Free for academic non-profit institutions. Other users need a Commercial license

CNR1 Gene (Protein Coding)

Cannabinoid Receptor 1

GCID: GC06M088139
GIFtS: 53

Genes Participants

Genes Peptides Proteins
CRISPR

Proteins Antibodies Assays
Genes shRNA Primers
CRISPR Lentiviral Particles

Genes (adenoviral)
Genes (lentiviral) miRNA
shRNA (AAV)

ORF Clones CRISPR
Cloning Vectors
Lentiviral Vectors

Aliases for CNR1 Gene

GeneALaCart
GENECARDS BATCH QUERIES
Fast track your research with batch queries on the GeneCards Suite Knowledgebase
START YOUR FREE TRIAL >>

Aliases for CNR1 Gene

Cannabinoid Receptor 1 [2,3,3,5]
Cannabinoid Receptor 1 (Brain) [2,3]
CANN6 [3,4]
CB-R [3,4]
CNR [3,4]
CB1 [3,4]
Central Cannabinoid Receptor [3]
CB1K5 [3]
CB1A [3]
CB1R [3]

External Ids for CNR1 Gene

HGNC: 2159 Entrez Gene: 1268 Ensembl: ENSG00000118432 OMIM: 114610 UniProtKB: P21554

Previous HGNC Symbols for CNR1 Gene

CNR

Previous GeneCards Identifiers for CNR1 Gene

GC06M088795, GC06M088845, GC06M088906, GC06M086064, GC06M088850

Search aliases for CNR1 gene in PubMed and other databases

Summaries for CNR1 Gene

Entrez Gene Summary for CNR1 Gene

This gene encodes one of two cannabinoid receptors. The cannabinoids, principally delta-9-tetrahydrocannabinol and synthetic analogs, are psychoactive ingredients of marijuana. The cannabinoid receptors are members of the guanine-nucleotide-binding protein (G-protein) coupled receptor family, which inhibit adenylate cyclase activity in a dose-dependent, stereoselective and pertussis toxin-sensitive manner. The two receptors have been found to be involved in the cannabinoid-induced CNS effects (including alterations in mood and cognition) experienced by users of marijuana. Multiple transcript variants encoding two different protein isoforms have been described for this gene. [provided by RefSeq, May 2009]

GeneCards Summary for CNR1 Gene

CNR1 (Cannabinoid Receptor 1) is a Protein Coding gene. Diseases associated with CNR1 include Cannabis Dependence and Chronic Pain. Among its related pathways are GPCRs, Other and Reelin Pathway (Cajal-Retzius cells). Gene Ontology (GO) annotations related to this gene include G-protein coupled receptor activity and cannabinoid receptor activity. An important paralog of this gene is CNR2.

UniProtKB/Swiss-Prot for CNR1 Gene CNR1_HUMAN,P21554

G-protein coupled receptor for endogenous cannabinoids (eCBs), including N-arachidonoylethanolamide (also called anandamide or AEA) and 2-arachidonoylglycerol (2-AG), as well as phytocannabinoids, such as delta(9)-tetrahydrocannabinol (THC) (PubMed:15620723, PubMed:27768894, PubMed:27851727). Mediates many cannabinoid-induced effects, acting, among others, on food intake, memory loss, gastrointestinal motility, catalepsy, ambulatory activity, anxiety, chronic pain. Signaling typically involves reduction in cyclic AMP (PubMed:1718258, PubMed:21895628, PubMed:27768894). 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. 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. In the hypothalamus, inhibits leptin-induced reactive oxygen species (ROS) formation and mediates cannabinoid-induced increase in SREBF1 and FASN gene expression. 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. 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. Also reduces excitatory synaptic transmission (By similarity). 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 (PubMed:17895407). 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. In adipose tissue, CNR1 signaling leads to increased expression of SREBF1, ACACA and FASN genes (By similarity). 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. May also affect de novo cholesterol synthesis and HDL-cholesteryl ether uptake. Peripherally modulates energy metabolism (By similarity). 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 (By similarity). In response to cannabinoid anandamide, elicits a proinflammatory response in macrophages, which involves NLRP3 inflammasome activation and IL1B and IL18 secretion (By similarity). 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).
Isoform 1: Binds both 2-AG and anandamide.
Isoform 2: Only binds 2-AG with high affinity. Contrary to its effect on isoform 1, 2-AG behaves as an inverse agonist on isoform 2 in assays measuring GTP binding to membranes.
Isoform 3: Only binds 2-AG with high affinity. Contrary to its effect on isoform 1, 2-AG behaves as an inverse agonist on isoform 3 in assays measuring GTP binding to membranes.

Tocris Summary for CNR1 Gene

The CB1 receptor, also known as the central cannabinoid receptor, is a member of the cannabinoid receptor group of G-protein-coupled receptors that also includes CB2 and GPR55. CB1 receptors are found mainly in the terminals of central and peripheral neurons.

Gene Wiki entry for CNR1 Gene

Additional gene information for CNR1 Gene

HGNC(2159) Entrez Gene(1268) Ensembl(ENSG00000118432) OMIM(114610) UniProtKB(P21554)

Monarch Initiative
Search for CNR1 at DataMed
Search for CNR1 at HumanCyc

No data available for CIViC summary , PharmGKB "VIP" Summary , fRNAdb sequence ontologies and piRNA Summary for CNR1 Gene

Genomics for CNR1 Gene

Products: Regulatory Element

GeneHancer (GH) Regulatory Elements for CNR1 Gene

Promoters and enhancers for CNR1 Gene

	GeneHancer (GH) Identifier	GH Type	GH Score	GH Sources	Gene Association Score	Total Score	TSS distance (kb)	Number of Genes Away	Size (kb)	Transcription Factor Binding Sites	Gene Targets
	GH06J088165	Promoter/Enhancer	1.9	EPDnew, Ensembl, ENCODE	650.7	1236.33	+0.3	0	0.9	77 TFs PKNOX1 GLI4 ...	7 genes CNR1 ...
	GH06J088179	Promoter/Enhancer	1.2	EPDnew, ENCODE	650.4	780.48	-12.7	1	1.6	23 TFs CTCF EBF1 ...	3 genes CNR1 ...
	GH06J088008	Enhancer	0.7	Ensembl, ENCODE	9.6	6.72	+157.7	4	1.3	7 TFs ZNF189 ZBTB11 ...	3 genes SPACA1 ...
	GH06J088359	Enhancer	0.6	ENCODE	6.9	4.14	-193.6	7	1.6	10 TFs CTCF RXRA ...	5 genes CNR1 ...
	GH06J088376	Enhancer	0.5	ENCODE	5.2	2.6	-210.0	7	0.9	5 TFs JUND POLR2A ...	5 genes CNR1 ...

