Product Data Sheet

Product Name: Benfluorex hydrochloride
Cat. No.: GC35489

Chemical Properties

Cas. No.	23642-66-2		
SMILES	FC(C1=CC(CC(NCCOC(C2=CC=CC=C2)=O)C)=CC=C1)(F)F.[H]Cl		
Formula	$C_{19}H_{21}ClF_3NO_2$	M.Wt	387.82
Solubility	DMSO: ≥ 100 mg/mL (257.85 mM); Water: 3.33 mg/mL (8.59 mM)	Storage	Store 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.		

Caution: Product has not been fully validated for medical applications. For research use only.
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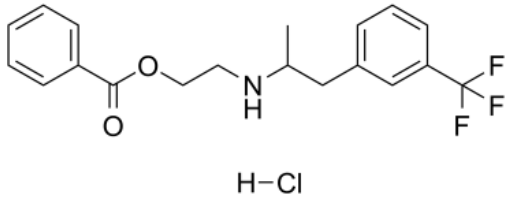
Structure



Protocol

Kinase experiment: HepG2 cells are treated with DMSO or Benfluorex hydrochloride at a concentration of 20 μM or 40 μM for 16 hr.Total cell protein is extracted, measured by BCA protein assay. Each sample is split into two aliquots for proteolysis without (-) or with (+) Subtilisin. Twenty ug of cell lysate is incubated with or without protease (20 ng/mL subtilisin) for 35 minutes at room temperature. Western blot is then performed with primary anti-HNF4α polyclonal antibody (1:1000 dilution) and secondary HRP conjugated anti-goat IgG (1:2000 dilution), detected with chemiluminescence ECL kit[1].

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Cell experiment: Hepatocytes are isolated by in situ perfusion of the liver with 0.025% collagenase. Hepatocytes (1 to 2×106 cells/mL) are incubated at 37°C in 2 mL of oxygenated (O2:CO2; 95:5) Krebs-Henseleit bicarbonate buffer (pH 7.4) for 1 h in a gyratory shaking water bath. Benfluorex hydrochloride is dissolved in DMSO and added (10 μL) to the incubation medium at a final concentration of 0.1 or 1 nM[2].

References:

[1]. Lee SH, et al. Identification of alverine and benfluorex as HNF4α activators. ACS Chem Biol. 2013 Aug 16;8(8):1730-6.
[2]. Kohl C, et al. Effects of benfluorex on fatty acid and glucose metabolism in isolated rat hepatocytes: from metabolic fluxes to gene expression. Diabetes. 2002 Aug;51(8):2363-8.

Background

Benfluorex hydrochloride (JP-992 hydrochloride) is a hepatic nuclear factor 4 alpha (HNF4α) activator. HNF4α[1]

Benfluorex hydrochloride consistently activates insulin promoter activity as measured by an increased number of GFP-positive cells. Benfluorex hydrochloride increases the number of GFP-positive cells in a dose-responsive manner and increases the level of endogenous insulin mRNA. Consistent with being HNF4α activator, Benfluorex hydrochloride stimulates HNF4α expression. Benfluorex hydrochloride alters HNF4α protease sensitivity, while the inactive control compound does not[1]. Benfluorex hydrochloride decreases, in a concentration-dependent manner, the synthesis of acid-soluble products and ketone bodies from oleate, whereas the production of 14CO2 into citric acid cycle is markedly increased by Benfluorex hydrochloride. Benfluorex hydrochloride inhibits in a dose-dependent manner the rates of gluconeogenesis from lactate/pyruvate (10/1 nM)[2].

[1]. Lee SH, et al. Identification of alverine and benfluorex as HNF4α activators. ACS Chem Biol. 2013 Aug 16;8(8):1730-6. [2]. Kohl C, et al. Effects of benfluorex on fatty acid and glucose metabolism in isolated rat hepatocytes: from metabolic fluxes to gene expression. Diabetes. 2002 Aug;51(8):2363-8.

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