



# SZABO SCANDIC

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## Produktinformation



Forschungsprodukte & Biochemikalien



Zellkultur & Verbrauchsmaterial



Diagnostik & molekulare Diagnostik



Laborgeräte & Service

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### Lieferung & Zahlungsart

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### Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

### SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

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

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

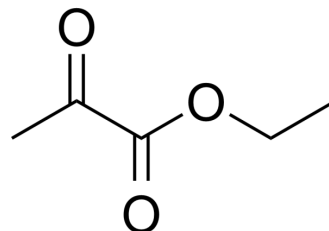
[mail@szabo-scandic.com](mailto:mail@szabo-scandic.com)

[www.szabo-scandic.com](http://www.szabo-scandic.com)

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## Ethyl pyruvate

<b>Cat. No.:</b>	HY-Y1362		
<b>CAS No.:</b>	617-35-6		
<b>Molecular Formula:</b>	C <sub>5</sub> H <sub>8</sub> O <sub>3</sub>		
<b>Molecular Weight:</b>	116.12		
<b>Target:</b>	Autophagy; Apoptosis; Pyroptosis; NF-κB		
<b>Pathway:</b>	Autophagy; Apoptosis; Immunology/Inflammation; NF-κB		
<b>Storage:</b>	Pure form	-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 (861.18 mM; Need ultrasonic)  
 DMSO : 100 mg/mL (861.18 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	8.6118 mL	43.0589 mL	86.1178 mL
	5 mM	1.7224 mL	8.6118 mL	17.2236 mL
	10 mM	0.8612 mL	4.3059 mL	8.6118 mL

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

### BIOLOGICAL ACTIVITY

#### Description

Ethyl pyruvate is a simple derivative of the endogenous metabolite pyruvate. Ethyl pyruvate is an HMGB1 release inhibitor. Ethyl pyruvate can induce apoptosis by autophagy. Ethyl pyruvate has anti-inflammatory, antioxidant and anti-tumor activity. Ethyl pyruvate can be used in the study of neurodegenerative diseases such as Alzheimer's and Parkinson's disease [1][2][3][4][5].

#### In Vitro

Ethyl pyruvate (10 mM, 1 h) has no toxic effect on N9 microglial cells in the range of 1-10 mM. The activation of microglia NLRP3 inflammasome is decreased by inhibiting the HMGB1/ NF-κB /miR-223 signaling pathway<sup>[2]</sup>. Ethyl pyruvate (10-40 mM, 6, 24 h) induces apoptosis in MC38 cells<sup>[3]</sup>. Ethyl pyruvate (5-15 mM, 2 h) has an IC<sub>50</sub> value of 28.83 mM on mouse peritoneal macrophages. Endotoxemia and sepsis are prevented by inhibiting caspase-11-dependent pyroptosis<sup>[4]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only. Cell Viability Assay<sup>[2]</sup>

Cell Line:	N9 microglial
Concentration:	1-100 mM
Incubation Time:	1 h
Result:	Did not show cytotoxic effects in the range of 1–10 mM.

#### Western Blot Analysis<sup>[2]</sup>

Cell Line:	N9 microglial
Concentration:	10 mM
Incubation Time:	1 h
Result:	Suppressed LPS (HY-D1056)- and ATP (HY-B2176)-induced IL-1 $\beta$ and IL-18 protein and mRNA levels. Reduced NLRP3, Caspase-1, and ASC Specks. Reduced NF- $\kappa$ B activation and HMGB1 expression level.

#### Apoptosis Analysis<sup>[3]</sup>

Cell Line:	MC38
Concentration:	10, 20, 40 mM
Incubation Time:	6, 24 h
Result:	Induced an increase in autophagy and apoptosis in a dose-and time-dependent manner.

#### In Vivo

Ethyl pyruvate (80 mg/kg intraperitoneal injection for 9 consecutive days) inhibits tumor growth in a mouse liver tumor model<sup>[3]</sup>.

Ethyl pyruvate (2 or 40 mg/kg, intraperitoneal injection) has reduced lipid peroxidation and anti-inflammatory effects in a rat model of paraquat intoxication<sup>[5]</sup>.

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

Animal Model:	Liver tumor model in mice <sup>[3]</sup>
Dosage:	80 mg/kg
Administration:	i.p., 30 min before tumor injection and daily up to 9 days and daily from 7 to 10 days after infusion of tumor cells.
Result:	Decreased innate immune cells (NK cells, monocytes) and T and B cell lymphocytic infiltrates. Inhibited the release of HMGB1.

Animal Model:	Paraquat-intoxicated rats <sup>[5]</sup>
Dosage:	2 or 40 mg/kg
Administration:	30 min before or 1 h after paraquat (50 mg/kg i.p.)
Result:	Decreased the MDA concentrations at 6 and 24 h.

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Decreased NO concentrations significantly at 6 h and GSH concentrations in the lung.

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## CUSTOMER VALIDATION

- Cell Death Dis. 2019 Sep 26;10(10):724.
- Life Sci. 2021 Jan 5;118987.
- J Pharm Pharmacol. 2023 Mar 25;rgad021.
- PeerJ. August 4, 2022.
- Research Square Preprint. 2021 Jul.

See more customer validations on [www.MedChemExpress.com](http://www.MedChemExpress.com)

## REFERENCES

- [1]. Liang X, et al. Ethyl pyruvate administration inhibits hepatic tumor growth. J Leukoc Biol. 2009 Sep;86(3):599-607.
- [2]. Qiu X, et al. Ethyl pyruvate confers protection against endotoxemia and sepsis by inhibiting caspase-11-dependent cell pyroptosis. Int Immunopharmacol. 2020 Jan;78:106016.
- [3]. Lee J, et al. Protective effects of ethyl pyruvate treatment on paraquat-intoxicated rats. Hum Exp Toxicol. 2008 Jan;27(1):49-54.
- [4]. Fink MP. Ethyl pyruvate: a novel anti-inflammatory agent. J Intern Med. 2007 Apr;261(4):349-62.
- [5]. Olcum M, Tufekci KU, Durur DY, et al. Ethyl Pyruvate Attenuates Microglial NLRP3 Inflammasome Activation via Inhibition of HMGB1/NF- $\kappa$ B/miR-223 Signaling. Antioxidants (Basel). 2021;10(5):745.
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**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](mailto:tech@MedChemExpress.com)

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