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FPR1 Antibody

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP51950

Product Information

Application	WB
Primary Accession	P21462
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Calculated MW	38446

Additional Information

Gene ID	2357
Other Names	fMet-Leu-Phe receptor, fMLP receptor, N-formyl peptide receptor, FPR, N-formylpeptide chemoattractant receptor, FPR1
Target/Specificity	KLH-conjugated synthetic peptide encompassing a sequence within the center region of human FPR1. The exact sequence is proprietary.
Dilution	WB~~ 1:1000
Format	0.01M PBS, pH 7.2, 0.09% (W/V) Sodium azide, Glycerol 50%
Storage	Store at -20 °C.Stable for 12 months from date of receipt

Protein Information

Name	FPR1 {ECO:0000303|PubMed:25109685}
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 adenylate cyclase 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).
Cellular Location	Cell membrane; Multi-pass membrane protein. Note=Internalizes in presence of its ligands, fMLP, TAFA4 and CTSG.
Tissue Location	Monocytes (at protein level) (PubMed:25605714). Neutrophils.

Background

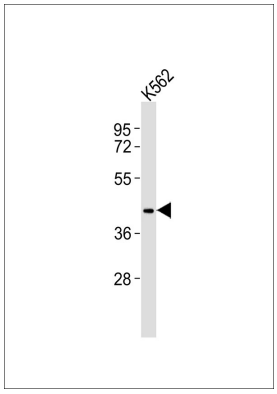
High affinity receptor for N-formyl-methionyl peptides, which are powerful neutrophils chemotactic factors. Binding of FMLP to the receptor causes activation of neutrophils. This response is mediated via a G-protein that activates a phosphatidylinositol-calcium second messenger system.

References

Boulay F.,et al.Biochem. Biophys. Res. Commun. 168:1103-1109(1990).
Boulay F.,et al.Biochemistry 29:11123-11133(1990).
Murphy P.M.,et al.J. Biol. Chem. 266:12560-12567(1991).
Bao L.,et al.Genomics 13:437-440(1992).
Perez H.D.,et al.Submitted (MAR-1993) to the EMBL/GenBank/DDBJ databases.

Images

Anti-FPR1 Antibodyat 1:1000 dilution + K562 whole cell lysates Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L),Peroxidase conjugated at 1/10000 dilution Predicted band size : 38 kDa



Blocking/Dilution buffer: 5% NFDM/TBST.