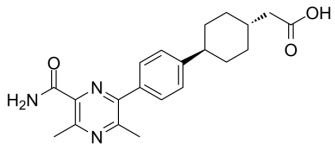
AZD7687

Cat. No.:	HY-15497
CAS No.:	1166827-44-6
Molecular Formula:	$C_{21}H_{25}N_3O_3$
Molecular Weight:	367.44
Target:	Acyltransferase
Pathway:	Metabolic Enzyme/Protease
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 2 years -20°C 1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 50 mg/mL (136.08 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.7215 mL	13.6077 mL	27.2153 mL
	5 mM	0.5443 mL	2.7215 mL	5.4431 mL
	10 mM	0.2722 mL	1.3608 mL	2.7215 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: 2.5 mg/mL (6.80 mM); Suspended solution; Need ultrasonic and warming
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.80 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

AZD7687 is a potent, selective, reversible and orally active diacylglycerol acyltransferase 1 (DGAT1) inhibitor with an IC_{50} of 80 nM for human DGAT1. AZD7687 can be used for type 2 diabetes mellitus and obesity research[1][2].

In Vitro

In an in vitro recombinant mouse, dog, and human DGAT1 enzyme assay, AZD7687 has an IC50 of approximately 100 nM, 60 nM, and 80 nM, respectively. AZD7687 (compound 30) shows inhibition of acyl-CoA:cholesterol acetyltransferase (79% at 10 μM), fatty acid amide hydrolase (IC_{50} = 3.7 μM), muscarinic M2 receptor (IC_{50} = 80.5 μM), and phosphodiesterase PDE10A1 (IC_{50} = 5.5 μM). No activity against human DGAT2 is detected[1][2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo	Prolonged pharmacological inhibition of DGAT1 with AZD7687 in mice results in the same skin phenotype, including sebaceous gland atrophy and alopecia, as seen in the skin of DGAT1$^{-/-}$ mice. AZD7687-mediated effects on the skin were dose- and time-dependent and reversible[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell Chem Biol. 2022 Aug 17;S2451-9456(22)00277-X.

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REFERENCES

[1]. Barlind JG, et al. Design and optimization of pyrazinecarboxamide-based inhibitors of diacylglycerol acyltransferase 1 (DGAT1) leading to a clinical candidate dimethylpyrazinecarboxamide phenylcyclohexylacetic acid (AZD7687). J Med Chem. 2012 Dec 13;55(23):10610-29.

[2]. Denison H, et al. Diacylglycerol acyltransferase 1 inhibition with AZD7687 alters lipid handling and hormone secretion in the gut with intolerable side effects: a randomized clinical trial. Diabetes Obes Metab. 2013 Oct 4.

[3]. Eike Floettmann, et al. Pharmacological inhibition of DGAT1 induces sebaceous gland atrophy in mouse and dog skin while overt alopecia is restricted to the mouse. Toxicol Pathol. 2015 Apr;43(3):376-83.

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