

CNR1 Protein, Rat (Cell-Free, His)

Cat. No.:	HY-P702254
Synonyms:	Cannabinoid receptor 1; Brain-type cannabinoid receptor; CB-R; CB1
Species:	Rat
Source:	E. coli Cell-free
Accession:	P20272 (M1-L473)
Gene ID:	25248
Molecular Weight:	58.9 kDa

PROPERTIES

AA Sequence	<pre> M K S I L D G L A D T T F R T I T T D L L Y V G S N D I Q Y E D I K G D M A S K L G Y F P Q K F P L T S F R G S P F Q E K M T A G D N S P L V P A G D T T N I T E F Y N K S L S S F K E N E E N I Q C G E N F M D M E C F M I L N P S Q Q L A I A V L S L T L G T F T V L E N L L V L C V I L H S R S L R C R P S Y H F I G S L A V A D L L G S V I F V Y S F V D F H V F H R K D S P N V F L F K L G G V T A S F T A S V G S L F L T A I D R Y I S I H R P L A Y K R I V T R P K A V V A F C L M W T I A I V I A V L P L L G W N C K K L Q S V C S D I F P L I D E T Y L M F W I G V T S V L L L F I V Y A Y M Y I L W K A H S H A V R M I Q R G T Q K S I I I H T S E D G K V Q V T R P D Q A R M D I R L A K T L V L I L V V L I I C W G P L L A I M V Y D V F G K M N K L I K T V F A F C S M L C L L N S T V N P I I Y A L R S K D L R H A F R S M F P S C E G T A Q P L D N S M G D S D C L H K H A N N T A S M H R A A E S C I K S T V K I A K V T M S V S T D T S A E A L </pre>
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.22 µm filtered solution of Tris/PBS-based buffer, 6% Trehalose, pH 8.0.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O. For long term storage it is recommended to add 5-50% of glycerol (final concentration). Our default final concentration of glycerol is 50%. Customers could use it as reference.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background

The CNR1 protein functions as a G-protein coupled receptor for cannabinoids, including endocannabinoids such as N-arachidonylethanolamide (anandamide or AEA) and 2-arachidonoylglycerol (2-AG). Mediating various cannabinoid-induced effects, it plays a role in processes such as food intake, memory, gastrointestinal motility, catalepsy, ambulatory activity, anxiety, and chronic pain. Signaling typically involves a reduction in cyclic AMP. In the hypothalamus, CNR1 exhibits a dual effect on mitochondrial respiration, increasing respiration at low doses and decreasing it at high doses. High-dose signaling involves G-protein alpha-i protein activation, subsequent inhibition of mitochondrial soluble adenylate cyclase, a decrease in cyclic AMP concentration, and inhibition of protein kinase A (PKA)-dependent phosphorylation of specific subunits of the mitochondrial electron transport system. In the hypothalamus, it inhibits leptin-induced reactive oxygen species (ROS) formation and mediates cannabinoid-induced increases in SREBF1 and FASN gene expression. In response to cannabinoids, CNR1 drives the release of orexigenic beta-endorphin, promoting food intake. In the hippocampus, it regulates cellular respiration and energy production in response to cannabinoids. Additionally, CNR1 is involved in cannabinoid-dependent processes such as depolarization-induced suppression of inhibition, reduction of excitatory synaptic transmission, inhibition of voltage-gated Ca(2+) channels, induction of leptin production in adipocytes, and reduction of LRP2-mediated leptin clearance in the kidney. In adipose tissue and the liver, CNR1 signaling leads to increased expression of various genes related to lipogenesis and metabolism. Furthermore, CNR1 may modulate energy metabolism and affect inflammation, contributing to processes such as obesity and type-2 diabetes. Notably, hemopressin, a peptide derived from hemoglobin subunit alpha, acts as an antagonist peptide, efficiently blocking CNR1 and subsequent signaling.

Caution: Product has not been fully validated for medical applications. For research use only.

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