PMSF

Cat. No.: HY-B0496

CAS No.: 329-98-6

Molecular Formula: $C_7H_7FO_2S$

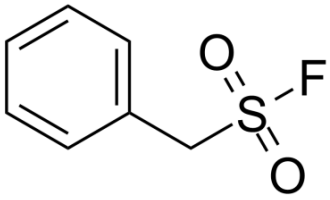
Molecular Weight: 174.19

Target: Cathepsin

Pathway: Metabolic Enzyme/Protease

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 20 mg/mL (114.82 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
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

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2 mg/mL (11.48 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2 mg/mL (11.48 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2 mg/mL (11.48 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

PMSF is an irreversible serine/cysteine protease inhibitor commonly used in the preparation of cell lysates.

In Vitro

PMSF (2 mM) inhibits carbachol-stimulated inositol phosphate accumulation in the presence of Li^+ by only 15%-19%. PMSF inhibition of phosphoinositide turnover is due to one or more steps following phosphoinositide breakdown[1]. PMSF inhibits the acylation of the inositol residue of GPI intermediates in bloodstream form T. brucei. PMSF inhihits the formntion of glycolipid C but does not inhibit fatty acid remodeling in vitro. PMSF inhihits GPI acylation and ethanolamine phosphatp addition in procyclic trypanosomes but not in Hela cells[2].

	MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	PMSF (0.1 mL/10 g b.wt, i.p.) produces antinociception as indicated by the dose-responsive increase in % MPE in the tail-flick latency evaluation, but fails to produce a clear dose-responsive inhibition of locomotion. Mice receiving i.p. injections of PMSF exhibit cannabinoid effects that includes antinociception, hypothermia and immobility with ED_{50} values of 86, 224 and 206 mg/kg, respectively. PMSF (30 mg/kg) pretreatment potentiates the effects of anandamide on tail-flick response (antinociception), spontaneous activity and mobility by 5-, 10- and 8-fold, respectively[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Animal Administration [3]	Male ICR mice weighing 18 to 25 g are used in the assay. PMSF is dissolved in sesame oil and administered i.p. at a volume of 0.1 mL/10 g b.wt. PMSF is always administered 10 min before i.v. anandamide or vehicle injections. Mice are acclimated to the evaluation room overnight without interruption of food or water. After i.v. anandamide or vehicle administration each animal is evaluated as follows: tail-flick latency (antinociception) response at 5 min and spontaneous (locomotor) activity at 5 to 15 min; or core (rectal) temperature at 5 min and ring-immobility (catalepsy) at 5 to 10 min. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Small. 2020, 2004879.
- Autophagy. 2020 Dec 6.
- J Cell Physiol. 2019 Dec;234(12):22960-22971.
- Mol Cancer Res. 2020 Feb;18(2):204-215.
- Sci Rep. 2020 Aug 3;10(1):13063.

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REFERENCES

[1]. Sekar, M.C. and B.D. Roufogalis, Differential effects of phenylmethanesulfonyl fluoride (PMSF) on carbachol and potassium stimulated phosphoinositide turnover and contraction in longitudinal smooth muscle of guinea pig ileum. Cell Calcium, 1984. 5(3): p.

[2]. Guther, M.L., W.J. Masterson, and M.A. Ferguson, The effects of phenylmethylsulfonyl fluoride on inositol-acylation and fatty acid remodeling in African trypanosomes. J Biol Chem, 1994. 269(28): p. 18694-701.

[3]. Compton, D.R. and B.R. Martin, The effect of the enzyme inhibitor phenylmethylsulfonyl fluoride on the pharmacological effect of anandamide in the mouse model of cannabimimetic activity. J Pharmacol Exp Ther, 1997. 283(3): p. 1138-43.

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