10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

P2RX7 Antibody

Catalog # ASC11867

Product Information

Application	WB, IF, ICC, E
Primary Accession	Q99572
Other Accession	NP_002553, 300068987
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	68585
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	P2RX7 antibody can be used for detection of P2RX7 by Western blot at 1 - 2 g/ml. Antibody can also be used for immunocytochemistry starting at 5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	5027
Other Names	P2X purinoceptor 7, P2X7, ATP receptor, P2Z receptor, Purinergic receptor, P2RX7
Target/Specificity	P2RX7; P2RX7 antibody is human, mouse, and rat reactive. Multiple isoforms of P2RX7 are known to exist.
Reconstitution & Storage	P2RX7 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.
Precautions	P2RX7 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	P2RX7
Function	ATP-gated nonselective transmembrane cation channel that requires high millimolar concentrations of ATP for activation (PubMed:17483156, PubMed:25281740, PubMed:9038151). Upon ATP binding, it rapidly opens to allow the influx of small cations Na(+) and Ca(2+), and the K(+) efflux (PubMed:17483156, PubMed:20453110, PubMed:28235784, PubMed:39262850). Also has the ability to form a large pore in the cell membrane, allowing the passage of large cationic molecules (PubMed:17483156). In microglia, may mediate NADPH transport across the plasma membrane (PubMed:39142135). In immune cells, P2RX7 acts as a molecular sensor in pathological inflammatory states by detecting and

	responding to high local concentrations of extracellar ATP. In microglial cells, P2RX7 activation leads to the release of pro- inflammatory cytokines, such as IL-1beta and IL-18, through the activation of the NLRP3 inflammasome and caspase-1 (PubMed:26877061). Cooperates with KCNK6 to activate NLRP3 inflammasome (By similarity). Activates death pathways leading to apoptosis and autophagy (PubMed:21821797, PubMed:23303206, PubMed:28326637). Activates death pathways leading to pyroptosis (By similarity).
Cellular Location	Cell membrane; Multi-pass membrane protein {ECO:0000250|UniProtKB:Q64663}
Tissue Location	Widely expressed with highest levels in brain and immune tissues.

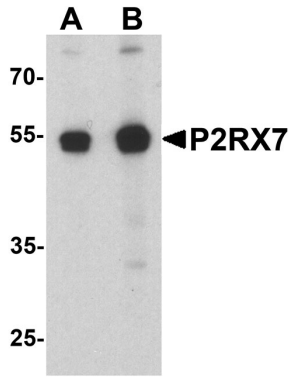
Background

The purinergic receptor P2X ligand-gated ion channel 7 (P2RX7) belongs to the family of purinoceptors for ATP (1). This receptor functions as a ligand-gated ion channel and is responsible for ATP-dependent lysis of macrophages through the formation of membrane pores permeable to large molecules (1,2). Activation of this nuclear receptor by ATP in the cytoplasm may be a mechanism by which cellular activity can be coupled to changes in gene expression (2). Recent studies have suggested that P2RX7 may play a key role in immune-mediated diseases such as rheumatoid arthritis (3) as well as neuropsychiatric disorders (4).

References

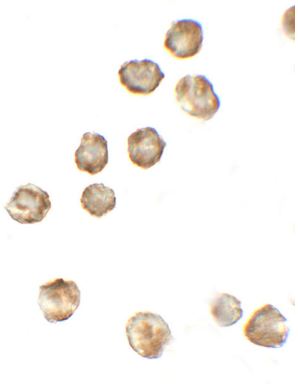
Surprenant A, Rassendren F, Kawashima E, et al. The cytosolic P2Z receptor for extracellular ATP identified as a P2X receptor (P2X7). Science 1996; 272:735-8.
North RA. Molecular physiology of P2X receptors. Physiol. Rev. 2002; 82:1013-67.
Labasi JM, Petrushova N, Donovan C, et al. Absence of the P2X7 receptor alters leukocyte function and attenuates an inflammatory response. J. Immunol. 168:6436-45.
Basso AM, Bratcher NA, Harris RR, et al. Behavioral profile of P2X7 receptor knockout mice in animal models of depression and anxiety; relevance for neuropsychiatric disorders. Behav. Brain Res. 2009; 198:83-90.

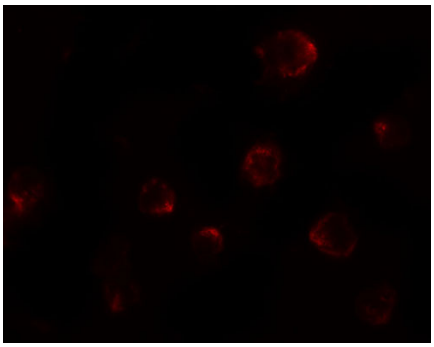
Images



Western blot analysis of P2RX7 in 3T3 cell lysate with P2RX7 antibody at (A) 1 and (B) 2 µg/ml.

Immunocytochemistry of P2RX7 in 3T3 cells with P2RX7 antibody at 5 µg/mL.





Immunofluorescence of P2RX7 in 3T3 cells with P2RX7 antibody at 20 µg/mL.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.