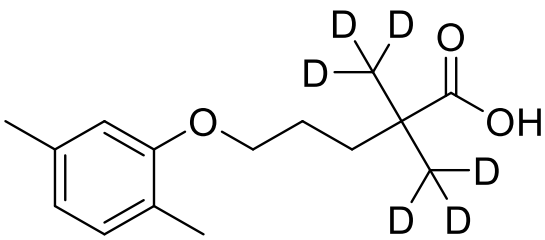
Product data sheet

MedKoo Cat#: 463509 Name: Gemfibrozil-d6 CAS: 1184986-45-5 Chemical Formula: $C_{15}H_{16}D_6O_3$ Exact Mass: 256.1946 Molecular Weight: 256.3746	
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:
Gemfibrozil-d6 is intended for use as an internal standard for the quantification of gemfibrozil by GC- or LC-MS. Gemfibrozil is a peroxisome proliferator-activated reporter α and PPARγ agonist. In vivo, gemfibrozil reduces serum total cholesterol, triglyceride, and LDL levels in a rat model of high-cholesterol diet-induced hyperlipidemia. Gemfibrozil reduces atherosclerotic plaque area, superoxide production, and expression of the genes encoding the NF-κB subunit p65 and chemokine (C-C) motif ligand 2 (CCL2) in ApoE-/- mice. Formulations containing gemfibrozil have been used in the treatment of high cholesterol.

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
TBD	TBD	TBD

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.90 mL	19.50 mL	39.01 mL
5 mM	0.78 mL	3.90 mL	7.80 mL
10 mM	0.39 mL	1.95 mL	3.90 mL
50 mM	0.08 mL	0.39 mL	0.78 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. Zhang X, Wang S, Hu L, Wang J, Liu Y, Shi P. Gemfibrozil reduces lipid accumulation in SMMC-7721 cells via the involvement of PPARα and SREBP1. Exp Ther Med. 2019 Feb;17(2):1282-1289. doi: 10.3892/etm.2018.7046. Epub 2018 Dec 5. PMID: 30680004; PMCID: PMC6327679.
2. Pahan K, Jana M, Liu X, Taylor BS, Wood C, Fischer SM. Gemfibrozil, a lipid-lowering drug, inhibits the induction of nitric-oxide synthase in human astrocytes. J Biol Chem. 2002 Nov 29;277(48):45984-91. doi: 10.1074/jbc.M200250200. Epub 2002 Sep 18. PMID: 12244038; PMCID: PMC2045648.

In vivo study

1. Gottschalk CG, Jana M, Roy A, Patel DR, Pahan K. Gemfibrozil Protects Dopaminergic Neurons in a Mouse Model of Parkinson's Disease via PPARα-Dependent Astrocytic GDNF Pathway. J Neurosci. 2021 Mar 10;41(10):2287-2300. doi: 10.1523/JNEUROSCI.3018-19.2021. Epub 2021 Jan 29. PMID: 33514677; PMCID: PMC8018777.
2. Shields CA, Poudel B, McPherson KC, Brown AK, Ekperikpe US, Browning E, Sutton L, Cornelius DC, Williams JM. Treatment With Gemfibrozil Prevents the Progression of Chronic Kidney Disease in Obese Dahl Salt-Sensitive Rats. Front Physiol. 2020 Sep 18;11:566403. doi: 10.3389/fphys.2020.566403. PMID: 33071820; PMCID: PMC7533555.

Product data sheet

7. Bioactivity

Biological target:

Gemfibrozil-d6 (CI-719-d6) is the deuterium labeled Gemfibrozil. Gemfibrozil is an activator of PPAR-α, used as a lipid-lowering drug; Gemfibrozil is also a nonselective inhibitor of several P450 isoforms, with Ki values for CYP2C9, 2C19, 2C8, and 1A2 of 5.8, 24, 69, and 82 μM, respectively.

In vitro activity

The level of cellular TG (triglycerides) was detected and was observed to be decreased by 43.8% at 50 μM GEM (gemfibrozil) compared with cells treated with 1 mM OA only (Fig. 2C). To further confirm the lipid changes in the cellular model, TLC analysis was performed. TLC results suggested that there was a decrease in TG levels in cells treated with 50 μM GEM compared with those treated with OA only (Fig. 2D). Taken together, GEM may lower the lipid accumulation in an in vitro model of NAFLD. The optimal concentration is 50 μM.

Reference: Exp Ther Med. 2019 Feb;17(2):1282-1289. https://pubmed.ncbi.nlm.nih.gov/30680004/

In vivo activity

Finally, this study found that animals in the gemfibrozil treatment group showed significant improvement in locomotive activity (Fig. 1J), and in the frequency of supported rearing (Fig. 1L) and grooming (Fig. 1M), indicating a functional improvement in activities mediated by the striatum. In addition, treatment with gemfibrozil significantly improved motor coordination as measured by rotarod (Fig. 1K). Together, these results suggest that gemfibrozil protects the nigrostriatum and improves locomotor activities in the MPTP mouse model of PD.

Reference: J Neurosci. 2021 Mar 10;41(10):2287-2300. https://pubmed.ncbi.nlm.nih.gov/33514677/

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.