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Produktinformation

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- Diagnostik & molekulare Diagnostik
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Lieferung & Zahlungsart

siehe unsere Liefer- und Versandbedingungen

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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Vinaxanthone

Cat. No.: HY-N9480

CAS No.: 133293-89-7

Molecular Formula: $C_{28}H_{16}O_{14}$

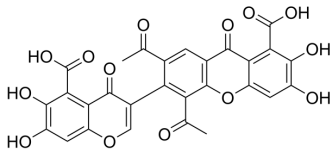
Molecular Weight: 576.42

Target: Phospholipase; Bacterial

Pathway: Metabolic Enzyme/Protease; Anti-infection

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 : 100 mg/mL (173.48 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.7348 mL	8.6742 mL	17.3485 mL
	5 mM	0.3470 mL	1.7348 mL	3.4697 mL
	10 mM	0.1735 mL	0.8674 mL	1.7348 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: ≥ 2.5 mg/mL (4.34 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Vinaxanthone (SM-345431) is a potent and selective semaphorin3A, phospholipase C (PLC) and FabI inhibitor, with IC_{50}s of 0.1-0.2 μM and 0.9 mM for semaphorin3A and FabI. Vinaxanthone inhibits the substrate (t-o-NAC thioester) and the cofactor (NADPH) with K_is of 3.1 μM and 1.0 μM, respectively. Vinaxanthone can be used to handle infections caused by multidrug-resistant pathogens[1][2][3].

In Vitro

Vinaxanthone shows selective inhibitory activity against phospholipase C (PLC) from rat brain, mutine colon 26 Adenocarcinoma and murine fibroblasts NIH3T3 with IC_{50}s being 5.4, 9.3 and 44 μM, respectively[1].
Vinaxanthone (0.1 mg/mL, 24 h) enhances peripheral nerve regeneration and induces small amounts of neovascularization growth into the cornea[4].
Vinaxanthone (0.5 μM, 20 min) may protects from Dox-induced podocyte apoptosis[5].
Vinaxanthone (0.1-1 μM, 24 h) ameliorates the TGF-β1-induced tubular cell characteristic change[6].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[4]

Cell Line:	mouse corneal epithelial cell line (TKE2)
Concentration:	0.1 mg/mL
Incubation Time:	24 h
Result:	Didn't affect cell viability by dose.

Cell Proliferation Assay[4]

Cell Line:	TKE2
Concentration:	0.01-1 mg/mL
Incubation Time:	24 h
Result:	Showed a slight dose-dependent inhibition on cell proliferation.

Immunofluorescence[5]

Cell Line:	mouse podocytes
Concentration:	0.5 μM
Incubation Time:	20 min
Result:	Exhibited less C-Caspase3-positive cells.

Western Blot Analysis[5]

Cell Line:	HK-2 cells
Concentration:	0.1-1 μM
Incubation Time:	24 h
Result:	Decreased the expression of E-cadherin. Increased the expression of α-SMA and vimentin.

In Vivo

Vinaxanthone (SM-345431) (0.1 mg/mL, Subconjunctival injections, every 2 days, 3 weeks) accelerates peripheral nerve regeneration and sensitivity in a murine corneal transplantation model[4].
Vinaxanthone (SEMA3A-I) (20 μg, i.p.) protects from Doxorubicin (HY-15142A)-induced podocyte injury through an anti-apoptosis mechanism in mouse model of Doxorubicin (HY-15142A)-induced podocytopathy[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	murine corneal transplantation model[4]
Dosage:	0.1 mg/mL
Administration:	Subconjunctival injections, every 2 days, 3 weeks
Result:	Showed significantly higher nerve growth. Improved the corneal sensitivity.

Animal Model:	mouse model of Doxorubicin (10 mg/kg)-induced podocytopathy[5]
Dosage:	20 μg
Administration:	Intraperitoneal injection (i.p.), every day
Result:	Improved the expression of nephrin. Reduced podocytopathy and tubular casts. Detected rarely TUNEL-positive cells in the Dox + Vinaxanthone group. Had fewer p-c-Jun-positive cells in the Dox + Vinaxanthone group.

REFERENCES

[1]. Masahiro Aoki, et al. Structure of a novel phospholipase C inhibitor, vinaxanthone (Ro 09-1450), produced by penicillium vinaceum. Tetrahedron Letters. 1991, 32 (36):4737-4740.

[2]. Liang Zhang, et al. Rewiring of regenerated axons by combining treadmill training with semaphorin3A inhibition. Mol Brain. 2014 Mar 10; 7:14.

[3]. Zheng CJ, et al. Vinaxanthone, a new FabI inhibitor from Penicillium sp. J Antimicrob Chemother. 2009 May;63(5):949-53.

[4]. Omoto M, Yoshida S, Miyashita H, Kawakita T, Yoshida K, Kishino A, Kimura T, Shibata S, Tsubota K, Okano H, Shimmura S. The semaphorin 3A inhibitor SM-345431 accelerates peripheral nerve regeneration and sensitivity in a murine corneal transplantation model. PLoS One. 2012;7(11):e47716.

[5]. Sang Y, et al. Semaphorin3A-Inhibitor Ameliorates Doxorubicin-Induced Podocyte Injury. Int J Mol Sci. 2020 Jun 8;21(11):4099.

[6]. Sang Y, et al. Semaporin3A inhibitor ameliorates renal fibrosis through the regulation of JNK signaling. Am J Physiol Renal Physiol. 2021 Dec 1;321(6):F740-F756.

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