Alliin

Cat. No.:	HY-N0661
CAS No.:	556-27-4
Molecular Formula:	$C_6H_{11}NO_3S$
Molecular Weight:	177
Target:	Others
Pathway:	Others
Storage:	4°C, protect from light
	* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)
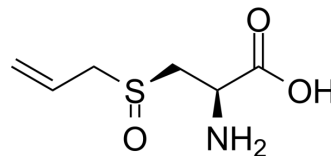
SOLVENT & SOLUBILITY

In Vitro	H_2O : 250 mg/mL (1412.43 mM; Need ultrasonic)
	DMSO : < 1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble or slightly soluble)

Preparing Stock Solutions	Solvent Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	5.6497 mL	28.2486 mL	56.4972 mL
	5 mM	1.1299 mL	5.6497 mL	11.2994 mL
	10 mM	0.5650 mL	2.8249 mL	5.6497 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 (564.97 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description	Alliin, an orally active sulfoxide compound that can be isolated from garlic, exhibits hypoglycemic, antioxidant, anti-inflammatory and antitumor activities[1][2].
In Vitro	Alliin (0-160 μM, 2 h) reduces lipid accumulation and ameliorates the cAMP Levels in 1,3-DCP-induced HepG2 cells[1]. Alliin (0-160 μM, 23 h) inhibits the expression levels of proteins and genes (SREBP-1, FAS, SREBP-2 and HMGCR) involved in AMPK–SREBPs signaling pathway in HepG2 Cells[1]. Alliin (100 μM, 6 h) inhibits p38, JNK and ERK1/2 phosphorylation and blocks MAPKs-mediated NF-κB/AP-1/STAT-1 signal transducer to improve the inflammatory responses in LPS-stimulated RAW264.7 cells[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only. Cell Viability Assay[1]

Cell Line:	HepG2 cells

Concentration:	10-1280 µM
Incubation Time:	24 h
Result:	Decreased the cell viability at concentrations from 320 µM to 1280 µM.
	Did not have cell toxicity at concentrations from 0 µM to 160 µM.

Western Blot Analysis[1]

Cell Line:	HepG2 cells
Concentration:	0-160 µM
Incubation Time:	23 h
Result:	Increased the expression of p-AMPK and decreased the protein expression of AMPK at concentrations of 80 µM and 160 µM.
	Inhibited the protein expression of SREBP-1, FAS, SREBP-2 and HMGCR by 1,3-DCP-induced at concentrations of 80 µM and 160 µM.

Western Blot Analysis[2]

Cell Line:	RAW264.7
Concentration:	100 µg/mL
Incubation Time:	6 h
Result:	Inhibited the protein expression of iNOS, IL-1β, IL-6, and TNF-α, and the production of NO.
	Suppressed the expression of iNOS, TNF-α, IL-1β, and IL-6 mRNAs.
	Blocked JNK/ERK1/2-mediated transcriptional activation of PPARγ.

In Vivo	Alliin (500 mg/kg, i.g., 10 days) ameliorates colon damage and spleen changes in DSS colitis mouse model through reduces pro-inflammatory cytokines (iNOS, TNF-α and IL-6) expression and inhibits the phosphorylation of ERK1/2, JNK, p38 and PPARγ[2].
	MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	DSS colitis mouse model[2]
Dosage:	500 mg/kg
Administration:	i.g., 10 days
Result:	Decrease hematochezia symptom and diarrhea symptom.
	Improved weight loss.
	Reduced colon injury and inflammatory cell infiltration, restored the structure of colon epithelial and crypt.
	Reduced the expression of iNOS, TNF-α and IL-6 mRNAs.

REFERENCES

[1]. Lu J, et al. Alliin attenuates 1, 3-dichloro-2-propanol-induced lipogenesis in HepG2 cells through activation of the AMP-activated protein kinase-dependent pathway. Life Sci. 2018 Feb 15;195:19-24.

[2]. Shi L, et al. Alliin, a garlic organosulfur compound, ameliorates gut inflammation through MAPK-NF-κB/AP-1/STAT-1 inactivation and PPAR-γ activation. Mol Nutr Food Res. 2017 Sep;61(9).