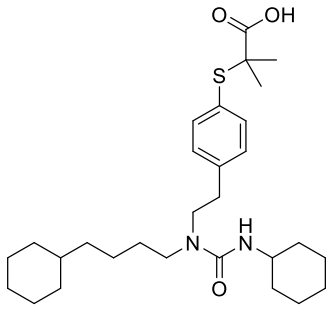
Product data sheet

MedKoo Cat#: 526871 Name: GW-7647 CAS#: 265129-71-3 Chemical Formula: $C_{29}H_{46}N_2O_3S$ Exact Mass: 502.3229 Molecular Weight: 502.76	
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:
GW-7647 is a potent, selective agonist of human and murine PPARα4 It activates human PPARα, PPARγ, and PPARδ with EC50 values of 0.006, 1.1 and 6.2 μM, respectively.

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	16.0	31.8

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	1.99 mL	9.95 mL	19.89 mL
5 mM	0.40 mL	1.99 mL	3.98 mL
10 mM	0.20 mL	0.99 mL	1.99 mL
50 mM	0.04 mL	0.20 mL	0.40 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. Patil R, Mohanty B, Liu B, Chandrashekaran IR, Headey SJ, Williams ML, Clements CS, Ilyichova O, Doak BC, Genissel P, Weaver RJ, Vuillard L, Halls ML, Porter CJH, Scanlon MJ. A ligand-induced structural change in fatty acid-binding protein 1 is associated with potentiation of peroxisome proliferator-activated receptor α agonists. J Biol Chem. 2019 Mar 8;294(10):3720-3734. doi: 10.1074/jbc.RA118.006848. Epub 2018 Dec 31. PMID: 30598509; PMCID: PMC6416440.
2. McMullen PD, Bhattacharya S, Woods CG, Sun B, Yarborough K, Ross SM, Miller ME, McBride MT, LeCluyse EL, Clewell RA, Andersen ME. A map of the PPARα transcription regulatory network for primary human hepatocytes. Chem Biol Interact. 2014 Feb 25;209:14-24. doi: 10.1016/j.cbi.2013.11.006. Epub 2013 Nov 22. PMID: 24269660.

In vivo study

1. Wu J, Wang JJ, Liu TT, Zhou YM, Qiu CY, Shen DW, Hu WP. PPAR-α acutely inhibits functional activity of ASICs in rat dorsal root ganglion neurons. Oncotarget. 2017 Oct 10;8(54):93051-93062. doi: 10.18632/oncotarget.21805. PMID: 29190977; PMCID: PMC5696243.
2. Tanaka S, Hosogi S, Sawabe Y, Shimamoto C, Matsumura H, Inui T, Marunaka Y, Nakahari T. PPARα induced NOS1 phosphorylation via PI3K/Akt in guinea pig antral mucous cells: NO-enhancement in Ca(2+)-regulated exocytosis. Biomed Res. 2016;37(3):167-78. doi: 10.2220/biomedres.37.167. PMID: 27356604.

7. Bioactivity

Product data sheet

Biological target:

GW7647 is a PPARα agonist, with EC50s of 6 nM, 1.1 μM, and 6.2 μM for human PPARα, PPARγ and PPARδ, respectively.

In vitro activity

mRNA from primary human hepatocytes isolated from four independent donors was collected at five time points (2, 6, 12, 24, and 72 h) from cells treated with five concentrations of GW7647 between 0.001 and 10 μm. Only 192 genes were statistically significantly up- or down-regulated upon treatment of GW7647 at any of the dose or time points, with more than 80% showing up-regulation (Fig. 2B). These up-regulated genes encompassed many lipid metabolism pathway genes that are known targets of PPARα, including ACOX1, CPT1A, and APOA4. The differentially expressed genes we identified correlate strongly with the set of genes regulated by another PPARα-selective agonist, Wy14643 (Figure S1).

Reference: Chem Biol Interact. 2014 Feb 25;209:14-24. https://pubmed.ncbi.nlm.nih.gov/24269660/

In vivo activity

This study's electrophysiological and behavioral evidence demonstrated that PPAR-α activation can acutely inhibit the activity of ASICs in nociceptive DRG neurons. PPAR-α agonist GW7647 decreased the amplitude of proton-activated currents and acidosis-triggered action potentials in rat isolated DRG neurons. Peripheral administration of GW7647 relieved acidosis-evoked nociceptive responses and CFA-induced mechanical hypersensitivity in rats.

Reference: Oncotarget. 2017 Nov 3; 8(54): 93051–93062. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5696243/