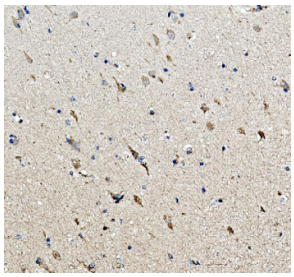
MC3 Receptor Antibody / MC3R (R32721)

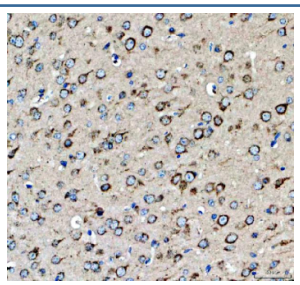
Catalog No.	Formulation	Size
R32721	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

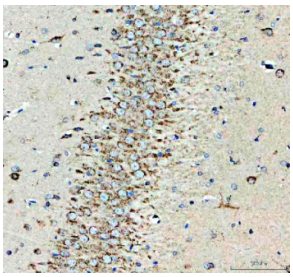
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	P41968
Applications	Western Blot : 0.5-1ug/ml Immunohistochemistry (FFPE) : 2-5ug/ml
Limitations	This MC3 Receptor antibody is available for research use only.



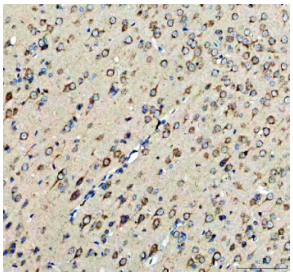
Immunohistochemistry analysis of MC3 Receptor/MC3R Antibody in human hippocampus tissue. Paraffin-embedded human hippocampus sections were subjected to heat-mediated antigen retrieval in EDTA buffer (pH 8.0) and incubated with MC3 Receptor/MC3R Antibody, followed by HRP-conjugated secondary antibody and DAB chromogen development. Brown immunoreactivity is observed in neuronal cells within the hippocampal region, with hematoxylin nuclear counterstain (blue).



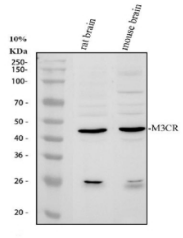
Immunohistochemistry analysis of MC3R expression in mouse brain tissue. Paraffin-embedded mouse brain sections were subjected to heat-mediated antigen retrieval in EDTA buffer (pH 8.0) and incubated with anti-MC3R antibody, followed by HRP-conjugated secondary antibody and DAB chromogen development. MC3R staining is detected in neuronal cells and surrounding neuropil, consistent with central nervous system expression of melanocortin 3 receptor, with hematoxylin nuclear counterstain (blue).



Immunohistochemistry analysis of MC3R expression in rat hippocampus tissue. Paraffin-embedded rat hippocampus sections were subjected to heat-mediated antigen retrieval in EDTA buffer (pH 8.0) and incubated with anti-MC3R antibody, followed by HRP-conjugated secondary antibody and DAB chromogen development. Brown staining is observed in hippocampal neurons, consistent with melanocortin 3 receptor localization in brain regions involved in neuroendocrine regulation, with hematoxylin nuclear counterstain (blue).



Immunohistochemistry analysis of MC3R expression in rat brain tissue. Paraffin-embedded rat brain sections were subjected to heat-mediated antigen retrieval in EDTA buffer (pH 8.0) and incubated with anti-MC3R antibody, followed by HRP-conjugated secondary antibody and DAB chromogen development. MC3R immunoreactivity is observed in neuronal cells across brain regions, consistent with central nervous system expression of melanocortin 3 receptor, with hematoxylin nuclear counterstain (blue).



Western blot analysis of MC3 Receptor/MC3R Antibody in rat and mouse brain tissue. Rat brain and mouse brain tissue lysates were resolved by SDS-PAGE and transferred to a nitrocellulose membrane, followed by incubation with MC3 Receptor/MC3R Antibody and HRP-conjugated secondary antibody. A predominant band is observed at approximately 42 kDa in both samples relative to the predicted molecular weight of MC3R at approximately 36 kDa, consistent with reported anomalous migration of GPCR proteins on SDS-PAGE, while lower molecular weight bands may represent proteolytic fragments or partially processed receptor species.

Description

MC3 Receptor Antibody targets melanocortin 3 receptor, a G protein-coupled receptor encoded by the MC3R gene. Melanocortin 3 receptor is a member of the melanocortin receptor family, which includes five closely related receptors that mediate the biological effects of melanocortin peptides derived from proopiomelanocortin. MC3R is primarily involved in central regulation of energy balance, metabolic efficiency, and neuroendocrine signaling, with well-established roles in hypothalamic circuits that integrate nutritional status and hormonal cues.

Functionally, melanocortin 3 receptor is activated by endogenous ligands such as alpha-melanocyte-stimulating hormone and gamma-melanocyte-stimulating hormone. Upon ligand binding, MC3R predominantly couples to Gs proteins, leading to activation of adenylate cyclase and increased intracellular cyclic AMP levels. Through this signaling pathway, MC3R contributes to regulation of feeding behavior, energy expenditure, nutrient partitioning, and circadian rhythm integration. An MC3 Receptor Antibody supports studies focused on melanocortin signaling pathways, GPCR-mediated signal transduction, and neuroendocrine control of metabolism.

MC3R expression is most prominent within the central nervous system, particularly in hypothalamic regions involved in energy homeostasis, appetite regulation, and hormonal signaling. Expression has also been reported in peripheral tissues, including immune-related cells and metabolic organs, suggesting broader physiological roles beyond central appetite control alone. Subcellular localization is primarily associated with the plasma membrane, consistent with its function as a cell surface GPCR, although intracellular receptor pools involved in trafficking, recycling, and desensitization may be detected depending on cellular context and activation state.

At the molecular level, melanocortin 3 receptor displays the canonical seven-transmembrane domain architecture characteristic of class A GPCRs. Extracellular loops contribute to ligand recognition and binding specificity, while intracellular domains mediate interactions with G proteins and regulatory proteins involved in signal propagation and receptor desensitization. Receptor activity is influenced by post-translational modifications, accessory proteins, and

cellular signaling environment, which together fine-tune MC3R responsiveness and downstream signaling output. These structural and regulatory features make MC3R a valuable model for studying GPCR biology and melanocortin system regulation.

From a disease relevance perspective, altered MC3R signaling has been investigated in the context of metabolic disorders, obesity, and disruptions in energy balance. Genetic variation within the MC3R gene has been associated with changes in body composition, feeding efficiency, and metabolic adaptation, highlighting the receptorÃ¢Â€Â™s role in fine-tuning energy utilization rather than simply controlling food intake. In addition, MC3R has been studied for potential involvement in immune modulation and inflammatory responses, reflecting the expanding understanding of melanocortin signaling pathways beyond classical neuroendocrine functions. MC3 Receptor Antibody reagents support research applications examining GPCR signaling mechanisms, metabolic regulation, and melanocortin pathway involvement in health and disease, with NSJ Bioreagents providing reagents intended for research use.

Application Notes

Optimal dilution of the MC3 Receptor antibody should be determined by the researcher.

Immunogen

Amino acids 91-121 (NALETIMIAIVHSDYLTFEDQFIQHMDNIFD) from the human protein were used as the immunogen for the MC3 Receptor antibody.

Storage

After reconstitution, the MC3 Receptor antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.