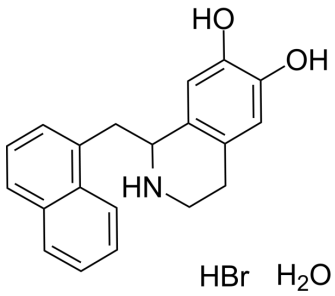
YS-49 monohydrate

Cat. No.:	HY-15477A
CAS No.:	3028631-24-2
Molecular Formula:	$C_{20}H_{22}BrNO_3$
Molecular Weight:	404.3
Target:	Akt; PI3K; Angiotensin Receptor; Adrenergic Receptor
Pathway:	PI3K/Akt/mTOR; GPCR/G Protein; Neuronal Signaling
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



BIOLOGICAL ACTIVITY

Description	YS-49 (monohydrate) 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].
IC_{50} & Target	PI3K/Akt[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); 1 μM, 10 μM and 100 μM (RAW 264.7)
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.
- Sci Rep. 2023 Sep 12;13(1):15036.

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REFERENCES

[1]. Sun JJ, et al. YS 49, 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 oxygenase-1. Life Sci. 2008 Mar 12;82(11-12):600-7.

[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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