

Recombinant Human FPR1 Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50341

Size: 10ug, 100ug

Protein Name: N-formyl peptide receptor 1 (N-formylpeptide chemoattractant receptor) (fMet-Leu-Phe receptor) (fMLP receptor)

Synonym: FPR1

UniProt ID: P21462

UniProt Link: www.uniprot.org/uniprotkb/P21462/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 350 AA

Molecular Weight: 38 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

METNSSLPNTNISGGTPAVSAGYLFLDIITYLVFAVTFVLGVLGNGLVIWVAGFRMTHTVTTISYLNLAVAL
DFCFTSTLPFFMVRKAMGGHWPFGWFLCKFVFTIVDINLFGSVFLIALIALDRCVCLHPVWTQNHRT
VSLAKKVIIGPWVMAALLLTLPVIIRVTTVPGKTGTVACTFNFSPTWNDPKERINVAVAMLTVRGIIRFIIG
FSAPMSIVAVSYGLIATKIHKQGLIKSSRPLRVLSFVAAFFLCWSPYQVVALIATVRIRELLQGMYPEI
GIAVDVTSALAFFNSCLNPMLYVFMGQDFRERLIHALPASLERALTEDSTQTSSTATNSTLPSAEVEL
QAK

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions



Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant N-formyl peptide receptor 1 (N-formylpeptide chemoattractant receptor) (fMet-Leu-Phe receptor) (fMLP receptor) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Pattern recognition G protein-coupled receptor (PRR/GPCR) involved in innate recognition of N-formyl-methionyl peptides derived from invading microbes and host mitochondria as pathogen- and damage-associated molecular patterns (PAMPs and DAMPs). Functions as a sensor of PAMPs and DAMPs released upon microbial infection or tissue damage, triggering immune cell activation and chemotaxis to eliminate pathogens and restore tissue homeostasis (PubMed:24108355, PubMed:25605714, PubMed:35217703, PubMed:36064945). Peptide binding leads to conformational changes coupled to heterotrimeric G(i) protein signaling. Upon GDP to GTP conversion, G(i)-alpha subunit dissociates from G-beta and G-gamma subunits. Free G(i)-alpha subunit inhibits cyclic adenylylase and cAMP synthesis whereas the G-beta and G-gamma dimer activates downstream phospholipase C-beta and phosphoinositide 3-kinase signaling cascades leading to Ca(2+) influx (PubMed:10514456, PubMed:15153520, PubMed:1712023, PubMed:25605714, PubMed:35217703, PubMed:36064945). Displays two affinity states for peptide agonists, low and high, likely accounting for selective signaling of myeloid cell functions at different phases of the inflammatory response. Subnanomolar concentrations of peptide agonists induce myeloid cell chemotaxis, whereas micromolar concentrations trigger degranulation and superoxide production (PubMed:2161213, PubMed:2176894, PubMed:24108355, PubMed:25605714). May recognize a myriad of bacterial signal peptides indicative of an evolutionary conserved detection mechanism in host defense against bacterial infection. Triggers bactericidal functions of neutrophils and phagocytes in response to N-formyl-Met-Leu-Phe (fMLF) which is part of the signal peptide sequences of hundreds distinct bacterial strains (PubMed:25605714). In the homeostatic wound healing response to tissue injury, senses 'necrotaxis' DAMP-type signals released in the form of mitochondria-derived N-formylated peptides and guides neutrophil trafficking toward necrotic cells within the injury site (By similarity). In the context of antitumor immunity, interacts with ANXA1 and guides dendritic cell positioning in close proximity to necrotic tumor cells, allowing for tumor-associated antigen uptake and cross-presentation to T cells (PubMed:24108355, PubMed:26516201). Receptor for TAFA4, mediates its effects on chemoattracting macrophages, promoting phagocytosis and increasing reactive oxygen species (ROS) release (PubMed:25109685). Receptor for cathepsin CTSG, leading to increased phagocyte chemotaxis (PubMed:15210802). Beyond canonical N-terminal formylated peptide agonists, can also be activated by C-terminal amidated peptides, which appear to all share a tripartite structure motif oriented around a carboxyl group (PubMed:24108355, PubMed:25605714). Differential signaling is also defined by receptor oligomerization state. Pro-resolving ligands, such as lipoxin A4 or ANXA1, induce the formation of FPR1:FPR2 heterodimers triggering proapoptotic JNK pathway in neutrophils (PubMed:24108355).; (Microbial infection) Used by *Y. pestis* as a receptor on human immune cells. Upon infection, *Y. pestis* releases N-formyl peptides that activate FPR1-mediated immune signaling and chemotaxis. This leads to *Y. pestis* docking on FPR1 via the IcrV needle cap protein of its type III secretion system (T3SS) followed by the delivery of effector proteins into host immune cells, ultimately triggering immune cell apoptosis.

Subcellular Localization: Cell membrane ; Multi-pass membrane protein . Note=Internalizes in presence of its ligands, fMLP, TAFA4 and CTSG.

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.



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- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.