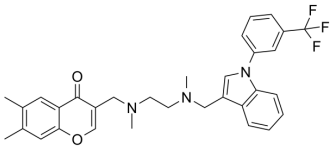
SPD304

Cat. No.:	HY-111255
CAS No.:	869998-49-2
Molecular Formula:	$C_{32}H_{32}F_3N_3O_2$
Molecular Weight:	547.61
Target:	TNF Receptor
Pathway:	Apoptosis
Storage:	Pure form -20°C 3 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 25 mg/mL (45.65 mM; Need ultrasonic)

H_2O : < 0.1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.8261 mL	9.1306 mL	18.2612 mL
	5 mM	0.3652 mL	1.8261 mL	3.6522 mL
	10 mM	0.1826 mL	0.9131 mL	1.8261 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: ≥ 1.25 mg/mL (2.28 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 1.25 mg/mL (2.28 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1.25 mg/mL (2.28 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

SPD304 is a selective TNF-α inhibitor, which promotes dissociation of TNF trimers and therefore blocks the interaction of TNF and its receptor. SPD304 has an IC_{50} of 22 μM for inhibiting in vitro TNF receptor 1 (TNFR1) binding to TNF-α[1][2].

IC_{50} & Target

IC50: 22 μM (TNFα)[1].

In Vitro

SPD304 (2 μM) significantly rescues the survivability of aHSCs, reduces the production of lipid hydroxides, and increased intracellular GSH. The co-treatment of GA (75 μM) and SPD304 (2 μM), down-regulate TRADD almost 2-fold (w/o inhibitor vs.

	w/ inhibitor) and p−RIP3 1.4−fold compared to GA alone, and promotes caspase 8 activation[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	SPD304 cannot be used in vivo due to its high toxicity[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell Death Dis. 2020 Dec 11;11(12):1050.
- Aging Cell. 2020 Oct;19(10):e13217.
- FEBS J. 2021 Dec 17.
- Anal Bioanal Chem. 2023 Jan 31.

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REFERENCES

[1]. Molly M. He, et al. Small-Molecule Inhibition of TNF-α. Science 11 Nov 2005.

[2]. Alexiou P, et al. Rationally designed less toxic SPD-304 analogs and preliminary evaluation of their TNF inhibitory effects. Arch Pharm (Weinheim). 2014 Nov;347(11):798-805.

[3]. Mouhsine H, et al. Identification of an in vivo orally active dual-binding protein-protein interaction inhibitor targeting TNFα through combined in silico/in vitro/in vivo screening. Sci Rep. 2017 Jun 13;7(1):3424.

[4]. Gallic acid induces necroptosis via TNF-α signaling pathway in activated hepatic stellate cells. Chang YJ, et al. PLoS One. 2015 Mar 27;10(3):e0120713.

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

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