

Sivelestat sodium

Chemical Properties

CAS No. : 150374-95-1

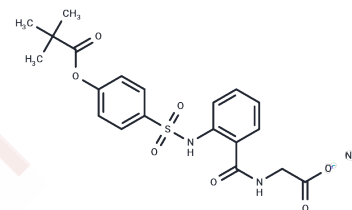
Formula: C₂₀H₂₁N₂NaO₇S

Molecular Weight: 456.45

Storage: Store at low temperature, Keep away from direct sunlight

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	Sivelestat sodium (EI 546 sodium) is a highly efficient inhibitor of human neutrophil elastase, improving sepsis-induced myocardial dysfunction by activating the PI3K/AKT/mTOR signaling pathway. It can be used in acute lung injury/acute respiratory distress syndrome research.
Targets(IC50)	SARS-CoV, Serine Protease
In vitro	Sivelestat sodium, a competitive inhibitor of human neutrophil elastase, has a K_i value of 200 nM, and does not inhibit trypsin, thrombin, fibrinolytic enzymes, plasma kallikrein-releasing enzyme, pancreatic kallikrein-releasing enzyme, chytolysin, or histone G, even at concentrations up to 100 μ M. The IC ₅₀ values of Sivelestat sodium on neutrophil elastase in different species are 44 nM in humans, 36 nM in rabbits, 19 nM in rats, 37 nM in hamsters, and 49 nM in mice. [1]
In vivo	By intratracheal administration (0.021–2.1 mg/kg), Sivelestat sodium was able to effectively inhibit hamster lung hemorrhage induced by human neutrophil elastase (ID ₅₀ = 82 μ g/kg), as well as the increase in guinea pig skin capillary permeability caused by i.v. administration (ID ₅₀ = 9.6 mg/kg). [1] Sivelestat sodium (10 mg/kg via tail vein infusion) ameliorated lung injury due to hemorrhagic shock in rats. [2] Sivelestat sodium was able to prevent ischemia-reperfusion injury in the bladder of rats by intraperitoneal injection (15 mg/kg and 60 mg/kg). [3]

Solubility Information

Solubility	DMSO: 80 mg/mL (175.27 mM), Sonication is recommended. H ₂ O: < 1 mg/mL (insoluble or slightly soluble), (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 3.3 mg/mL (7.23 mM), Sonication is recommended. <i>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 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.</i>

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.1908 mL	10.9541 mL	21.9082 mL
5 mM	0.4382 mL	2.1908 mL	4.3816 mL
10 mM	0.2191 mL	1.0954 mL	2.1908 mL
50 mM	0.0438 mL	0.2191 mL	0.4382 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

Kawabata K, et al. ONO-5046, a novel inhibitor of human neutrophil elastase. *Biochem Biophys Res Commun.* 1991 Jun 14;177(2):814-20.

Toda Y, et al. A neutrophil elastase inhibitor, sivelestat, ameliorates lung injury after hemorrhagic shock in rats. *Int J Mol Med.* 2007 Feb;19(2):237-43.

Kono T, et al. Neutrophil elastase inhibitor, sivelestat sodium hydrate prevents ischemia-reperfusion injury in the rat bladder. *Mol Cell Biochem.* 2008 Apr;311(1-2):87-92.

Sahebnasagh A, et al. Neutrophil elastase inhibitor (sivelestat) may be a promising therapeutic option for management of acute lung injury/acute respiratory distress syndrome or disseminated intravascular coagulation in COVID-19. *J Clin Pharm Ther.* 2020 Dec;45(6):1515-1519.

Xiao XG, et al. Sivelestat sodium hydrate attenuates acute lung injury by decreasing systemic inflammation in a rat model of severe burns. *Eur Rev Med Pharmacol Sci.* 2016;20(3):528-36.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

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