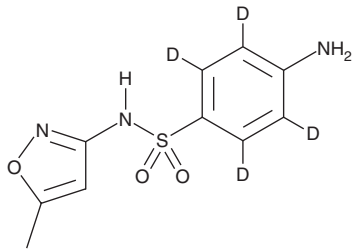
PRODUCT INFORMATION

Sulfamethoxazole-d_4

Item No. 28618

CAS Registry No.:	1020719-86-1
Formal Name:	4-amino-N-(5-methyl-3-isoxazolyl)-benzene-2,3,5,6-d_4-sulfonamide
MF:	$C_{10}H_7D_4N_3O_3S$
FW:	257.3
Chemical Purity:	≥98% (Sulfamethoxazole)
Deuterium Incorporation:	≥99% deuterated forms (d_1-d_4); ≤1% d_0
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

Sulfamethoxazole-d_4 is intended for use as an internal standard for the quantification of sulfamethoxazole (Item No. 23613) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated *versus* unlabeled).

Sulfamethoxazole-d_4 is supplied as a solid. A stock solution may be made by dissolving the sulfamethoxazole-d_4 in the solvent of choice, which should be purged with an inert gas. Sulfamethoxazole-d_4 is slightly soluble in methanol and DMSO.

Description

Sulfamethoxazole is a sulfonamide antibiotic.[1] It inhibits growth of *E. coli* (MIC = 10 µg/ml) and clinical isolates of methicillin-resistant *S. aureus* (MRSA; MICs = 25-50 µg/ml).[2,3] Sulfamethoxazole, in combination with trimethoprim (Item No. 16473) at a ratio of 20:1, inhibits growth of MRSA *in vivo* in mice (MIC = 0.8 µg/ml; ED_{50}s = 6.4 and 9.6 mg/kg for two MRSA strains).[3] In a mouse model of urinary tract infection with *E. coli*, a combination of sulfamethoxazole and trimethoprim decreases recurrent infection when administered for 10 days.[4] Sulfamethoxazole acts by inhibiting dihydropteroate synthase (DHPS), which converts pteridine and 4-aminobenzoic acid (PABA; Item No. 18659) to dihydropteroate, an intermediate in folate biosynthesis. It inhibits recombinant *P. carinii* DHPS (IC_{50} = 23 nM; K_i = 7.5 nM) and folate biosynthesis *in situ* by 48.6%. Formulations containing sulfamethoxazole and trimethoprim have been used to treat bronchitis, prostatitis, and urinary tract infections among other infectious conditions.

References

1. Hong, Y.-L., Hossler, P.A., Calhoun, D.H., *et al.* Inhibition of recombinant *Pneumocystis carinii* dihydropteroate synthetase by sulfa drugs. *Antimicrob. Agents Chemother.* **39(8)**, 1756-1763 (1995).
2. Greenwood, D. and O'Grady, F. Activity and interaction of trimethoprim and sulpha-methoxazole against *Escherichia coli*. *J. Clin. Pathol.* **29(2)**, 162-166 (1976).
3. Elwell, L.P., Wilson, H.R., Knick, V.B., *et al.* In vitro and in vivo efficacy of the combination trimethoprim-sulfamethoxazole against clinical isolates of methicillin-resistant *Staphylococcus aureus*. *Antimicrob. Agents Chemother.* **29(6)**, 1092-1094 (1986).
4. Schilling, J.D., Lorenz, R.G., and Hultgren, S.J. Effect of trimethoprim-sulfamethoxazole on recurrent bacteriuria and bacterial persistence in mice infected with uropathogenic *Escherichia coli*. *Infect. Immun.* **70(12)**, 7042-7049 (2002).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM