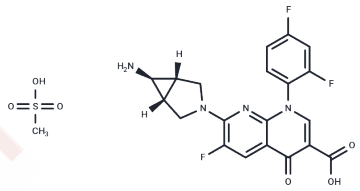
Data Sheet (Cat.No.T13231L)

TargetMol

Trovafloxacin mesylate

Chemical Properties



CAS No. : 147059-75-4

Formula: C21H19F3N4O6S

Molecular Weight: 512.46

Storage: 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	Trovafloxacin mesylate is a fluoroquinolone antibiotic and a dual inhibitor of DNA gyrase and topoisomerase IV, as well as a selective inhibitor of the Pannexin 1 channel (IC50 = 4 μM). With oral bioactivity and cell permeability, Trovafloxacin does not inhibit connexin 43 or PANX2, and is used for antibacterial therapy.
Targets(IC50)	Antibacterial,Antibiotic,DNA/RNA Synthesis,Topoisomerase,TRP/TRPV Channel
In vitro	**Methods**:3D bioprinted human primary liver tissue (containing hepatocytes, endothelial cells, and hepatic stellate cells) and 2D primary hepatocytes were used. Trovafloxacin mesylate was administered daily at 0.1–100 μM for 7 consecutive days. Toxicity was assessed through ATP, albumin, LDH detection, and histological staining. **Results**: Trovafloxacin mesylate caused dose-dependent damage to 3D liver tissue at clinically relevant doses, reduced albumin and ATP levels, induced hepatocyte necrosis, and showed significantly weaker toxicity in 2D hepatocytes compared to the 3D model. [1] **Methods**: A 3D bioprinted liver lobule model (containing human adipose mesenchymal stem cell-derived hepatocyte-like cells, umbilical vein endothelial cells, and hepatic stellate cells) was used. Cells were incubated with 0.22–407.80 μM Trovafloxacin mesylate for 24 h. Toxicity was assessed through cell viability, LDH, and cytochrome P450 reductase activity detection. **Results**: Trovafloxacin mesylate induced hepatotoxicity in a dose-dependent manner. The tri-cellular co-culture model was more sensitive, with EC50 of 1.04 μM, lower than the 5.45 μM of the single hepatocyte model. [2]
In vivo	**Methods**:C57BL/6 male mice were used to establish a controlled cortical impact brain injury model. Trovafloxacin mesylate was dissolved in DMSO + saline and administered by intraperitoneal injection at 60 mg/kg at 1, 24, and 48 h post-injury, with continuous observation for 6 days. **Results**: It significantly reduced brain injury markers, blood-brain barrier leakage, and pro-inflammatory factor levels, decreased inflammatory cell infiltration, improved motor function deficits, and exerted neuroprotective and anti-inflammatory effects. [3]

Solubility Information

Solubility	DMSO: 120 mg/mL (234.16 mM),Sonication and heating to 60℃ are recommended. H2O: 18 mg/mL (35.12 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: 4 mg/mL (7.81 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	1.9514 mL	9.7569 mL	19.5137 mL
5 mM	0.3903 mL	1.9514 mL	3.9027 mL
10 mM	0.1951 mL	0.9757 mL	1.9514 mL
50 mM	0.039 mL	0.1951 mL	0.3903 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

guyen, Deborah G et al. Bioprinted 3D Primary Liver Tissues Allow Assessment of Organ-Level Response to Clinical Drug Induced Toxicity In Vitro. PloS one vol. 11,7 e0158674. 7 Jul. 2016.

Janani, G et al. Mimicking Native Liver Lobule Microarchitecture In Vitro with Parenchymal and Non-parenchymal Cells Using 3D Bioprinting for Drug Toxicity and Drug Screening Applications. ACS applied materials & interfaces vol. 14,8 (2022): 10167-10186.

Garg, Charu et al. Trovafloxacin attenuates neuroinflammation and improves outcome after traumatic brain injury in mice. Journal of neuroinflammation vol. 15,1 42. 13 Feb. 2018.

Poon IK, et al. Unexpected link between an antibiotic, pannexin channels and apoptosis. Nature. 2014 Mar 20;507 (7492):329-34.