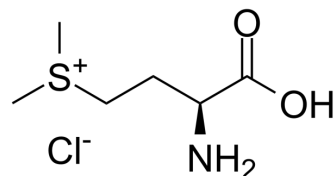


## Vitamin U chloride

Cat. No.:	HY-N2551		
CAS No.:	1115-84-0		
Molecular Formula:	C <sub>6</sub> H <sub>14</sub> ClNO <sub>2</sub> S		
Molecular Weight:	199.7		
Target:	Others		
Pathway:	Others		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



### SOLVENT & SOLUBILITY

#### In Vitro

H<sub>2</sub>O : 100 mg/mL (500.75 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	5.0075 mL	25.0376 mL	50.0751 mL
	5 mM	1.0015 mL	5.0075 mL	10.0150 mL
	10 mM	0.5008 mL	2.5038 mL	5.0075 mL

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

### BIOLOGICAL ACTIVITY

#### Description

Vitamin U (S-Methylmethionine sulfonium) chloride is an orally active anti-ulcer agent with antioxidant activity. Vitamin U inhibits adipocyte differentiation. Vitamin U promotes skin wound healing. Vitamin U can be used in the research of gastrointestinal ulceration<sup>[1][2][3][4][5]</sup>.

#### In Vitro

Vitamin U chloride (100 μM, 24 h) promotes the growth and migration of human dermal fibroblasts(hDFs)<sup>[1]</sup>.  
 Vitamin U chloride (0-1 mM, 24 h) activates ERK1/2 in hDFs<sup>[1]</sup>.  
 Vitamin U chloride (0.1 g/L in the nutrient solution) reduces cell membrane damage in higher plants exposed to low-temperature stress<sup>[2]</sup>.  
 Vitamin U chloride (10-100 mM, 7 days) inhibits adipocyte differentiation via down-regulation of adipogenic factors and up-regulation of AMPK activity<sup>[3]</sup>.  
 MCE has not independently confirmed the accuracy of these methods. They are for reference only.  
 Cell Proliferation Assay<sup>[1]</sup>

Cell Line:	Human dermal fibroblasts(hDFs)
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Concentration:	100 $\mu$ M
Incubation Time:	24 h
Result:	Promoted hDFs proliferation.

#### Western Blot Analysis<sup>[3]</sup>

Cell Line:	3T3-L1 cells
Concentration:	50, 70, 90 $\mu$ M
Incubation Time:	7 days
Result:	Increased AMPK phosphorylation and decreased PPAR- $\gamma$ levels.

#### In Vivo

Vitamin U chloride (50 mg/kg, oral gavage) prevents valproic acid-induced liver injury in rats<sup>[4]</sup>.

Vitamin U chloride (50 mg/kg, oral gavage for 3 days) shows antioxidant effect and prevents GalN-induced gastric damage in rats<sup>[5]</sup>.

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

Animal Model:	Valproic acid (VPA)-induced rats with liver damage <sup>[4]</sup>
Dosage:	50 mg/kg
Administration:	Oral gavage
Result:	Blocked the decrease in catalase (CAT), glutathione reductase (GR), glutathione peroxidase (GPx), and superoxide dismutase (SOD) activities. Increased in the levels of IL-1 $\beta$ , active caspase-3, and cytoplasmic cytochrome c. Increased in the number of proliferating cells nuclear antigen (PCNA) positive hepatocytes.

## REFERENCES

- [1]. Won-Serk Kim, et al. Accelerated wound healing by S-methylmethionine sulfonium: evidence of dermal fibroblast activation via the ERK1/2 pathway. *Pharmacology*. 2010;85(2):68-76.
- [2]. Ilona Rácz, et al. S-methylmethionine reduces cell membrane damage in higher plants exposed to low-temperature stress. *J Plant Physiol*. 2008 Sep 29;165(14):1483-90.
- [3]. Na Young Lee, et al. Inhibitory Effect of Vitamin U (S-Methylmethionine Sulfonium Chloride) on Differentiation in 3T3-L1 Pre-adipocyte Cell Lines. *Ann Dermatol*. 2012 Feb;24(1):39-44.
- [4]. Ertan Celik, et al. Vitamin U prevents valproic acid-induced liver injury through supporting enzymatic antioxidant system and increasing hepatocyte proliferation triggered by inflammation and apoptosis. *Toxicol Mech Methods*. 2021 Oct;31(8):600-608.
- [5]. Dileknur Topaloglu, et al. Gastroprotective effect of vitamin U in D-galactosamine-induced hepatotoxicity. *J Biochem Mol Toxicol*. 2022 Sep;36(9):e23124.

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA