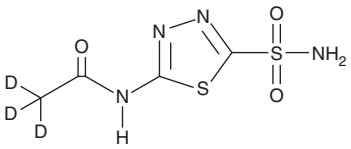
PRODUCT INFORMATION

Acetazolamide-d_3

Item No. 40125

CAS Registry No.: 1189904-01-5
Formal Name: N-[5-(aminosulfonyl)-1,3,4-thiadiazol-2-yl]-acetamide-2,2,2-d_3
MF: $C_4H_3D_3N_4O_3S_2$
FW: 225.3
Chemical Purity: ≥95% (Acetazolamide)
Deuterium Incorporation: ≥99% deuterated forms (d_1-d_3); ≤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

Acetazolamide-d_3 is intended for use as an internal standard for the quantification of acetazolamide 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).

Acetazolamide-d_3 is supplied as a solid. A stock solution may be made by dissolving the acetazolamide-d_3 in the solvent of choice, which should be purged with an inert gas. Acetazolamide-d_3 is soluble in methanol and DMSO.

Description

Acetazolamide is an inhibitor of carbonic anhydrase I (CAI), CAII, CAIX, and CAXII (K_is = 310, 12, 25, and 5.7 nM, respectively, for the human enzymes).[1] It inhibits the migration and invasion of Caki-1, Caki-2, and ACHN renal carcinoma cells when used at a concentration of 10 µM.[2] Acetazolamide (5.6 mg/kg per day) increases currents in calcium-activated potassium channels in patch clamp assays using skeletal muscle tissues isolated from potassium-deficient rats.[3] It induces vasodilation and increases cerebral, renal, and hepatic blood flow and blood oxygen levels in normotensive rabbits when administered at a dose of 12 mg/kg.[4] Formulations containing acetazolamide have been used in the treatment of edema, open-angle glaucoma, epilepsy, and acute mountain sickness.

References

1. Brzozowski, Z., Slawiński, J., Innocenti, A., *et al.* Carbonic anhydrase inhibitors. Regioselective synthesis of novel 1-substituted 1,4-dihydro-4-oxo-3-pyridinesulfonamides and their inhibition of the human cytosolic isozymes I and II and transmembrane cancer-associated isozymes IX and XII. *Eur. J. Med. Chem.* **45(9)**, 3656-3661 (2010).
2. Parkkila, S., Rajaniemi, H., Parkkila, A.K., *et al.* Carbonic anhydrase inhibitor suppresses invasion of renal cancer cells *in vitro*. *Proc. Natl. Acad. Sci. USA* **97(5)**, 2220-2224 (2000).
3. Tricarico, D., Mele, A., and Conte Camerino, D. Carbonic anhydrase inhibitors ameliorate the symptoms of hypokalaemic periodic paralysis in rats by opening the muscular Ca^{2+}-activated-K^+ channels. *Neuromuscul. Disord.* **16(1)**, 39-45 (2006).
4. Taki, K., Oogushi, K., Hirahara, K., *et al.* Preferential acetazolamide-induced vasodilation based on vessel size and organ: Confirmation of peripheral vasodilation with use of colored microspheres. *Angiology* **52(7)**, 483-488 (2001).

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