Shield-1

Cat. No.: HY-112210

CAS No.: 914805-33-7

Molecular Formula: $C_{42}H_{56}N_2O_{10}$

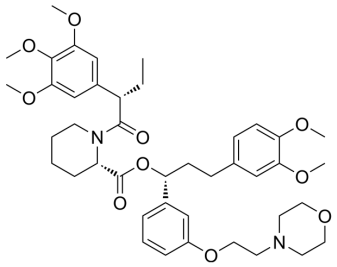
Molecular Weight: 748.9

Target: FKBP

Pathway: Apoptosis; Autophagy; Immunology/Inflammation

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 67.5 mg/mL (90.13 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	1.3353 mL	6.6765 mL	13.3529 mL
	5 mM	0.2671 mL	1.3353 mL	2.6706 mL
	10 mM	0.1335 mL	0.6676 mL	1.3353 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: ≥ 5.25 mg/mL (7.01 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 5.25 mg/mL (7.01 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 5.25 mg/mL (7.01 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Shield-1 (Shld1) is a specific, cell-permeant and high-affinity ligand of FK506-binding protein-12 (FKBP), and reverses the instability by binding to mutated FKBP (mtFKBP), allowing conditional expression of mtFKBP-fused proteins. Shield-1 can stabilize proteins tagged with a mutated FKBP12-derived destabilization domain (DD)[1][2][3].

In Vitro

Shield-1 (0.1 nM-1 μM) responses characterization of destabilizing domains[1].?Shield-1 (1 μM; 24 h) treatment shows excellent expression on both TRPV5 and YFP when fused the mtFKBP destabilizing domain to either TRPV5 or YFP, and leads to mtFKBP-TRPV5 forming a functional ion channel[2].

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

Western Blot Analysis[1]

Cell Line:	NIH3T3 cells
Concentration:	0.1 nM-1 μM
Incubation Time:	
Result:	Stabilized the YFP fusion protein of L106P by higher concentrations of Shld1 (EC_{50}≈100 nM).

Western Blot Analysis[2]

Cell Line:	HEK293 cells[2]
Concentration:	1 μM
Incubation Time:	24 hours
Result:	Expressed both TRPV5 and YFP well when Shield-1 in the medium, whereas in the abscence of Shield-1 decreased TRPV5 or YFP protein expression.

REFERENCES

[1]. Laura A Banaszynski, et al. A rapid, reversible, and tunable method to regulate protein function in living cells using synthetic small molecules. Cell. 2006 Sep 8;126(5):995-1004.

[2]. Schoeber JP, et al. Conditional fast expression and function of multimeric TRPV5 channels using Shield-1. Am J Physiol Renal Physiol. 2009 Jan;296(1):F204-11.

[3]. Li S, et al. Effects of Shield1 on the viral replication of varicella zoster virus containing FKBP tagged ORF4and 48. Mol Med Rep. 2018 Jan;17(1):763-770.

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