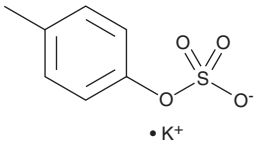
PRODUCT INFORMATION

p-Cresol sulfate (potassium salt)

Item No. 29504

CAS Registry No.:	91978-69-7
Formal Name:	sulfuric acid, mono(4-methylphenyl) ester, monopotassium salt
Synonyms:	4-Cresyl sulfate, *para*-Cresol sulfate
MF:	$C_7H_7O_4S \bullet K$
FW:	226.3
Purity:	≥95%
Supplied as:	A solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

p-Cresol sulfate (potassium salt) is supplied as a solid. A stock solution may be made by dissolving the *p*-cresol sulfate (potassium salt) in the solvent of choice, which should be purged with an inert gas. *p*-Cresol sulfate (potassium salt) is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of *p*-cresol sulfate (potassium salt) in these solvents is approximately 1 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of *p*-cresol sulfate (potassium salt) can be prepared by directly dissolving the solid in aqueous buffers. The solubility of *p*-cresol sulfate (potassium salt) in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

p-Cresol sulfate is a sulfate conjugate of the uremic toxin *p*-cresol, which is formed by bacterial fermentation of proteins in the large intestine.[1,2] *p*-Cresol sulfate increases migration and proliferation of isolated rat aortic vascular smooth muscle cells (VSMCs) when used at a concentration of 500 µM.[3] It also increases the area of aortic atherosclerotic plaques in nephrectomized *ApoE*$^{-/-}$ mice fed a high-fat diet when administered at a dose of 100 mg/kg per day *via* the drinking water. Serum levels of total and free *p*-cresol sulfate are increased in patients with advanced stage chronic kidney disease and positively associated with vascular calcification.[4]

References

1. Smith, E.A. and Macfarlane, G.T. Enumeration of human colonic bacteria producing phenolic and indolic compounds: Effects of pH, carbohydrate availability and retention time on dissimilatory aromatic amino acid metabolism. *J. Appl. Bacteriol.* **81(3)**, 288-302 (1996).
2. Meijers, B.K.I. and Evenepoel, P. The gut-kidney acis: Indoxyl sulfate, *p*-cresyl sulfate and CKD progression. *Nephrol. Dial. Transplant.* **26(3)**, 759-761 (2011).
3. Han, H., Chen, Y., Zhu, Z., *et al. p*-Cresyl sulfate promotes the formation of atherosclerotic lesions and induces plaque instability by targeting vascular smooth muscle cells. *Front. Med.* **10(3)**, 320-329 (2016).
4. Liabeuf, S., Barreto, D.V., Barreto, F.C., *et al.* Free *p*-cresylsulphate is a predictor of mortality in patients at different stages of chronic kidney disease. *Nephrol. Dial. Transplant.* **25(4)**, 1183-1191 (2010).

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