- Elite GeneHancer and/or Elite GeneHancer-gene association

Download GeneHancer data from 2017 publication | Request up-to-date GeneHancer data (full dataset)

GeneHancers around CNR1 on UCSC Golden Path with GeneCards custom track

Top Transcription factor binding sites by QIAGEN in the CNR1 gene promoter: c-Jun ATF-2 GR-alpha GR AP-1

Regulatory Element Products

SwitchGear CNR1 promoter sequence See all 1 »
Browse SwitchGear Promoter luciferase reporter plasmids

Genomic Locations for CNR1 Gene

Genomic Locations for CNR1 Gene

chr6:88,139,864-88,166,745 (GRCh38/hg38)
Size: 26,882 bases Orientation: Minus strand

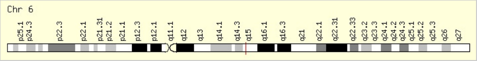
chr6:88,849,583-88,876,078 (GRCh37/hg19)
Size: 26,496 bases Orientation: Minus strand

Genomic View for CNR1 Gene

Genes around CNR1 on UCSC Golden Path with GeneCards custom track

Cytogenetic band: 6q15 by Entrez Gene 6q15 by HGNC 6q15 by Ensembl

CNR1 Gene in genomic location: bands according to Ensembl, locations according to GeneLoc (and/or Entrez Gene and/or Ensembl if different)



Genomic Neighborhood • Exon Structure • Gene Density

RefSeq DNA sequence for CNR1 Gene

NC_000006.12

Proteins for CNR1 Gene

Products: Antibody / Protein / Assay

Protein details for CNR1 Gene (UniProtKB/Swiss-Prot)

Protein Symbol: P21554-CNR1_HUMAN Recommended name: Cannabinoid receptor 1
Protein Accession: P21554 Secondary Accessions: B2R9T4 E1P512 Q13949 Q495Z0 Q4PLI4 Q4VBM6 Q5JVL5 Q5UB37 Q9UNN0

Protein attributes for CNR1 Gene

Size: 472 amino acids
Molecular mass: 52858 Da
Quaternary structure:

Interacts (via C-terminus) with CNRIP1; this interaction attenuates constitutive, but not agonist-dependent, inhibition of voltage-gated Ca(2+) channels in neurons (PubMed:17895407). Associates with G protein alpha subunits, including G(i) alpha-1/GNAI1, G(i) alpha-3/GNAI3 and G(o) alpha/GNAO1; palmitoylation is important for interaction with GNAI3 and GNAO1 (PubMed:12237474).

Miscellaneous: High-fat diet also increases the hepatic levels of CNR1 ligand anandamide, but not that of 2-arachidonoylglycerol.

Three dimensional structures from OCA and Proteopedia for CNR1 Gene

1LVQ (3D) 1LVR (3D) 2B0Y (3D) 2KOE (3D) 2MZ2 (3D) 2MZ3 (3D) See All 11 »

Alternative splice isoforms for CNR1 Gene

UniProtKB/Swiss-Prot: P21554-1 P21554-2 P21554-3

neXtProt entry for CNR1 Gene

Protein Expression for CNR1 Gene

See protein expression from ProteomicsDB, MOPED, PaxDb, and MaxQB

Post-translational modifications for CNR1 Gene

- Palmitoylation at Cys-415 is important for recruitment at plasma membrane and lipid rafts and association with G protein alpha subunits. P21554-CNR1_HUMAN
- Glycosylation at Asn83 and Asn77 NX_P21554
- Modification sites at PhosphoSitePlus P21554

Other Protein References for CNR1 Gene

ENSEMBL proteins: ENSP00000420188 ENSP00000358513 ENSP00000358511 ENSP00000412192 ENSP00000446819 ENSP00000446702 ENSP00000355418
REFSEQ proteins: XP_006715393.1 NP_001153731.1 XP_024302096.1 XP_011533730.1 XP_011533726.1 NP_001153698.1 XP_011533727.1 NP_057167.2 NP_149421.2 XP_016865729.1 NP_001153730.1 XP_011533728.1

Antibody Products

R&D Systems Antibodies for CNR1 (Cannabinoid R1/CB1/CNR1)

OriGene Antibodies for CNR1 See all 8 »
AP01265PU-N AP54820SU-N
Custom Antibody Services

Novus Biologicals Antibodies for CNR1

Abcam antibodies for CNR1
Cannabinoid Receptor I

Invitrogen Antibodies for CNR1

antibodies-online: Search results for 170 available CNR1 Antibodies ranked by validation data
Compare Top CNR1 Antibodies
Recommended See all 12 »

102 WB Antibodies (anti-human) 17 FACS Antibodies (anti-human)

GeneTex CNR1 Antibody for CNR1

Biorbyt antibodies for CNR1 See all 15 »
orb10430 orb412001

Boster Bio Antibodies for CNR1 See all 4 »
A01291-Dyl550 A01291-1

Search for CNR1 Antibodies at ProSci
Custom Antibody Services

Santa Cruz Biotechnology (SCBT) Antibodies for CNR1
CB1 (2F9)

Browse Sino Biological Antibodies

Protein Products

R&D Systems Peptides for CNR1 (Cannabinoid R1/CB1/CNR1)

Search Origene for Purified Proteins, MassSpec and Protein Over-expression Lysates for CNR1
Origene Custom Protein Services for CNR1

GenScript Custom Purified and Recombinant Proteins Services for CNR1

Novus Biologicals proteins and lysates for CNR1

Browse Sino Biological Recombinant Proteins
Browse Sino Biological Cell Lysates

Browse ProSpec Recombinant Proteins

antibodies-online: Search results for 8 available CNR1 Proteins ranked by validation data
Compare Top CNR1 Proteins

Search GeneTex for Proteins for CNR1

Search for CNR1 Proteins at ProSci

Abcam proteins for CNR1
Cannabinoid Receptor I

Assay Products

Browse OriGene ELISA Kits
Custom Assay Services

Browse R&D Systems for biochemical assays

GenScript Activity-based Kinase Assay for Compound Screening for CNR1
GenScript Custom Assay Services for CNR1

antibodies-online: Search results for 38 available CNR1 Elisa Kits ranked by validation data
Compare Top CNR1 Elisa Kits
Recommended See all 12 »
2 Chicken ELISA Kits 1 Cow (Bovine) ELISA Kit

Browse Boster Bio ELISA Kits

Browse Sino Biological Assays

No data available for DME Specific Peptides for CNR1 Gene

Domains & Families for CNR1 Gene

Gene Families for CNR1 Gene
HGNC: 202 : Cannabinoid receptors
IUPHAR : CB₂ receptor, 13
Human Protein Atlas (HPA): FDA approved drug targets, G-protein coupled receptors, Predicted intracellular proteins, Predicted membrane proteins, Transporters

Protein Domains for CNR1 Gene
InterPro: GPCR_Rhodpsn_7TM , GPCR_Rhodpsn , Cnbnoid_rcpt , Canbinoid_rcpt_1
Blocks: Cannabinoid receptor signature , Cannabinoid receptor type 1 signature
ProtoNet: P21554

Suggested Antigen Peptide Sequences for CNR1 Gene

GenScript: Design optimal peptide antigens: CANN6 (CNR1_HUMAN), Cannabinoid receptor 1 (Q9BYY6_HUMAN)

Graphical View of Domain Structure for InterPro Entry P21554

UniProtKB/Swiss-Prot: CNR1_HUMAN :
Belongs to the G-protein coupled receptor 1 family.
Family: Belongs to the G-protein coupled receptor 1 family.

