p-Cresyl sulfate potassium

Cat. No.: HY-111431A

CAS No.: 91978-69-7

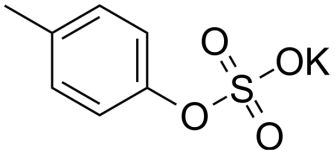
Molecular Formula: $C_7H_7KO_4S$

Molecular Weight: 226

Target: Endogenous Metabolite; JNK; p38 MAPK

Pathway: Metabolic Enzyme/Protease; MAPK/ERK Pathway

Storage: 4°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (553.10 mM; ultrasonic and warming and heat to 60°C)
H_2O : ≥ 100 mg/mL (442.48 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	4.4248 mL	22.1239 mL	44.2478 mL
5 mM	0.8850 mL	4.4248 mL	8.8496 mL
10 mM	0.4425 mL	2.2124 mL	4.4248 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 50 mg/mL (221.24 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (11.06 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (11.06 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (11.06 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

p-Cresyl sulfate potassium is a uremic toxin that binds to a prototype protein. p-Cresyl sulfate potassium activates the JNK and p38 MAPK signaling pathways. p-Cresyl sulfate potassium has pro-inflammatory activity[1][2].

IC_{50} & Target	Microbial Metabolite	Human Endogenous Metabolite

In Vitro

p-Cresyl sulfate potassium (0.125 mM, 24 h) induces osteoblast dysfunction by activating JNK and p38 MAPK pathways[1].
p-Cresyl sulfate potassium (40 μg/mL, 30 min) inhibits adipogenesis and increases lipolysis of adipocytes[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	Primary osteoblastic cells
Concentration:	0.05, 0.125, 0.25, 0.5 mM
Incubation Time:	24 h
Result:	Decreased cell viability in a dose-dependent manner.

Cell Proliferation Assay[1]

Cell Line:	Primary osteoblastic cells
Concentration:	0.05, 0.125, 0.25, 0.5 mM
Incubation Time:	24 h
Result:	Increased DNA fragmentation and decreased cell proliferation.

Western Blot Analysis[1]

Cell Line:	Primary osteoblastic cells
Concentration:	0.125 mM
Incubation Time:	24 h
Result:	Induced rapid and sustained phosphorylation of JNK.

In Vivo

p-Cresyl sulfate potassium (10 mg/kg intraperitoneal injection twice daily for 4 weeks) promotes insulin resistance associated with CKD in mice[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	CKD mice modrl[2]
Dosage:	10 mg/kg
Administration:	i.p.
Result:	Increased fasting plasma glucose concentration and plasma cholesterol levels.

CUSTOMER VALIDATION

- Cell Death Dis. 2023 Feb 2;14(2):78.

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REFERENCES

[1]. Tanaka H, et al, Fukagawa M. p-Cresyl sulfate induces osteoblast dysfunction through activating JNK and p38 MAPK pathways. Bone. 2013 Oct;56(2):347-54.

[2]. Koppe L, et al. p-Cresyl sulfate promotes insulin resistance associated with CKD. J Am Soc Nephrol. 2013 Jan;24(1):88-99.

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