OPRM1 Protein, Human (Cell-Free, His)

Cat. No.:	HY-P702403
Synonyms:	Mu-type opioid receptor; Mu opiate receptor; Mu opioid receptor; MOP; hMOP
Species:	Human
Source:	E. coli Cell-free
Accession:	P35372 (M1-P400)
Gene ID:	4988
Molecular Weight:	Monomer: 43 kDaDimer:100 kDaIt is speculated that the proteinforms a dimeric structure.

PROPERTIES

AA Sequence	M D S S A A P T N A S N C T D A L A Y S S C S P A P S P G S W V N L S H L D G N L S D P C G P N R T D L G G R D S L C P P T G S P S M I T A I T I M A L Y S I V C V V G L F G N F L V M Y V I V R Y T K M K T A T N I Y I F N L A L A D A L A T S T L P F Q S V N Y L M G T W P F G T I L C K I V I S I D Y Y N M F T S I F T L C T M S V D R Y I A V C H P V K A L D F R T P R N A K I I N V C N W I L S S A I G L P V M F M A T T K Y R Q G S I D C T L T F S H P T W Y W E N L L K I C V F I F A F I M P V L I I T V C Y G L M I L R L K S V R M L S G S K E K D R N L R R I T R M V L V V V A V F I V C W T P I H I Y V I I K A L V T I P E T T F Q T V S W H F C I A L G Y T N S C L N P V L Y A F L D E N F K R C F R E F C I P T S S N I E Q Q N S T R I R Q N T R D H P S T A N T V D R T N H Q L E N L E A E T A P L P
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.22 μm filtered solution of 20 mM Tris-HCl, 0.15 M NaCl, 0.05% Brij-78, 6% Trehalose, pH 8.0.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O. 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	OPRM1 serves as a receptor for a range of endogenous opioids, including beta-endorphin and endomorphin, as well as

responding to various natural and synthetic opioids like morphine, heroin, DAMGO, fentanyl, etorphine, buprenorphine, and methadone. Upon agonist binding, the receptor undergoes conformational changes, leading to the activation of downstream signaling cascades. Agonist-induced activation involves coupling to an inactive GDP-bound heterotrimeric G-protein complex, initiating dissociation of the G-protein complex, and subsequent activation of G-protein alpha subunits, particularly the pertussis toxin-sensitive G(i) and G(o) G alpha proteins. This activation leads to a multitude of cellular responses, including the inhibition of adenylate cyclase activity, modulation of calcium channels, activation of potassium channels, and regulation of various intracellular signaling pathways such as MAPK, PLC, PKC, PI3K, and NF-kappa-B. Additionally, OPRM1 undergoes phosphorylation by GPRK subfamily protein kinases, and its association with beta-arrestins is crucial for short-term receptor desensitization, internalization through endocytosis, and subsequent recycling. The receptor, acting as a class A G-protein coupled receptor (GPCR), exhibits selective temporal coupling to G-proteins and undergoes rapid recycling, while its down-regulation pathways vary with the agonist and can occur dependent or independent of G-protein coupling. Furthermore, OPRM1 has the potential for heterooligomerization with other GPCRs, influencing agonist binding, signaling, and trafficking properties, ultimately playing a role in excitatory effects.

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