GenesLikeMe Genes that share domains with CNR1: view

Function for CNR1 Gene

Products: Animal Model / CRISPR / miRNA / Inhibitory RNA / Clone / Cell Line

Molecular function for CNR1 Gene

UniProtKB/Swiss-Prot Function:	G-protein coupled receptor for endogenous cannabinoids (eCBs), including N-arachidonoylethanolamide (also called anandamide or AEA) and 2-arachidonoylglycerol (2-AG), as well as phytocannabinoids, such as delta(9)-tetrahydrocannabinol (THC) (PubMed:15620723, PubMed:27768894, PubMed:27851727). Mediates many cannabinoid-induced effects, acting, among others, on food intake, memory loss, gastrointestinal motility, catalepsy, ambulatory activity, anxiety, chronic pain. Signaling typically involves reduction in cyclic AMP (PubMed:1718258, PubMed:21895628, PubMed:27768894). 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. 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. In the hypothalamus, inhibits leptin-induced reactive oxygen species (ROS) formation and mediates cannabinoid-induced increase in SREBF1 and FASN gene expression. 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. 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. Also reduces excitatory synaptic transmission (By similarity). 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 (PubMed:17895407). 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. In adipose tissue, CNR1 signaling leads to increased expression of SREBF1, ACACA and FASN genes (By similarity). 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. May also affect de novo cholesterol synthesis and HDL-cholesteryl ether uptake. Peripherally modulates energy metabolism (By similarity). 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 (By similarity). In response to cannabinoid anandamide, elicits a proinflammatory response in macrophages, which involves NLRP3 inflammasome activation and IL1B and IL18 secretion (By similarity). 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). CNR1_HUMAN,P21554

UniProtKB/Swiss-Prot Function:	Isoform 1: Binds both 2-AG and anandamide. CNR1_HUMAN,P21554
UniProtKB/Swiss-Prot Function:	Isoform 2: Only binds 2-AG with high affinity. Contrary to its effect on isoform 1, 2-AG behaves as an inverse agonist on isoform 2 in assays measuring GTP binding to membranes. CNR1_HUMAN,P21554
UniProtKB/Swiss-Prot Function:	Isoform 3: Only binds 2-AG with high affinity. Contrary to its effect on isoform 1, 2-AG behaves as an inverse agonist on isoform 3 in assays measuring GTP binding to membranes. CNR1_HUMAN,P21554
UniProtKB/Swiss-Prot Induction:	Up-regulated by endocannabinoid anandamide. CNR1_HUMAN,P21554
GENATLAS Biochemistry:	cannabinoid receptor 1,expressed in brain,testis,located in the eye-ciliary epithelium,corneal epithelium,endothelium of anterior eye retina,inhibiting adenylate cyclaselocated in and/or one cone pedicles and rod spherules,also inhibiting voltage-gated L-type calcium channel current in retinal bipolar cells,putatively involved for endogenouscannaloid system in retinal physiology,G protein coupled receptor superfamily CNR1

Phenotypes From GWAS Catalog for CNR1 Gene

Phenotype	Gene Relation	Best Score	Mean Score	# of Snps	# of Studies
gut microbiome measurement	GWAS	7.4	7.4	1	1
PR interval, Trypanosoma cruzi seropositivity	GWAS	5.2	5.2	1	1

Gene Ontology (GO) - Molecular Function for CNR1 Gene

GO ID	Qualified GO term	Evidence	PubMed IDs
GO:0004871	obsolete signal transducer activity	IEA	
GO:0004930	G-protein coupled receptor activity	IEA	
GO:0004949	cannabinoid receptor activity	IEA,IDA	18761332
GO:0005515	protein binding	IPI	17895407
GO:0008144	drug binding	IEA	

GenesLikeMe Genes that share ontologies with CNR1: view

Phenotypes for CNR1 Gene

MGI mutant phenotypes for CNR1: inferred from 13 alleles
digestive/alimentary phenotype, homeostasis/metabolism phenotype, nervous system phenotype, behavior/neurological phenotype, no phenotypic analysis, integument phenotype, taste/olfaction phenotype, mortality/aging, cellular phenotype, reproductive system phenotype, skeleton phenotype, normal phenotype, adipose tissue phenotype, growth/size/body region phenotype

GenomeRNAi human phenotypes for CNR1: Synthetic lethal with imatinib mesylate, Decreased viability in esophageal squamous lineage, Decreased viability, no effect, Increased vaccinia virus (VACV) infection, Decreased viability after Maraba virus infection, Increased transferrin (TF) endocytosis

GenesLikeMe Genes that share phenotypes with CNR1: view

Animal Models for CNR1 Gene

MGI Knock Outs for CNR1: Cnr1$^{\text{Cnr1<tm1Ojm>}}$, Cnr1$^{\text{Cnr1<tm2Ltz>}}$, Cnr1$^{\text{Cnr1<tm1Map>}}$, Cnr1$^{\text{Cnr1<tm1Zim>}}$, Cnr1$^{\text{Cnr1<tm1.1Ltz>}}$, Cnr1$^{\text{Cnr1<tm1Dgen>}}$, Cnr1$^{\text{Cnr1<tm1.1(KOMP)Vlcg>}}$, Cnr1$^{\text{Cnr1<tm1Lex>}}$

Animal Model Products

Taconic Biosciences Mouse Models for CNR1
Cnr1 Cnr1 - Model 7599 - cKO

Cyagen custom Knockout/knockin (KOKI) mouse models for CNR1
Cyagen custom CRISPR mouse and rat models for CNR1 See all 1 »
Cyagen custom transgenic mouse and rat models for CNR1 See all 1 »

CRISPR Products

OriGene CRISPR knockouts for CNR1
KN303573 KN210397

Search GeneCopoeia for CRISPR/Cas9 clones, lentivirus and AAV products for CNR1

genomics-online: gRNA clones - Search results for 111 available CNR1 gene related products
Overview of 111 available CNR1 gene related products
Recommended See all 6 »
pCMV6-XL4 pCMV6-Entry

Applied Biological Materials CRISPR for CNR1
Vectors and viruses for KO, Activation, Repression, and more
CNR1-CRISPR-CAS9-Knockout

Santa Cruz Biotechnology (SCBT) CRISPR for CNR1 See all 4 »
CB1 CRISPR/Cas9 KO Plasmid (h) CB1 CRISPR Activation Plasmid (h)

GenScript: Design CRISPR guide RNA sequences for CNR1

miRNA for CNR1 Gene

miRTarBase miRNAs that target CNR1 hsa-mir-494-3p (MIRT438441)

miRNA Products

GeneCopoeia miRNA 3'UTR Target clone products for CNR1

Browse SwitchGear 3'UTR luciferase reporter plasmids

Browse OriGene miRNA Products For CNR1

Inhibitory RNA Products

Origene shrna, sirna, and RNAi products in human, mouse, rat for CNR1
Browse OriGene Inhibitory RNA Products For CNR1

Search GeneCopoeia for shRNA, lentivirus and/or AAV clone products for CNR1

genomics-online: shRNA clones - Search results for 111 available CNR1 gene related products
Overview of 111 available CNR1 gene related products
Recommended See all 6 »
pCMV6-XL4 pCMV6-Entry

Search Santa Cruz Biotechnology (SCBT) for CNR1 siRNA/shRNA

Clone Products

OriGene clones in human for CNR1 See all 6 »
SC327550 SC327551
OriGene ORF clones in human for CNR1 See all 32 »
RC228915L1V RC228915L2V
Custom cloning services - gene synthesis, subcloning, mutagenesis, variant library, vector shuttling

GenScript: Next-day shipping of latest version cDNA ORF clones for CNR1 in any vector
NM_016083.4 NM_033181.3 See all 21 »

Sino Biological Human cDNA Clone for CNR1

VectorBuilder custom plasmid, inducible vectors for CNR1
VectorBuilder custom lentivirus, adenovirus, AAV vector/virus packaging for CNR1
VectorBuilder Other custom vectors See all 7 »

Addgene plasmids for CNR1

Search GeneCopoeia for ORF cDNA, lentivirus, AAV viral particles and/or promoter clone products for CNR1

genomics-online: cdna clones - Search results for 111 available CNR1 gene related products
Overview of 111 available CNR1 gene related products
Recommended See all 6 »
pCMV6-XL4 pCMV6-Entry
orf clones - Search results for 111 available CNR1 gene related products
Overview of 111 available CNR1 gene related products
Recommended See all 6 »
pCMV6-XL4 pCMV6-Entry

Applied Biological Materials Clones for CNR1
Vectors and viruses for ORF, Lenti, Retro, Adenovirus, AAV, and more
CNR1

R&D Systems cDNA Clones for CNR1 (Cannabinoid R1/CB1/CNR1)

Cell Line Products

GenScript CNR1 - overexpressing Cell Line for Assay
GenScript Custom overexpressing Cell Line Services for CNR1

