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Cnr1 antibody - C-terminal region

Rabbit Polyclonal Antibody Catalog # AI14484

Product Information

Application WB Primary Accession P47746

Other Accession <u>NM 007726</u>, <u>NP 031752</u>

ReactivityHuman, Mouse, Rat, Rabbit, Zebrafish, Pig, Dog, Guinea Pig, Horse, Bovine **Predicted**Human, Mouse, Rat, Zebrafish, Pig, Chicken, Dog, Guinea Pig, Horse, Bovine

Host Rabbit
Clonality Polyclonal
Calculated MW 52831

Additional Information

Gene ID 12801

Alias Symbol CB1, CB-R, CB1R

Other Names Cannabinoid receptor 1, CB-R, CB1, Brain-type cannabinoid receptor, Cnr1

Format Liquid. Purified antibody supplied in 1x PBS buffer with 0.09% (w/v) sodium

azide and 2% sucrose.

Reconstitution & Storage Add 50 ul of distilled water. Final anti-Cnr1 antibody concentration is 1 mg/ml

in PBS buffer with 2% sucrose. For longer periods of storage, store at 20°C.

Avoid repeat freeze-thaw cycles.

Precautions Cnr1 antibody - C-terminal region is for research use only and not for use in

diagnostic or therapeutic procedures.

Protein Information

Name Cnr1

Function G-protein coupled receptor for cannabinoids, including endocannabinoids

(eCBs), such as N-arachidonoylethanolamide (also called anandamide or AEA) and 2-arachidonoylglycerol (2-AG) (PubMed:22388959, PubMed:9888857). Mediates many cannabinoid-induced effects, acting, among others, on food intake, memory loss, gastrointestinal motility, catalepsy, ambulatory activity, anxiety, chronic pain (PubMed:27828947, PubMed:9888857). Signaling

typically involves reduction in cyclic AMP (PubMed: <u>27828947</u>). Signall

PubMed:<u>8832654</u>). In the hypothalamus, may have a dual effect on mitochondrial respiration depending upon the agonist dose and possibly upon the cell type. Increases respiration at low doses, while decreases respiration at high doses (PubMed:<u>25707796</u>, PubMed:<u>27828947</u>). At high

doses, CNR1 signal transduction involves G-protein alpha-i protein activation and subsequent inhibition of mitochondrial soluble adenylate cyclase, decrease in cyclic AMP concentration, inhibition of protein kinase A (PKA)-dependent phosphorylation of specific subunits of the mitochondrial electron transport system, including NDUFS2 (PubMed: 27828947). In the hypothalamus, inhibits leptin-induced reactive oxygen species (ROS) formation and mediates cannabinoid-induced increase in SREBF1 and FASN gene expression (PubMed: <u>25869131</u>). In response to cannabinoids, drives the release of orexigenic beta- endorphin, but not that of melanocyte-stimulating hormone alpha/alpha- MSH, from hypothalamic POMC neurons, hence promoting food intake (PubMed: 25707796). In the hippocampus, regulates cellular respiration and energy production in response to cannabinoids. Involved in cannabinoid-dependent depolarization-induced suppression of inhibition (DSI), a process in which depolarization of CA1 postsynaptic pyramidal neurons mobilizes eCBs, which retrogradely activate presynaptic CB1 receptors, transiently decreasing GABAergic inhibitory neurotransmission (PubMed:22388959). Also reduces excitatory synaptic transmission (PubMed: 27828947). In superior cervical ganglions and cerebral vascular smooth muscle cells, inhibits voltage-gated Ca(2+) channels in a constitutive, as well as agonist-dependent manner (By similarity). In cerebral vascular smooth muscle cells, cannabinoid-induced inhibition of voltage-gated Ca(2+) channels leads to vasodilation and decreased vascular tone (By similarity). Induces leptin production in adipocytes and reduces LRP2-mediated leptin clearance in the kidney, hence participating in hyperleptinemia (PubMed:<u>22841573</u>). In adipose tissue, CNR1 signaling leads to increased expression of SREBF1, ACACA and FASN genes (PubMed: 15864349). In the liver, activation by endocannabinoids leads to increased de novo lipogenesis and reduced fatty acid catabolism, associated with increased expression of SREBF1/SREBP-1, GCK, ACACA, ACACB and FASN genes (PubMed: 15864349, PubMed:21987372). May also affect de novo cholesterol synthesis and HDL-cholesteryl ether uptake (PubMed:21987372). Peripherally modulates energy metabolism. In high carbohydrate diet-induced obesity, may decrease the expression of mitochondrial dihydrolipoyl dehydrogenase/DLD in striated muscles, as well as that of selected glucose/ pyruvate metabolic enzymes, hence affecting energy expenditure through mitochondrial metabolism (PubMed:26671069). In response to cannabinoid anandamide, elicits a pro-inflammatory response in macrophages, which involves NLRP3 inflammasome activation and IL1B and IL18 secretion. In macrophages infiltrating pancreatic islets, this process may participate in the progression of type-2 diabetes and associated loss of pancreatic beta- cells (PubMed:23955712).

Cellular Location

Cell membrane; Multi-pass membrane protein {ECO:0000250 | UniProtKB:P21554}. Mitochondrion outer membrane. Cell projection, axon {ECO:0000250 | UniProtKB:P20272}. Presynapse {ECO:0000250 | UniProtKB:P20272}. Note=In CA1 hippocampal neurons, 15.5% of total protein is localized in mitochondria (PubMed:22388959). Found on presynaptic axon terminals in some GABAergic neurons in the somatosensory cortex (By similarity). In striated muscles, predominantly located in mitochondria (PubMed:27826249). Unexpectedly, in the mitochondria, the C-terminus is located in the mitochondrial intermembrane space, a compartment topologically considered as extracellular. In canonical seven-transmembrane G-protein coupled receptors, the C-terminus is cytosolic (PubMed:22388959) {ECO:0000250 | UniProtKB:P20272, ECO:0000269 | PubMed:27826249}

Tissue Location

Expressed in brain neurons (at protein level) (PubMed:22388959). Detected throughout the striatum, cortex and hippocampus, with highest levels in the lateral striatum (PubMed:10891614, PubMed:15606779, PubMed:22388959). In rostral brain regions, high expression levels in the dorsal lateral striatum,

while in the caudal brain regions, high levels are observed in the ventral lateral striatum (PubMed:10891614). Expressed in neurons (PubMed:10891614). In the hypothalamus, expressed in both GABAergic and glutamatergic presynaptic terminals of POMC neurons (at protein level) (PubMed:25707796, PubMed:25869131). Expressed in striated muscles, including skeletal muscles (gastrocnemius and rectus abdominis) and myocardium (at protein level) (PubMed:26671069, PubMed:27826249) Expressed in the liver, with highest levels in Kupffer cells and lower levels in endothelial cells as well as hepatocytes, particularly in perivascular areas (at protein level) (PubMed:15864349, PubMed:21987372). The hepatic expression level is up-regulated in obese mice compared to lean animals (PubMed:21987372)

References

Chakrabarti A.,et al.DNA Seq. 5:385-388(1995).

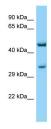
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Ledent C.,et al.Science 283:401-404(1999).

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Bonner T.I.,et al.Submitted (MAR-1995) to the EMBL/GenBank/DDBJ databases.

Images



WB Suggested Anti-Cnr1 Antibody Titration: 1.0 µg/ml Positive Control: Mouse Spleen

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