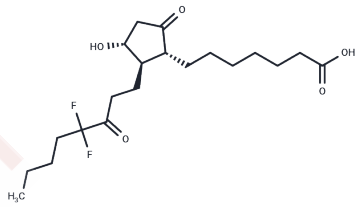
Data Sheet (Cat.No.T6307)

TargetMol

Lubiprostone

Chemical Properties



CAS No. : 136790-76-6

Formula: C20H32F2O5

Molecular Weight: 390.46

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Lubiprostone (RU-0211), an activator of ClC-2 chloride channels, is used in the therapy of idiopathic chronic constipation.
Targets(IC50)	Chloride channel
In vitro	Lubiprostone induces a robust secretory response in T84 monolayers. Lubiprostone induces a rise in cAMP levels that was sensitive to EP(4)-receptor blockage in T84 cells. [1] Lubiprostone induces a contraction in rat and human stomach longitudinal muscle, which is inhibited by pretreatment with the EP(1) receptor antagonist but not by the EP (3) or EP(4) receptor antagonists. Lubiprostone also reduces electrically stimulated, neuronal contractions in rat and human colon circular muscle preparations. [2] Lubiprostone (1 mM) stimulates higher elevations in TER despite lower I(sc) responses compared with the nonselective secretory agonist PGE(2) (1 mM). Lubiprostone significantly reduces mucosal-to-serosal fluxes of (3)H-labeled mannitol to levels comparable to those of normal control tissues and restored occludin localization to tight junctions. [3] Lubiprostone causes comparable and maximal increases of I(sc) in T84 cells. Lubiprostone-induced increases in iodide efflux are ~80% of those obtained with forskolin. Lubiprostone activates Cl(-) secretion in T84 cells via cAMP, protein kinase A, and by increasing apical membrane CFTR protein. [4] Lubiprostone, applied to the small intestinal mucosa in eight concentrations ranging from 1-3000 nM, evokes increases in Isc in a concentration-dependent manner with an EC50 of 42.5 nM. Lubiprostone applied to the mucosa of the colon in eight concentrations ranging from 1-3000 nM evokes increases in Isc in a concentration-dependent manner with an EC50 of 31.7 nM. [5]
In vivo	Lubiprostone induces a CdCl(2)-insensitive secretory response in mouse intestine, but fail to induce intestinal Cl(-) secretion in Cftr-null mice. [1]
Kinase Assay	Fluorescence polarization-based competition assay: Inhibition constants (Ki) for the antagonists are determined by addition of the IAP protein constructs to wells containing serial dilutions of the antagonists or the peptide AVPW, and the Hid-FAM probe or AVP-diPhe-FAM probe, as appropriate, in the polarization buffer. Samples are read after a 30-minute incubation. Fluorescence polarization values are plotted as a function of the antagonist concentration, and the IC50 values are obtained by fitting the data to a 4-parameter equation using software. Ki values for the antagonists are determined from the IC50 valued.

Solubility Information

Solubility	Ethanol: 72 mg/mL (184.4 mM),Sonication is recommended. DMSO: 70 mg/mL (179.28 mM),Sonication is recommended. H2O: < 1 mg/mL (insoluble or slightly soluble), (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.5611 mL	12.8054 mL	25.6108 mL
5 mM	0.5122 mL	2.5611 mL	5.1222 mL
10 mM	0.2561 mL	1.2805 mL	2.5611 mL
50 mM	0.0512 mL	0.2561 mL	0.5122 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.

Reference

Bijvelds MJ, et al. Gastroenterology, 2009, 137(3), 976-1985.
Bassil AK, et al. Br J Pharmacol, 2008, 154(1), 126-135.
Moeser AJ, et al. Am J Physiol Gastrointest Liver Physiol, 2007, 292(2), G647-656.
Ao M, et al. Dig Dis Sci, 2011, 56(2), 339-351.
Fei G, et al. Am J Physiol Gastrointest Liver Physiol, 2009, 296(4), G823-832.