Browse ESI BIO Cell Lines and PureStem Progenitors for CNR1

Browse GeneCopoeia Cell Lines

Horizon Cell Lines for CNR1
CNR1 knockout cell line CNR1 knockout cell line

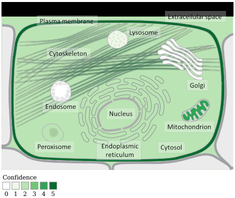
No data available for Enzyme Numbers (IUBMB) , Human Phenotype Ontology , Transcription Factor Targets and HOMER Transcription for CNR1 Gene

Localization for CNR1 Gene

Subcellular locations from UniProtKB/Swiss-Prot for CNR1 Gene

Cell membrane; Multi-pass membrane protein. Membrane raft. Mitochondrion outer membrane. Cell projection, axon. Note=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 (By similarity). Found on presynaptic axon terminals in some GABAergic neurons in the somatosensory cortex (By similarity). {ECO:0000250 UniProtKB:P20272, ECO:0000250 UniProtKB:P47746}.
P21554-CNR1_HUMAN

Subcellular locations from COMPARTMENTS



Compartment	Confidence
plasma membrane	5
cytoskeleton	5
mitochondrion	4
extracellular	2
peroxisome	2
nucleus	2
endoplasmic reticulum	2
cytosol	2
lysosome	1

Gene Ontology (GO) - Cellular Components for CNR1 Gene

GO ID	Qualified GO term	Evidence	PubMed IDs
GO:0005739	mitochondrion	IEA	
GO:0005741	mitochondrial outer membrane	IEA	
GO:0005886	plasma membrane	TAS	
GO:0005887	integral component of plasma membrane	TAS	1718258
GO:0016020	membrane	IEA	

GenesLikeMe Genes that share ontologies with CNR1: view

No data available for Subcellular locations from the Human Protein Atlas (HPA) for CNR1 Gene

Pathways & Interactions for CNR1 Gene

GeneAnalytics GENE SET ANALYSIS Identify cells, diseases, pathways, functions & compounds, relevant to your genes of interest SIGN UP FREE >

SuperPathways for CNR1 Gene

PathCards More details on SuperPathways for CNR1

	SuperPathway	Contained pathways			
1	**Peptide ligand-binding receptors**	Class A/1 (Rhodopsin-like receptors) GPCR ligand binding GPCRs, Class A Rhodopsin-like	0.71 0.71 0.42	G alpha (i) signalling events Neuroactive ligand-receptor interaction	0.42 0.37
2	**Signaling by GPCR**	GPCR downstream signaling Signaling by GPCR	0.76 0.76	Signal Transduction	0.52
3	**Ras signaling pathway**	Rap1 signaling pathway	0.34		
4	**GABAergic synapse**	Retrograde endocannabinoid signaling	0.36		
5	**Respiratory electron transport, ATP synthesis by chemiosmotic coupling, and heat production by uncoupling proteins.**	Thermogenesis	0.40		

GenesLikeMe Genes that share pathways with CNR1: view

Pathways by source for CNR1 Gene

6 BioSystems pathways for CNR1 Gene See All 6 »

- Brain-Derived Neurotrophic Factor (BDNF) signaling pathway
- Cell-type Dependent Selectivity of CCK2R Signaling
- GPCRs, Class A Rhodopsin-like
- GPCRs, Other
- N-cadherin signaling events

6 Reactome pathways for CNR1 Gene See All 6 »

- Class A/1 (Rhodopsin-like receptors)
- G alpha (i) signalling events
- GPCR downstream signaling
- GPCR ligand binding
- Signal Transduction

1 PharmGKB pathway for CNR1 Gene

- Ibuprofen Pathway, Pharmacodynamics

4 KEGG pathways for CNR1 Gene

- Neuroactive ligand-receptor interaction
- Rap1 signaling pathway
- Retrograde endocannabinoid signaling
- Thermogenesis

2 Qiagen pathways for CNR1 Gene

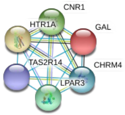
- CRHR Pathway
- Reelin Pathway (Cajal-Retzius cells)

3 Cell Signaling Technology pathways for CNR1 Gene

- Ca, cAMP and Lipid Signaling
- Glucose / Energy Metabolism
- Neuroscience

Interacting Proteins for CNR1 Gene

STRING Interaction Network Preview (showing 5 interactants - click image to see 25)



Selected Interacting proteins: ENSP00000358511 P21554-CNR1_HUMAN for CNR1 Gene via STRING UniProtKB IID

Symbol	External ID(s)	Details
HTR2A	ENSP00000367959 [20] P28223-1 [4] P28223 [137]	STRING: ENSP00000367959 EBI-2909859, EBI-15573967 IID: # pred=1
ADORA1	ENSP00000308549 [20] P30542 [137]	STRING: ENSP00000308549 IID: # pred=1
ADORA2A	ENSP00000336630 [20] P29274 [137]	STRING: ENSP00000336630 IID: # exp=1 # pred=2
ADRA2C	ENSP00000386069 [20] P18825 [137]	STRING: ENSP00000386069 IID: # pred=1
AGTR2	ENSP00000360973 [20] P50052 [137]	STRING: ENSP00000360973 IID: # pred=1

GPS-Prot Interaction Network for CNR1

Gene Ontology (GO) - Biological Process for CNR1 Gene

GO ID	Qualified GO term	Evidence	PubMed IDs
GO:0002866	positive regulation of acute inflammatory response to antigenic stimulus	IEA	
GO:0007165	signal transduction	IEA	
GO:0007186	G-protein coupled receptor signaling pathway	IEA,TAS	
GO:0007187	G-protein coupled receptor signaling pathway, coupled to cyclic nucleotide second messenger	TAS	1718258
GO:0007188	adenylate cyclase-modulating G-protein coupled receptor signaling pathway	IEA,IDA	18761332

GenesLikeMe Genes that share ontologies with CNR1: view

No data available for SIGNOR curated interactions for CNR1 Gene

Drugs & Compounds for CNR1 Gene

Products: Drug

GeneAnalytics GENE SET ANALYSIS Identify cells, diseases, pathways, functions & compounds, relevant to your genes of interest SIGN UP FREE >

(136) Drugs for CNR1 Gene - From: DrugBank, PharmGKB, ApexBio, DGIdb, IUPHAR, HMDB, Tocris, and Novoseek

	Name	Status	Disease Links	Group	Role	Mechanism of Action	Clinical Trials
	Rimonabant [22,24,25,89,95,109]	Approved, Investigational [24]	MalaCards Medline Plus	Pharma	Antagonist, antagonist, Target	CB1 receptor antagonist	↗
	Dronabinol [24,25,109,109,109]	Approved, Illicit [24]	MalaCards Medline Plus	Pharma	agonist, Target		↗
	Nabilone [22,24,25,109]	Approved, Investigational [24]	MalaCards Medline Plus	Pharma	Target, partial agonist		↗
	cannabidiol [22,24]	Approved, Investigational [24]	MalaCards Medline Plus	Pharma	Partial agonist, Agonist, Antagonist, Channel blocker, Activator, Target, antagonist, modulator		↗
	Cocaine [22,23]	Approved, Illicit [24]	MalaCards Medline Plus	Pharma			↗

(28) Additional Compounds for CNR1 Gene - From: Tocris, Novoseek, and IUPHAR

Name	Synonyms	Role	CAS Number	PubChem IDs	PubMed IDs
Delta^9-tetrahydrocannabinol [89]		Partial agonist, Agonist, Potentiation, Allosteric regulator, Full agonist, Activator, Channel blocker			7565624 8819477
(R)-(+)-Methanandamide [61]			157182-49-5		
ACEA [61]			220556-69-4		
ACPA [61]			229021-64-1		
Noladin ether [61]	(5Z,8Z,11Z,14Z)-Icosatetraenyl-2-glyceryl ether See all 10 »		222723-55-9	6483057	

