For Research Use Only

Linagliptin

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Catalog Number: CM03789

产品信息

Catalog Number:
CM03789

CAS号:
668270-12-0

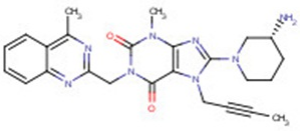
分子式:
$C_{25}H_{28}N_8O_2$

主要靶点:
Proteasome|Autophagy|DPP-4|Ferroptosis

主要通路:
自噬|蛋白酶体|泛素化|凋亡

分子量:
472.54

溶解度:
Ethanol:1 mg/mL (2.11 mM),DMSO:14 mg/mL (29.6 mM),H2O:<1 mg/mL



靶点活性

DPP-4:1 nM

体外活性

Linagliptin shows a potent inhibition effect against DPP-4 in vitro and a low affinity for hERG channel and M1 receptor (IC50 295 nM). [1] Linagliptin acts as a competitive inhibitor with a Ki of 1 nM, and also shows 10,000-fold more selectivity for DPP-4 than DPP-8, DPP-9, amino-peptidases N and P, prolyloligopeptidase, trypsin, plasmin, and thrombin, and 90-fold more selectivity than fibroblast activation protein in vitro. [2]

体内活性

In male Wistar rats, Beagle dogs, and Rhesus monkeys, Linagliptin shows a highly efficacious, long-lasting, and potent inhibitory activity against DPP-4 by more than 70% inhibition for all three species after oral administration of 1 mg/kg. Oral administration of Linagliptin to db/db mice 45 min before an oral glucose tolerance test reduces plasma glucose excursion in a dose-dependent manner from 0.1 mg/kg (15% inhibition) to 1 mg/kg (66% inhibition). [1] By inhibiting DPP-4 activity, Linagliptin reduces the expression of the proinflammatory markers cyclooxygenase-2 and macrophage inflammatory protein-2, and enhances the formation of myofibroblasts in healing wounds from ob/ob mice. [3]

细胞实验

A total of 4.0×107 keratinocytes per well are seeded into 24-well plates. After reaching 50% confluence, cells are starved for 24 h with DMEM. Proliferation of cells is assessed by using 1 μ Ci/mL of [3H]methyl-thymidine in DMEM in the presence of 10% fetal bovine serum and increasing concentrations of linagliptin (3, 30, 300, or 600 nM) for 24 h. Cells are then washed twice with phosphate-buffered saline and incubated in 5% trichloroacetic acid at 4°C for 30 min, and the DNA is solubilized in 0.5mol/LNaOH for 30 min at 37°C. Finally, [3H]thymidine incorporation is determined.

描述

Linagliptin is a potent, orally bioavailable dihydropurinedione-based inhibitor of dipeptidyl peptidase 4 (DPP-4), with hypoglycemic activity.

储存

Powder: -20°C for 3 years | In solvent: -80°C for 2 years