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MC4R Rabbit pAb

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Catalog # AP54493

Product Information

Application	WB, E
Primary Accession	P32245
Reactivity	Mouse, Rat
Predicted	Human
Host	Rabbit
Clonality	Polyclonal
Calculated MW	36943
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human MC4 Receptor
Epitope Specificity	1-50/332
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Cell membrane; Multi-pass membrane protein.
SIMILARITY	Belongs to the G-protein coupled receptor 1 family.
SUBUNIT	Interacts with ATRNL1. Interacts with MGRN1, but does not undergo MGRN1-mediated ubiquitination; this interaction competes with GNAS-binding and thus inhibits agonist-induced cAMP production.
DISEASE	Defects in MC4R are a cause of obesity (OBESITY) [MIM:601665]. It is a condition characterized by an increase of body weight beyond the limitation of skeletal and physical requirements, as the result of excessive accumulation of body fat.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	The melanocortin family comprises the Alpha-, Beta- and Gamma- melanocyte stimulating hormones (MSH) and adrenocorticotrophin. The receptors for these hormones are seven-transmembrane G protein-coupled proteins that activate adenylyl cyclase. Five melanocortin receptors have been cloned and shown to exhibit different affinities and patterns of expression. MC1-R (MSH-R) is expressed in melanocytes and corticoadrenal tissue. MC2-R is the ACTH receptor and is expressed primarily in the adrenal cortex. MC3-R has been found in specific regions of the brain and is also expressed in placenta and gut. MC4-R is expressed primarily in brain, while MC5-R is expressed at low levels in most tissues.

Additional Information

Gene ID	4160
Other Names	Melanocortin receptor 4, MC4-R, MC4R

Target/Specificity	Brain, placental, and gut tissues.
Dilution	WB=1:500-2000,ELISA=1:5000-10000
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

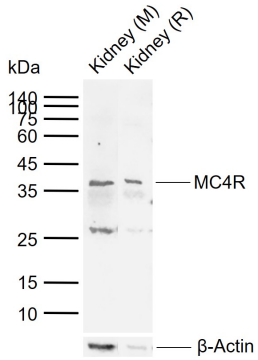
Protein Information

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.

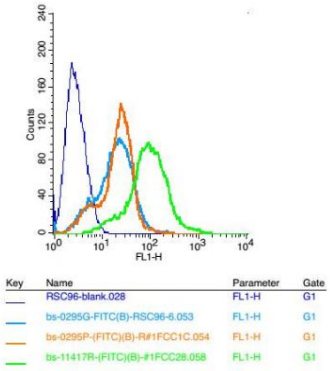
Background

The melanocortin family comprises the Alpha-, Beta- and Gamma- melanocyte stimulating hormones (MSH) and adrenocorticotrophin. The receptors for these hormones are seven-transmembrane G protein-coupled proteins that activate adenylyl cyclase. Five melanocortin receptors have been cloned and shown to exhibit different affinities and patterns of expression. MC1-R (MSH-R) is expressed in melanocytes and corticoadrenal tissue. MC2-R is the ACTH receptor and is expressed primarily in the adrenal cortex. MC3-R has been found in specific regions of the brain and is also expressed in placenta and gut. MC4-R is expressed primarily in brain, while MC5-R is expressed at low levels in most tissues.

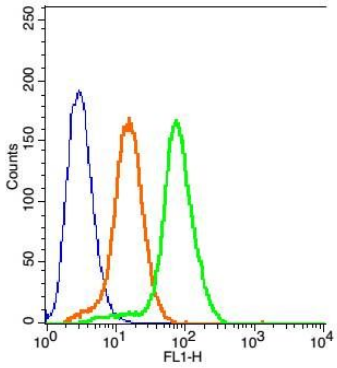
Images



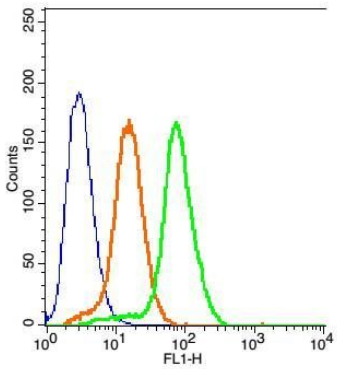
Sample:
Lane 1: Mouse Kidney tissue lysates
Lane 2: Rat Kidney tissue lysates
Primary: Anti-MC4R (AP54493) at 1/1000 dilution
Secondary: IRDye800CW Goat Anti-Rabbit IgG at 1/20000 dilution
Predicted band size: 37 kDa
Observed band size: 37 kDa



Positive control: RSC96
Isotype Control Antibody: Rabbit IgG ; Secondary Antibody: Goat anti-rabbit IgG-FITC, Dilution: 1:100 in 1 X PBS containing 0.5% BSA ; Primary Antibody Dilution: 6 µg in 100 µL1X PBS containing 0.5% BSA.



Blank control: 293T(fixed with 2% paraformaldehyde (10 min) and then permeabilized with ice-cold 90% methanol for 30 min on ice).
Primary Antibody: Rabbit Anti-MC4 Receptor /AF488 Conjugated antibody (AP54493-AF488), Dilution: 1 µg in 100 µL 1X PBS containing 0.5% BSA;
Isotype Control Antibody: Rabbit IgG/AF488(orange) ,used under the same conditions.



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Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.