(5) Tocris Compounds for CNR1 Gene

Compound	Action	Cas Number
(R)-(+)-Methanandamide	Potent and selective CB1 agonist	157182-49-5
ACEA	Potent, highly selective CB1 agonist	220556-69-4
ACPA	Potent, selective CB1 agonist	229021-64-1
Arvanil	Potent CB1 and TRPV1 agonist. Also anandamide transport inhibitor	128007-31-8
Noladin ether	Endogenous agonist for CB1 and GPR55	222723-55-9

(41) ApexBio Compounds for CNR1 Gene

See all 41 »

Compound	Action	Cas Number
(-)-5'-DMH-CBD		97452-63-6
(±)-SLV 319	CB1 receptor antagonist,potent and selective	362519-49-1
2-Palmitoylglycerol		23470-00-0
AM 1172	Inhibitor of anandamide uptake and FAAH,potent and selective	251908-92-6
AM 281	CB1 antagonist	202463-68-1

GenesLikeMe Genes that share compounds with CNR1: view

Drug Products

Tocris compounds for CNR1

ApexBio compounds for CNR1

Transcripts for CNR1 Gene

Products: CRISPR / miRNA / Inhibitory RNA / Clone

mRNA/cDNA for CNR1 Gene

(13) REFSEQ mRNAs : NM_001160226.1 NM_001160258.1 NM_001160259.1 NM_016083.4 NM_033181.3 See All 13 »

(16) Additional mRNA sequences : BX538191.1 X81120.1 BC037581.1 AK313908.1 BC074812.2 See All 16 »

(74) Selected AceView cDNA sequences: AI149484 BC074812 AA808253 AI433599 CK823364 AI168685 AA301133 NM_033181 Z39809 AA729268 Z43750 BG056131 R20626 NM_016083 BX538191 AA486681 AA729349 AA806678 AI784573 AA427378 BC074811 AA806670 T33929 AA433954 X81121 See All 74 »

(7) Ensembl transcripts including schematic representations, and UCSC links where relevant :

ENST00000369501 6031 bps (uc003pmq.5) ENST00000369499 5549 bps (uc021zco.3) ENST00000549890 2122 bps (uc063qad.1) ENST00000362094 1252 bps (uc063qae.1) ENST00000468898 1320 bps (uc010kca.4) See All 7 »

Unigene Clusters for CNR1 Gene

Cannabinoid receptor 1 (brain): Hs.75110

Representative Sequences: NM_001160258

CRISPR Products

OriGene CRISPR knockouts for CNR1
KN303573 KN210397

Search GeneCopoeia for CRISPR/Cas9 clones, lentivirus and AAV products for CNR1

genomics-online: gRNA clones - Search results for 111 available CNR1 gene related products
Overview of 111 available CNR1 gene related products
Recommended See all 6 »
pCMV6-XL4 pCMV6-Entry

Applied Biological Materials CRISPR for CNR1
Vectors and viruses for KO, Activation, Repression, and more
CNR1-CRISPR-CAS9-Knockout

Santa Cruz Biotechnology (SCBT) CRISPR for CNR1 See all 4 »
CB1 CRISPR/Cas9 KO Plasmid (h) CB1 CRISPR Activation Plasmid (h)

GenScript: Design CRISPR guide RNA sequences for CNR1

miRNA Products

GeneCopoeia miRNA 3'UTR Target clone products for CNR1

Browse SwitchGear 3'UTR luciferase reporter plasmids

Browse OriGene miRNA Products For CNR1

Inhibitory RNA Products

Origene shrna, sirna, and RNAi products in human, mouse, rat for CNR1
Browse OriGene Inhibitory RNA Products For CNR1

Search GeneCopoeia for shRNA, lentivirus and/or AAV clone products for CNR1

genomics-online: shRNA clones - Search results for 111 available CNR1 gene related products
Overview of 111 available CNR1 gene related products
Recommended See all 6 »
pCMV6-XL4 pCMV6-Entry

Search Santa Cruz Biotechnology (SCBT) for CNR1 siRNA/shRNA

Clone Products

OriGene clones in human for CNR1 See all 6 »
SC327550 SC327551
OriGene ORF clones in human for CNR1 See all 32 »
RC228915L1V RC228915L2V
Custom cloning services - gene synthesis, subcloning, mutagenesis, variant library, vector shuttling

GenScript: Next-day shipping of latest version cDNA ORF clones for CNR1 in any vector
NM_016083.4 NM_033181.3 See all 21 »

Sino Biological Human cDNA Clone for CNR1

VectorBuilder custom plasmid, inducible vectors for CNR1
VectorBuilder custom lentivirus, adenovirus, AAV vector/virus packaging for CNR1
VectorBuilder Other custom vectors See all 7 »

Addgene plasmids for CNR1

Search GeneCopoeia for ORF cDNA, lentivirus, AAV viral particles and/or promoter clone products for CNR1

genomics-online: cdna clones - Search results for 111 available CNR1 gene related products
Overview of 111 available CNR1 gene related products
Recommended See all 6 »
pCMV6-XL4 pCMV6-Entry
orf clones - Search results for 111 available CNR1 gene related products
Overview of 111 available CNR1 gene related products
Recommended See all 6 »
pCMV6-XL4 pCMV6-Entry

Applied Biological Materials Clones for CNR1
Vectors and viruses for ORF, Lenti, Retro, Adenovirus, AAV, and more
CNR1

R&D Systems cDNA Clones for CNR1 (Cannabinoid R1/CB1/CNR1)

Alternative Splicing Database (ASD) splice patterns (SP) for CNR1 Gene

```
ExUns: 1a · 1b ^ 2a · 2b
SP1:       -
SP2:           -
```

Relevant External Links for CNR1 Gene

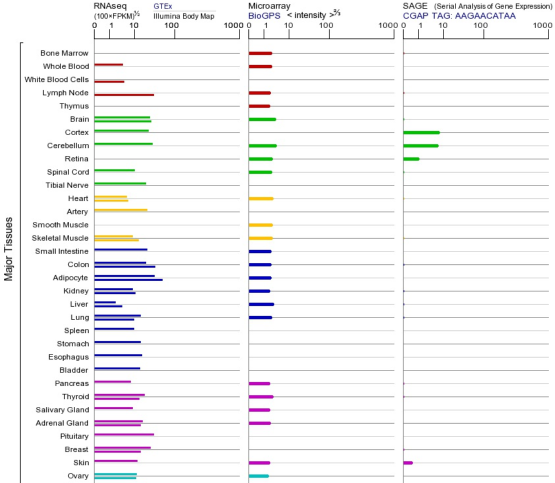
GeneLoc Exon Structure for CNR1
ECgene alternative splicing isoforms for CNR1

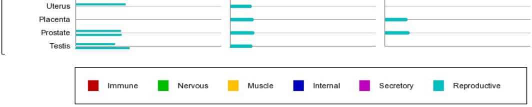
Expression for CNR1 Gene

Products: Primer / Gene Expression Assay

GeneAnalytics
GENE SET ANALYSIS
Identify cells, diseases, pathways, functions & compounds, relevant to your genes of interest
SIGN UP FREE >

mRNA expression in normal human tissues from GTEx, Illumina, BioGPS, and CGAP SAGE for CNR1 Gene





