

# Product data sheet



MedKoo Cat#: 5915603 Name: p-Cresol CAS: 106-44-5 Chemical Formula: C <sub>7</sub> H <sub>8</sub> O Exact Mass: 108.0575 Molecular Weight: 108.14	
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:

para-Cresol, also 4-methylphenol, is an organic compound with the formula CH<sub>3</sub>C<sub>6</sub>H<sub>4</sub>. It is a colourless solid that is widely used intermediate in the production of other chemicals.

## 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
TBD	TBD	TBD

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	9.25 mL	46.24 mL	92.47 mL
5 mM	1.85 mL	9.25 mL	18.49 mL
10 mM	0.93 mL	4.62 mL	9.25 mL
50 mM	0.19 mL	0.93 mL	1.85 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

- Chen X, Xiang F, Cao X, Zou J, Zhang B, Ding X. Effects of p-cresol, a uremic toxin, on cancer cells. *Transl Cancer Res.* 2023 Feb 28;12(2):367-374. doi: 10.21037/tcr-22-2042. Epub 2023 Jan 5. PMID: 36915599; PMCID: PMC10007878.
- Rong Y, Kiang TKL. Mechanisms of Metabolism Interaction Between p-Cresol and Mycophenolic Acid. *Toxicol Sci.* 2020 Feb 1;173(2):267-279. doi: 10.1093/toxsci/kfz231. PMID: 31742356.

### In vivo study

- Stachulski AV, Knausenberger TB, Shah SN, Hoyles L, McArthur S. A host-gut microbial amino acid co-metabolite, p-cresol glucuronide, promotes blood-brain barrier integrity in vivo. *Tissue Barriers.* 2023 Jan 2;11(1):2073175. doi: 10.1080/21688370.2022.2073175. Epub 2022 May 20. PMID: 35596559; PMCID: PMC9870004.
- Fu HY, Xu JM, Ai X, Dang FT, Tan X, Yu HY, Feng J, Yang WX, Ma HT, Tu RF, Gupta AK, Manandhar LK, Bao WM, Tang YM. The Clostridium Metabolite P-Cresol Sulfate Relieves Inflammation of Primary Biliary Cholangitis by Regulating Kupffer Cells. *Cells.* 2022 Nov 26;11(23):3782. doi: 10.3390/cells11233782. PMID: 36497042; PMCID: PMC9736483.

## 7. Bioactivity

### Biological target:

para-Cresol, also 4-methylphenol, is an organic compound with the formula CH<sub>3</sub>C<sub>6</sub>H<sub>4</sub>.

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## In vitro activity

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p-Cresol inhibited MPAG formation in a potent and competitive manner ( $K_i=5.2 \mu\text{M}$  in pooled human liver microsomes) and the interaction was primarily mediated by UGT1A9. This interaction was estimated to increase plasma MPA exposure in patients by approximately 1.8-fold, which may result in MPA toxicity. The mechanism of inhibition for AcMPAG formation was noncompetitive ( $K_i=127.5 \mu\text{M}$ ) and less likely to be clinically significant. p-Cresol was the most potent inhibitor of MPA-glucuronidation compared with other commonly studied uremic toxins (eg, indole-3-acetic acid, indoxyl sulfate, hippuric acid, kynurenic acid, and 3-carboxy-4-methyl-5-propyl-2-furanpropionic acid) and its metabolites (ie, p-cresol sulfate and p-cresol glucuronide).

Reference: Toxicol Sci. 2020 Feb 1;173(2):267-279. <https://pubmed.ncbi.nlm.nih.gov/31742356/>

## In vivo activity

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After oral administration of tyrosine feed to PBC (primary biliary cholangitis) mice, PCS (p-Cresol sulfate) increased, liver inflammatory factors were decreased, and anti-inflammatory factors were increased. Furthermore, Kupffer cells in the liver polarized from M1 transitioned to M2. PCS can damage normal bile duct epithelial cells and suppress the immune response of Kupffer cells. But PCS protects bile duct epithelial cells damaged by LPS through Kupffer cells.

Reference: Cells. 2022 Nov 26;11(23):3782. <https://pubmed.ncbi.nlm.nih.gov/36497042/>

*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.*