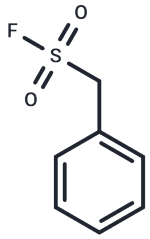
Data Sheet (Cat.No.T0789)

TargetMol

PMSF

Chemical Properties



CAS No. : 329-98-6

Formula: C7H7FO2S

Molecular Weight: 174.19

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	PMSF (Phenylmethylsulfonyl fluoride) is an irreversible inhibitor of serine/cysteine protease and is often used in the preparation of cell lysates.
Targets(IC50)	Cysteine Protease,Serine Protease
In vitro	Treatment with PMSF (intraperitoneal injection) in mice elicits cannabinoid-like effects, providing analgesia (ED50: 86 mg/kg), hypothermia (ED50: 224 mg/kg), and catalepsy (ED50: 206 mg/kg). When administered to Sprague-Dawley rats, PMSF induces a dose-dependent analgesic effect and significantly potentiates the analgesic effect of β-endorphin in vivo. By inhibiting fatty acid amide hydrolase (FAAH) activity, PMSF suppresses typical cannabinoid or Δ(9)-tetrahydrocannabinol-like effects in ICR mice. Pretreatment with 30 mg/kg PMSF before the injection of [3H]-labeled cannabinoids results in a notable increase in brain cannabinoid levels after 5 minutes compared to [3H]-THC. PMSF pretreatment at 30 mg/kg enhances the cannabinoid-induced effects on the tail-flick response (analgesic effect), locomotion, and spontaneous activity by 5, 8, and 10-fold respectively. Administering PMSF 12 hours before paraoxon (PSP) protects hens from delayed neurotoxicity, whereas administration 4 hours later exacerbates the neurotoxic effects. PMSF pretreatment also prevents organophosphate-induced delayed neuropathy in hens and inhibits neuropathilament degeneration induced by tri-ortho-tolyl phosphate.
In vivo	**METHODS**: To study the analgesic effect of PMSF, PMSF was intraperitoneally injected into mice. **RESULTS**: Mice exhibited cannabinoid effects: including analgesia, hypothermia and immobility, with ED50 values of 86, 224 and 206 mg/kg, respectively.

Solubility Information

Solubility	Ethanol: 17.4 mg/mL (99.89 mM),Sonication is recommended. DMSO: 257.5 mg/mL (1478.27 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 5 mg/mL (28.7 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and*

In vivo Formulation	*used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	5.7409 mL	28.7043 mL	57.4086 mL
5 mM	1.1482 mL	5.7409 mL	11.4817 mL
10 mM	0.5741 mL	2.8704 mL	5.7409 mL
50 mM	0.1148 mL	0.5741 mL	1.1482 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Turini P, et al. J Pharmacol Exp Ther, 1969, 167(1), 98-104.
Xu G, Li T, Chen J, et al. Autosomal dominant retinitis pigmentosa-associated gene PRPF8 is essential for hypoxia-induced mitophagy through regulating ULK1mRNA splicing. Autophagy. 2018, 14(10): 1818-1830
Li X, Zhang H, Qiao S, et al Melatonin administration alleviates 2,2,4,4-tetra-brominated diphenyl ether (PBDE-47)-induced necroptosis and secretion of inflammatory factors via miR-140-5p/TLR4/NF-κB axis in fish kidney cells. Fish & Shellfish Immunology. 2022
Pinsky C, et al. Life Sci, 1982, 31(12-13), 1193-1196.
Sekar MC, et al. Cell Calcium, 1984, 5(3), 191-203.
Wen Q L, Yi H Q, Yang K, et al. Role of oncogene PIM-1 in the development and progression of papillary thyroid carcinoma: involvement of oxidative stress. Molecular and Cellular Endocrinology. 2021 Mar 1;523:111144. doi: 10.1016/j.mce.2020.111144
Song N, Guan X, Zhang S, et al.Discovery of a pyrrole-pyridinimidazole derivative as novel SIRT6 inhibitor for sensitizing pancreatic cancer to gemcitabine.Cell Death & Disease.2023, 14(8): 499.
Güther ML, et al. J Biol Chem. 1994 Jul 15;269(28):18694-701.
Yan Y, Yu L, Chen B, et al.Mastoparan M Suppressed NLRP3 Inflammasome Activation by Inhibiting MAPK/NF-κB and Oxidative Stress in Gouty Arthritis.Journal of Inflammation Research.2023: 6179-6193.
Compton DR, et al. J Pharmacol Exp Ther, 1997, 283(3), 1138-1143.
Zeng X, Xu J, Liu J, et al.DYRK4 upregulates antiviral innate immunity by promoting IRF3 activation.EMBO reports. 2024: 1-30.
Wen Q L, Yi H Q, Yang K, et al. Role of oncogene PIM-1 in the development and progression of papillary thyroid carcinoma: involvement of oxidative stress[J]. Molecular and Cellular Endocrinology. 2020: 111144.
Xu Guang, Ting Li, Jiayi Chen, Changyan Li, Haixin Zhao, Chengcheng Yao, Hua Dong et al. Autosomal dominant retinitis pigmentosa-associated gene PRPF8 is essential for hypoxia-induced mitophagy through regulating ULK1mRNA splicing [J]. Autophagy. 2018;14(10):1818-1830.
Cutaneous wound healing functions of novel milk-derived antimicrobial peptides, hLFT-68 and hLFT-309 from human lactotransferrin, and bLGB-111 from bovine β-lactoglobulin

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