

Product Data Sheet

Product Name: Fenofibrate

Cat. No.: GC12250

Chemical Properties

Cas. No. 49562-28-9

Chemical Name propan-2-yl 2-[4-(4-chlorobenzoyl)phenoxy]-2-methylpropanoate

SMILES CC(C)OC(=O)C(C)(C)OC1=CC=C(C=C1)C(=O)C2=CC=C(C=C2)Cl

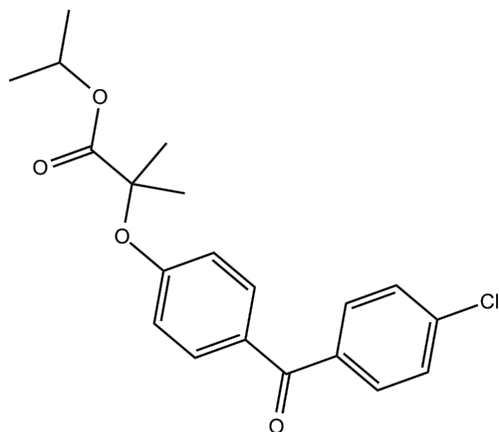
Formula $C_{20}H_{21}ClO_4$ M.Wt 360.83

Solubility $\geq 12.75\text{mg/mL}$ in DMSO Storage Store at RT

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

Cell experiment [1]:

Cell lines MCF-7 and Panc-1 cells

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

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Preparation method The solubility of this compound in DMSO is > 12.8 mg/mL. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below - 20 °C for several months.

Reacting condition 24, 48 and 72 hrs

Applications At 24th, 48th and 72th hrs, the IC50 values of Fenofibrate were 96.6, 46.5 and 9.2 µg/mL on Panc-1 cells, and 93.5, 55.9 and 8 µg/mL on MCF-7 cells, respectively. Compared with the untreated solvent control, MCF-7 and Panc-1 cells treated with 1/2 IC50, IC50 and 2 IC50 of Fenofibrate for 24 hrs exhibited a significant increase in the relative activity of caspase 3/7.

Animal experiment [1]:

Animal models Mice bearing Ehrlich ascites carcinoma (EAC)

Dosage form 200 mg/kg/day; p.o.; for 18 days

Applications In an EAC mouse model, Fenofibrate significantly reduced tumor weight and volume, without affecting the relative heart weight. However, Fenofibrate treatment significantly decreased the body weight and increased the relative liver weight. In addition, a marked decrease in the carcinoembryonic antigen (CEA) level was also observed in the Fenofibrate treatment group.

Other notes Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

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References:

[1]. Sabaa M, ELFayoumi HM, Elshazly S, Youns M, Barakat W. Anticancer activity of salicin and fenofibrate. Naunyn Schmiedeberg's Arch Pharmacol. 2017 Jul 21.

Background

Fenofibrate is a PPAR α agonist with an EC₅₀ of 30 μ M.

Fenofibrate is a relatively potent inhibitor of CYP2B6 (IC₅₀=0.7 $\pm$ 0.2 μ M) and CYP2C19 (IC₅₀=0.2 $\pm$ 0.1 μ M). Fenofibrate is also a moderate inhibitor of CYP2C8 (IC₅₀=4.8 $\pm$ 1.7 μ M) and CYP2C9 (IC₅₀=9.7 μ M)[1]. Fenofibrate binds to and inhibits cytochrome P450 epoxygenase (CYP)2C with higher affinity than to PPAR α . Fenofibrate is a well-known PPAR α agonist, but an in vitro assessment of 209 frequently prescribed drugs and related xenobiotics suggests that Fenofibrate is also a potent inhibitor of cytochrome P450 epoxygenase (CYP)2C. The affinity of Fenofibrate to CYP2C is >10 times higher (EC₅₀=2.39 $\pm$ 0.4 μ M) than to PPAR α (EC₅₀=30 μ M). Fenofibrate at a low dose inhibits CYP2C8 activity without PPAR α activation[2].

Daily intake of Fenofibrate at this low dose (10 μ g/g/day) inhibits retinal and choroidal neovascularization induced by CYP2C8 overexpression by 29% (P=0.021) and 36% (P=1.2 $\times$ 10⁻⁹) respectively[2].

References:

- [1]. Schelleman H, et al. Pharmacoepidemiologic and in vitro evaluation of potential drug-drug interactions of sulfonylureas with fibrates and statins. Br J Clin Pharmacol. 2014 Sep;78(3):639-48.
- [2]. Gong Y, et al. Fenofibrate Inhibits Cytochrome P450 Epoxygenase 2C Activity to Suppress Pathological Ocular Angiogenesis. EBioMedicine. 2016 Sep 30. pii: S2352-3964(16)30448-0.

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