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STIM1 Antibody

Catalog # ASC10530

Product Information

Application	WB, E, IHC-P
Primary Accession	Q13586
Other Accession	NP_003147, 21070997
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	77423
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	STIM1 antibody can be used for detection of STIM1 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	6786
Other Names	STIM1 Antibody: GOK, TAM, IMD10, D11S4896E, GOK, Stromal interaction molecule 1, stromal interaction molecule 1
Target/Specificity	STIM1; At least two isoforms of STIM1 are known to exist; this antibody will detect only the larger form. This STIM1 antibody is predicted to have no cross-reactivity to STIM2.
Reconstitution & Storage	STIM1 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	STIM1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	STIM1
Synonyms	GOK {ECO:0000303|PubMed:9377559}
Function	Acts as a Ca(2+) sensor that gates two major inward rectifying Ca(2+) channels at the plasma membrane: Ca(2+) release- activated Ca(2+) (CRAC) channels and arachidonate-regulated Ca(2+)- selective (ARC) channels (PubMed:15866891, PubMed:16005298, PubMed:16208375, PubMed:16537481, PubMed:16733527, PubMed:16766533,

	PubMed:16807233, PubMed:18854159, PubMed:19182790, PubMed:19249086, PubMed:19622606, PubMed:19706554, PubMed:22464749, PubMed:24069340, PubMed:24351972, PubMed:24591628, PubMed:25326555, PubMed:26322679, PubMed:28219928, PubMed:32415068). Plays a role in mediating store-operated Ca(2+) entry (SOCE), a Ca(2+) influx following depletion of intracellular Ca(2+) stores. Upon Ca(2+) depletion, translocates from the endoplasmic reticulum to the plasma membrane where it activates CRAC channel pore-forming subunits ORA1, ORA2 and ORAI3 to generate sustained and oscillatory Ca(2+) entry (PubMed:16208375, PubMed:16537481, PubMed:32415068). Involved in enamel formation (PubMed:24621671). Plays a role in regulating the type I interferon response by retaining the signaling adapter STING at the endoplasmic reticulum (PubMed:30643259).
Cellular Location	Cell membrane; Single-pass type I membrane protein. Endoplasmic reticulum membrane; Single-pass type I membrane protein. Cytoplasm, cytoskeleton. Sarcoplasmic reticulum. Note=Translocates from the endoplasmic reticulum to the cell membrane in response to a depletion of intracellular calcium and is detected at punctae corresponding to junctions between the endoplasmic reticulum and the cell membrane (PubMed:16005298, PubMed:16208375, PubMed:18854159, PubMed:19182790, PubMed:19249086). Associated with the microtubule network at the growing distal tip of microtubules (PubMed:19632184). Colocalizes with ORAI1 at the cell membrane (PubMed:27185316). Colocalizes preferentially with CASQ1 at endoplasmic reticulum in response to a depletion of intracellular calcium (PubMed:27185316)
Tissue Location	Ubiquitously expressed in various human primary cells and tumor cell lines.

Background

STIM1 Antibody: In T lymphocytes, the sole pathway for Ca^{2+} entry following antigen-receptor binding is through store-operated Ca^{2+}-release-activated Ca^{2+} (CRAC) channels. These channels are made up of the pore-forming subunit ORAI1 and the stromal interaction molecule 1 (STIM1), a protein that functions as a Ca^{2+} sensor and activates the CRAC channels, migrating to the plasma membrane from endoplasmic reticulum (ER)-like sites which act as the Ca^{2+} store. A related molecule, STIM2, acts to inhibit the STIM1-mediated store-operated Ca^{2+} entry, and can form complexes with STIM1, suggesting they may play a coordinated role in controlling Ca^{2+} entry.

References

Luik RM and Lewis RS. New insights into the molecular mechanisms of store-operated Ca^{2+} signaling in T cells. Trends Mol. Med. 2007; 13:103-7.

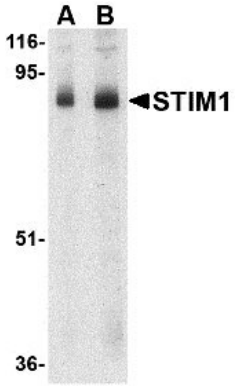
Feske S, Gwack Y, Prakriya M, et al. A mutation in Orai1 causes immune deficiency by abrogating CRAC channel function. Nature 2006; 441:179-85.

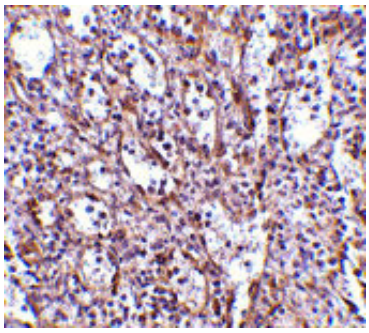
Zhang SL, Yu Y, Roos J, et al. STIM1 is a Ca^{2+} sensor that activates CRAC channels and migrates from the Ca^{2+} store to the plasma membrane. Nature 2005; 437:902-5.

Spassova MA, Soboloff J, He L-P, et al. STIM1 has a plasma membrane role in the activation of store-operated $^{Ca2+}$ channels. Proc. Natl. Acad. Sci. USA 2006; 103:4040-5.

Images

Western blot analysis of STIM1 in mouse thymus tissue lysate with STIM1 antibody at (A) 1 and (B) 2 µg/mL.





Immunohistochemistry of STIM1 in human spleen tissue with STIM1 antibody at 2.5 µg/mL.

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