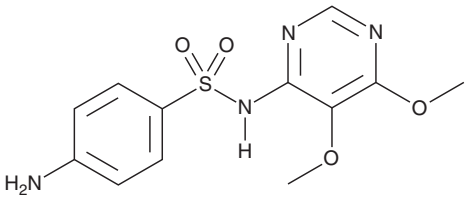
PRODUCT INFORMATION

Sulfadoxin

Item No. 21488

CAS Registry No.:	2447-57-6
Formal Name:	4-amino-N-(5,6-dimethoxy-4-pyrimidinyl)-benzenesulfonamide
Synonym:	Ro 4-4393
MF:	$C_{12}H_{14}N_4O_4S$
FW:	310.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 273 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

Sulfadoxin is supplied as a crystalline solid. A stock solution may be made by dissolving the sulfadoxin in the solvent of choice, which should be purged with an inert gas. Sulfadoxin is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of sulfadoxin in ethanol is approximately 0.3 mg/ml and approximately 50 mg/ml in DMSO and DMF.

Sulfadoxin is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, sulfadoxin should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Sulfadoxin has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Sulfadoxin is a sulfonamide antibiotic that inhibits dihydropteroate synthetase (DHPS), an enzyme involved in folic acid (Item No. 20515) synthesis.[1] Sulfadoxin competes with 4-aminobenzoate (PABA), the native substrate of DHPS, and inhibits PABA incorporation into folic acid.[2] Folate is essential for purine and pyrimidine synthesis, therefore, sulfadoxin has antiproliferative activity in non-resistant *P. falciparum*.[2,3] Sulfadoxin inhibits growth of *P. falciparum in vitro*, but potency varies between non-resistant (IC_{50} = 4 ng/ml) and resistant strains (IC_{50} = 3,970 ng/ml).[3]

References

1. Brooks, D.R., Wang, P., Read, M., *et al.* Sequence variation of the hydroxymethyldihydropterin pyrophosphokinase: Dihydropteroate synthase gene in lines of the human malaria parasite, *Plasmodium falciparum*, with differing resistance to sulfadoxine. *Eur. J. Biochem.* **224(2)**, 397-405 (1994).
2. Hyde, J.E. Exploring the folate pathway in *Plasmodium falciparum*. *Acta. Trop.* **94(3)**, 191-206 (2005).
3. Wang, P., Read, M., Sims, P.F.G., *et al.* Sulfadoxine resistance in the human malaria parasite *Plasmodium falciparum* is determined by mutations in dihydropteroate synthetase and an additional factor associated with folate utilization. *Mol. Microbiol.* **23(5)**, 979-986 (1997).

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