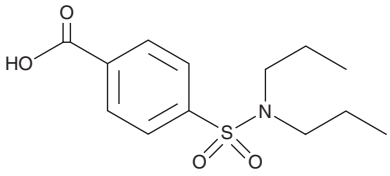
PRODUCT INFORMATION

Probenecid

Item No. 14981

CAS Registry No.:	57-66-9
Formal Name:	4-[(dipropylamino)sulfonyl]-benzoic acid
Synonym:	NSC 18786
MF:	$C_{13}H_{19}NO_4S$
FW:	285.4
Purity:	≥98%
UV/Vis.:	λ_{max}: 224, 249 nm
Supplied as:	A crystalline 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

Probenecid is supplied as a crystalline solid. A stock solution may be made by dissolving the probenecid in the solvent of choice, which should be purged with an inert gas. Probenecid is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of probenecid in ethanol is approximately 10 mg/ml and approximately 30 mg/ml in DMSO and DMF.

Probenecid is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, probenecid should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Probenecid has a solubility of approximately 0.15 mg/ml in a 1:5 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Probenecid is a benzoic acid derivative that inhibits organic anion transporters (OATs) and the ATP-binding cassette transporter (ABCC1) multidrug resistance protein 1 (MRP1) and activates the transient receptor potential (TRP) channel TRPV2.[1-6] It inhibits OAT1, OAT3, and OAT6 (K_is = 6.3, 9.0, and 8.4 µM, respectively), as well as OAT2 (IC_{50} = 0.67 µM), and is selective for OATs over organic cation transporter 1 (OCT1) and OCT2 (IC_{50}s = 1,600 and 1,700 µM, respectively).[1-4] Probenecid (7 mM) decreases Fas antibody-induced glutathione (GSH) efflux and staurosporine-induced efflux of the MRP1 substrate calcein in Jurkat cells and decreases apoptotic progression.[6] It is an agonist of TRPV2 (EC_{50} = 31.9 µM).[5] It induces nociceptive behavior in mouse models of carrageenan- or complete Freund's adjuvant-induced inflammatory pain when administered at a dose of 20 mM in drinking water in combination with doses of carrageenan or CFA that do not provoke pain responses alone.[5] Formulations containing probenecid have been used in the treatment of gouty arthritis.

References

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5. Bang, S., Kim, K.Y., Yoo, S., *et al. Neurosci. Lett.* **425(2)**, 120-125 (2007).
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