Show more Show more

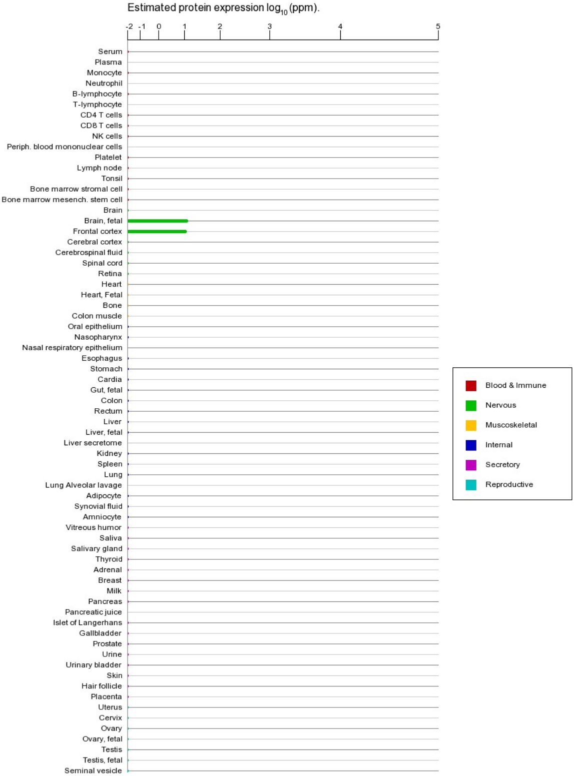
mRNA expression in embryonic tissues and stem cells from **LifeMap Discovery** See all 7 »

Neural Tube (Nervous System)
    Telencephalon
    Diencephalon
    Metencephalic Alar Plate
Eye (Sensory Organs)
    nGnG Amacrine Cells   Inner Nuclear Layer
    Corneal Epithelium
Neurons
    nGnG Amacrine Cells   Inner Nuclear Layer
Brain (Nervous System)
    Cerebellum
Umbilical Cord (Extraembryonic Tissues)
    Umbilical Arteries

Protein differential expression in normal tissues from HIPED for CNR1 Gene

This gene is overexpressed in Fetal Brain (35.8) and Frontal cortex (33.2).

Integrated Proteomics: protein expression in normal tissues and cell lines from **ProteomicsDB** and MOPED for CNR1 Gene



Show more

Protein tissue co-expression partners for CNR1 Gene

NOVA1 , FAM171B , DOC2B , SERP2 , SYT13 , TMEFF2 , KCND2 , SLC6A7 , PCDHGA2 , SNN See All 106 »
- Elite partner

NURSA nuclear receptor signaling pathways regulating expression of CNR1 Gene: CNR1

SOURCE GeneReport for Unigene cluster for CNR1 Gene: Hs.75110

mRNA Expression by UniProt/SwissProt for CNR1 Gene: P21554-CNR1_HUMAN

Tissue specificity: Widely expressed, with highest levels in fetal and adult brain. Expression levels of isoform 2 and isoform 3 are much lower than those of isoform 1.

Evidence on tissue expression from TISSUES for CNR1 Gene

Nervous system(4.9), Lung(4.3), Blood(2.2), Intestine(2), Muscle(2)

GenesLikeMe Genes that share expression patterns with CNR1: view

Primer Products

OriGene qPCR primer pairs and template standards for CNR1
HK202086 HK211452
OriGene qPCR primer pairs for CNR1
HP227608 MP201668

genomics-online: primer clones - Search results for 111 available CNR1 gene related products
Overview of 111 available CNR1 gene related products
Recommended See all 6 »
pCMV6-XL4 pCMV6-Entry

Gene Expression Assay Products

Applied Biosystems by Thermo Fisher Scientific TaqMan® Assays for CNR1

No data available for mRNA differential expression in normal tissues and Phenotype-based relationships between genes and organs from Gene ORGANizer for CNR1 Gene

Orthologs for CNR1 Gene

This gene was present in the common ancestor of chordates.

Orthologs for CNR1 Gene

See all 13 »

Organism	Taxonomy	Gene	Similarity	Type	Details
mouse (Mus musculus)	Mammalia	Cnr1[16, 34, 33]	90.54 (n)		33924593 4:33924593-33948831 12801 NM_007726.3 NP_031752.1
chicken (Gallus gallus)	Aves	CNR1[34, 33]	81.95 (n)	OneToOne	3:75580393-75593814 428633 NM_001038652.1 NP_001033741.1
lizard (Anolis carolinensis)	Reptilia	CNR1[34]	87 (a)	OneToOne	1:175942665-175944111
African clawed frog (Xenopus laevis)	Amphibia	cnr1-A[33]			AY098532.1
zebrafish (Danio rerio)	Actinopterygii	cnr1[34, 33]	70.61 (n)	OneToOne	20:925721-933262 404209 NM_212820.1 NP_997985.1

Species where no ortholog for CNR1 was found in the sources mined by GeneCards: A. gosspyii yeast (Ashbya gossypii) See all 44 »

Evolution for CNR1 Gene

ENSEMBL: Gene Tree for CNR1 (if available)
TreeFam: Gene Tree for CNR1 (if available)

Aminode: Evolutionary constrained regions (ECRs) for CNR1: view image

Paralogs for CNR1 Gene

Paralogs for CNR1 Gene

CNR2[5] S1PR3[5] S1PR1[5] LPAR1[5] S1PR5[5] See all 12 »

(4) SIMAP similar genes for CNR1 Gene using alignment to 6 proteins: CNR1_HUMAN See all proteins »

CNR2 LPAR1 EDG2 EDG1

GenesLikeMe Genes that share paralogs with CNR1: view

Variants for CNR1 Gene

Products: SNP Genotyping and Copy Number Assay

VarElect NGS PHENOTYPER Rapid prioritization of variants from NGS data powered by 100+ GeneCards sources SIGN UP FREE >

Sequence variations from dbSNP and Humsavar for CNR1 Gene

SNP ID	Clin	Chr06pos	Variation	AA Info	Type
rs1000139586[5]	--	88,166,546(-)	G/A	↗	genic_upstream_transcript_variant, intron_variant, upstream_transcript_variant
rs1000225400[5]	--	88,154,370(-)	T/C	↗	genic_upstream_transcript_variant, intron_variant
rs1000453745[5]	--	88,158,888(-)	T/C	↗	genic_upstream_transcript_variant, intron_variant
rs1000600398[5]	--	88,150,201(-)	C/G	↗	5_prime_UTR_variant, genic_upstream_transcript_variant, intron_variant
rs1000703054[5]	--	88,165,045(-)	TTTCTTTT/TTT	↗	genic_upstream_transcript_variant, intron_variant

Structural Variations from Database of Genomic Variants (DGV) for CNR1 Gene

See all 8 »

Variant ID	Type	Subtype	PubMed ID
dgv6086n100	CNV	gain	25217958
dgv775n27	CNV	gain	19166990
esv2763586	CNV	gain	21179565
esv3609879	CNV	gain	21293372
nsv519365	CNV	gain	19592680

Variation tolerance for CNR1 Gene

Residual Variation Intolerance Score: 15.6% of all genes are more intolerant (likely to be disease-causing)
Gene Damage Index Score: 0.43; 9.46% of all genes are more intolerant (likely to be disease-causing)

Additional Variant Information for CNR1 Gene

Human Gene Mutation Database (HGMD) CNR1
SNPedia medical, phenotypic, and genealogical associations of SNPs for CNR1

SNP Genotyping and Copy Number Assay Products

Applied Biosystems by Thermo Fisher Scientific TaqMan® Assays for CNR1

No data available for Polymorphic Variants from UniProtKB/Swiss-Prot for CNR1 Gene

Disorders for CNR1 Gene

MalaCards HUMAN DISEASE DATABASE **(37) MalaCards diseases for CNR1 Gene - From: HGMD, DISEASES, Novoseek, and GeneCards**

