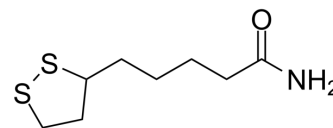


Lipoamide

Cat. No.:	HY-B1142
CAS No.:	940-69-2
Molecular Formula:	C ₈ H ₁₅ NOS ₂
Molecular Weight:	205.34
Target:	NO Synthase
Pathway:	Immunology/Inflammation
Storage:	Powder -20°C 3 years 4°C 2 years



* The compound is unstable in solutions, freshly prepared is recommended.

SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 50 mg/mL (243.50 mM)
H₂O : 0.67 mg/mL (3.26 mM; Need ultrasonic)
* "≥" means soluble, but saturation unknown.

	Solvent Concentration	Mass	1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM		4.8700 mL	24.3499 mL	48.6997 mL
	5 mM		0.9740 mL	4.8700 mL	9.7399 mL
	10 mM		0.4870 mL	2.4350 mL	4.8700 mL

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

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
Solubility: ≥ 2.38 mg/mL (11.59 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
Solubility: ≥ 2.08 mg/mL (10.13 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
Solubility: ≥ 2.08 mg/mL (10.13 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Lipoamide ((±)-α-Lipoamide) is a monocarboxylic acid derivative of a neutral amide, formed by the condensation of the carboxyl group of lipoic acid and ammonia. Lipoamide protects against oxidative stress-mediated neuronal cell damage and also acts as a coenzyme to transfer acetyl groups and hydrogen during pyruvate decarboxylation. Lipoamide also stimulates mitochondrial biogenesis in adipocytes through the endothelial NO synthase-cGMP-protein kinase G signaling pathway^{[1][2]}.

IC₅₀ & Target

Human Endogenous Metabolite

In Vitro

Lipoamide (10-100 μ M; 24 h) can reduce H₂O₂ or 6-OHDA-induced PC12 cell damage and apoptosis, reduce LDH leakage and Caspase-3 activity^[2].

Lipoamide (100 μ M; 8 h) also upregulates the expression of Nrf2 in PC12 cells, promotes the nuclear translocation of Nrf2 and downstream gene expression, such as inducing the transcription of Nrf2-regulated antioxidant genes^[2].

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

Cell Viability Assay^[2]

Cell Line:	PC12 cells
Concentration:	10, 50, 100 μ M
Incubation Time:	24 h; while cells were cultured with H ₂ O ₂ or 6-OHDA for 5 h.
Result:	Effectively and dose-dependently rescued PC12 cells from cell injury caused by H ₂ O ₂ or 6-OHDA. Significantly restored H ₂ O ₂ or 6-OHDA-induced LDH leakage. Dose-dependently improved H ₂ O ₂ - or 6-OHDA-induced cell viability decrease.

Western Blot Analysis^[2]

Cell Line:	PC12 cells
Concentration:	10, 50, 100 μ M
Incubation Time:	2, 4, 8 h; while cells were cultured with H ₂ O ₂ or 6-OHDA for 5 h.
Result:	Improved the expression of nuclear Nrf2 remarkably, and the peak occurred at 4 h.

CUSTOMER VALIDATION

- Cell. 2020 May 28;181(5):1062-1079.e30.
- Acta Pharmacol Sin. 2022 Nov 8.
- PLoS One. 2020 Sep 17;15(9):e0239340.
- Materials. 2021, 14(4), 963.
- University of Saskatchewan. 2020 Jun 22.

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REFERENCES

- [1]. E S Arnér, et al. Efficient reduction of lipoamide and lipoic acid by mammalian thioredoxin reductase. Biochem Biophys Res Commun. 1996 Aug 5;225(1):268-74.
- [2]. Hou Y, et al. Lipoamide Ameliorates Oxidative Stress via Induction of Nrf2/ARE Signaling Pathway in PC12 Cells. J Agric Food Chem. 2019 Jul 24;67(29):8227-8234.

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

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