



SZABO SCANDIC

Part of Europa Biosite

Produktinformation



Forschungsprodukte & Biochemikalien



Zellkultur & Verbrauchsmaterial



Diagnostik & molekulare Diagnostik



Laborgeräte & Service

Weitere Information auf den folgenden Seiten!
See the following pages for more information!



Lieferung & Zahlungsart

siehe unsere [Liefer- und Versandbedingungen](#)

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

SZABO-SCANDIC Handels GmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

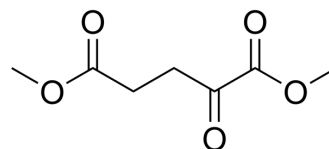
mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

Dimethyl 2-oxoglutarate

Cat. No.:	HY-44134
CAS No.:	13192-04-6
Molecular Formula:	C ₇ H ₁₀ O ₅
Molecular Weight:	174.15
Target:	Endogenous Metabolite; Autophagy
Pathway:	Metabolic Enzyme/Protease; Autophagy
Storage:	Pure form -20°C 3 years 4°C 2 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (574.22 mM; Need ultrasonic)
H₂O : 100 mg/mL (574.22 mM; Need ultrasonic)

	Solvent Concentration	Mass	1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM		5.7422 mL	28.7109 mL	57.4218 mL
	5 mM		1.1484 mL	5.7422 mL	11.4844 mL
	10 mM		0.5742 mL	2.8711 mL	5.7422 mL

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

In Vivo

- Add each solvent one by one: PBS
Solubility: 100 mg/mL (574.22 mM); Clear solution; Need ultrasonic
- Add each solvent one by one: 0.5% CMC/saline water
Solubility: ≥ 50 mg/mL (287.11 mM); Clear solution
- Add each solvent one by one: 50% PEG300 >> 50% PBS
Solubility: ≥ 50 mg/mL (287.11 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Dimethyl 2-oxoglutarate (Dimethyl α-ketoglutarate), a cell permeable 2-oxoglutarate derivative, is a tricarboxylic acid cycle metabolite with antioxidant properties. Dimethyl 2-oxoglutarate serves as a crucial intermediate in the Krebs cycle and an essential nitrogen carrier in metabolic pathways during biological processes. Dimethyl 2-oxoglutarate inhibits autophagy in an IDH1-, IDH2- and ACLY-dependent fashion in cultured human cells. Dimethyl 2-oxoglutarate efficiently prevents autophagy induced by starvation in mice^{[1][2][3]}.

IC ₅₀ & Target	Microbial Metabolite
In Vitro	Dimethyl 2-oxoglutarate (1 mM, 16 h) significantly increases GLUT1 mRNA expression in diabetic-muscle pericytes (D-MPs) and lowers glycolytic activity in non-diabetic-muscle pericytes (ND-MPs)^[2]. Dimethyl 2-oxoglutarate replenishes cytosolic AcCo levels via the action of either mitochondrial IDH2 or cytosolic IDH1 in cultured human cells^[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Dimethyl 2-oxoglutarate (i.p.) decreases cardiac maladaptive autophagy induced by thoracic aortic constriction (TAC), ameliorating TAC-induced pathological remodeling, ventricular hypertrophy and fibrosis, and reduction in contractile performance in mice^[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

- [1]. Shah A, et al. Electrochemical behaviour of dimethyl-2-oxoglutarate on glassy carbon electrode[J]. Bioelectrochemistry, 2010, 77(2): 145-150.
- [2]. Faulkner A, et al. Dimethyl-2-oxoglutarate improves redox balance and mitochondrial function in muscle pericytes of individuals with diabetes mellitus. Diabetologia. 2020 Oct;63(10):2205-2217.
- [3]. Mariño G, et al. Dimethyl α -ketoglutarate inhibits maladaptive autophagy in pressure overload-induced cardiomyopathy. Autophagy. 2014 May;10(5):930-2.
- [4]. Zhao J, et al. Dimethyl α -ketoglutarate reduces CCl₄-induced liver fibrosis through inhibition of autophagy in hepatic stellate cells. Biochem Biophys Res Commun. 2016 Dec 2;481(1-2):90-96.

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