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New Item

New Item

Purinergic Receptor selective antibodies

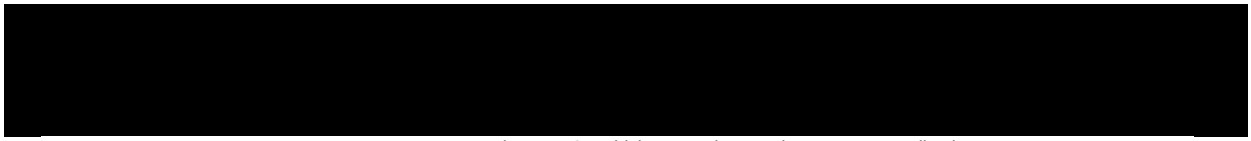
Anti-P2Y2 nucleotide Receptor 2 (P2Y2R) Antibodies (P2Y2-201AP)

Other Nomenclature:

Purinenucletide receptor are classified in to two classes, the ionotrophic ligand-gated channels, P2X and the metabotropic G-protein coupled receptors, P2Y (1). There are 7 P2X receptors and 11 P2Y (P2Y1-2, 4, 6 and 11-14) each with unique agonist response profile has been identified. The subtypes of metabotropic receptors P2Y1 and P2Y2 are predominantly expressed in arterinal smooth muscle. The activation nof P2Y2 receptors led to release of intracellular calcium by phospholipase C action after which receptor phosphorylation appears to regulate desensitization of the P2Y2 receptor via action of protein kinase C. The purinergic receptors P2Y2 couples to the activation of mitogen activated protein kinases (MAPK) and mobilize the intracellular calcium stores, activation of phospholipase Cb, protein ikinase C isofroms, focal adhesion kinases and c-Src kinases. These pathways are implicated in number of physiological and pathological processes including inflammation, neuroprotection, active astrogliosis etc (1, 2). P2Y2 receptor induce chloride secretion in airway epithelial cells independent of cystic fibrosis transmembrane conductance regulator and this receptor ligands are therapeutically important for the treatment of retinal detachment and improved mucociliary clearance in cystic fibrosis patients.

The $P2Y_2$ nucleotide receptor is seven TMD GPCR family member and is coupled to a Gq protein that is stimulated equipotently by UTP and ATP, mediating activation of phospholipase C-beta (PLC-β) and mitogen-activated protein kinase (MAPK). The P2y2 undergoes rapid agonist induce desensitization and phosphorylation at Serine 243, threonine 344 and serine 356 (1). The antagonist potencies for P2Y2 receptor is in the order of suramin>>PPADS= RB-2>TNP-ATP and suramin (pA2, 5.40) was a competitive antagonist (3). The extracellular acidification does not affect the ATP and UTP potencies of P2Y2 receptors while the P2Y4 receptor potencies are increased by 8-10-fold (3). Both P2Y2 and P2Y4 receptors regulate the UTP induced chloride secretion from intestinal mucosa and cuased endothelium induced relaxation in aorta (4, 5).

P2Y2 receptor when expressed in host cells showed significant heterogeneity on SDS-PAGE mobility like many other PGCRs (6). The P2Y2 is a 377 aa protein with characteristic 7TMDs of GPCR, exhibit a broad band od 52-76 kDa (7). The P2Y receptor sequence analyses suggest the presence of putative N-glycosylation sites near the extra cellular N-terminal end of the proteins. The protein has a large 3rd intra cellular loop which interacts with G-proteins and has several phosphorylation sites. The Anti-P2Y2-selective antibodies were generated against conserved but unique sequences on from P2Y2 gene that are expressed only in P2Y2 and was common in several other species. The polyclonal antibodies were affinity purified on an immobilized antigen based affinity chromatography. These epitope-spcific antibodies strongly labeled P2Y2 protein form P2Y2-western blot positive controls. Anti-P2Y2-selective antibodies are also available as fluorescent conjugates for direct application in IHC. FabGennix, Inc., will also provide Western blot positive controls for most of these antibodies in ready-to-use buffer for easy identification of respective proteins. Limited quantities of antigenic peptides are also available. Please enquire for their availability before ordering. *FabGennix Int. Inc.* also provides antibodies against several other GPCRs including many orphan receptors, for a complete listing visit www.fabgennix.com.



R = rat; M = mouse; H = human; C = chicken; monk = monkey ; * For 5 applications

Immunogen: Synthetic peptide selected from rat P2Y2 receptor gene corresponding to amino acids 361-373 at the C-terminus of protein. The peptide was post-synthetically covalently modified to achieve desired antigenicty before coupling to a carrier protein.

Concentration: P2Y2-201AP: IgG concentration 0.52-0.68mg/ml in antibody stabilization buffer.

Applications: Antibody P2Y2-201AP is ideal for WB and ELISA assays. Application in IHC, confocal and immpunoprecipitation protocol is not yet characterized. The dilutions for this antibody is for reference only, investigators are expected to determine the optimal conditions for specific assay. WB > 1:500; IMM & i.p pull-down assays: n.d; IHC, n.d. Application of this antibody in protocols not listed here does not necessarily exclude its use in such procedures.

Reactivity: This antibody detects a single 56-68kDa P2Y2 diffused band in PC-P2Y2 samples. The antibody does not cross reacts with other P2X or P2Y receptor members on western blots.

Protocols: Standard protocol for various applications (WB, IMM and IHC) of this antibody is provided with the product specification sheet, however, FabGennix Inc. strongly recommends investigators to optimize conditions for use of this antibody.

Form/Storage: The antiserum is supplied in antibody stabilization buffer with 0.02% sodium azide as preservative. For long-term storage of antibodies, store at -20oC. FabGennix Inc. does not recommend storage of very dilute antibody solutions unless they are prepared in specially formulated multi use antibody dilution buffer (Cat # DiluOBuffer). Working solutions of antibodies in DiluOBuffer should be filtered through 0.45u filter after every use for long-term storage.

References:

1. Abbracchio, M., and G. Burnstock. 1994. Purinoceptors: are there families of P2X and P2Y purinoceptors? *Pharmacol. Ther.* 64:445–475.
2. Rosa V. Flores,1 Melvin G. Hernández-Pérez,1 Edna Aquino,1§ Richard C. Garrad,3 Gary A. Weisman,4 and Fernando A. Gonzalez1,2*Mol Cell Biochem. Agonist-induced Phosphorylation and Desensitization of the P2Y2 Nucleotide Receptor. 2005 December; 280(1-2): 35–45.
3. Scott S Wildman, Robert J Unwin, and Brian F King., Extended pharmacological profiles of rat P2Y2 and rat P2Y4 receptors and their sensitivity to extracellular H+ and Zn2+ ions. Br J Pharmacol. 2003 December; 140(7): 1177–1186.
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5. Pieter-Jan D F Guns, Tim Van Assche, Paul Fransen, Bernard Robaye, Jean-Marie Boeynaems, and Hidde Bult. Endothelium-dependent relaxation evoked by ATP and UTP in the aorta of P2Y2-deficient mice. Br J Pharmacol. 2006 March; 147(5): 569–574.
6. Rosa V. Flores, Melvin G. Hernández-Pérez, Edna Aquino, Richard C. Garrad, Gary A. Weisman, and Fernando A. Gonzalez. Agonist-induced Phosphorylation and Desensitization of the P2Y2 Nucleotide Receptor. Mol Cell Biochem. Author manuscript; available in PMC 2006 November Farooqui et. al.,

* For users who may require large amounts of P2Y2-201AP, please enquire about bulk material discounts.

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