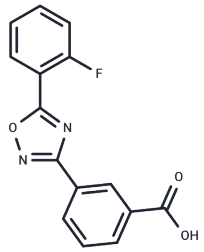
Data Sheet (Cat.No.T1805)

TargetMol

Ataluren

Chemical Properties



CAS No. : 775304-57-9

Formula: C15H9FN2O3

Molecular Weight: 284.24

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	Ataluren (PTC124) is a novel, orally administered drug that targets nonsense mutations. Ataluren is approved for use by the European Medicines Agency to treat Duchenne Muscular Dystrophy in patients aged 5 years and older who are able to walk.
Targets(IC50)	CFTR,Autophagy
In vitro	0.01-3 μM PTC124 promoted dose-dependent through-reading of all three nonsense codons in HEK293 cells containing the LUC-190 nonsense allele, with the highest readings at UGA, followed by UAG, and then UAA, but it did not inhibit multiple proximal nonsense codons. 17 μM PTC124 was consistent with the experimental assay reported for the stable cell line, and the results of PTC124 (17 PTC124 (17 μM) promotes significant production of myotrophic proteins in primary myoblasts from patients with Duchenne-type muscular dystrophy (DMD) or MDXMDX mice expressing the nonsense allele of myotrophic dystrophic protease.PTC124 selectively promotes the readthrough of ribosomal premature termination codons, but not normal termination codons, even at concentrations substantially higher than those required to achieve maximal activity. PTC124 is a more potent nonsense inhibitor than gentamicin, which is active only at higher concentrations, and shows a 4- to 15-fold stimulation of read-through relative to the control.PTC124, similar to gentamicin, is most active at pyrimidines (especially cytosine, C) following nonsense codons.
In vivo	0.01-3 μM PTC124 promoted dose-dependent through-reading of all three nonsense codons in HEK293 cells containing the LUC-190 nonsense allele, with the highest readings at UGA, followed by UAG, and then UAA, but it did not inhibit multiple proximal nonsense codons. 17 μM PTC124 was consistent with the experimental assay reported for the stable cell line, and the results of PTC124 (17 PTC124 (17 μM) promotes significant production of myotrophic proteins in primary myoblasts from patients with Duchenne-type muscular dystrophy (DMD) or MDXMDX mice expressing the nonsense allele of myotrophic dystrophic protease.PTC124 selectively promotes the readthrough of ribosomal premature termination codons, but not normal termination codons, even at concentrations substantially higher than those required to achieve maximal activity. PTC124 is a more potent nonsense inhibitor than gentamicin, which is active only at higher concentrations, and shows a 4- to 15-fold stimulation of read-through relative to the control.PTC124, similar to gentamicin, is most active at pyrimidines (especially cytosine, C) following nonsense codons.

Cell Research	PTC124 (Ataluren) is prepared in DMSO and stored, and then diluted with appropriate medium (DMSO 1%) before use[2]. Duplicate samples of HEK293 cells harbouring LUC-190 (UGA) are incubated in the presence of 5?μM PTC124 (treated) or 1% DMSO (untreated) for 20?h. The cells are collected, washed twice in phosphate buffered saline (PBS), resuspended in sample buffer (Bio-Rad) and shipped on dry ice to Kendrick Laboratories for two-dimensional electrophoretic analysis Isoelectric focusing (pH?3.5-10) is carried out in glass tubes for 20,000 V-hours. One?μg of a tropomyosin internal standard is added to each sample. Second dimension SDS slab gel electrophoresis is carried out for approximately 6?h at 25?mA per gel. After electrophoresis, gels are transferred to PVDF paper. Computerized analysis of spot mobility used Phoretix software[2].

Solubility Information

Solubility	H2O: < 1 mg/mL (insoluble or slightly soluble), Ethanol: < 1 mg/mL (insoluble or slightly soluble), DMSO: 69 mg/mL (242.75 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Corn Oil: 2.5 mg/mL (8.8 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	3.5182 mL	17.5908 mL	35.1815 mL
5 mM	0.7036 mL	3.5182 mL	7.0363 mL
10 mM	0.3518 mL	1.7591 mL	3.5182 mL
50 mM	0.0704 mL	0.3518 mL	0.7036 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

Welch EM, et al. Nature, 2007, 447(7140), 87-91.
Du M, et al. Proc Natl Acad Sci U S A, 2008, 105(6), 2064-2069.