

Product Name: α -MSH
Cat. No.: GC14374

Cas. No. 581-05-5

Chemical Name	(4S,5Z,7S,8Z,10S,11Z,13S,14Z,16S,17Z,20Z,22S)-7-((1H-imidazol-5-yl)methyl)-16-((1H-indol-3-yl)methyl)-26-amino-10-benzyl-13-(3-guanidinopropyl)-5,8,11,14,17,20-hexahydroxy-22-((S)-2-((Z)-hydroxy(((S)-1-hydroxy-1-imino-3-methylbutan-2-yl)imino)methyl)pyrro
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[illegible]

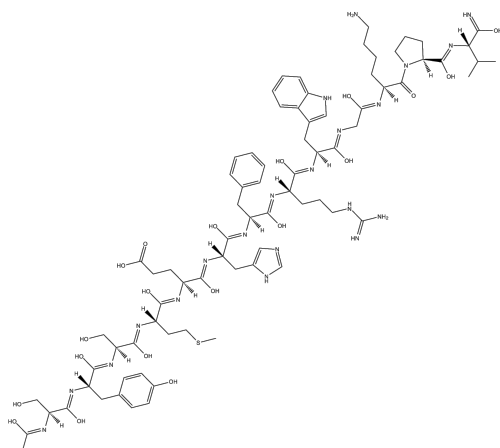
Formula	C ₇₇ H ₁₀₉ N ₂₁ O ₁₉ S	M.Wt	1664.9
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Solubility	25mg/ml in Water	Storage	Desiccate at -20°C
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General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.
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Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.
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Structure



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

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Cell experiment [1]:

Cell lines B16 melanoma cells

Preparation Method Cells treated with α -MSH in culture dishes (60 mm) were incubated for 72 h at 37°C in a CO₂ chamber.

Reaction Conditions 1 μ M; 72h

Applications α -MSH- stimulates melanin production in B16 melanoma cells.

Animal experiment [2]:

Animal models Three-week old C57BL/6J male mice

Preparation Method Mice were injected either PBS or α -MSH (500 nM) intraperitoneally once a day for two days before dark cycle. Inguinal adipose tissue (iWAT) was removed at 0.5 h, 1 h, 2 h, 4 h and 6 h after the last injection from the treatment group.

Dosage form 500 nM ; i.p; 0-6 h

Applications α -MSH promotes fatty acid oxidation in white (WAT) and brown adipose tissue (BAT).

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References:

- [1]. Song HS, Sim SS. Acteoside inhibits alpha-MSH-induced melanin production in B16 melanoma cells by inactivation of adenylyl cyclase. J Pharm Pharmacol. 2009 Oct;61(10):1347-51. doi: 10.1211/jpp/61.10.0011. PMID: 19814867.
- [2]. Gan L, Liu Z, et.al. α -MSH and Foxc2 promote fatty acid oxidation through C/EBP β negative transcription in mice adipose tissue. Sci Rep. 2016 Nov 7;6:36661. doi: 10.1038/srep36661. PMID: 27819350; PMCID: PMC5098202.

Background

Alpha-melanocyte-stimulating hormone (α -MSH) is a neuropeptide with immunomodulatory properties that is produced by post-translational processing of proopiomelanocortin (POMC). α -MSH binds to the MC1R receptor on melanocytes to stimulate melanin secretion, promote the formation of melanocyte dendrites, and protect melanocytes. α -MSH has an effective anti-inflammatory effect on immune cells. Moreover, α -MSH was shown to inhibit IFN- γ production in antigen-stimulated T cells[1-3]. α -MSH stimulates (1 μ M; 72h) melanin production in B16 melanoma cells[4]. α -MSH (0-10 ng/mL; 5-10min) enhances the role of protective responses under stress conditions such as UVR by increasing melanin production and reducing mitochondria-mediated apoptosis[5]. α -MSH (100 nM; 48 h) increased tyrosinase activity and melanin content by 56.5% and 61.7%, respectively, and α -MSH changed the level of metabolites in melanoma cells[6].

α -MSH (1mg / kg; i.v; 12 h) can increase bacterial load in middle cerebral artery occlusion (MCAO) mice[7]. α -MSH (500 nM ; i.p; 0-6 h) promotes fatty acid oxidation in WAT and BAT[8].

References:

- [1]. Ichiyama T, Sato S, et.al. The neuroimmunomodulatory peptide alpha-MSH. Ann N Y Acad Sci. 2000;917:221-6. doi: 10.1111/j.1749-6632.2000.tb05386.x. PMID: 11268347.
- [2]. Li C, Wu M, et.al. α -MSH Plays Anti-inflammatory and Anti-fungal Role in Aspergillus Fumigatus Keratitis. Curr Eye Res. 2022 Mar;47(3):343-351. doi: 10.1080/02713683.2021.2006235. Epub 2021 Dec 12. PMID: 34766863.
- [3]. Schulte-Herbrüggen O, Quarcoo D, et.al. Alpha-MSH promotes spontaneous post-ischemic pneumonia in mice via melanocortin-receptor-1. Exp Neurol. 2008 Apr;210(2):731-9. doi: 10.1016/j.expneurol.2008.01.006. Epub 2008 Jan 19. PMID: 18304533.

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- [4]. Song HS, Sim SS. Acteoside inhibits alpha-MSH-induced melanin production in B16 melanoma cells by inactivation of adenylyl cyclase. J Pharm Pharmacol. 2009 Oct;61(10):1347-51. doi: 10.1211/jpp/61.10.0011. PMID: 19814867.
- [5]: Choudhary R, Sharma A, et.al. Role of alpha-melanocyte stimulating hormone (α -MSH) in modulating the molecular mechanism adopted by melanocytes of Bos indicus under UVR stress. Mol Cell Biochem. 2020 Feb;465(1-2):141-153. doi: 10.1007/s11010-019-03674-w. Epub 2019 Dec 10. PMID: 31823188.
- [6]. Seo SH, Jo JK, et.al. Metabolomics Reveals the Alteration of Metabolic Pathway by Alpha-Melanocyte-Stimulating Hormone in B16F10 Melanoma Cells. Molecules. 2020 Jul 26;25(15):3384. doi: 10.3390/molecules25153384. PMID: 32722640; PMCID: PMC7436294.
- [7]. Schulte-Herbrüggen O, Quarcoo D, et.al. Alpha-MSH promotes spontaneous post-ischemic pneumonia in mice via melanocortin-receptor-1. Exp Neurol. 2008 Apr;210(2):731-9. doi: 10.1016/j.expneurol.2008.01.006. Epub 2008 Jan 19. PMID: 18304533.
- [8]. Gan L, Liu Z, et.al. α -MSH and Foxc2 promote fatty acid oxidation through C/EBP β negative transcription in mice adipose tissue. Sci Rep. 2016 Nov 7;6:36661. doi: 10.1038/srep36661. PMID: 27819350; PMCID: PMC5098202.

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