

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 HandelsgmbH

Quellenstraße 110, A-1100 Wien T. +43(0)1 489 3961-0 F. +43(0)1 489 3961-7 <u>mail@szabo-scandic.com</u> www.szabo-scandic.com

Product Information



3-Guanidinopropionic Acid

Item No. 16725

CAS Registry No.:	353-09-3
Formal Name:	N-(aminoiminomethyl)-β-alanine
Synonyms:	β-GPA, PNU 10483
MF:	$C_4H_9N_3O_2$
FW:	131.1
Purity:	≥98%
Stability:	≥2 years at -20°C
Supplied as:	A crystalline solid



Laboratory Procedures

For long term storage, we suggest that 3-guanidinopropionic acid be stored as supplied at -20°C. It should be stable for at least two years.

3-Guanidinopropionic acid is supplied as a crystalline solid. Aqueous solutions of 3-guanidinopropionic acid can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 3-guanidinopropionic acid in PBS, pH 7.2, is less than 50 mg/ml. We do not recommend storing the aqueous solution for more than one day.

3-Guanidinopropionic acid is a creatine analog that alters skeletal muscle energy expenditure. It reduces cellular ATP, creatine, and phosphocreatine levels and stimulates AMP-activated protein kinase (AMPK), activating PPARy coactivator 1α (PGC-1α).¹⁻⁴ PGC-1α activation results in enhanced expression of AMPK, as well as genes for oxidative phosphorylation, electron transport chain, and mitochondrial biogenesis, increasing oxidative muscle fibers, numbers of mitochondria, and motor performance.^{1,5} 3-Guanidinopropionic acid evokes a shift from glycolytic to oxidative metabolism, increased cellular glucose uptake, and increased fatigue tolerance.² In aged rats, reduced mitochondrial biogenesis in response to chronic activation of AMPK with 3-guanidinopropionic acid leads to metabolic insufficiency that can contribute to muscle loss.^{5,6}

References

- 1. Chaturvedi, R.K., Adhihetty, P., Shukla, S., et al. Impaired PGC-1α function in muscle in Huntington's disease. Hum. Mol. Genet. 18(16), 3048-3065 (2009).
- Oudman, I., Clark, J.F., and Brewster, L.M. The effect of the creatine analogue beta-guanidinopropionic acid on energy metabolism: A systematic review. PLoS One 8(1), 1-13 (2013).
- 3. Shoubridge, E.A., Challiss, R.A.J., Hayes, D.J., et al. Biochemical adaptation in the skeletal muscle of rats depleted of creatine with the substrate analogue β -guanidinopropionic acid. *Biochem. J.* **232(1)**, 125-131 (1985).
- 4. Boehm, E., Chan, S., Monfared, M., et al. Creatine transporter activity and content in the rat heart supplemented by and depleted of creatine. Am. J. Physiol. Endocrinol. Metab. 284(2), E399-E406 (2003).
- Reznick, R.M., Zong, H., Li, J., et al. Aging-associated reductions in AMP-activated protein kinase activity and 5. mitochondrial biogenesis. Cell Metab. 5(2), 151-156 (2007).
- 6. Herbst, A., Johnson, C.J., Hynes, K., et al. Mitochondrial biogenesis drives a vicious cycle of metabolic insufficiency and mitochondrial DNA deletion mutation accumulation in aged rat skeletal muscle fibers. PLoS One 8(3), 1-8 (2013).

Related Products

SAFETY DATA

at the time of delivery.

DIAGNOSTIC OR THERAPEUTIC USE.

WARRANTY AND LIMITATION OF REMEDY

For a list of related products please visit: www.caymanchem.com/catalog/16725

Cayman Chemical

Mailing address

1180 E. Ellsworth Road Ann Arbor, MI 48108 USA

Phone (800) 364-9897 (734) 971-3335

Fax (734) 971-3640

E-Mail

custserv@caymanchem.com

Web www.cavmanchem.com

at the time of delivery. Cayman will carry out its delivery obligations with due care and skill. Thus, in no event will Cayman have **any obligation or liability**, whether in tort (including negligence) or in contract, for any direct, indirect, indirect incidental or consequential damages, even if Cayman is informed about their possible existence. This limitation of liability does not apply in the case of intentional acts or negligence of Cayman, its directors or its employees. Buyer's **exclusive remedy** and Cayman's sole liability hereunder shall be limited to a <u>refund</u> of the purchase price, or at Cayman's option, the <u>replacement</u>, at no cost to Buyer, of all material that

This material should be considered hazardous until information to the contrary becomes available. Do not ingest, swallow, or inhale. Do not get in eyes, on skin, or on clothing. Wash thoroughly after handling. This information contains some, but not all, of the information required for the safe and proper use of this material. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

Cayman Chemical Company makes no warranty or guarantee of any kind, whether written or oral, expressed or implied, including without limitation, any warranty of fitness for a particular purpose, suitability and merchantability, which extends beyond the description of the chemicals hereof. Cayman warrants only to the original customer that the material will meet our specifications

WARNING: This product is for laboratory research only: not for administration to humans. Not for human or veterinary

Buyer's exclusive remedy and Laymans sole hability neterinder shall be infinited to a terminal of the particular process of an experimental strength of the particular process of the particular pro