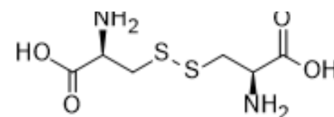


L-Cystine

Cat. No.:	HY-N0394		
CAS No.:	56-89-3		
Molecular Formula:	C ₆ H ₁₂ N ₂ O ₄ S ₂		
Molecular Weight:	240.3		
Target:	Endogenous Metabolite; Ferroptosis; ROS Kinase; Keap1-Nrf2		
Pathway:	Metabolic Enzyme/Protease; Apoptosis; Protein Tyrosine Kinase/RTK; NF-κB		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

0.1 M NaOH : 3.33 mg/mL (13.86 mM; ultrasonic and warming and adjust pH to 11 with NaOH and heat to 70°C)
 0.1 M HCL : 2.5 mg/mL (10.40 mM; ultrasonic and adjust pH to 2 with HCl)
 DMSO : < 1 mg/mL (insoluble or slightly soluble)
 H₂O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	4.1615 mL	20.8073 mL	41.6146 mL
	5 mM	0.8323 mL	4.1615 mL	8.3229 mL
	10 mM	0.4161 mL	2.0807 mL	4.1615 mL

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

BIOLOGICAL ACTIVITY

Description

L-Cystine, the extracellular form of L-Cysteine (HY-Y0337), is a nutritionally dispensable semiessential sulfur-containing amino acid, occurring in proteins of plants and animals. L-Cystine induces Nrf2 protein elevation in a Keap1 (HY-P75897)-dependent manner and activates Nrf2 transcription factor. L-cystine can elicit cytoprotection by reducing ROS generation and protecting against oxidant- or doxorubicin-induced apoptosis. The reduced reabsorption of L-Cystine in renal tubules and its poor solubility in urine are the important causes of cystine precipitation and cystine crystal formation eventually leading to kidney stones. L-Cystine combined with L-theanine (HY-15121) enhances the production of antigen-specific IgG by increasing glutathione (GSH) levels and T helper 2 (Th2) mediated responses in mice. L-Cystine is promising for research of cystinuria and cystinosis^{[1][2][3][4][5][6]}

IC₅₀ & Target

Human Endogenous Metabolite

In Vitro

L-Cystine (83 μM or 200 μM, 24 h or 72 h) effectively reverses the growth inhibition of both Sulfasalazine (HY-14655) and

Erastin (HY-15763) in hepatocellular carcinoma cell lines^[1].

L-Cystine (0.8 mM, 4 h) induces Nrf2 in a Keap1 (HY-P75897)-dependent manner in HeLa cells^[6].

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

Cell Viability Assay^[1]

Cell Line:	Huh6 and Huh7 cells
Concentration:	83 μ M or 200 μ M
Incubation Time:	72 h or 24 h
Result:	The degree of growth inhibition of Huh6 and Huh7 cells was greater in medium containing a physiological L-cystine concentration of 83 μ M than in commercial medium with a concentration of 200 μ M L-cystine.

Western Blot Analysis^[6]

Cell Line:	HeLa cells
Concentration:	0.2 mM
Incubation Time:	4 h
Result:	Was sufficient for producing Nrf2 protein elevation at 0.2 mM in HeLa cells.

Western Blot Analysis^[6]

Cell Line:	HeLa cells
Concentration:	0.8 mM
Incubation Time:	4 h
Result:	Induced Nrf2 in a Keap1 (HY-P75897)-dependent manner in HeLa cells.

In Vivo

L-Cystine (280 mg/kg, p.o., 11 days) administrated with L-theanine (HY-15121) enhances antigen-specific IgG production partly through augmentation of glutathione (GSH) levels and T helper 2 (Th2)-mediated responses in mice^[2].

L-Cystine (200 mg/kg, p.o., 11 days) administrated with L-theanine (HY-15121) (80 mg/kg, p.o., 11 days) significantly decreases the serum IL-10/IFN- γ ratio 6 hours after antigenic stimulation, but increases the serum IL-10/IFN- γ ratio 24 hours after antigenic stimulation in mice^[2].

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

Animal Model:	Nine-week-old female BALB/c mice ^[2]
Dosage:	140, 280 and 560 mg/kg
Administration:	p.o. administration for 11 days
Result:	Significantly increased IgG and IgM antibody production administrated with L-theanine (HY-15121) at a dose of 280 mg/kg in mice.

REFERENCES

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

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