

# PRODUCT INFORMATION



## $\gamma_1$ -MSH (human, mouse, rat, bovine) (acetate) Item No. 42252

**Formal Name:** (3S,6S,9S,12S,15S,21S,24S,27S)-15-((1H-imidazol-5-yl)methyl)-6-((1H-indol-3-yl)methyl)-27-amino-3-(((S)-1-(((S)-1-amino-1-oxo-3-phenylpropan-2-yl)amino)-5-guanidino-1-oxopentan-2-yl)carbamoyl)-12-benzyl-9-(3-guanidinopropyl)-28-(4-hydroxyphenyl)-24-isopropyl-21-(2-(methylthio)ethyl)-5,8,11,14,17,20,23,26-octa-oxo-4,7,10,13,16,19,22,25-octaazaoctacosanoic acid, acetate

**Synonym:**  $\gamma_1$ -Melanocyte-stimulating Hormone

**Peptide Sequence:** YVMGHFRWDRF-NH<sub>2</sub>

**MF:** C<sub>72</sub>H<sub>97</sub>N<sub>21</sub>O<sub>14</sub>S • XC<sub>2</sub>H<sub>4</sub>O<sub>2</sub>

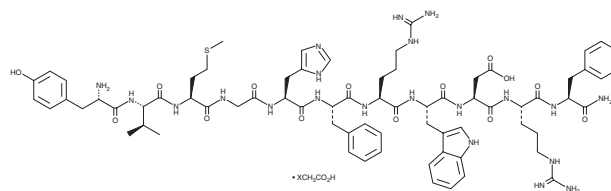
**FW:** 1,512.8

**Purity:** ≥95%

**Supplied as:** A solid

**Storage:** -20°C

**Stability:** ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Laboratory Procedures

$\gamma_1$ -MSH (human, mouse, rat, bovine) (acetate) is supplied as a solid. A stock solution may be made by dissolving the  $\gamma_1$ -MSH (human, mouse, rat, bovine) (acetate) in the solvent of choice, which should be purged with an inert gas.  $\gamma_1$ -MSH (human, mouse, rat, bovine) (acetate) is sparingly soluble (1-10 mg/ml) in DMSO.

### Description

$\gamma_1$ -Melanocyte-stimulating hormone ( $\gamma_1$ -MSH) is a peptide hormone produced by post-translational processing of proopiomelanocortin (POMC) in the pituitary gland.<sup>1</sup> It selectively binds to melanocortin receptor 1 (MC1R) and MC3R over MC4R and MC5R ( $K_s$  = 0.025, 0.063, >100, and >100  $\mu$ M, respectively, in insect cells expressing the human receptors) but also binds to opioid receptors in rat brain tissue homogenates ( $IC_{50}$  = 5.9  $\mu$ M).<sup>2,3</sup>  $\gamma_1$ -MSH (10  $\mu$ M) inhibits contractions induced by the neuropeptide FMRF-amide in isolated *M. edulis* catch muscle.<sup>4</sup> Intracisternal administration of  $\gamma_1$ -MSH (0.3 nmol/animal) increases the latency to tail flick in the tail-flick test and inhibits haloperidol-induced catalepsy in mice.<sup>5</sup>  $\gamma_1$ -MSH (0.01 nmol/animal) also inhibits LPS-induced nitric oxide (NO) release in mouse forebrain *in vivo*.<sup>2</sup>

### References

1. Rubakhin, S.S., Churchill, J.D., Greenough, W.T., et al. Profiling signaling peptides in single mammalian cells using mass spectrometry. *Anal. Chem.* **78**(20), 7267-7272 (2006).
2. Muceniece, R., Zvejniece, L., Liepinsh, E., et al. The MC<sub>3</sub> receptor binding affinity of melanocortins correlates with the nitric oxide production inhibition in mice brain inflammation model. *Peptides* **27**(6), 1443-1450 (2006).
3. Oki, S., Nakao, K., Nakai, Y., et al. ' $\gamma$ -MSH' fragments from ACTH-beta-LPH precursor have an affinity for opiate receptors. *Eur. J. Pharmacol.* **64**(2-3), 161-164 (1980).
4. Muneoka, Y. and Saitoh, H. Pharmacology of FMRFamide in *Mytilus* catch muscle. *Comp. Biochem. Physiol. C Comp. Pharmacol. Toxicol.* **85**(1), 207-214 (1986).
5. Klusa, V., Germane, S., Svirskis, S., et al. The  $\gamma_2$ -MSH peptide mediates a central analgesic effect via a GABA-ergic mechanism that is independent from activation of melanocortin receptors. *Neuropeptides* **35**(1), 50-57 (2001).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

#### WARRANTY AND LIMITATION OF REMEDY

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