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Anti-MC4 Receptor Antibody

Catalog # AP53688

Product Information

Application	WB, IHC, IF/IC
Primary Accession	P32245
Reactivity	Human, Mouse, Rat, Rabbit, Pig, Bovine, Dog, Sheep, Mk
Host	Rabbit
Clonality	Polyclonal
Calculated MW	36943

Additional Information

Gene ID	4160
Other Names	Melanocortin receptor 4; MC4-R
Target/Specificity	KLH-conjugated synthetic peptide encompassing a sequence within the C-term region of human MC4 Receptor. The exact sequence is proprietary.
Dilution	WB~~1/500 - 1/1000 IHC~~1/50 - 1/200 IF/IC~~N/A
Format	Liquid in 0.42% Potassium phosphate, 0.87% Sodium chloride, pH 7.3, 30% glycerol, and 0.01% sodium azide.
Storage	Store at -20 °C.Stable for 12 months from date of receipt

Protein Information

Name	MC4R {ECO:0000303|PubMed:29311635, ECO:0000312|HGNC:HGNC:6932}
Function	G protein-coupled receptor that binds melanocyte-stimulating hormones (alpha- and beta-MSH) and corticotropin/ACTH, which are peptide products of the POMC precursor (PubMed:12646665, PubMed:14764818, PubMed:25163632, PubMed:32327598, PubMed:33858992, PubMed:8392067). Functions as a central component of the leptin-melanocortin pathway, which is essential for maintaining energy homeostasis (PubMed:32327598, PubMed:33858992). Upon activation, couples to G(s) protein, stimulating adenylate cyclase and the cAMP- dependent signaling pathway, which promotes anorexogenic signaling in the hypothalamus and contributes to a negative energy balance (PubMed:12588803, PubMed:14764818, PubMed:25163632, PubMed:33858992). Regulates food intake: activation by agonists suppresses appetite, whereas the antagonist Agouti-related protein/AGRP precludes agonist- induced signaling, thereby stimulating appetite (PubMed:9311920, PubMed:29311635). Modulates the firing activity of neurons in paraventricular nucleus (PVN) of the hypothalamus via alpha-MSH and AGRP regulation of inwardly rectifying

potassium channel KCNJ13 closure, independently of G(s) signaling (PubMed:32327598). In the PVN, also interacts with opsin 3/OPN3, which couples to G(i/o) proteins to inhibit MC4R-mediated cAMP signaling, thereby promoting food intake (PubMed:39951488). In intestinal epithelial cells, contributes to inhibition of hepatic glucose production via nesfatin-1/NUCB2, leading to increased cAMP levels and glucagon-like peptide 1 (GLP-1) secretion (PubMed:39562740). Interaction with MGRN1 displaces the G(s) protein, further decreasing MC4R signaling activity (PubMed:19737927). Also activated by gamma-MSH, though with low potency (PubMed:8392067).

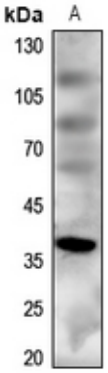
Cellular Location

Cell membrane; Multi-pass membrane protein. Cell projection, cilium membrane; Multi-pass membrane protein

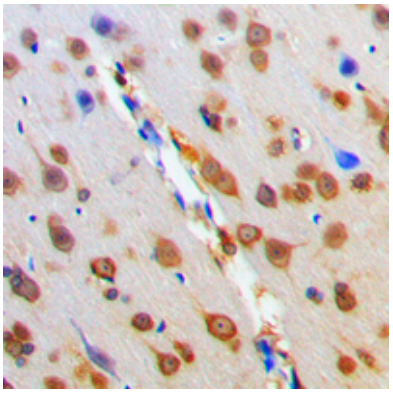
Tissue Location

Brain, placental, and gut tissues.

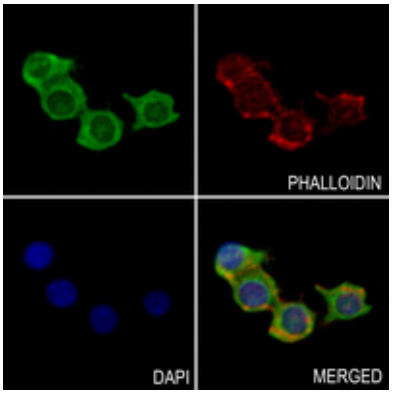
Images



Western blot analysis of MC4 Receptor expression in mouse brain (A) whole cell lysates. (Predicted band size: 36 kD; Observed band size: 37 kD)

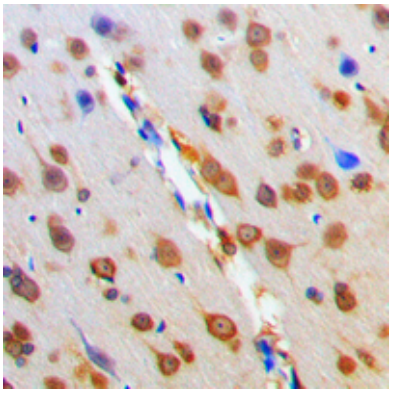


Immunohistochemical analysis of MC4 Receptor staining in human brain formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.



Immunofluorescent analysis of MC4 Receptor staining in RAW264.7 cells. Formalin-fixed cells were permeabilized with 0.1% Triton X-100 in TBS for 5-10 minutes and blocked with 3% BSA-PBS for 30 minutes at room temperature. Cells were probed with the primary antibody in 3% BSA-PBS and incubated overnight at 4 °C in a hidified chamber. Cells were washed with PBST and incubated with a AF488-conjugated secondary antibody (green) in PBS at room temperature in the dark. Phalloidin - AF594 was used to stain Actin filaments (red). DAPI was used to stain the cell nuclei (blue).

Immunohistochemical analysis of MC4 Receptor staining in human brain formalin fixed paraffin embedded tissue



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