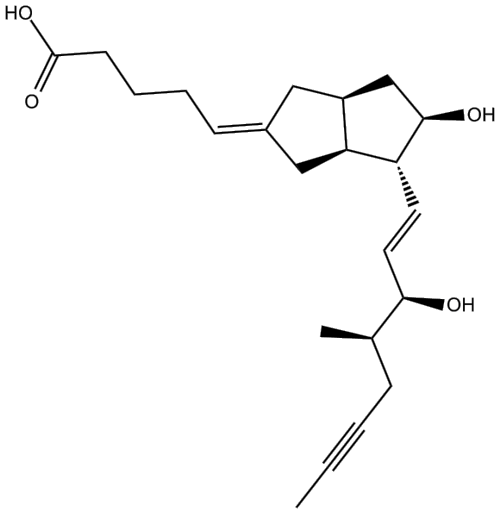
Product Data Sheet

Product Name: Iloprost
Cat. No.: GC15911

Chemical Properties

Cas. No.	78919-13-8		
Chemical Name	(E)-5-((3aS,4R,5R,6aS)-5-hydroxy-4-((3S,4R,E)-3-hydroxy-4-methyloct-1-en-6-yn-1-yl)hexahydropentalen-2(1H)-ylidene)pentanoic acid		
SMILES	O[C@H]1[C@H](/C=C/[C@H]([C@H](C)CC#CC)O)[C@@H](C/C2=C/CCCC(O)=O)[C@@H](C2)C1		
Formula	$C_{22}H_{32}O_4$	M.Wt	360.49
Solubility	DMF: 30 mg/ml,DMSO: 25 mg/ml,Ethanol: 30 mg/ml,PBS (pH 7.2): 1 mg/ml	Storage	Desiccate at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Structure



Protocol

Product Data Sheet

Cell experiment [1]:

Cell lines	Pulmonary endothelial cells
Preparation Method	Pulmonary endothelial cells were pre-incubated with Iloprost (200ng/mL) or Br-cAMP (500ng/mL) for 15min followed by an LPS (300ng/mL) 5-h challenge and measurements of permeability for fluorescein isothiocyanate (FITC)-labelled dextran. Permeability data are presented as the mean±sd of 8 independent experiments.
Reaction Conditions	200ng/mL; 15min
Applications	Both Iloprost and Br-cAMP attenuated LPS-induced permeability for FITC-labelled dextran.

Animal experiment [2]:

Animal models	C57BL/6J WT mice
Preparation Method	After oral administration of different doses of Iloprost (1, 4 and 10μg/kg) in mice for 20 min, the recipient mice were anaesthetised with 2% pentobarbital (100mg/kg, i.p.). Mice were injected i.v. with calcein-labelled platelets (5×10^6/g) of matching genotype. The mesentery vascular bed was exteriorised, and one arteriole was chosen and visualised and recorded with an inverted fluorescent microscope. Thrombus formation was induced by topical application of a 1-mm^2 filter paper soaked with 6% $FeCl_3$. The vessel occlusion time was defined as the time to complete cessation of blood flow.

Product Data Sheet

Dosage form	1, 4 and 10μg/kg; p.o.
Applications	As the doses of oral administration of Iloprost increased, mice exhibited delayed and diminished thrombus formation, and mean occlusion time became significantly longer in the mice compared with vehicle control, and in all observed groups, 10μg/kg Iloprost exhibited the strongest antithrombotic effect.

References:
[1] Birukova A A, Wu T, Tian Y, et al. Iloprost improves endothelial barrier function in lipopolysaccharide-induced lung injury[J]. European Respiratory Journal, 2012, 41(1): 165-176.
[2]Wang X, Chen S, Wan J, et al. Iloprost Concentration?Dependently Attenuates Platelet Function and Apoptosis by Elevating PKA Activity[J]. Journal of Cellular and Molecular Medicine, 2025, 29(3): e70403.

Background

Iloprost is a prostacyclin (PGI2) analog that affects platelet aggregation [1]. Clinically, Iloprost is used to treat pulmonary arterial hypertension (PAH), scleroderma, Raynaud's phenomenon, frostbite, and other conditions characterized by impaired blood flow to tissues due to vasoconstriction[2, 3].

In vitro, pretreatment of pulmonary endothelial cells with Iloprost (200ng/mL) for 15min significantly reduced the permeability of FITC-labeled dextran induced by lipopolysaccharide (LPS), mitigating LPS-induced disruption of the endothelial cell monolayer[4]. Treatment of human periodontal ligament cells (hPDLs) with Iloprost (1μM) for 24h promoted the mRNA and protein expression of VEGF and COL1 in the cells[5].

In vivo, oral administration of Iloprost (1, 4, and 10μg/kg) to mice in a mesenteric artery thrombosis model reduced thrombosis in the mesenteric arterioles in a dose-dependent manner[6].

References:
[1] Kobzar G, Mardla V, Järving I, et al. Comparison of anti-aggregatory effects of PGI2, PGI3 and

Product Data Sheet

iloprost on human and rabbit platelets[J]. Cellular Physiology and Biochemistry, 2001, 11(5): 279-284.
[2] Foti R. Treatment with intravenous iloprost in patients with systemic sclerosis: A short review[J]. Journal of Rare Diseases Research & Treatment, 2017, 2(4).
[3] Ruiz J, Watford M, Samuel E, et al. Corticotrophins, corticosteroids, and prostaglandins[M]//Side Effects of Drugs Annual. Elsevier, 2020, 42: 407-415.
[4] Birukova A A, Wu T, Tian Y, et al. Iloprost improves endothelial barrier function in lipopolysaccharide-induced lung injury[J]. European Respiratory Journal, 2012, 41(1): 165-176.
[5] Jearanaiphaisarn T, Sanharati T, Pavasant P, et al. The effect of iloprost on cell proliferation and angiogenesis-related gene expression in human periodontal ligament cells[J]. Odontology, 2018, 106(1): 11-18.
[6] Wang X, Chen S, Wan J, et al. Iloprost Concentration-Dependently Attenuates Platelet Function and Apoptosis by Elevating PKA Activity[J]. Journal of Cellular and Molecular Medicine, 2025, 29(3): e70403.