# Shield-1

**Cat. No.:** HY-112210

**CAS No.:** 914805-33-7

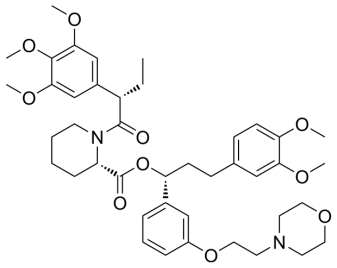
**Molecular Formula:** $C_{42}H_{56}N_2O_{10}$

**Molecular Weight:** 748.9

**Target:** FKBP

**Pathway:** Apoptosis; Autophagy; Immunology/Inflammation

**Storage:** -80°C, stored under nitrogen



## 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. |

## CUSTOMER VALIDATION

- Nat Commun. 2023 Dec 11;14(1):8187.

See more customer validations on www.MedChemExpress.com

## 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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