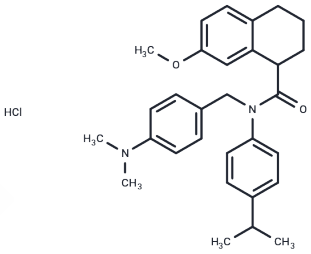
Data Sheet (Cat.No.T17250)

TargetMol

W-54011

Chemical Properties



CAS No. :	405098-33-1
Formula:	C30H37ClN2O2
Molecular Weight:	493.08
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	W-54011 is a potent non-peptide C5a receptor antagonist. W-54011 inhibits the binding of 125I-labeled C5a to human neutrophils (Ki = 2.2 nM). W-54011 inhibits C5a-induced intracellular Ca2+ mobilization, chemotaxis, and generation of ROS in human neutrophils (IC50s = 3.1 nM, 2.7 nM, and 1.6 nM, respectively).
Targets(IC50)	Reactive Oxygen Species,Complement System,ROS
In vitro	W-54011 does not show agonistic activity at up to 10 μM and shifts rightward the concentration-response curves to C5a without depressing the maximal responses, showing that W-54011 is a full antagonist. At concentrations up to 10 μM, W-54011 does not affect Ca2+ mobilization stimulated with sub-maximally effective concentrations of fMLP (1 nM), platelet-activating factor (0.3 nM), and IL-8 (0.1 nM)[1].
In vivo	W-54011 is able to inhibit the response in cynomolgus monkeys and gerbils (IC50 = 1.7 nM and 3.2 nM, respectively). In Male mongolian gerbils injected with rhC5a, W-54011 (3-30 mg/kg; oral; for 4 hours) inhibited C5a-induced neutropenia in a dose-dependent manner in gerbils. The species selectivity of W-54011 is examined in rhC5a-induced intracellular Ca2+ mobilization of neutrophils in various species [1].

Solubility Information

Solubility	DMSO: 28 mg/mL (56.79 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: 2 mg/mL (4.06 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 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	2.0281 mL	10.1403 mL	20.2807 mL
5 mM	0.4056 mL	2.0281 mL	4.0561 mL
10 mM	0.2028 mL	1.014 mL	2.0281 mL
50 mM	0.0406 mL	0.2028 mL	0.4056 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

Sumichika H, et al. Identification of a potent and orally active non-peptide C5a receptor antagonist. J Biol Chem. 2002 Dec 20;277(51):49403-49407.

Liu X, Wang W, Tan S, et al.C5a drives the inflammatory response with bacterial dose effect by binding to C5aR1 in zebrafish infected with Aeromonas hydrophila.Fish & Shellfish Immunology.2023: 108873.

Wu Z, Zang S, Wang W, et al.Manipulated C5aR1 over/down-expression associates with IL-6 expression during bacterial inflammation in half-smooth tongue sole (Cynoglossus semilaevis).Fish & Shellfish Immunology.2024: 109706.

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