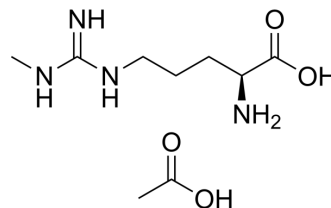


L-NMMA acetate

Cat. No.:	HY-18732A
CAS No.:	53308-83-1
Molecular Formula:	C ₉ H ₂₀ N ₄ O ₄
Molecular Weight:	248.28
Target:	NO Synthase; Endogenous Metabolite
Pathway:	Immunology/Inflammation; Metabolic Enzyme/Protease
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro	H ₂ O : ≥ 50 mg/mL (201.39 mM) * "≥" means soluble, but saturation unknown.					
		Mass	1 mg	5 mg	10 mg	
	Preparing Stock Solutions	Solvent Concentration				
		1 mM		4.0277 mL	20.1386 mL	40.2771 mL
		5 mM		0.8055 mL	4.0277 mL	8.0554 mL
	10 mM		0.4028 mL	2.0139 mL	4.0277 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 (402.77 mM); Clear solution; Need ultrasonic					

BIOLOGICAL ACTIVITY

Description	L-NMMA acetate is a nitric oxide synthase inhibitor of all NOS isoforms including NOS1, NOS2, and NOS3. The K _i values for nNOS (rat), eNOS (human), and iNOS (mouse) are approximately 0.18, 0.4, and 6 μM, respectively.		
IC₅₀ & Target	eNOS	iNOS	nNOS
In Vitro	L-NMMA, starting from 100 μM, produces a concentration-dependent inhibition of the evoked relaxations (2Hz); maximal inhibition at 1 mM averaged about 35%. The inhibitory effect of L-NMMA is unchanged by previous incubation with D-arginine while it is prevented by L-arginine (L-Arg). L-NMMA does not affect isoprenaline-induced relaxation ^[2] . Superfusion of L-NMMA reduces arteriolar diameter and causes dose-dependent increases in arteriolar tone. The onset of action of L-NMMA is nearly immediate. L-NMMA inhibits vasodilator responses to the endothelium-dependent vasodilator ACh but not to the endothelium-independent NP. NE induced dose-related vasoconstriction that is significantly potentiated by L-NMMA ^[3] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.		

PROTOCOL

Kinase Assay ^[1]

NOS activity is determined by monitoring the conversion of L-[¹⁴C]arginine to [¹⁴C]citrulline. For nNOS, reaction mixtures contain, in a final volume of 200 µL, 20 mM Na⁺ HEPES buffer, pH 7.5, 100 µM EDTA, 2 mM CaCl₂, 10 µg/mL calmodulin, 500 µM dithiothreitol, 100 µM THB, 25 µM FAD, 25 µM FMN, 100 µg/mL bovine serum albumin, 20 µM L-[¹⁴C]citrulline, 500 PM NADPH, and enzyme. Reaction is initiated by the addition of L-[¹⁴C]citrulline; reaction temperature is 25°C. At appropriate times, typically 3.5, 7, and 10.5 min, 50-1.11 portions are removed and added to 200 µl of a stopping solution of 100 mM Na⁺ HEPES buffer, pH 5.5, containing 5 mM EGTA. Those samples are immediately heated for 1 min in a boiling water bath, chilled, and centrifuged. A portion (225 µL) of the supernatant is fractionated on small Dowex 50 columns. [¹⁴C]citrulline is eluted with 2 ml of water and is quantitated by liquid scintillation counting^[1].

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

CUSTOMER VALIDATION

- Nat Immunol. 2023 Jan;24(1):162-173.
- Nat Commun. 2021 May 10;12(1):2587.
- Cell Mol Gastroenterol Hepatol. 2021;11(3):683-696.
- Front Cell Dev Biol. 2021 Dec 23;9:741911.
- Eur J Immunol. 2020 Jun;50(6):795-808.

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REFERENCES

- [1]. Frey C, et al. L-thiocitrulline. A stereospecific, heme-binding inhibitor of nitric-oxide synthases. J Biol Chem. 1994 Oct 21;269(42):26083-91.
- [2]. Maggi CA, et al. Effect of NG-monomethyl L-arginine (L-NMMA) and NG-nitro L-arginine (L-NOARG) on non-adrenergic non-cholinergic relaxation in the circular muscle of the human ileum. Br J Pharmacol. 1991 Aug;103(4):1970-2.
- [3]. Nakamura T, et al. Effect of NG-monomethyl-L-arginine on arcade arterioles of rat spinotrapezius muscles. Am J Physiol. 1991 Jul;261(1 Pt 2):H46-52.

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

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