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Product Information

ANTI-α-MSH, Developed in Rabbit
IgG Fraction of Antiserum

Catalog Number **M0939**

Product Description

Anti-α-MSH (Melanocyte Stimulating Hormone) is developed in rabbit using synthetic α-MSH conjugated to bovine serum albumin as immunogen. The mid-region sequence of α-MSH (amino acids 4-10) is identical to the ACTH and β-MSH sequences and highly conserved in the γ-MSH sequence. Whole antiserum is fractionated and then further purified by ion-exchange chromatography to provide the IgG fraction of antiserum that is essentially free of other rabbit serum proteins.

Anti-α-MSH cross-reacts with des-Ac-α-MSH and [Val-OH^{13}]-α-MSH. Minimal cross-reactivity is observed with human ACTH (1-39) and ACTH (1-24). Applications include ELISA.

The melanocortins are regulatory neuropeptides derived by post-translational processing of the larger 30 kDa, pro-opiomelanocortin (POMC) precursor, and include the adrenocorticotropic hormone (ACTH) and the melanocyte stimulating hormones (α-, β-, and γ-MSH).[1] The melanocortins are produced primarily in the anterior and intermediate lobes of the pituitary, in the arcuate nucleus of the hypothalamus, and to a lower level in various other peripheral tissues.[1-3] In addition to their well established melanotropic and adrenocorticotropic actions, these peptides have been reported to exert a broad variety of physiological actions including those related to central neural function such as behavior, memory, cognition, and regulation of feeding.[1-5] Peripherally, melanocortins have immuno-modulatory and neurotrophic properties.

Melanocortin peptides mediate their action through G-protein coupled receptors. Five melanocortin receptors (MC-Rs) are known to exist. These include the melanocortin receptors MC1-R to MC5-R.[6] MC3-R, MC4-R, and the MC5-R are expressed primarily in the brain and display moderate to high affinity for α-MSH and desacetyl-α-MSH.

α-MSH and MC4-R are key signaling components in the control of energy homeostasis and of the hypothalamic response to obesity.[5,7,8] Intracerebroventricular injection of α-MSH or the melanocortin mimetics [Nle^4, D-Phe^7]-α-MSH, and [Ac-Nle^4, Asp^5, D-Phe^7, Lys^{10}]-α-MSH(4-10)-NH_2 (MTII), which have high affinities for both MC3-R and MC4-R, inhibit feeding in mice. This effect is partially blocked by the MC3-R/MC4-R antagonist SHU9119.[4,9]

Mutations that reduce the functional activity of α-MSH lead to obesity in mammals, and mice lacking the MC4 receptor (*MC4R*$^{-/-}$) are hyperphagic and very obese, indicating that α-MSH signaling transduced by MC4-R limits food intake and body fat mass.[4,5,10,11] Mice heterozygous for the MC4-R allele also become obese, although less so than homozygous knockouts. Frameshift mutations in MC4-R are associated with dominantly inherited human obesity.[12, 13]

Reagent

Anti-α-MSH is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2–8 °C for up to one month. For prolonged storage, freeze in working aliquots at –20 °C. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile
A minimum working dilution of 1:4,000 is determined by Elisa

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working dilutions by titration test.

References

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