Product Data Sheet

Product Name: Aviptadil
Cat. No.: GC14472

Chemical Properties

Cas. No.	40077-57-4		
Formula	$C_{147}H_{238}N_{44}O_{42}S$	M.Wt	3325.83
Solubility	Soluble 1 mg/ml in water	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	Aviptadil		

Protocol

Animal experiment [1]:

Animal models Sprague Dawley rats

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Preparation Method	The study was designed to test 3 objectives: (1) Prevention by Aviptadil: Two groups of rats were injected with monocrotaline (MCT) (a single s.c. injection of 60mg/kg). Group 1 rats received no additional treatment; group 2 rats received Aviptadil at 500μg/kg, i.p. (in 0.2mL PBS), every other day for 3 weeks, beginning the same day as MCT, for a total of 10 injections. A third group of 10 rats, serving as controls, received neither MCT nor Aviptadil. Survival was monitored for 45 days in a fourth group of 8 rats that received a single dose of MCT plus Aviptadil. (2) Reversal by Aviptadil or Bosentan: A group of 10 rats received Aviptadil at 500μg/kg, i.p., every other day for 3 weeks, beginning 3 weeks after the injection of MCT, i.e., after PAH pathology had already developed. Another group received Bosentan at 300mg/kg/day, as food admix for 3 weeks, beginning 3 weeks after MCT. (3) Reversal by combination therapy: Three weeks after MCT injection, another group of rats received both Aviptadil and Bosentan, as above, also for 3 weeks.
Dosage form	500μg/kg; i.p.
Applications	Aviptadil completely prevented and significantly reversed MCT-induced pulmonary arterial hypertension (PAH). Aviptadil and Bosentan have synergistic effects.

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References:
[1]Hamidi S A, Lin R Z, Szema A M, et al. VIP and endothelin receptor antagonist: an effective combination against experimental pulmonary arterial hypertension[J]. Respiratory research, 2011, 12: 1-7.

Background

Aviptadil is a 28-amino acid neurotransmitter and a vasoactive intestinal polypeptide (VIP) analog. It has an effective vasodilator effect, can induce pulmonary vasodilation, and inhibit vascular smooth muscle cell proliferation and platelet aggregation[1, 2]. Aviptadil can be used in the study of pulmonary fibrosis, pulmonary hypertension, and respiratory failure caused by SARS-CoV-2[3].

In vivo, Aviptadil (500μg/kg) was intraperitoneally injected into rats with pulmonary hypertension (PHT) for 3 weeks, completely preventing and significantly reversing monocrotaline (MCT)-induced pulmonary hypertension PAH, and had a synergistic effect with bosentan[4]. Aviptadil (150μg/kg/day) was intraperitoneally injected into rats with pulmonary hypertension for 4 weeks, eliminating bronchial hyperresponsiveness (BHR) and having bronchodilating properties[5]. Aviptadil (3μg/kg) was intravenously injected into rats with lung transplantation model and improved the rat lung transplantation reperfusion injury[6].

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References:
[1] Hu J, Xu Q, McTiernan C, et al. Novel targets of drug treatment for pulmonary hypertension[J]. American Journal of Cardiovascular Drugs, 2015, 15: 225-234.
[2] O'Callaghan D S, Jaïs X, Montani D, et al. A Look to the Future: Potential Therapeutic Options for Pulmonary Arterial Hypertension[J]. The Annals of Respiratory Medicine, 2009, 1(1): 1.
[3] Chakraborty D, Choudhury S, Lahiry S. Aviptadil-class effect of a synthetic vasoactive intestinal peptide as a treatment option in COVID-19 patients with severe respiratory failure[J]. Indian Journal of Respiratory Care, 2022, 11(1): 5-5.
[4] Hamidi S A, Lin R Z, Szema A M, et al. VIP and endothelin receptor antagonist: an effective combination against experimental pulmonary arterial hypertension[J]. Respiratory research, 2011, 12: 1-7.
[5] Habre W, Albu G, Janosi T Z, et al. Prevention of bronchial hyperreactivity in a rat model of precapillary pulmonary hypertension[J]. Respiratory research, 2011, 12: 1-8.
[6] Nagahiro I, Yano M, Boasquevisque C H, et al. Vasoactive intestinal peptide ameliorates reperfusion injury in rat lung transplantation[J]. The Journal of Heart and Lung Transplantation: the Official Publication of the International Society for Heart Transplantation, 1998, 17(6): 617-621.

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