AEBSF hydrochloride

Cat. No.: HY-12821

CAS No.: 30827-99-7

Molecular Formula: $C_8H_{11}ClFNO_2S$

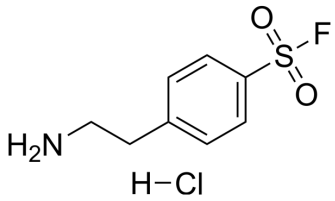
Molecular Weight: 239.69

Target: Thrombin; Influenza Virus; Ser/Thr Protease

Pathway: Metabolic Enzyme/Protease; Anti-infection

Storage: 4°C, sealed storage, away from moisture

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (417.21 mM; Need ultrasonic)

H_2O : ≥ 100 mg/mL (417.21 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	4.1721 mL	20.8603 mL	41.7206 mL
5 mM	0.8344 mL	4.1721 mL	8.3441 mL
10 mM	0.4172 mL	2.0860 mL	4.1721 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (417.21 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: Saline
   Solubility: 100 mg/mL (417.21 mM); Clear solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (8.68 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (8.68 mM); Clear solution
5. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (8.68 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

AEBSF hydrochloride is an irreversible inhibitor of serine proteases, such as chymotrypsin, kallikrein, plasmin, thrombin, and trypsin.

In Vitro	AEBSF inhibits the constitutive production of Aβ by directly inhibiting β-secretase in five different human cell lines, both neural and nonneural[1]. AEBSF, as a serine protease inhibitor, inhibits the lysis of leukemic cells by human macrophages without inhibiting macrophage secretion of TNF-α and IL-1β[2]. AEBSF also disturbs the growth of blastocysts on endometrial cells and inhibit the adhesion of HeLa cells on HUVECs by altering the protein secretion pattern[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	AEBSF (76.8 mg/kg daily, i.p.) results in prolongation of the survival of mice that have been given a lethal T. gondii infection [3].?AEBSF also reduces airway response and underlying inflammation in cockroach allergen-induced murine model[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay [4]	The HeLa cells suspended in RPMI-1640 media containing 10% FCS are plated into each well of a 96-well microplate (5×10^3 cells/200 μL/well). After incubation for 24 h at 37°C, cells are treated with different doses of AEBSF (0, 25, 50, 100 μg/mL) for 48 h. Then, 20 μL fresh 3-(4,5)-dimethylthiahiazo (-z-y1)-3,5-diphenytetrazoliumromide (MTT) reagent (5 μg/μL) is added into each well, and cells are cultured at 37°C in 5% CO_2 for another 4 h. The media are discarded carefully, and 150 μL DMSO is added. Absorbance is read on a microplate reader at dual wavelengths of 540 and 620 nm. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [3]	Mice injected with 2.5×10^3 parasites are randomLy assigned to one of the treatment groups according to the treatment given: without drugs (control group), vehicle alone (vehicle control group), pyrimethamine alone at different doses, LY311727 alone at different doses, AEBSF alone at different doses or AEBSF 76.8 mg/kg plus pyrimethamine 10 mg/kg. Each treatment group consists of 10 animals. Treatment is initiated 24 h after parasite inoculation and is continued for seven consecutive days. Mouse survival is monitored daily and continued in live mice until 15 days post-infection. All experiments are performed three times and the data shown represent the cumulative results. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Autophagy. 2021 Jul;17(7):1592-1613.
- J Pharm Anal. 2023 May 15.
- J Virol. 2021 Dec 1;JVI0110321.
- Int J Oncol. 2019 Jul;55(1):331-339.
- Arch Biochem Biophys. 2020 Jul 30;688:108402.

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REFERENCES

[1]. Citron M, et al. Inhibition of amyloid beta-protein production in neural cells by the serine protease inhibitor AEBSF. Neuron. 1996 Jul;17(1):171-9

[2]. Nakabo Y, et al. Lysis of leukemic cells by human macrophages: inhibition by 4-(2-aminoethyl)-benzenesulfonyl fluoride (AEBSF), a serine protease inhibitor. J Leukoc Biol. 1996 Sep;60(3):328-36.

[3]. Buitrago-Rey R, et al. Evaluation of two inhibitors of invasion: LY311727 [3-(3-acetamide-1-benzyl-2-ethyl-indolyl-5-oxy)propane phosphonic acid] and AEBSF [4-(2-aminoethyl)-benzenesulphonyl fluoride] in acute murine toxoplasmosis. J Antimicrob Chemother.

[4]. Jiang YH, et al. Serine protease inhibitor 4-(2-aminoethyl)benzenesulfonyl fluoride hydrochloride (AEBSF) inhibits the rat embryo implantation in vivo and interferes with cell adhesion in vitro. Contraception. 2011 Dec;84(6):642-8.

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