Small Molecules

CFTR(inh)-172

Inhibits cystic fibrosis transmembrane conductance regulator (CFTR)

Catalog #100-0554	5 mg
100-0555	10 mg

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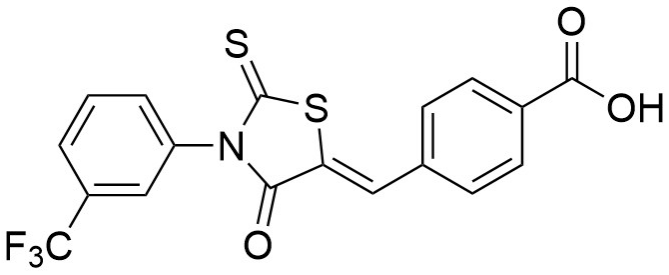
Product Description

CFTR(inh)-172 is a selective and reversible thiazolidinone inhibitor of the cystic fibrosis transmembrane conductance regulator (CFTR; K_i = 300 nM; Ma et al.). CFTR is a chloride anion channel involved in the secretion of fluid in many epithelial tissues, such as the airway and intestine (Ma et al.). Defects in the CFTR gene alter ion transport, which can lead to cystic fibrosis (Dalli et al.; Ma et al.). When it is intraperitoneally injected in mice, CFTR(inh)-172 inhibits the secretion of intestinal fluid induced by cholera toxin (Ma et al.).

Molecular Name:	CFTR(inh)-172
Alternative Names:	Cystic fibrosis transmembrane conductance regulator inhibitor 172; CFTR Inhibitor-172
CAS Number:	307510-92-5
Chemical Formula:	$C_{18}H_{10}F_3NO_3S_2$
Molecular Weight:	409.4 g/mol
Purity:	≥ 98%
Chemical Name:	4-[[4-oxo-2-thioxo-3-[3-(trifluoromethyl)phenyl]-5-thiazolidinylidene]methyl]-benzoic acid
Structure:	



Properties

Physical Appearance:	A crystalline solid
Storage:	Product stable at -20°C as supplied. Protect product from prolonged exposure to light. For long-term storage, store with a desiccant. Stable as supplied for 12 months from date of receipt.
Solubility:	• DMSO ≤ 12 mM

For example, to prepare a 7 mM stock solution in DMSO, resuspend 1 mg in 348 µL of DMSO.

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in DMSO at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

Compound has low solubility in aqueous media. For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use. Avoid final DMSO concentration above 0.1% due to potential cell toxicity.

Published Applications

DISEASE MODELING
· Slows cyst growth in polycystic kidney disease in mice (Yang et al.).

References

Dalli J et al. (2010) CFTR inhibition provokes an inflammatory response associated with an imbalance of the annexin A1 pathway. Am J Pathol 177(1): 176–86.

Ma T et al. (2002) Thiazolidinone CFTR inhibitor identified by high-throughput screening blocks cholera toxin-induced intestinal fluid secretion. J Clin Invest 110(11): 1651–8.

Yang B et al. (2008) Small-molecule CFTR inhibitors slow cyst growth in polycystic kidney disease. J Am Soc Nephrol 19(7): 1300–10.

Related Small Molecules

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This product is hazardous. Please refer to the Safety Data Sheet (SDS).