TGex
Rapid diagnosis of genetic disorders based on > 100 GeneCards sources
Analyze your NGS data >

Disorder	Aliases	PubMed IDs
cannabis dependence [1 22 43 76]	marijuana abuse	🔍
chronic pain [1 43]	pain - chronic	
cannabis abuse [22 43 76]	marijuana abuse	🔍
anxiety [1 22 43 76]	anxiety disorder See all 4 »	🔍
hallucinogen dependence [43 76]		

- elite association - COSMIC cancer census association via MalaCards
Search CNR1 in MalaCards View complete list of genes associated with diseases

UniProtKB/Swiss-Prot CNR1_HUMAN

- Obesity (OBESITY) [MIM:601665]: 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. {ECO:0000269 PubMed:18177726}. Note=The protein represented in this entry may be involved in disease pathogenesis. May contribute to the development of diet-induced obesity and several obesity-associated features, such as dyslipidemia and liver steatosis, regulating peripheral lipogenesis, energy expenditure and feeding behavior. CNR1 inverse agonists have been shown to reduce body weight and improve metabolic abnormalities in obese subjects, although adverse neuropsychiatric effects, including anxiety, irritability, and depressed mood, halted their therapeutic development (PubMed:18177726). In obese mice, peripherally restricted CNR1 inverse agonists have been shown to normalize metabolic abnormalities, including insulin resistance and fatty liver, and to reverse leptin resistance. {ECO:0000269 PubMed:18177726}.

Additional Disease Information for CNR1

Genetic Association Database (GAD)
Human Genome Epidemiology Navigator (HuGE)
ATLAS of Genetics and Cytogenetics in Oncology and Haematology

GenesLikeMe Genes that share disorders with CNR1: view

Search disorders for CNR1 gene in PubMed and other databases

No data available for Genatlas for CNR1 Gene

Publications for CNR1 Gene

1. A common polymorphism in the cannabinoid receptor 1 (CNR1) gene is associated with antipsychotic-induced weight gain in Schizophrenia. (PMID: 20107430) Tiwari AK … Müller DJ Neuropsychopharmacology : official publication of the American College of Neuropsychopharmacology 2010 [3 22 44 58]
2. Association of polymorphisms of the cannabinoid receptor (CNR1) and fatty acid amide hydrolase (FAAH) genes with heroin addiction: impact of long repeats of CNR1. (PMID: 20010914) Proudnikov D … Kreek MJ The pharmacogenomics journal 2010 [3 22 44 58]
3. Hepatic expression of endocannabinoid receptors and their novel polymorphisms in primary biliary cirrhosis. (PMID: 19730968) Floreani A … Bergasa NV Journal of gastroenterology 2010 [3 22 44 58]
4. Evidence for association between polymorphisms in the cannabinoid receptor 1 (CNR1) gene and cannabis dependence. (PMID: 19016476) Agrawal A … Foroud T American journal of medical genetics. Part B, Neuropsychiatric genetics : the official publication of the International Society of Psychiatric Genetics 2009 [3 22 44 58]
5. Variations in the cannabinoid receptor 1 gene predispose to migraine. (PMID: 19539700) Juhasz G … Bagdy G Neuroscience letters 2009 [3 22 44 58]

Search for latest publications for CNR1 gene in PubMed and other databases

Products for CNR1 Gene

- R&D Systems Antibodies for CNR1 (Cannabinoid R1/CB1/CNR1)
- R&D Systems Peptides for CNR1 (Cannabinoid R1/CB1/CNR1)
- Browse R&D Systems for biochemical assays
- R&D Systems cDNA Clones for CNR1 (Cannabinoid R1/CB1/CNR1)
- Browse Human Proteins and Enzymes
- Browse Primary Antibodies
- Browse Proteins and Enzymes
- Browse ELISAs
- Browse Activity Assays
- Browse cDNA Clones
- Browse Cell Culture Products
- Browse Cell Selection and Detection Kits
- Browse DNA Damage and Repair Kits
- Browse ELISpot/FluoroSpot Kits and Development Modules
- Browse Flow Cytometry Kits
- Browse Immunoprecipitation Assays
- Browse Luminex Assays
- Browse Peptides
- Browse Proteome Profiler Antibody Arrays
- Browse Small Molecules

- OriGene Antibodies for CNR1
  AP01265PU-N AP54820SU-N
  Custom Antibody Services
- Browse OriGene ELISA Kits
- Custom Assay Services
- Search Origene for Purified Proteins, MassSpec and Protein Over-expression Lysates for CNR1
- Origene Custom Protein Services for CNR1
- Origene shrna, sirna, and RNAi products in human, mouse, rat for CNR1
- Browse OriGene Inhibitory RNA Products For CNR1
- OriGene qPCR primer pairs and template standards for CNR1
  HK202086 HK211452
- OriGene qPCR primer pairs for CNR1
  HP227608 MP201668
- OriGene CRISPR knockouts for CNR1
  KN303573 KN210397
- OriGene clones in human for CNR1
  SC327550 SC327551
- OriGene ORF clones in human for CNR1
  RC228915L1V RC228915L2V
- Custom cloning services - gene synthesis, subcloning, mutagenesis, variant library, vector shuttling
- Browse OriGene miRNA Products For CNR1

- GenScript: Next-day shipping of latest version cDNA ORF clones for CNR1 in any vector
  NM_016083.4 NM_033181.3
- GenScript Custom Purified and Recombinant Proteins Services for CNR1
- GenScript Activity-based Kinase Assay for Compound Screening for CNR1
- GenScript Custom Assay Services for CNR1
- GenScript CNR1 - overexpressing Cell Line for Assay
- GenScript Custom overexpressing Cell Line Services for CNR1
- GenScript: Design CRISPR guide RNA sequences for CNR1
- Design optimal peptide antigens
- CloneReady with Over 120,000 Genes
- Gene Synthesis: Any Gene in Any Vector
- Vector-based siRNA and miRNA, Ready for Transfection
- Gene Mutant Library, Variants up to 10^11
- Plasmid Preparation
- GenScript Custom Peptide Services for CNR1

- Tocris compounds for CNR1

- Sino Biological Human cDNA Clone for CNR1
- Browse Sino Biological Recombinant Proteins
- Browse Sino Biological Cell Lysates
- Browse Sino Biological Antibodies
- Browse Sino Biological Assays
- Browse cDNA Clones
- Browse ELISA Kits
- Browse CRO Services
- High-throughput Antibody Production Service
- Protein Production Service
- Epitope Tag Antibodies & Reporter Protein Antibodies
- Lentiviral ORF Clones

- Novus Biologicals Antibodies for CNR1
- Novus Biologicals proteins and lysates for CNR1
- Novus Biologicals
- Novus Biologicals Tissue Microarrays
- Browse Antibodies
- Browse Peptides and Proteins
- Browse Lysates
- Browse ELISA Kits

- Abcam antibodies for CNR1
  Cannabinoid Receptor I
- Abcam proteins for CNR1
  Cannabinoid Receptor I
- Find your target
- Browse Primary Antibodies
- Browse Conjugated Primary Antibodies
- Browse Secondary Antibodies
- Browse ELISA Kits
- Browse Matched Antibody Pairs
- Browse Proteins and Peptides
- Search Knockout (KO) Validated Antibodies
- Browse Monoclonal Antibodies
- Browse Recombinant Antibodies

- Browse ProSpec Recombinant Proteins

- Browse ESI BIO Cell Lines and PureStem Progenitors for CNR1

- Taconic Biosciences Mouse Models for CNR1
  Cnr1 Cnr1 - Model 7599 - cKO
- Find your next knockout model in the Taconic Knockout Repository
- Genetically Engineered Models Available Immediately
- Humanized Mice

