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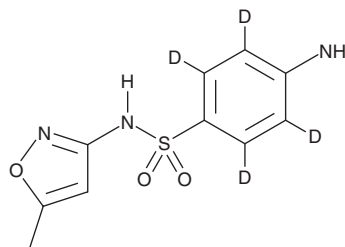
PRODUCT INFORMATION



Sulfamethoxazole-d₄

Item No. 28618

CAS Registry No.: 1020719-86-1
Formal Name: 4-amino-N-(5-methyl-3-isoxazolyl)-benzene-2,3,5,6-d₄-sulfonamide
MF: C₁₀H₇D₄N₃O₃S
FW: 257.3
Chemical Purity: ≥98% (Sulfamethoxazole)
Deuterium Incorporation: ≥99% deuterated forms (d₁-d₄); ≤1% d₀
Supplied as: A solid
Storage: -20°C
Stability: ≥2 years



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

Laboratory Procedures

Sulfamethoxazole-d₄ 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-d₄ is supplied as a solid. A stock solution may be made by dissolving the sulfamethoxazole-d₄ in the solvent of choice, which should be purged with an inert gas. Sulfamethoxazole-d₄ 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; ED₅₀s = 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 (IC₅₀ = 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).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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