# Fenofibrate (GMP)

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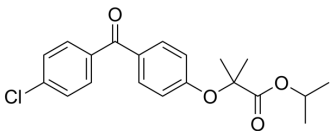
| **Cat. No.:** | HY-17356G |
| **CAS No.:** | 49562-28-9 |
| **Molecular Formula:** | $C_{20}H_{21}ClO_4$ |
| **Molecular Weight:** | 360.83 |
| **Target:** | Cytochrome P450; PPAR; Autophagy |
| **Pathway:** | Metabolic Enzyme/Protease; Cell Cycle/DNA Damage; Vitamin D Related/Nuclear Receptor; Autophagy |
| **Storage:** | Please store the product under the recommended conditions in the Certificate of Analysis. |



## BIOLOGICAL ACTIVITY

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| **Description** | Fenofibrate (GMP) is Fenofibrate (HY-17356) produced by using GMP guidelines. GMP small molecules work appropriately as an auxiliary reagent for cell therapy manufacture. Fenofibrate is a selective PPARα agonist with an $EC_{50}$ of 30 μM. Fenofibrate also inhibits human cytochrome P450 isoforms, with $IC_{50}$s of 0.2, 0.7, 9.7, 4.8 and 142.1 μM for CYP2C19, CYP2B6, CYP2C9, CYP2C8, and CYP3A4, respectively. |
| **In Vitro** | Fenofibrate is a relatively potent inhibitor of CYP2B6 ($IC_{50}$=0.7±0.2 μM) and CYP2C19 ($IC_{50}$=0.2±0.1 μM). Fenofibrate is also a moderate inhibitor of CYP2C8 ($IC_{50}$=4.8±1.7 μM) and CYP2C9 ($IC_{50}$=9.7 μM)[1]. Fenofibrate binds to and inhibits cytochrome P450 epoxygenase (CYP)2C with higher affinity than to PPARα. Fenofibrate is a well-known PPARα 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 ($EC_{50}$=2.39±0.4 μM) than to PPARα ($EC_{50}$=30 μM). Fenofibrate at a low dose inhibits CYP2C8 activity without PPARα activation[2].<br>Fenofibrate (25 μM, 24 h) decreases both GSC invasion and GSC expression of stem-cell markers (CD133, Oct4)[3].<br>Fenofibrate (5 μM, 7 d) can inhibit mitochondrion-induced apoptosis in DMD hiPSC-derived cardiomyocytes[4].<br>Fenofibrate (25 μM, 72 h) fail to increase tripeptidyl peptidase-1 (TPP1) activity in patient iPSC-derived neural progenitor cells[5].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |
| **In Vivo** | Daily intake of Fenofibrate at this low dose (10 μg/g/day) inhibits retinal and choroidal neovascularization induced by CYP2C8 overexpression by 29% (P=0.021) and 36% ($P=1.2\times10^{?9}$) respectively[2].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |

## CUSTOMER VALIDATION

- Hepatology. 2018 Jul;68(1):289-303.
- Acta Pharmacol Sin. 2021 Mar 26.
- Phytomedicine. 2022 May 6;102:154147.
- Front Cell Dev Biol. 2021 Apr 15;9:665869.
- Eur J Pharmacol. 2023 Mar 30;947:175676.

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## 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.

[3]. Binello E, et al. Characterization of fenofibrate-mediated anti-proliferative pro-apoptotic effects on high-grade gliomas and anti-invasive effects on glioma stem cells. J Neurooncol. 2014 Apr;117(2):225-34./

[4]. Sun C, et al. Duchenne muscular dystrophy hiPSC-derived myoblast drug screen identifies compounds that ameliorate disease in mdx mice. JCI Insight. 2020 Jun 4;5(11):e134287.

[5]. Lojewski X, et al. Human iPSC models of neuronal ceroid lipofuscinosis capture distinct effects of TPP1 and CLN3 mutations on the endocytic pathway. Hum Mol Genet. 2014 Apr 15;23(8):2005-22.





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