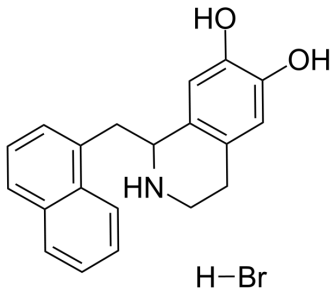
YS-49

Cat. No.:	HY-15477
CAS No.:	132836-42-1
Molecular Formula:	$C_{20}H_{20}BrNO_2$
Molecular Weight:	386.28
Target:	Akt; PI3K; Angiotensin Receptor; Adrenergic Receptor
Pathway:	PI3K/Akt/mTOR; GPCR/G Protein; Neuronal Signaling
Storage:	4°C, stored under nitrogen * In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (258.88 mM; Need ultrasonic)

H_2O : 10 mg/mL (25.89 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.5888 mL	12.9440 mL	25.8880 mL
5 mM	0.5178 mL	2.5888 mL	5.1776 mL
10 mM	0.2589 mL	1.2944 mL	2.5888 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 6.67 mg/mL (17.27 mM); Clear solution; Need ultrasonic and warming and heat to 60°C
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (6.47 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.47 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.47 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

YS-49 is a PI3K/Akt (a downstream target of RhoA) activator, to reduce RhoA/PTEN activation in the 3-methylcholanthrene-treated cells. YS-49 inhibits angiotensin II (Ang II)-stimulated proliferation of VSMCs via induction of heme oxygenase (HO)-1. YS-49 is also an isoquinoline compound alkaloid, has a strong positive inotropic action through activation of cardiac β-adrenoceptors[1][2][3].

In Vitro

YS-49 (1-100 μM; 18 hours; RAVSMC and RAW 264.7 cells) concentration-dependently inhibits the accumulation of nitrite in

both RAVSMC and RAW 264.7 exposed to lipopolysaccharide (LPS) plus INF-γ, with IC_{50} values of 22 μM and 30 μM, respectively[2].
YS-49 (10-100 μM; 18 hours; RAVSMC and RAW 264.7 cells) suppresses iNOS gene expression induced by LPS and/or cytokines in RAVSMC and RAW 264.7 cells at the transcriptional level[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[2]

Cell Line:	RAVSMC and RAW 264.7 cells
Concentration:	10 μM, 30 μM and 100 μM (RAVSMC cells); 1 μM, 10 μM and 100 μM (RAW 264.7 cells)
Incubation Time:	18 hours
Result:	Inhibited the accumulation of nitrite in both RAVSMC and RAW 264.7 exposed to LPS+INF-γ, with IC_{50} values of 22 and 30 μM, respectively.

Western Blot Analysis[2]

Cell Line:	RAVSMC and RAW 264.7 cells
Concentration:	10 μM, 30 μM and 100 μM
Incubation Time:	18 hours
Result:	Concentration-dependently inhibited the expression of iNOS protein induced by LPS plus IFN-γ.

In Vivo

YS-49 (5 mg/kg; intraperitoneal injection; 8 hours; male Sprague Dawley rats) treatment significantly reduces serum NOx levels in LPS-treated rats, the NOx levels reduce from 86 μM to 34 μM[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male Sprague Dawley rats (250-300 g)[2]
Dosage:	5 mg/kg
Administration:	Intraperitoneal injection; 8 hours
Result:	Serum NOx levels were significantly reduced.

CUSTOMER VALIDATION

- Signal Transduct Target Ther. 2021 Jun 18;6(1):234.
- Front Immunol. 2021 Oct 15;12:699478.
- Mol Ther Oncolytics. 5 August 2022.
- Cancers (Basel). 2022 Jun 21;14(13):3039.
- Pharm Biol. 2023 Dec;61(1):541-555.

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REFERENCES

[1]. Sun JJ, Kim HJ, Seo HG, et al. YS49,1-(alpha-naphtylmethyl)-6,7-dihydroxy-1,2,3,4-tetrahydroisoquinoline,regulates angiotensin II-stimulated ROS production, JNK phosphorylation and vascular smooth muscle cell proliferation via the induction of heme oxygen

[2]. Kang YJ, et al. Prevention of the expression of inducible nitric oxide synthase by a novel positive inotropic agent, YS 49, in rat vascular smooth muscle and RAW 264.7 macrophages. Br J Pharmacol. 1999 Sep;128(2):357-64.

[3]. Hsu YH, et al. RhoA-mediated inhibition of vascular endothelial cell mobility: positive feedback through reduced cytosolic p21 and p27. J Cell Physiol. 2014 Oct;229(10):1455-65.

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