- Browse SwitchGear 3'UTR luciferase reporter plasmids
- SwitchGear CNR1 promoter sequence
- Browse SwitchGear Promoter luciferase reporter plasmids

- Invitrogen Antibodies for CNR1

- ApexBio compounds for CNR1

- Cyagen custom Knockout/knockin (KOKI) mouse models for CNR1
- Cyagen custom CRISPR mouse and rat models for CNR1
- Cyagen custom transgenic mouse and rat models for CNR1

- VectorBuilder custom plasmid, inducible vectors for CNR1
- VectorBuilder custom lentivirus, adenovirus, AAV vector/virus packaging for CNR1
- VectorBuilder Other custom vectors

- Addgene plasmids for CNR1

- antibodies-online: Search results for 170 available CNR1 Antibodies ranked by validation data
- Compare Top CNR1 Antibodies
- Recommended
  102 WB Antibodies (anti-human)
  17 FACS Antibodies (anti-human)
- antibodies-online: Search results for 38 available CNR1 Elisa Kits ranked by validation data
- Compare Top CNR1 Elisa Kits
- Recommended
  2 Chicken ELISA Kits
  1 Cow (Bovine) ELISA Kit
- antibodies-online: Search results for 8 available CNR1 Proteins ranked by validation data
- Compare Top CNR1 Proteins

- GeneTex CNR1 Antibody for CNR1
- Search GeneTex for Proteins for CNR1

- Santa Cruz Biotechnology (SCBT) Antibodies for CNR1
  CB1 (2F9)
- Search Santa Cruz Biotechnology (SCBT) for CNR1 siRNA/shRNA
- Santa Cruz Biotechnology (SCBT) CRISPR for CNR1
  CB1 CRISPR/Cas9 KO Plasmid (h)
  CB1 CRISPR Activation Plasmid (h)

- Search for CNR1 Antibodies at ProSci
- Custom Antibody Services
- Search for CNR1 Proteins at ProSci

- Horizon Cell Lines for CNR1
  CNR1 knockout cell line
  CNR1 knockout cell line

- genomics-online: cdna clones - Search results for 111 available CNR1 gene related products
- Overview of 111 available CNR1 gene related products
- Recommended
  pCMV6-XL4 pCMV6-Entry
- orf clones - Search results for 111 available CNR1 gene related products
- Overview of 111 available CNR1 gene related products
- Recommended
  pCMV6-XL4 pCMV6-Entry
- genomics-online: gRNA clones - Search results for 111 available CNR1 gene related products
- Overview of 111 available CNR1 gene related products
- Recommended
  pCMV6-XL4 pCMV6-Entry
- genomics-online: primer clones - Search results for 111 available CNR1 gene related products
- Overview of 111 available CNR1 gene related products
- Recommended
  pCMV6-XL4 pCMV6-Entry
- genomics-online: shRNA clones - Search results for 111 available CNR1 gene related products
- Overview of 111 available CNR1 gene related products
- Recommended
  pCMV6-XL4 pCMV6-Entry

- Biorbyt antibodies for CNR1
  orb10430 orb412001

- Applied Biosystems by Thermo Fisher Scientific TaqMan® Assays for CNR1

- Browse GeneCopoeia Cell Lines
- Search GeneCopoeia for CRISPR/Cas9 clones, lentivirus and AAV products for CNR1
- Search GeneCopoeia for ORF cDNA, lentivirus, AAV viral particles and/or promoter clone products for CNR1
- GeneCopoeia miRNA 3'UTR Target clone products for CNR1
- Search GeneCopoeia for shRNA, lentivirus and/or AAV clone products for CNR1

- Boster Bio Antibodies for CNR1
  A01291-Dyl550 A01291-1
- Browse Boster Bio ELISA Kits

Sources for CNR1 Gene

(1) GeneCards
(2) HGNC
(3) EntrezGene
(4) Swiss-Prot
(5) Ensembl
(6) OMIM
(7) GeneLoc
(8) Gene Wiki
(9) UCSC
(10) PhosphoSitePlus
(11) GO
(12) TrEMBL
(13) InterPro
(14) ProtoNet
(15) Blocks
(16) MGI
(17) IUBMB
(18) KEGG
(19) MINT
(20) STRING
(21) IntAct
(22) Novoseek
(23) PharmGKB
(24) DrugBank
(25) HMDB
(26) UniGene
(27) AceView
(28) ASD
(29) ECgene
(30) GeneAnnot
(31) CGAP SAGE
(32) SOURCE
(33) HomoloGene
(34) PanEnsembl
(35) euGenes
(36) SGD
(37) FlyBase
(38) WormBase
(39) Pseudogene
(40) DGV
(41) dbSNP
(42) GenAtlas
(43) HGMD
(44) GAD
(45) BGMUT
(46) HuGE
(47) Atlas
(48) Cell Signaling Technology
(49) GenBank
(50) H-invDB
(51) HORDE
(52) HUGE
(53) IMGT
(54) Leiden
(55) miRBase
(56) DME
(57) OriGene
(58) PubMed
(59) R&D Systems
(60) TGDB
(61) Tocris
(62) Abcam
(63) Novus Biologicals
(64) ProSpec
(65) Sino Biological
(66) GenScript
(67) Qiagen
(68) Cloud-Clone Corp.
(69) OCA
(70) Proteopedia
(71) MOPED
(72) neXtProt
(73) Reactome
(74) GeneGo (Thomson Reuters)
(75) fRNAdb
(76) DISEASES
(77) SIMAP
(78) GenomeRNAi
(79) LifeMap
(80) miRTarBase
(81) MalaCards
(82) Invitrogen
(83) BitterDB
(84) Vector BioLabs
(85) ESI-BIO
(86) RefSeq
(87) BioSystems
(88) MaxQB
(89) IUPHAR
(90) BioGPS
(91) Illumina
(92) COMPARTMENTS
(93) HOMER
(94) PaxDb
(95) ApexBio
(96) Addgene
(97) antibodies-online
(98) CYP
(99) NONCODE
(100) SwitchGear Genomics
(101) TreeFam
(102) PathCards
(103) GeneReviews
(104) GeneTex
(105) Taconic Biosciences
(106) GTEx
(107) ProteomicsDB
(108) SCBT
(109) DGIdb
(110) ClinicalTrials
(111) FDA Approved Drugs
(112) RVIS
(113) SIGNOR
(114) diseasecard
(115) NIH Rare Diseases
(116) Orphanet
(117) UMLS
(118) GTR
(119) Disease Ontology
(120) Genetics Home Reference
(121) MeSH
(122) MedlinePlus
(123) CDC
(124) NINDS
(125) NCBI Bookshelf
(126) ClinVar
(127) Gene Damage Index
(128) ViGene Biosciences
(129) HPO
(130) UDN
(131) VISTA
(132) FANTOM5
(133) ENCODE
(134) ProSci
(135) Horizon
(136) NURSA
(137) IID
(138) Cyagen
(139) VectorBuilder
(140) SNPedia
(141) BRCA Exchange
(142) St John's Lab
(143) CIViC
(144) ProteoGenix
(145) dbSUPER
(146) TISSUES
(147) Gene ORGANizer
(148) abm
(149) CrownBio
(150) Human Protein Atlas
(151) GWAS Catalog
(152) Monarch Initiative
(153) DataMed
(154) HumanCyc
(155) genomics-online
(156) UCNEbase
(157) EPDnew
(158) Applied Biosystems
(159) GlyConnect
(160) Aminode
(161) GeneCopoeia
(162) GPS-Prot
(163) RNACentral
(164) LncRNADisease
(165) LOVD
(166) miR2Disease
(167) DiseaseEnhancer
(168) Boster Bio
(169) Biorbyt

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