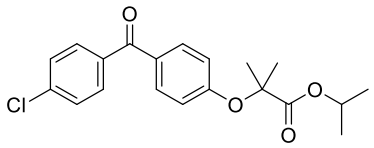
Product data sheet

MedKoo Cat#: 317866 Name: Fenofibrate CAS#: 49562-28-9 Chemical Formula: $C_{20}H_{21}ClO_4$ Exact Mass: 360.1128 Molecular Weight: 360.8313	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

Fenofibrate (INN) is a drug of the fibrate class. It is mainly used to reduce cholesterol levels in patients at risk of cardiovascular disease. Like other fibrates, it reduces both low-density lipoprotein (LDL) and very low density lipoprotein (VLDL) levels, as well as increasing high-density lipoprotein (HDL) levels and reducing triglyceride levels. It is used alone or along with statins in the treatment of hypercholesterolemia and hypertriglyceridemia. Fenofibrate has been used since 1975, is one of the most commonly prescribed fibrates, and has a well known efficacy and tolerability profile.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	43.27	119.92
DMF	30.0	83.14
DMF:PBS (pH 7.2) (1:3)	0.25	0.0019
Ethanol	36.36	100.77

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	2.77 mL	13.86 mL	27.71 mL
5 mM	0.55 mL	2.77 mL	5.54 mL
10 mM	0.28 mL	1.39 mL	2.77 mL
50 mM	0.06 mL	0.28 mL	0.55 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Kikuchi R, Maeda Y, Tsuji T, Yamaguchi K, Abe S, Nakamura H, Aoshiba K. Fenofibrate inhibits TGF-β-induced myofibroblast differentiation and activation in human lung fibroblasts in vitro. FEBS Open Bio. 2021 Jul 6;11(8):2340–9. doi: 10.1002/2211-5463.13247. Epub ahead of print. PMID: 34228906; PMCID: PMC8329776.
2. Crakes KR, Pires J, Quach N, Ellis-Reis RE, Greathouse R, Chittum KA, Steiner JM, Pesavento P, Marks SL, Dandekar S, Gilor C. Fenofibrate promotes PPARα-targeted recovery of the intestinal epithelial barrier at the host-microbe interface in dogs with diabetes mellitus. Sci Rep. 2021 Jun 29;11(1):13454. doi: 10.1038/s41598-021-92966-7. PMID: 34188162; PMCID: PMC8241862.

In vivo study

1. Mandala A, Chen WJ, Armstrong A, Malhotra MR, Chavalmane S, McCommis KS, Chen A, Carpenter D, Biswas P, Gnana-Prakasam JP. PPARα Agonist Fenofibrate Attenuates Iron Induced Liver Injury in Mice by Modulating the Sirt3 and β-catenin

Signaling. Am J Physiol Gastrointest Liver Physiol. 2021 Jul 21. doi: 10.1152/ajpgi.00129.2021. Epub ahead of print. PMID: 34287090.
2. Feng X, Gao X, Wang S, Huang M, Sun Z, Dong H, Yu H, Wang G. PPAR-α Agonist Fenofibrate Prevented Diabetic Nephropathy by Inhibiting M1 Macrophages via Improving Endothelial Cell Function in db/db Mice. Front Med (Lausanne). 2021 Jun 29;8:652558. doi: 10.3389/fmed.2021.652558. PMID: 34268320; PMCID: PMC8275839.

7. Bioactivity

Biological target:

Fenofibrate is a selective PPARα agonist with an EC50 of 30 μM. Fenofibrate also inhibits human cytochrome P450 isoforms, with IC50s of 0.2, 0.7, 9.7, 4.8 and 142.1 μM for CYP2C19, CYP2B6, CYP2C9, CYP2C8, and CYP3A4, respectively.

In vitro activity

This finding showed that FF (fenofibrate) inhibits myofibroblast differentiation induced by TGF-β. Moreover, treatment of IMR-90 cells with TGF-β increased the expression of CTGF (Fig. 1C), an important mediator of myofibroblast activation and extracellular matrix synthesis, and the production of collagen (Fig. 1D).

Reference: FEBS Open Bio. 2021 Aug; 11(8): 2340–2349. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8329776/

In vivo activity

Intrinsically, PPARα KO mice showed significant downregulation of hepatic Sirt3 levels. In addition, treatment of iron overload mice with PPARα agonist fenofibrate reduced hepatic iron accumulation and prevented iron induced downregulation of liver Sirt3 and active β-catenin, mitigating the progression of fibrosis.

Reference: Am J Physiol Gastrointest Liver Physiol. 2021 Jul 21. https://pubmed.ncbi.nlm.nih.gov/34287090/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.