
Product Data Sheet

Product Name: Sulfacetamide sodium monohydrate

Cat. No.: GC37701

Chemical Properties

Cas. No. 6209-17-2

SMILES CC(NS(=O)(C1=CC=C(N)C=C1)=O)=O.[Na+].O

Formula C8H11N2NaO4S M.Wt 254.24

Solubility DMSO : 50mg/mL; Water : 50mg/mL Storage Store at -20°C

General tips For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.

Structure

Background

Sulfacetamide is a sulfonamide antibiotic that blocks the synthesis of dihydrofolic acid by inhibiting the enzyme dihydropteroate synthase(DHPS) with IC50 of 9.5 μM.

Sulfacetamide is a competitive inhibitor of bacterial para-aminobenzoic acid (PABA), which is required for bacterial synthesis of folic acid.

Sulfacetamide inhibits Arabidopsis DHPS with IC50 of 9.5 μM, pKa=5.4[1]. Sulfacetamide induces anti-proliferative effects on T-47D cells and it is independent of apoptosis and cell cycle arrest. Sulfacetamide treatment lowers expression of p53/DRAM pathway in parallel with upregulation of Akt/mTOR pathway promoting cytoprotective autophagy. The LD50 of sulfacetamide in T-47D cells after 48 h is 41 mM. Sulfacetamide does not cause DNA fragmentation. In cells treated with sulfacetamide, the ATG5 expression level increases suggesting an increase in autophagosome formation in the autophagy pathway. Autophagy induction in the sulfathiazole and sulfacetamide treatments is not accompanied by apoptosis and occurred without any distinctive arrest in a phase of the cell cycle. It triggers autophagy in T-47D cells via a DAPK independent pathway[2]. Sodium sulfacetamide or sulfacetamide is a bacteriostatic agent that is active against sulfonamide-sensitive Gramnegative and Gram-positive bacteria, including Streptococci,

Caution: Product has not been fully validated for medical applications. For research use only.

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Staphylococci, E. coli, Klebsiella pneumoniae, Pseudomonas pyocyanea, Salmonella spp., Proteus vulgaris, and Nocardia, which are usually isolated in secondary infections of the skin. Sulfacetamide inhibits mannose-6-phosphate isomerase (also known as phosphomannose isomerase (PMI)), which is considered the key enzyme in kinetoplastid energy metabolism[3].

The LD50 of sulfacetamide for mice is 16,500 mg/kg by the oral route. In humans, the side effects include erythema, moderate swelling, nausea, vomiting, and headache. In addition to these side effects, the occurrence of StevensJohnson syndrome is reported in HIV-positive patients who received sulfacetamide drops for eye infections. All of these side effects, however, are associated with oral administration or high drug absorption through the skin, mucous membranes, and the conjunctiva, whereas topical use is not associated with strong side effects.

[1] Prabhu V, et al. Phytochemistry. 1997, 45(1):23-7. [2] Mohammadpour R, et al. Cell Biol Int. 2013, 37(4):348-58. [3] Lourival A. Silva, et al. BioMed Research International. 2015(2015), Article ID 965725.

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