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OPRM1 Antibody (Center)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP9130C

Product Information

Application	WB, IHC-P, FC, E
Primary Accession	P35372
Other Accession	P33535, Q95247, P42866, Q95M54
Reactivity	Human, Rat, Mouse
Predicted	Monkey, Pig, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB22405
Calculated MW	44779
Antigen Region	161-187

Additional Information

Gene ID	4988
Other Names	Mu-type opioid receptor, M-OR-1, MOR-1, Mu opiate receptor, Mu opioid receptor, MOP, hMOP, OPRM1, MOR1
Target/Specificity	This OPRM1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 161-187 amino acids from the Central region of human OPRM1.
Dilution	WB~~1:1000 IHC-P~~1:100~500 FC~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.05% (V/V) Proclin 300. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	OPRM1 Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	OPRM1
Synonyms	MOR1

Function	Receptor for endogenous opioids such as beta-endorphin and endomorphin (PubMed:10529478, PubMed:12589820, PubMed:7891175, PubMed:7905839, PubMed:7957926, PubMed:9689128). Receptor for natural and synthetic opioids including morphine, heroin, DAMGO, fentanyl, etorphine, buprenorphin and methadone (PubMed:10529478, PubMed:10836142, PubMed:12589820, PubMed:19300905, PubMed:7891175, PubMed:7905839, PubMed:7957926, PubMed:9689128). Also activated by enkephalin peptides, such as Met-enkephalin or Met-enkephalin-Arg-Phe, with higher affinity for Met-enkephalin-Arg-Phe (By similarity). Agonist binding to the receptor induces coupling to an inactive GDP- bound heterotrimeric G-protein complex and subsequent exchange of GDP for GTP in the G-protein alpha subunit leading to dissociation of the G-protein complex with the free GTP-bound G-protein alpha and the G- protein beta-gamma dimer activating downstream cellular effectors (PubMed:7905839). The agonist- and cell type-specific activity is predominantly coupled to pertussis toxin-sensitive G(i) and G(o) G alpha proteins, GNAI1, GNAI2, GNAI3 and GNAO1 isoforms Alpha-1 and Alpha-2, and to a lesser extent to pertussis toxin-insensitive G alpha proteins GNAZ and GNA15 (PubMed:12068084). They mediate an array of downstream cellular responses, including inhibition of adenylate cyclase activity and both N-type and L-type calcium channels, activation of inward rectifying potassium channels, mitogen-activated protein kinase (MAPK), phospholipase C (PLC), phosphoinositide/protein kinase (PKC), phosphoinositide 3-kinase (PI3K) and regulation of NF- kappa-B (By similarity). Also couples to adenylate cyclase stimulatory G alpha proteins (By similarity). The selective temporal coupling to G- proteins and subsequent signaling can be regulated by RGSZ proteins, such as RGS9, RGS17 and RGS4 (By similarity). Phosphorylation by members of the GPRK subfamily of Ser/Thr protein kinases and association with beta-arrestins is involved in short-term receptor desensitization (By similarity). Beta-arrestins associate with the GPRK-phosphorylated receptor and uncouple it from the G-protein thus terminating signal transduction (By similarity). The phosphorylated receptor is internalized through endocytosis via clathrin-coated pits which involves beta-arrestins (By similarity). The activation of the ERK pathway occurs either in a G-protein-dependent or a beta-arrestin- dependent manner and is regulated by agonist-specific receptor phosphorylation (By similarity). Acts as a class A G-protein coupled receptor (GPCR) which dissociates from beta-arrestin at or near the plasma membrane and undergoes rapid recycling (By similarity). Receptor down-regulation pathways are varying with the agonist and occur dependent or independent of G-protein coupling (By similarity). Endogenous ligands induce rapid desensitization, endocytosis and recycling (By similarity). Heterooligomerization with other GPCRs can modulate agonist binding, signaling and trafficking properties (By similarity).
Cellular Location	Cell membrane; Multi-pass membrane protein. Cell projection, axon {ECO:0000250|UniProtKB:P97266}. Perikaryon {ECO:0000250|UniProtKB:P97266}. Cell projection, dendrite {ECO:0000250|UniProtKB:P97266}. Endosome {ECO:0000250|UniProtKB:P97266}. Note=Is rapidly internalized after agonist binding. {ECO:0000250|UniProtKB:P97266}
Tissue Location	Expressed in brain. Isoform 16 and isoform 17 are detected in brain.

Background

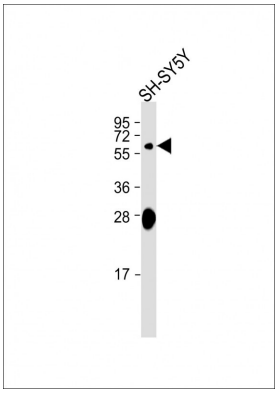
OPRM1 is the mu opioid receptor, which is the primary site of action for the most commonly used opioids, including morphine, heroin, fentanyl, and methadone. It is also the primary receptor for endogenous opioid peptides beta-endorphin (see POMC, MIM 176830) and the enkephalins (see PENK, MIM 131330). The OPRM1 receptor is a membrane of the G protein-coupled receptor family (Bond et al., 1998 [PubMed 9689128]). There are at least 3 types of opioid receptors, mu, kappa (OPRK1; MIM 165196), and delta, each

with a distinct pharmacologic profile.

References

Bare,L.A., et.al., FEBS Lett. 354 (2), 213-216 (1994)
Wang,J.B., et.al., FEBS Lett. 338 (2), 217-222 (1994)

Images



Anti-OPRM1 Antibody (Center) at 1:500 dilution + SH-SY5Y whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 63 kDa Blocking/Dilution buffer: 5% NFDM/TBST.