SANTA CRUZ BIOTECHNOLOGY, INC.

Orai1 (H-46): sc-68895

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Orai1 (Orai calcium release-activated calcium modulator 1), also known as ORAT1, CRACM1 (calcium release-activated calcium modulator 1) or TMEM142A (transmembrane protein 142A), is a 301 amino acid multi-pass membrane protein that belongs to the Orai family of proteins. Localizing to the plasma membrane, Orai1 plays an important role in store-operated calcium (SOC) entry, a process involving Ca^{2+} influx and replenishment of Ca^{2+} stores formerly emptied through the action of inositol 1,4,5-trisphosphate production and other Ca^{2+} mobilizing agents. Specifically, Orai1 functions as a pore subunit of the store-operated calcium release-activated calcium channel (CRAC) and is essential for proper function of the CRAC channel. CRAC channels are responsible for mediating calcium influx in T cells and play an important role in the immune response. Mutations in the gene encoding Orai1 can result in severe combined immunodeficiency (SCID).

CHROMOSOMAL LOCATION

Genetic locus: ORAI1 (human) mapping to 12q24.31; Orai1 (mouse) mapping to 5 F.

SOURCE

Orai1 (H-46) is a rabbit polyclonal antibody raised against amino acids 256-301 mapping at the C-terminus of Orai1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

Orai1 (H-46) is recommended for detection of Orai1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react, to a lesser extent, with Orai2 and Orai3.

Orai1 (H-46) is also recommended for detection of Orai1 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for Orai1 siRNA (h): sc-76001, Orai1 siRNA (m): sc-76002, Orai1 shRNA Plasmid (h): sc-76001-SH, Orai1 shRNA Plasmid (m): sc-76002-SH, Orai1 shRNA (h) Lentiviral Particles: sc-76001-V and Orai1 shRNA (m) Lentiviral Particles: sc-76002-V.

Molecular Weight of Orai1: 38 kDa.

Molecular Weight of glycosylated Orai1: 50 kDa.

Positive Controls: A-375 cell lysate: sc-3811 or human ovary extract: sc-363769.

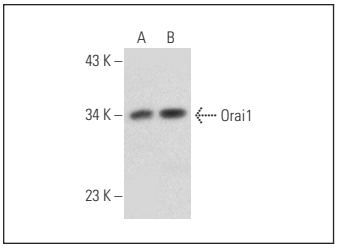
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

DATA



Orai1 (H-46): sc-68895. Western blot analysis of Orai1 expression in A-375 whole cell lysate (**A**) and human ovary tissue extract (**B**).

SELECT PRODUCT CITATIONS

1. Bobe, R., et al. 2011. SERCA2a controls the mode of agonist-induced intracellular Ca^{2+} signal, transcription factor NFAT and proliferation in human vascular smooth muscle cells. J. Mol. Cell. Cardiol. 50: 621-633.
2. Chantome, A., et al. 2013. Pivotal role of the lipid Raft SK3-Orai1 complex in human cancer cell migration and bone metastases. Cancer Res. 73: 4852-4861.
3. Clarysse, L., et al. 2014. cAMP-PKA inhibition of SK3 channel reduced both Ca^{2+} entry and cancer cell migration by regulation of SK3-Orai1 complex. Pflugers Arch. 466: 1921-1932.
4. Wu, Z.S., et al. 2014. Role of mitofusin-2 in high mobility group box-1 protein-mediated apoptosis of T cells *in vitro*. Cell. Physiol. Biochem. 33: 769-783.
5. Kar, P., et al. 2014. Dynamic assembly of a membrane signaling complex enables selective activation of NFAT by Orai1. Curr. Biol. 24: 1361-1368.
6. Dragoni, S., et al. 2014. Store-operated Ca^{2+} entry does not control proliferation in primary cultures of human metastatic renal cellular carcinoma. BioMed Res. Int. 2014: 739494.
7. Dragoni, S., et al. 2014. Enhanced expression of Stim, Orai, and TRPC transcripts and proteins in endothelial progenitor cells isolated from patients with primary myelofibrosis. PLoS ONE 9: e91099.
8. Fonseca, A.C., et al. 2015. Amyloid-β disrupts calcium and redox homeostasis in brain endothelial cells. Mol. Neurobiol. 51: 610-622.
9. Zuccolo, E., et al. 2016. Constitutive store-operated Ca^{2+} entry leads to enhanced nitric oxide production and proliferation in infantile hemangioma-derived endothelial colony-forming cells. Stem Cells Dev. 25: 301-319.