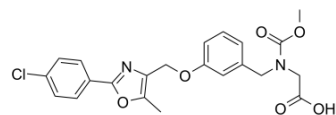


## BMS-687453

<b>Cat. No.:</b>	HY-10678		
<b>CAS No.:</b>	1000998-59-3		
<b>Molecular Formula:</b>	C <sub>22</sub> H <sub>21</sub> ClN <sub>2</sub> O <sub>6</sub>		
<b>Molecular Weight:</b>	444.86		
<b>Target:</b>	PPAR		
<b>Pathway:</b>	Cell Cycle/DNA Damage		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : ≥ 100 mg/mL (224.79 mM)  
 \* "≥" means soluble, but saturation unknown.

	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	2.2479 mL	11.2395 mL	22.4790 mL
	5 mM	0.4496 mL	2.2479 mL	4.4958 mL
	10 mM	0.2248 mL	1.1239 mL	2.2479 mL

Please refer to the solubility information to select the appropriate solvent.

#### In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline  
 Solubility: ≥ 2.5 mg/mL (5.62 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
 Solubility: 2.5 mg/mL (5.62 mM); Suspended solution; Need ultrasonic
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
 Solubility: ≥ 2.5 mg/mL (5.62 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

BMS-687453 is a potent and selective PPAR $\alpha$  agonist, with an EC<sub>50</sub> and IC<sub>50</sub> of 10 nM and 260 nM for human PPAR $\alpha$  and 4100 nM and >15000 nM for PPAR $\gamma$  in PPAR-GAL4 transactivation assays.

#### IC<sub>50</sub> & Target

PPAR $\alpha$   
 260 nM (IC<sub>50</sub>, Human PPAR $\alpha$ )

<b>In Vitro</b>	<p>BMS-687453 is a potent and selective PPAR<math>\alpha</math> agonist, with an EC<sub>50</sub> and IC<sub>50</sub> of 10 nM and 260 nM for human PPAR<math>\alpha</math> and -410-fold and more than 57-fold selectivity vs human PPAR<math>\gamma</math> of 4100 nM and &gt;15000 nM in PPAR-GAL4 transactivation assays. BMS-687453 exhibits high PPAR<math>\alpha</math> potency (EC<sub>50</sub> = 47 nM) with -50-fold selectivity vs PPAR<math>\gamma</math> (EC<sub>50</sub> = 2400 nM) in HepG2 cells. However, BMS-687453 shows less potent activities in rodent PPAR<math>\alpha</math> functional assays, with a moderate EC<sub>50</sub> of 426 nM for mouse and 488 nM for hamster but remains a full PPAR<math>\alpha</math> agonist in both species<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
<b>In Vivo</b>	<p>BMS-687453 (10, 50, 100, p.o.) dose-dependently increases serum ApoA1 protein levels and low-density lipoprotein-cholesterol (LDLc) levels in mice. BMS-687453 (1, 3, 10 mg/kg, p.o.) decreases HDLc levels in high fat-fed hamsters<sup>[1]</sup>. BMS-687453 induces PDK4 mRNA in the liver, with ED<sub>50</sub> value of 0.24 mg/kg<sup>[2]</sup>. BMS-687453 (300 mg/kg, p.o.) causes skeletal myofiber degeneration and necrosis characterized by observed discooid changes, myofibril lysis, hyalinization, and cellular infiltration in male rats. BMS-687453 (300 mg/kg, p.o.) induces a mild toxicity in both fast and slow-twitch muscles in male rats<sup>[3]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

## PROTOCOL

<b>Kinase Assay</b> <sup>[1]</sup>	<p>A homogeneous, fluorescent polarization PPAR<math>\alpha</math> and PPAR<math>\gamma</math> binding assay is used as the primary screen for determining the PPAR<math>\alpha</math> and PPAR<math>\gamma</math> binding affinity of compounds. The human functional activity of PPAR<math>\alpha</math> and PPAR<math>\gamma</math> agonists is determined by using the GAL4-LBD assays. The in vitro hamster, rat, and mouse PPAR<math>\alpha</math> functional activities are tested in the chimeric GAL4/PPAR<math>\alpha</math> assay format. The data are reported as an EC<sub>50</sub> value calculated using XLfit 4 parameter fit and floating all parameters. Full length human PPAR<math>\alpha</math> and PPAR<math>\gamma</math> co-transfection assays in HepG2 cells are employed for further testing the leading compounds (BMS-687453)<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
<b>Animal Administration</b> <sup>[1]</sup>	<p>Male 6–8 week old human apoA1 transgenic mice are randomly assigned into different treatment groups and weighed and dosed by oral gavage (5 mL/kg body weight) once a day in the morning with vehicle alone or with compound (BMS-687453) and allowed free access to food and water. The study duration is 10 days. After dosing on day 10, mice are fasted for 4 h and sacrificed by CO<sub>2</sub> asphyxiation, and blood samples are collected in serum-separating tubes via cardiac puncture for lipid measurements. Livers are dissected out, weighed, and quickly frozen in liquid nitrogen for future RNA analysis. Human apoA1 concentration in serum is measured using the apolipoprotein A1 kit<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

## CUSTOMER VALIDATION

- Radboud University Nijmegen. 2021 Mar.

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## REFERENCES

- [1]. Li J, et al. Discovery of an oxybenzylglycine based peroxisome proliferator activated receptor alpha selective agonist 2-((3-((2-(4-chlorophenyl)-5-methyloxazol-4-yl)methoxy)benzyl)(methoxycarbonyl)amino)acetic acid (BMS-687453). *J Med Chem.* 2010 Apr 8;53(7):2854-64.
- [2]. Mukherjee R, et al. Novel peroxisome proliferator-activated receptor alpha agonists lower low-density lipoprotein and triglycerides, raise high-density lipoprotein, and synergistically increase cholesterol excretion with a liver X receptor agonist. *J Pharmacol Exp Ther.* 2008 Dec;327(3):716-26.
- [3]. Vassallo JD, et al. Biomarkers of drug-induced skeletal muscle injury in the rat: troponin I and myoglobin. *Toxicol Sci.* 2009 Oct;111(2):402-12.

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

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