

Product Data Sheet

Product Name: MTSEA
Cat. No.: GC44252

Chemical Properties

Cas. No. 16599-33-0

SMILES NCCSS(C)(=O)=O.Br

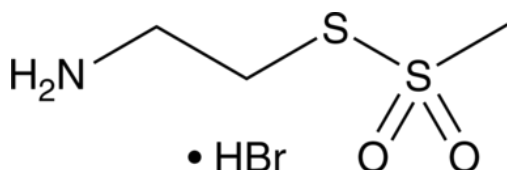
Formula $C_3H_9NO_2S_2 \cdot HBr$ M.Wt 236.1

Solubility DMF: 30 mg/ml, DMSO: 30 mg/ml, Ethanol: 30 mg/ml, PBS (pH 7.2): 10 mg/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 sizes: ship with RT, or blue ice upon request.

Structure



Background

MTSEA [(2-aminoethyl) methanethiosulfonate] is a cysteine modifying agent [1], cysteine's sulfhydryl side chain (-SH) can form a covalent disulfide bond with sulfur in the MTSEA reagent [2].

MTSEA was used to demonstrate the presence of a water-accessible cysteine within the binding-site crevice of the human dopamine D2 receptor [3]. MTSEA was demonstrated rotation of TM6 (upon receptor activation) by the appearance of an MTSEA-accessible cysteine in a constitutively active mutant of the β 2-adrenergic receptor not accessible in the wild-type receptor [4]. The effect of MTSEA on ligand binding, in conjunction with site-directed mutagenesis, was used to define intramolecular contacts in the neurokinin-2 tachykinin receptor [5].

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

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References:

- [1]. Choi YB, Tenneti L, Le DA, Ortiz J, Bai G, Chen HS, Lipton SA. Molecular basis of NMDA receptor-coupled ion channel modulation by S-nitrosylation. *Nature neuroscience*. 2000 Jan;3(1):15-21.
- [2]. O'Reilly JP, Shockett PE. Time-and state-dependent effects of methanethiosulfonate ethylammonium (MTSEA) exposure differ between heart and skeletal muscle voltage-gated Na⁺ channels. *Biochimica et Biophysica Acta (BBA)-Biomembranes*. 2012 Mar 1;1818(3):443-7.
- [3]. Javitch JA, Li X, Kaback J, Karlin A. A cysteine residue in the third membrane-spanning segment of the human D2 dopamine receptor is exposed in the binding-site crevice. *Proceedings of the National Academy of Sciences*. 1994 Oct 25;91(22):10355-9.
- [4]. Rasmussen SG, Jensen AD, Liapakis G, Ghanouni P, Javitch JA, Gether U. Mutation of a highly conserved aspartic acid in the β 2 adrenergic receptor: constitutive activation, structural instability, and conformational rearrangement of transmembrane segment 6. *Molecular pharmacology*. 1999 Jul 1;56(1):175-84.
- [5]. Bhogal N, Blaney FE, Ingley PM, Rees J, Findlay JB. Evidence for the proximity of the extreme N-terminus of the neurokinin-2 (NK2) tachykinin receptor to cys167 in the putative fourth transmembrane helix. *Biochemistry*. 2004 Mar 23;43(11):3027-38.

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