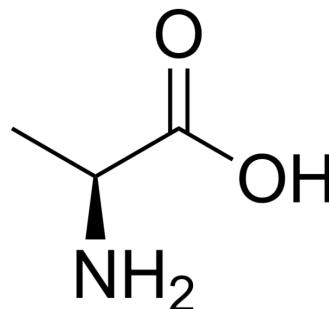


L-Alanine

Cat. No.:	HY-N0229		
CAS No.:	56-41-7		
Molecular Formula:	C ₃ H ₇ NO ₂		
Molecular Weight:	89.09		
Target:	Endogenous Metabolite		
Pathway:	Metabolic Enzyme/Protease		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

H₂O : 50 mg/mL (561.23 mM; Need ultrasonic)
 DMSO : < 1 mg/mL (ultrasonic;warming;heat to 80°C) (insoluble or slightly soluble)

Preparing Stock Solutions	Solvent		Mass		
	Concentration		1 mg	5 mg	10 mg
	1 mM		11.2246 mL	56.1230 mL	112.2460 mL
	5 mM		2.2449 mL	11.2246 mL	22.4492 mL
	10 mM		1.1225 mL	5.6123 mL	11.2246 mL

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

In Vivo

1. Add each solvent one by one: PBS
 Solubility: 50 mg/mL (561.23 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

L-Alanine is a non-essential amino acid, involved in sugar and acid metabolism, increases immunity, and provides energy for muscle tissue, brain, and central nervous system.

IC₅₀ & Target

Human Endogenous Metabolite

In Vitro

The viability of both hiPSCs, 201B7 cells and ehiPSCs decrease with an increase in L-Alanine concentration, and reach 7.5±1.3% and 3.7±0.7% respectively at 1.2 M of L-Alanine. On the other hand, no decrease in the viability of hFBs and hSkMCs are observed. Although the viability of iCMs slightly decreases along with the increase of the L-Alanine concentration, viability of iCMs at 1.2 M concentration of L-Alanine, 49.4±6.9%, is significantly higher than that of undifferentiated iPSCs, 201B7 cells and ehiPSCs (p<0.01). The viability of hiPSCs, 201B7 cells and ehiPSCs, drastically decrease even after 2 or 4 h treatment. In contrast, the viability of hFBs fails to decrease at 1, 2, and 4 h and shows a small decrease at 24 h treatment.

The viability of 201B7 cells in suspension culture decreases to $11.8\pm 6.0\%$ following treatment with 1.2 M L-Alanine for 2 h, whereas that of hFBs is $72.9\pm 14.2\%$ ^[1].

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

PROTOCOL

Cell Assay

To investigate the selective removal of hiPSCs from differentiated cells by the high L-Alanine medium, two types of hiPSCs, 201B7 hiPSCs (201B7 cells) and an hiPSC line derived by episomal system (ehiPSCs) are used, along with normal human dermal fibroblasts (hFBs), human skeletal muscle cells (hSkMCs) and hiPSC-derived cardiomyocytes (iCMs) as differentiated cells. The cells are incubated in a medium supplemented with L-Alanine at various concentrations (0-1.2 M) or treatment times (1-24 h). The medium is replaced with a normal medium and the relative cell viability is measured after 24 h^[1].

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

REFERENCES

[1]. Nagashima T, et al. Selective Elimination of Human Induced Pluripotent Stem Cells Using Medium with High Concentration of L-Alanine. Sci Rep. 2018 Aug 20;8(1):12427.

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

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