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

ORAI3 Antibody [2H2G9]

Catalog # ASC11997

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	Q9BRQ5
Other Accession	Q9BRQ5, 74732916
Reactivity	Human, Rat
Host	Mouse
Clonality	Monoclonal
Isotype	IgG2a
Clone Names	2H2G9
Calculated MW	31499
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	ORAI3 antibody can be used for detection of ORAI3 by Western blot at 2 g/mL. Antibody can also be used for immunohistochemistry starting at 2.5 g/mL. For immunofluorescence start at 5 g/mL.

Additional Information

Gene ID	93129
Other Names	Protein orai-3, Transmembrane protein 142C, ORAI3, TMEM142C
Target/Specificity	ORAI3;
Reconstitution & Storage	ORAI3 monoclonal antibody can be stored at -20°C, stable for one year.
Precautions	ORAI3 Antibody [2H2G9] is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	ORAI3
Synonyms	TMEM142C
Function	Pore-forming subunit of 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:16807233, PubMed:17442569, PubMed:19182790, PubMed:19622606, PubMed:19706554, PubMed:20354224, PubMed:32415068). Assembles with ORAI1 and ORAI2 to form hexameric CRAC channels that mediate Ca(2+) influx upon depletion of endoplasmic reticulum Ca(2+) store and channel activation by Ca(2+) sensor STIM1, a process known as store-operated Ca(2+) entry (SOCE). Various pore subunit combinations may account for distinct CRAC channel spatiotemporal and cell-type specific dynamics. ORAI1 mainly

	contributes to the generation of Ca(2+) plateaus involved in sustained Ca(2+) entry and is dispensable for cytosolic Ca(2+) oscillations, whereas ORAI2 and ORAI3 generate oscillatory patterns. CRAC channels assemble in Ca(2+) signaling microdomains where Ca(2+) influx is coupled to calmodulin and calcineurin signaling and activation of NFAT transcription factors recruited to ORAI1 via AKAP5. CRAC channels are the main pathway for Ca(2+) influx in T cells and promote the immune response to pathogens by activating NFAT-dependent cytokine and chemokine transcription (PubMed:16807233, PubMed:17442569, PubMed:19182790, PubMed:19706554, PubMed:20354224, PubMed:32415068). Assembles with ORAI1 to form channels that mediate store-independent Ca(2+) influx in response to inflammatory metabolites arachidonate or its derivative leukotriene C4, termed ARC and LRC channels respectively (PubMed:19622606, PubMed:32415068).
Cellular Location	Cell membrane; Multi-pass membrane protein. Note=Colocalizes with STIM1 upon store depletion.
Tissue Location	Expressed in both naive and effector T helper cells with higher levels in effector cells.

Background

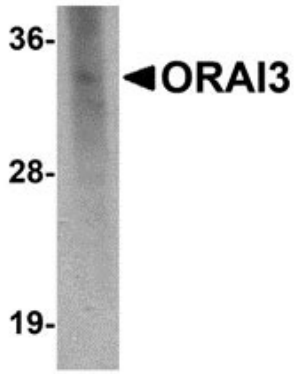
ORAI3 Monoclonal Antibody: Antigen stimulation of immune cells triggers Ca++ entry t hrough Ca++ release-activated Ca++ (CRAC) channels. ORAI3 is one of two mammalian homologs to ORAI1, a recently identified four-transmembrane spanning protein that is an essential component of CRAC. All three homologs have been shown to function as Ca++ plasma membrane channels gated through interactions with STIM1, the store-activated endoplasmic reticulum Ca++ sensor. However, ORAI3 channels failed to produce detectable Ca++ selective currents in cells co-transfected with ORAI3 and STIM1, indicating that ORAI3 channels undergo a lesser degree of depotentiation than ORAI1 or ORAI2. Na+ currents through ORAI1, 2 and 3 channels were equally inhibited by extracellular Ca++, indicating that each have similar affinities for Ca++ within the selectivity filter. This antibody is predicted to have no cross-reactivity to ORAI1 or ORAI2. Larger molecular weight bands are sometimes seen in SDS-PAGE; these may represent post-translationally modified ORAI 3.

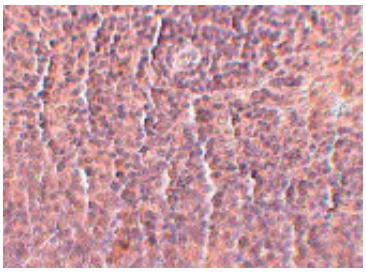
References

Lewis RS. Calcium signaling mechanisms in T lymphocytes. Annu. Rev. Immunol. 2001; 19:497-521.
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.
Soboloff J, Spassova MA, Dziadek MA, et al. Calcium signals mediated by STIM and Orai proteins - a new paradigm in inter-organelle communication. Biochim. Biophys. Acta. 2006; 1763:1161-8.
Mercer JC, DeHaven WI, Smyth JT, et al. Large store-operated calcium selective currents due to co-expression of Orai1 or Orai2 with the intracellular calcium sensor, Stim1. J. Biol. Chem. 2006; 281:24979-90.

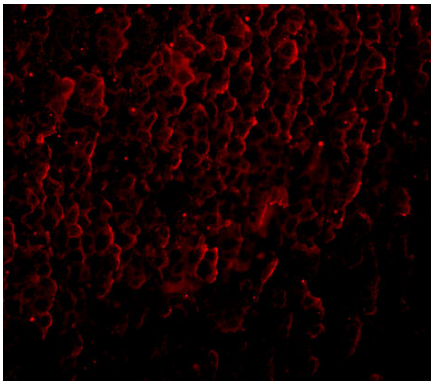
Images

Western blot analysis of ORAI3 in rat spleen lysate with ORAI3 antibody at 2 µg/mL.





Immunohistochemistry of ORAI3 in rat spleen tissue with ORAI3 antibody at 2.5 µg/mL.



Immunofluorescence of ORAI3 in rat spleen tissue with ORAI3 antibody at 5 µg/mL.