

Orai1 (D-15): sc-74776

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).

REFERENCES

- Hogan, P.G. and Rao, A. 2007. Dissecting ICRAC, a store-operated calcium current. *Trends Biochem. Sci.* 32: 235-245.
- Dziadek, M.A. and Johnstone, L.S. 2007. Biochemical properties and cellular localisation of STIM proteins. *Cell Calcium* 42: 123-132.
- DeHaven, W.I., et al. 2007. Calcium inhibition and calcium potentiation of Orai1, Orai2, and Orai3 calcium release-activated calcium channels. *J. Biol. Chem.* 282: 17548-17556.
- Gross, S.A., et al. 2007. Murine Orai2 splice variants form functional Ca^{2+} release-activated Ca^{2+} (CRAC) channels. *J. Biol. Chem.* 282: 19375-19384.
- Chung, S.C., et al. 2007. Coupling Ca^{2+} store release to Icrac channel activation in B lymphocytes requires the activity of Lyn and Syk kinases. *J. Cell Biol.* 177: 317-328.
- Cai, X. 2007. Molecular evolution and structural analysis of the Ca^{2+} release-activated Ca^{2+} channel subunit, Orai. *J. Mol. Biol.* 368: 1284-1291.
- Chen, X.F., et al. 2008. Dynamic simulation of the effect of calcium-release activated calcium channel on cytoplasmic Ca^{2+} oscillation. *Biophys. Chem.* 136: 87-95.
- Gwack, Y., et al. 2008. Hair loss and defective T and B cell function in mice lacking Orai1. *Mol. Cell. Biol.* 28: 5209-5222.
- Online Mendelian Inheritance in Man, OMIM[™]. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 610277. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

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

SOURCE

Orai1 (D-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within a C-terminal cytoplasmic domain of Orai1 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-74776 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Orai1 (D-15) 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), 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).

Orai1 (D-15) 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.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker[™] compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker[™] Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz[™] Mounting Medium: sc-24941.

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.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.



Try **Orai1 (G-2): sc-377281**, our highly recommended monoclonal alternative to Orai1 (D-15). Also, for AC, HRP, FITC, PE, Alexa Fluor[®] 488 and Alexa Fluor[®] 647 conjugates, see **Orai1 (G-2): sc-377281**.