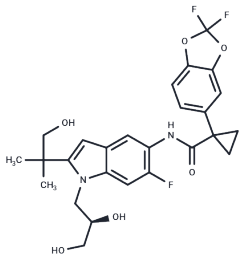
Data Sheet (Cat.No.T2263)

TargetMol

Tezacaftor

Chemical Properties



CAS No. : 1152311-62-0

Formula: C26H27F3N2O6

Molecular Weight: 520.5

Storage: Store at low temperature
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	Tezacaftor (VX-661) is a cystic fibrosis transmembrane conductance regulator (CFTR) corrector. Tezacaftor increases the number of functional CFTR proteins by promoting the proper folding and transport of mutant CFTR proteins to the cell surface, thereby restoring chloride channel function. Tezacaftor is commonly used in cystic fibrosis research.
Targets(IC50)	CFTR,Autophagy
In vitro	**Methods**: Peripheral blood was collected from cystic fibrosis patients before treatment with Elexacaftor/Tezacaftor/Ivacaftor, 1 month after treatment initiation, and 6 months after treatment initiation. Peripheral blood mononuclear cells were isolated and co-incubated with GFP-expressing Pseudomonas aeruginosa PAO1 strain for 30 minutes, followed by assessment of intracellular viable bacteria count. **Results**: Pre-treatment CF patients exhibited significantly lower intracellular viable bacteria counts in monocytes compared to healthy controls, indicating phagocytic dysfunction. At 1 month and 6 months post-treatment, intracellular viable bacteria counts increased significantly (by 2-fold and 2.5-fold, respectively), demonstrating marked improvement in phagocytic function. [1] **Methods**: Differentiated CF human bronchial epithelial cells (HBEC) with the F508del-CFTR homozygous genotype were treated with the ETI combination (Elexacaftor (3 μM) + Tezacaftor (3 μM) + Ivacaftor (1 μM)), dissolved in DMSO, added to the basolateral medium. The control consisted of an equal volume of DMSO. Treatment lasted 72 hours. with drug solution replaced every 24 hours. μOCT measurements assessed mucus clearance time (MCT), airway surface liquid depth (ASL), and perichylial liquid depth (PCL). **Results**: ETI treatment efficacy: After 72 hours of ETI treatment, CF HBECs exhibited significant recovery in ASL, PCL, and MCT, approaching non-CF levels. [2]
In vivo	The F508del mutation channel can avoid degradation and be transported to the cell membrane under the action of VX-661.

Solubility Information

Solubility	Ethanol: < 1 mg/mL (insoluble or slightly soluble), H2O: < 1 mg/mL (insoluble or slightly soluble), DMSO: 245 mg/mL (470.7 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: 5 mg/mL (9.61 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	1.9212 mL	9.6061 mL	19.2123 mL
5 mM	0.3842 mL	1.9212 mL	3.8425 mL
10 mM	0.1921 mL	0.9606 mL	1.9212 mL
50 mM	0.0384 mL	0.1921 mL	0.3842 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

Cavinato L, et al. Elexacaftor/tezacaftor/ivacaftor corrects monocyte microbicidal deficiency in cystic fibrosis. Eur Respir J. 2023 Apr 1;61(4):2200725.

Jarosz-Griffiths H H, Scambler T, Wong C H, et al. Different CFTR modulator combinations downregulate inflammation differently in cystic fibrosis. ELife. 2020, 9: e54556

Sondo E, Cresta F, Pastorino C, et al. The L467F-F508del Complex Allele Hampers Pharmacological Rescue of Mutant CFTR by Elexacaftor/Tezacaftor/Ivacaftor in Cystic Fibrosis Patients: The Value of the Ex Vivo Nasal Epithelial Model to Address Non-Responders to CFTR-Modulating Drugs. International Journal of Molecular Sciences. 2022, 23(6): 3175.

Harris ES, McIntire HJ, Mazur M, Schulz-Hildebrandt H, Leung HM, Tearney GJ, Krick S, Rowe SM, Barnes JW. Reduced sialylation of airway mucin impairs mucus transport by altering the biophysical properties of mucin. Sci Rep. 2024 Jul 17;14(1):16568.

Baldassarri M, Zguro K, Tomati V, et al.Gain-and Loss-of-Function CFTR Alleles Are Associated with COVID-19 Clinical Outcomes.Cells.2022, 11(24): 4096.

Tomati V, Costa S, Capurro V, et al.Rescue by elexacaftor-tezacaftor-ivacaftor of the G1244E cystic fibrosis mutation's stability and gating defects are dependent on cell background.Journal of Cystic Fibrosis.2022