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HVCN1 Antibody

Catalog # ASC11181

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	Q96D96
Other Accession	NP_115745, 91992155
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	31683
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	HVCN1 antibody can be used for detection of HVCN1 by Western blot at 0.5 - 1 □g/mL. Antibody can also be used for immunohistochemistry starting at 5 □g/mL. For immunofluorescence start at 20 □g/mL.

Additional Information

Gene ID	84329
Other Names	Voltage-gated hydrogen channel 1, Hydrogen voltage-gated channel 1, HV1, Voltage sensor domain-only protein, HVCN1, VSOP
Target/Specificity	HVCN1;
Reconstitution & Storage	HVCN1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	HVCN1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	HVCN1 {ECO:0000303|PubMed:20037153, ECO:0000312|HGNC:HGNC:28240}
Function	Voltage-gated proton-selective channel that conducts outward proton currents in response to intracellular acidification. Lacks a canonical ion-channel pore domain and mediates proton permeability via its voltage sensor domain (PubMed:16554753, PubMed:20037153, PubMed:20548053, PubMed:22020278, PubMed:27859356, PubMed:30478045, PubMed:37669933). Appears to play a dominant role in regulation of CO2/HCO3(-)/H(+) equilibrium in sperm flagellum. Prevents the acidification resulting from HCO3(-) synthesis and thus sustains high HCO3(-) levels inside

	sperm for capacitation (PubMed:20144758, PubMed:30478045, PubMed:37669933). Provides for proton efflux that compensates for electron charge generated by NADPH oxidase activity either in the extracellular or phagosomal compartments, thus enabling the production of high levels of bactericidal reactive oxygen species during the respiratory burst (PubMed:20037153, PubMed:30478045). Opens when the pH of airway surface liquid exceeds 7 and contributes to respiratory epithelial acid secretion to maintain pH in the mucosa (PubMed:20548053).
Cellular Location	Cell membrane; Multi-pass membrane protein. Apical cell membrane; Multi-pass membrane protein. Cytoplasmic vesicle, phagosome membrane; Multi-pass membrane protein. Cell projection, cilium, flagellum membrane; Multi-pass membrane protein. Note=Detected within the principal piece of the sperm flagellum (PubMed:20144758). Detected mainly at intracellular membranes upon overexpression in HeLa cells (PubMed:20147290)
Tissue Location	Enriched in immune tissues, such as lymph nodes, B- lymphocytes, monocytes and spleen (PubMed:16554753). Expressed in spermatozoa (PubMed:37669933). Expressed in respiratory epithelial cells (PubMed:20548053).

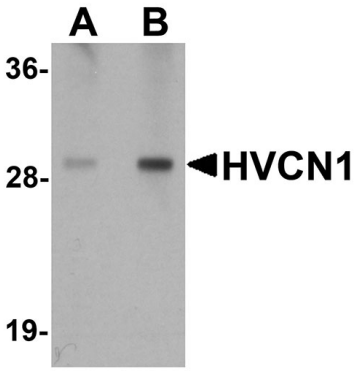
Background

HVCN1 Antibody: HVCN1 (hydrogen voltage-gated channel 1), a voltage gated proton channel protein that is highly expressed in immune tissues, mediates the proton conductances required by phagocytic leukocytes for the oxidative burst that underlies microbial killing. HVCN1 moderates the voltage-dependent proton permeability of excitable membranes by allowing the flow of protons in accordance to their electrochemical gradient. HVCN1 is sensitive to zinc ions, and can be inhibited by them. HVCN1 may represent a new therapeutic target for B cell malignancies on continued signaling via the B cell antigen receptor.

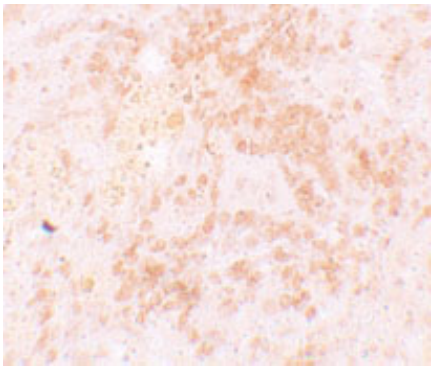
References

Ramsey IS, Moran MM, Chong JA, et al. A voltage gated proton-selective channel lacking the pore domain. Nature2006; 440:1213-6.
Sasaki M, Takagi M, and Okamura Y. A voltage sensor-domain protein is a voltage-gated proton channel. Science2006; 312: 589-92.
Morgan D, Capasso M, and Musset B. Voltage-gated proton channels maintain pH in human neutrophils during phagocytosis. Proc. Natl. Acad. Sci. USA2009; 106:18022-7.
Capasso M, Bhamrah MK, Henley T, et al. HVCN1 modulates BCR signal strength via regulation of BCR-dependent generation of reactive oxygen species. Nat. Immunol.2010;11:265-72.

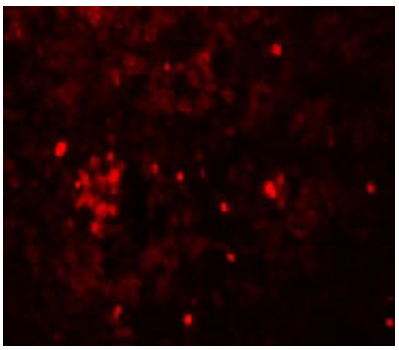
Images



Western blot analysis of HVCN1 in human spleen tissue lysate with HVCN1 antibody at (A) 0.5 and (B) 1 µg/mL.



Immunohistochemistry of HVCN1 in rat spleen tissue with HVCN1 antibody at 5 µg/mL.



Immunofluorescence of HVCN1 in Rat Spleen cells with HVCN1 antibody at 20 µg/mL.