Disitertide diammonium

Cat. No.: HY-P0118B

Molecular Formula: $C_{68}H_{115}N_{19}O_{22}S_2$

Molecular Weight: 1614.88

Sequence Shortening: TSLDASIIWAMMQN

TSLDASIIWAMMQN (diammonium salt)

Target: TGF-beta/Smad; PI3K; Apoptosis

Pathway: Stem Cell/Wnt; TGF-beta/Smad; PI3K/Akt/mTOR; Apoptosis

Storage: Sealed storage, away from moisture and light, under nitrogen

Powder -80°C 2 years

-20°C 1 year

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light, under nitrogen)

SOLVENT & SOLUBILITY

In Vitro

DMSO : 10 mg/mL (6.19 mM; Need ultrasonic)

H_2O : 9.09 mg/mL (5.63 mM; ultrasonic and adjust pH to 9 with NH3·H2O)

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	0.6192 mL	3.0962 mL	6.1924 mL
5 mM	0.1238 mL	0.6192 mL	1.2385 mL
10 mM	---	---	---

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

In Vivo

1. Add each solvent one by one: 50% PEG300 >> 50% saline
   Solubility: 5 mg/mL (3.10 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Disitertide (P144) diammonium is a peptidic transforming growth factor-beta 1 (TGF-β1) inhibitor specifically designed to block the interaction with its receptor. Disitertide diammonium is also a PI3K inhibitor and an apoptosis inducer[1][2][3][4][5].

In Vitro

Disitertide (P144, 100 μg/mL) diammonium suppresses the protein expression levels of PI3K and p-Akt, and induce the protein expression of Bax in MC3T3-E1 cells[2].

Disitertide (TGF-β1 inhibitor) diammonium abrogates the MACC1- AS1 expression in GC cells, suggesting that targeting TGFβ signaling pathway may be a potential strategy to inhibit MSC-induced stemness and chemoresistance[3].

Disitertide (10 μg/mL to 200 μg/mL) diammonium affects proliferation, induces apoptosis as well as anoikis in A172 and U-87 MG GBM cell lines[5].

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

Western Blot Analysis[2]

Cell Line:	Mouse embryo osteoblast precursor MC3T3-E1 cells.
Concentration:	100 μg/mL
Incubation Time:	4 h
Result:	Significantly suppressed the protein expression levels of PI3K and p-Akt, and induce the protein expression of Bax in MC3T3-E1 cells compared with the miR-590 group.

In Vivo

Disitertide (P144, Topical application, 300 μg/mL) diammonium may promote scar maturation and improvement of hypertrophic scar morphology features in an “in vivo” model in nude mice after two weeks of treatment[4].

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

Animal Model:	Human hypertrophic scars were implanted in 60 nude mice[4].
Dosage:	300 μg/mL was added the Lipogel.
Administration:	Topical application daily administered.
Result:	Successful shedding was achieved in 83.3% of the xenografts.

CUSTOMER VALIDATION

- Cell Death Differ. 2021 Jan;28(1):219-232.
- J Exp Clin Cancer Res. 2021 Feb 9;40(1):62.
- Oncogene. 2019 Jun;38(23):4637-4654.
- Front Immunol. 2017 Feb 3;8:91.
- Cells. 2019 Jun 25;8(6):635.

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REFERENCES

[1]. Cindy Neuzillet, et al. Targeting the TGFβ pathway for cancer therapy. Pharmacol Ther. 2015 Mar;147:22-31.

[2]. Jun Yang, et al. Upregulation of microRNA-590 in rheumatoid arthritis promotes apoptosis of bone cells through transforming growth factor-β1/phosphoinositide 3-kinase/Akt signaling. Int J Mol Med. 2019 May;43(5):2212-2220.

[3]. Wanming He, et al. MSC-regulated lncRNA MACC1-AS1 promotes stemness and chemoresistance through fatty acid oxidation in gastric cancer. Oncogene. 2019 Jun;38(23):4637-4654.

[4]. Shan Shan Qiu, et al. Effect of P144® (Anti-TGF-β) in an "In Vivo" Human Hypertrophic Scar Model in Nude Mice. PLoS One. 2015 Dec 31;10(12):e0144489.

[5]. Gabriel Gallo-Oller, et al. P144, a Transforming Growth Factor beta inhibitor peptide, generates antitumoral effects and modifies SMAD7 and SKI levels in human glioblastoma cell lines. Cancer Lett. 2016 Oct 10;381(1):67-75.

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

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