1366-1381.e9.
- Theranostics. 2021 Jan 1;11(5):2247-2262.
- Theranostics. 2020 Feb 18;10(8):3579-3593.
- EBioMedicine. 2024 Mar 19:102:105079.
- Environ Pollut. 2021, 117792.

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REFERENCES

[1]. Willson TM, et al. The PPARs: from orphan receptors to drug discovery. J Med Chem. 2000 Feb 24;43(4):527-50.

[2]. Huang D, et al. PPAR-α Agonist WY-14643 Inhibits LPS-Induced Inflammation in Synovial Fibroblasts via NF-kB Pathway. J Mol Neurosci. 2016 Aug;59(4):544-53.

[3]. Pantazi E, et al. PPARα Agonist WY-14643 Induces SIRT1 Activity in Rat Fatty Liver Ischemia-Reperfusion Injury. Biomed Res Int. 2015;2015:894679.

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

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