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FPR1 Antibody (Center)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP17216c

Product Information

Application	WB, E
Primary Accession	P21462
Other Accession	NP_002020.1, NP_001180235.1
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB36835
Calculated MW	38446
Antigen Region	165-193

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	This FPR1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 165-193 amino acids from the Central region of human FPR1.
Dilution	WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	FPR1 Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

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

This gene encodes a G protein-coupled receptor of mammalian phagocytic cells that is a member of the G-protein coupled receptor 1 family. The protein mediates the response of phagocytic cells to invasion of the host by microorganisms and is important in host defense and inflammation.

References

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Huang, J., et al. Br. J. Cancer 102(6):1052-1060(2010)
Segat, L., et al. Vaccine 28(10):2201-2206(2010)

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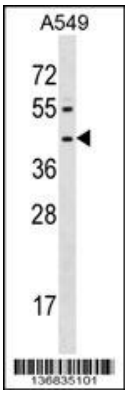
Kobayashi, T., et al. J. Dent. Res. 88(12):1137-1141(2009)

Images



FPR1 Antibody (Center) (Cat. #AP17216c) western blot analysis in A549 cell line lysates (35ug/lane).This demonstrates the FPR1 antibody detected the FPR1 protein (arrow).

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