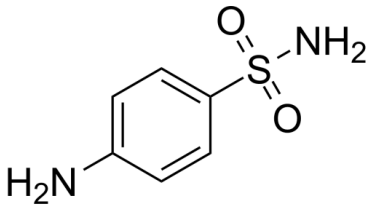
Data Sheet

Product Name:	Sulfanilamide
Cat. No.:	CS-2221
CAS No.:	63-74-1
Molecular Formula:	C6H8N2O2S
Molecular Weight:	172.20
Target:	Bacterial
Pathway:	Anti-infection
Solubility:	DMSO : 100 mg/mL (580.72 mM; Need ultrasonic)



BIOLOGICAL ACTIVITY:

Sulfanilamide is a competitive inhibitor for bacterial enzyme dihydropteroate synthetase with IC50 of 320 μM. Target: dihydropteroate synthetase; Antibacterial Sulfanilamide containing the sulfonamide functional group displays inhibitory activity for dihydropteroate synthetase partially purified from Escherichia coli which normally uses para-aminobenzoic acid (PABA) for synthesizing the necessary folic acid acting as a coenzyme in the synthesis of purine, pyrimidine and other amino acids, exhibiting an IC 50 of 320 μM for dihydropteroate synthetasea and Km of 2.5 uM for PABA [1]. Sulfanilamide shows IC50 of 286.8 μg/mL for recombinant S. cerevisiae strains with wild-type FOL1 genes, but the single mutation 55Trp to 55Ala or 57Pro to 57Ser within the putative active site of the fungal DHPS confers resistance to Sulfanilamide with IC50 of >800 μg/mL [2]. Administration of Sulfanilamide with the dosage of 100 mg/kg/day is effective in the prevention of P. carinii infection in the immunosuppressed rat model. When the dosage of sulfaguanidine and Sulfanilamide reduced to 10 mg/kg/day, breakthrough P. carinii infection occurs in the rats [3].

References:

[1]. McCullough, J.L. and T.H. Maren, Inhibition of dihydropteroate synthetase from Escherichia coli by sulfones and sulfonamides. Antimicrob Agents Chemother, 1973. 3(6): p. 665-9.

[2]. Meneau, I., et al., Pneumocystis jiroveci dihydropteroate synthase polymorphisms confer resistance to sulfadoxine and sulfanilamide in Saccharomyces cerevisiae. Antimicrob Agents Chemother, 2004. 48(7): p. 2610-6.

[3]. Hughes, W.T. and J. Killmar, Monodrug efficacies of sulfonamides in prophylaxis for Pneumocystis carinii pneumonia. Antimicrob Agents Chemother, 1996. 40(4): p. 962-5.

CAIndexNames:

Benzenesulfonamide, 4-amino-

SMILES:

O=S(C1=CC=C(N)C=C1)(N)=O

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

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