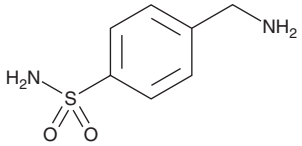
PRODUCT INFORMATION

Mafenide

Item No. 23995

CAS Registry No.:	138-39-6
Formal Name:	4-(aminomethyl)-benzenesulfonamide
Synonym:	NSC 34632
MF:	$C_7H_{10}N_2O_2S$
FW:	186.2
Purity:	≥95%
UV/Vis.:	λ_{max}: 224 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

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

Mafenide acetate is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, mafenide acetate should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Mafenide acetate has a solubility of approximately 0.2 mg/ml in a 1:4 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Mafenide is a sulfonamide antibiotic that inhibits growth of bacteria.[1,2] It inhibits growth of clinical isolates of *S. pyogenes*, methicillin-susceptible *S. aureus* (MSSA), methicillin-resistant *S. aureus* (MRSA), *Enterococcus*, Enterobacteriaceae, and Gram-negative bacilli from burn patients in an agar well diffusion assay (mean zone of inhibition = 24-37 mm) but not in a broth dilution assay with MIC values ranging from 250 to greater than 5,000 µg/ml.[1] Mafenide also inhibits growth of clinical isolates of *K. pneumoniae* that produce extended spectrum β-lactamase (ESBL), *P. aeruginosa*, and *A. baumannii-calcoaceticus* from burn patients in an agar well diffusion assay (mean zones of inhibition = 23.5, 28.9, and 25.8 mm, respectively) but not in a broth dilution assay (mean MICs = 1,024 µg/ml, 1,024 µg/ml, and 1,024 µg/ml, respectively).[2] It decreases mortality in a rat model of burn wounds seeded with rat virulent *P. aeruginosa*.[3] Mafenide also inhibits human carbonic anhydrase (CA) I and II (K_is = 41.91 and 0.612 µM, respectively).[4] Formulations containing mafenide have been used in the treatment of severe burns.

References

1. Rodgers, G.L., Mortensen, J.E., Fisher, M.C., *et al. J. Burn Care Rehabil.* **18(5)**, 406-410 (1997).
2. Glasser, J.S., Guymon, C.H., Mende, K., *et al. Burns* **36(8)**, 1172-1184 (2010).
3. Fox, C.L., Jr., Sampath, A.C., and Stanford, J.W. *Arch. Surg.* **101(4)**, 508-512 (1970).
4. Fidan, İ., Salmas, R.E., Arslan, M., *et al. Bioorg. Med. Chem.* **23(23)**, 7353-7358 (2015).

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