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Product Information



Melanocortin-4 Receptor Blocking Peptide

Item No. 10006356

Melanocortins are known to exert a broad array of physiological actions including “melanogenesis, steroidogenesis, sexual function and inflammation, as well as appetite regulation and energy homeostasis”.¹ These actions are mediated (differentially or concurrently) in part by a family of G-protein coupled receptors, the melanocortin receptors 1-5 (MC1R-MC5R). Melanocortin-4 receptor (MC4R) was first cloned in 1993 with transcripts expressed primarily in the brain.² Genetic studies of mice and humans have established a critical role of MC4R in appetite regulation.³ Heterozygous mutations in MC4R account for 1-6% of severe cases of human obesity. Thus, MC4R has been a prime target for therapeutic intervention in obesity.⁴

All known mammalian MC4Rs are 332 amino acids in length with an estimated molecular weight of 37 kDa. The protein is heavily glycosylated and appears at multiple positions on SDS-PAGE.⁵ Cayman's MC4R polyclonal antibody mainly detects an unglycosylated protein at 37 kDa and a glycosylated protein at 55 kDa.

Laboratory Procedures

This vial contains 200 µg peptide in 200 µl TBS, pH 7.4, containing 0.1% BSA and 0.02% sodium azide. The MC4R blocking peptide (mouse MC4R amino acids 21-33) can be used in conjunction with Cayman's MC4R Polyclonal Antibody (Item No. 10006355) to block protein-antibody complex formation during immunochemical analysis of MC4R.

Store this peptide solution at -20°C. It will be stable for at least two years. To block antibody/protein complex formation, the following procedure is recommended:

1. Mix the MC4R Polyclonal Antibody (Item No. 10006355) and blocking peptide together in a 1:1 (v/v) ratio in a microfuge tube. For example, mix 20 µl of antibody and 20 µl of peptide.*
2. Incubate for one hour at room temperature with occasional mixing prior to further dilution and application of the mixture to the immunoblot.
3. Dilute the mixture to the final working antibody concentration and apply to the slide or membrane as usual.

*This is a recommended mixture. The minimum amount of peptide needed for complete blocking has not been precisely determined and may vary depending on the sample being analyzed. The amount of peptide required may need to be increased if sufficient blocking does not occur.

References

1. Yeo, G.S.H. and Siddle, K. Attractin' more attention-new pieces in the obesity puzzle? *Biochem J.* **376**, e7-e8 (2003).
2. Gantz, I., Miwa, H., Konda, Y., *et al.* Molecular cloning, expression, and gene localization of a fourth melanocortin receptor. *J. Biol. Chem.* **268(20)**, 15174-15179 (1993).
3. Fan, W., Boston, B.A., Kesterson, R.A., *et al.* Role of melanocortinergic neurons in feeding and the agouti obesity syndrome. *Nature* **385**, 165-168 (1997).
4. Crowley, V.E.F., Yeo, G.S.H., and O'Rahilly, S. Obesity therapy: altering the energy intake-and-expenditure balance sheet. *Nature Reviews Drug Discover* **1**, 276-286 (2002).
5. Ho, G. and MacKenzie, R.G. Functional characterization of mutations in melanocortin-4 receptor associated with human obesity. *J. Biol. Chem.* **274(50)**, 35816-35822 (1999).

Related Products

For a list of related products please visit: www.caymanchem.com/catalog/10006356

WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY: NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

MATERIAL SAFETY DATA

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 Material Safety Data Sheet, which has been sent *via* email to your institution.

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