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LRRC8A Antibody

Catalog # ASC11942

Product Information

Application	WB, IHC, E
Primary Accession	Q8IWT6
Other Accession	NP_062540, 62241040
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	94199
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	LRRC8A antibody can be used for detection of LRRC8A by Western blot at 1 - 2 g/ml. Antibody can also be used for immunohistochemistry starting at 2.5 g/mL.

Additional Information

Gene ID	56262
Other Names	Volume-regulated anion channel subunit LRRC8A, Leucine-rich repeat-containing protein 8A, Swelling protein 1, LRRC8A, KIAA1437, LRRC8, SWELL1
Target/Specificity	LRRC8A; LRRC8A antibody is human, mouse and rat reactive.
Reconstitution & Storage	LRRC8A antibody can be stored at 4℃ for three months and -20℃, stable for up to one year.
Precautions	LRRC8A Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	LRRC8A {ECO:0000303|PubMed:22532330, ECO:0000312|HGNC:HGNC:19027}
Function	Essential component of the volume-regulated anion channel (VRAC, also named VSOAC channel), an anion channel required to maintain a constant cell volume in response to extracellular or intracellular osmotic changes (PubMed:24725410, PubMed:24790029, PubMed:26530471, PubMed:26824658, PubMed:28193731, PubMed:29769723). The VRAC channel conducts iodide better than chloride and can also conduct organic osmolytes like taurine (PubMed:24725410, PubMed:24790029, PubMed:26530471, PubMed:26824658, PubMed:28193731, PubMed:30095067). Mediates efflux of amino acids, such as aspartate and

	glutamate, in response to osmotic stress (PubMed:28193731). LRRC8A and LRRC8D are required for the uptake of the drug cisplatin (PubMed:26530471). In complex with LRRC8C or LRRC8E, acts as a transporter of immunoreactive cyclic dinucleotide GMP-AMP (2'-3'-cGAMP), an immune messenger produced in response to DNA virus in the cytosol: mediates both import and export of 2'-3'-cGAMP, thereby promoting transfer of 2'-3'-cGAMP to bystander cells (PubMed:33171122). In contrast, complexes containing LRRC8D inhibit transport of 2'-3'-cGAMP (PubMed:33171122). Required for in vivo channel activity, together with at least one other family member (LRRC8B, LRRC8C, LRRC8D or LRRC8E); channel characteristics depend on the precise subunit composition (PubMed:24790029, PubMed:26824658, PubMed:28193731). Can form functional channels by itself (in vitro) (PubMed:26824658). Involved in B-cell development: required for the pro-B cell to pre-B cell transition (PubMed:14660746). Also required for T-cell development (By similarity). Required for myoblast differentiation: VRAC activity promotes membrane hyperpolarization and regulates insulin-stimulated glucose metabolism and oxygen consumption (By similarity). Also acts as a regulator of glucose-sensing in pancreatic beta cells: VRAC currents, generated in response to hypotonicity- or glucose-induced beta cell swelling, depolarize cells, thereby causing electrical excitation, leading to increase glucose sensitivity and insulin secretion (PubMed:29371604). Also plays a role in lysosome homeostasis by forming functional lysosomal VRAC channels in response to low cytoplasmic ionic strength condition: lysosomal VRAC channels are necessary for the formation of large lysosome-derived vacuoles, which store and then expel excess water to maintain cytosolic water homeostasis (PubMed:31270356, PubMed:33139539). Acts as a key factor in NLRP3 inflammasome activation by modulating itaconate efflux and mitochondria function (PubMed:39909992).
Cellular Location	Cell membrane; Multi-pass membrane protein. Lysosome membrane; Multi-pass membrane protein. Note=Mainly localizes to the cell membrane, with some intracellular localization to lysosomes
Tissue Location	Expressed in brain, kidney, ovary, lung, liver, heart, and fetal brain and liver. Found at high levels in bone marrow; lower levels are detected in peripheral blood cells. Expressed on T- cells as well as on B-lineage cells.

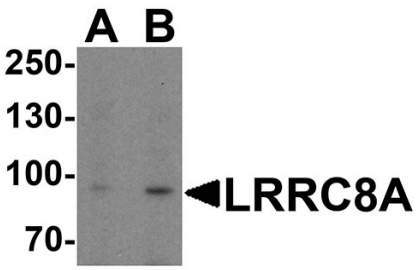
Background

The leucine rich repeat containing 8 family member A protein (LRRC8A) belongs the LRRC8 family of proteins within the LRR superfamily of proteins, which are involved in diverse biological processes, including cell adhesion, cellular trafficking, and hormone-receptor interactions (1,2). LRRC8A is a four-pass transmembrane protein that plays a role in B cell development. Defects in this gene cause autosomal dominant non-Bruton type agammaglobulinemia, an immunodeficiency disease resulting from defects in B cell maturation (1). LRRC8A has also been shown to be an essential component of the volume-regulated anion channel VRAC (3).

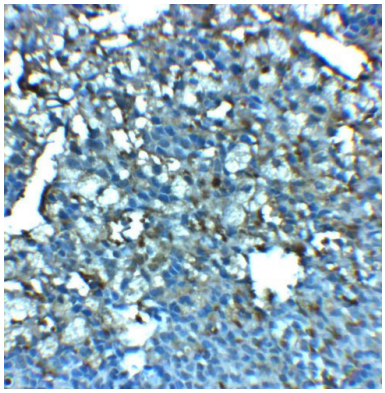
References

Sawada A, Takihara Y, Kim JY, et al. A congenital mutation of the novel gene LRRC8 causes agammaglobulinemia in humans. J. Clin. Invest. 2003; 112:1707-13.
Kubota K, Kim JY, Sawada A, et al. LRRC8 involved in B cell development belongs to a novel family of leucine-rich repeat proteins. FEBS Lett. 2004; 564:147-52.
Voss FK, Ullrich F, Munch J, et al. Identification of LRRC8 heteromers as an essential component of the volume-regulated anion channel VRAC. Science 2014; 344:634-8.

Images



Western blot analysis of LRRC8A in EL4 cell lysate with LRRC8A antibody at (A) 1 and (B) 2 µg/ml.



Immunohistochemistry of LRRC8A in rat spleen tissue with LRRC8A antibody at 2.5 µg/mL.

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