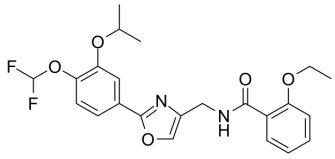
Difamilast

Cat. No.:	HY-109085
CAS No.:	937782-05-3
Molecular Formula:	$C_{23}H_{24}F_2N_2O_5$
Molecular Weight:	446.44
Target:	Phosphodiesterase (PDE)
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 : 100 mg/mL (223.99 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.2399 mL	11.1997 mL	22.3994 mL
	5 mM	0.4480 mL	2.2399 mL	4.4799 mL
	10 mM	0.2240 mL	1.1200 mL	2.2399 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (5.60 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.60 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Difamilast (OPA-15406) is a topical, selective and nonsteroidal phosphodiesterase-4 (PDE4) inhibitor with particularly efficient inhibition of subtype B (IC_{50}=11.2 nM). Difamilast can be used for the research of mild to moderate atopic dermatitis (AD)[1][2][3].

IC_{50} & Target

PDE4B
11.2 nM (IC_{50})

In Vitro

OPA-15406 is highly selective for inhibition of PDE4 subtype B (IC_{50}=11.2 nM), and OPA-15406 also exerts inhibitory effects on PDE2[2].

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

In Vivo	OPA-1540 improves skin condition in relevant animal models of AD[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- J Dermatol Sci. 2023 Apr 28.

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REFERENCES

[1]. Hanifin JM, et, al. OPA-15406, a novel, topical, nonsteroidal, selective phosphodiesterase-4 (PDE4) inhibitor, in the treatment of adult and adolescent patients with mild to moderate atopic dermatitis (AD): A phase-II randomized, double-blind, placebo-con

[2]. Ahluwalia J, et, al. Phosphodiesterase 4 Inhibitor Therapies for Atopic Dermatitis: Progress and Outlook. Drugs. 2017 Sep;77(13):1389-1397.

[3]. Soeberdt M, et, al. Small molecule drugs for the treatment of pruritus in patients with atopic dermatitis. Eur J Pharmacol. 2020 Aug 15;881:173242.

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

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