LSKL, Inhibitor of Thrombospondin (TSP-1)

Cat. No.: HY-P0299

CAS No.: 283609-79-0

Molecular Formula: $C_{21}H_{42}N_6O_5$

Molecular Weight: 458.6

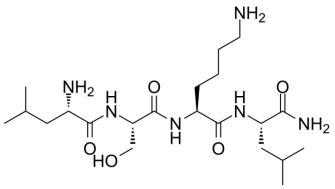
Sequence: Leu-Ser-Lys-Leu-NH2

Sequence Shortening: LSKL-NH2

Target: TGF-β Receptor

Pathway: TGF-beta/Smad

Storage: Sealed storage, away from moisture
Powder -80°C 2 years
-20°C 1 year
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 100 mg/mL (218.05 mM; Need ultrasonic)
DMSO : ≥ 100 mg/mL (218.05 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Concentration / Solvent / Mass	1 mg	5 mg	10 mg
	1 mM	2.1805 mL	10.9027 mL	21.8055 mL
	5 mM	0.4361 mL	2.1805 mL	4.3611 mL
	10 mM	0.2181 mL	1.0903 mL	2.1805 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 100 mg/mL (218.05 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.45 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.45 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

LSKL, Inhibitor of Thrombospondin (TSP-1) is a latency-associated protein (LAP)-TGFβ derived tetrapeptide and a competitive TGF-β1 antagonist. LSKL, Inhibitor of Thrombospondin (TSP-1) inhibits the binding of TSP-1 to LAP and alleviates renal interstitial fibrosis and hepatic fibrosis. LSKL, Inhibitor of Thrombospondin (TSP-1) suppresses subarachnoid

	fibrosis via inhibition of TSP-1-mediated TGF-β1 activity, prevents the development of chronic hydrocephalus and improves long-term neurocognitive defects following subarachnoid hemorrhage (SAH). LSKL, Inhibitor of Thrombospondin (TSP-1) can readily crosse the blood-brain barrier[1][2].
IC_{50} & Target	TGF-β1[1]
In Vitro	The KTFR sequence from ADAMTS1 is responsible for the interaction with the LSKL, Inhibitor of Thrombospondin (TSP-1) (LSKL peptide) from the latent form of TGF-β, leading to its activation. There is a stable binding mode between LSKL, Inhibitor of Thrombospondin (TSP-1) and ADAMTS1 KTFR sequence, characterized by 3 salt bridges and 2 hydrogen bonds[2] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	LSKL, Inhibitor of Thrombospondin (TSP-1) (1 mg/kg; intraperitoneal injection; male Sprague-Dawley rats) is protective against subarachnoid fibrosis, attenuates ventriculomegaly and effectively suppresses hydrocephalus. LSKL, Inhibitor of Thrombospondin (TSP-1) treatment inhibits TGF-β1 activity and subsequent Smad2/3 signaling[1]. LSKL, Inhibitor of Thrombospondin (TSP-1) (30 mg/kg, i.p.) successfully inhibits transforming growth factor (TGF) β-Smad signal activation induced by partial hepatectomy. LSKL, Inhibitor of Thrombospondin (TSP-1) successfully attenuates TGF-β-Smad signal activation by antagonizing TSP-1, but not by reducing TSP-1 protein expression. LSKL, Inhibitor of Thrombospondin (TSP-1) accelerates hepatocyte proliferation after hepatectomy[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	103 male Sprague-Dawley rats (6 weeks of age; 160-180 g) with subarachnoid hemorrhage (SAH)[1]
Dosage:	1 mg/kg
Administration:	Intraperitoneal injection
Result:	Was protective against subarachnoid fibrosis, attenuated ventriculomegaly and effectively suppressed hydrocephalus.

CUSTOMER VALIDATION

- J Exp Clin Cancer Res. 2022 Aug 26;41(1):259.
- Cell Death Dis. 2022 Jul 30;13(7):663.
- Environ Pollut. 2020 Apr;259:113915.
- Front Immunol. 2022 Mar 18;13:853894.
- Front Cell Dev Biol. 18 February 2021.

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REFERENCES

[1]. Liao F, et al. LSKL peptide alleviates subarachnoid fibrosis and hydrocephalus by inhibiting TSP1-mediated TGF-β1 signaling activity following subarachnoid hemorrhage in rats. Exp Ther Med. 2016 Oct;12(4):2537-2543. Epub 2016 Aug 31.

[2]. Laurent MA, et al. In silico characterization of the interaction between LSKL peptide, a LAP-TGF-beta derived peptide, and ADAMTS1. Comput Biol Chem. 2016 Apr;61:155-61.

[3]. Kuroki H, et al. Effect of LSKL peptide on thrombospondin 1-mediated transforming growth factor β signal activation and liver regeneration after hepatectomy in an experimental model. Br J Surg. 2015 Jun;102(7):813-25.

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