



CTR1 (aC-19): sc-12690

BACKGROUND

Eukaryotic protein phosphorylation and dephosphorylation on serine and threonine residues regulates numerous cell functions, including division, homeostasis and apoptosis. A group of proteins that play a major role in this process are the serine/threonine protein phosphatases. CTR1 (constitutive triple response 1), also known as SIS1, is an *Arabidopsis thaliana* protein that belongs to the serine/threonine protein kinase family. Expressed in both seedlings and adult plants, CTR1 plays an important role in the regulation of the ethylene signaling pathway. The ethylene signaling pathway is responsible for a variety of developmental processes in plants, including senescence and fruit ripening. Specifically, CTR1 functions to negatively regulate *Arabidopsis* response to ethylene by directly interacting with ethylene receptors at the endoplasmic reticulum (ER). CTR1 activity is inhibited by the binding of phosphatidic acid to its kinase domain.

REFERENCES

1. Kuroda, S., Hirose, Y., Shiraishi, M., Davies, E. and Abe, S. 2004. Co-expression of an ethylene receptor gene, ERS and ethylene signaling regulator gene, CTR1, in *Delphinium* during abscission of florets. *Plant Physiol. Biochem.* 42: 745-751.
2. Etheridge, N., Chen, Y.F. and Schaller, G.E. 2005. Dissecting the ethylene pathway of *Arabidopsis*. 3: 372-381.
3. Stepanova, A.N. and Alonso, J.M. 2005. Ethylene signaling pathway. *Sci. STKE.* 276: cm3.
4. Stepanova, A.N. and Alonso, J.M. 2005. *Arabidopsis* ethylene signaling pathway. *Sci. STKE.* 276: cm4.
5. Benavente, L.M. and Alonso, J.M. 2006. Molecular mechanisms of ethylene signaling in *Arabidopsis*. *Mol. Biosyst.* 2: 165-173.
6. Babula, D., Misztal, L.H., Jakubowicz, M., Kaczmarek, M., Nowak, W. and Sadowski, J. 2006. Genes involved in biosynthesis and signalisation of ethylene in *Brassica oleracea* and *Arabidopsis thaliana*: identification and genome comparative mapping of specific gene homologues. *Theor. Appl. Genet.* 112: 410-420.
7. Testerink, C., Larsen, P.B., van der Does, D., van Himbergen, J.A. and Munnik, T. 2007. Phosphatidic acid binds to and inhibits the activity of *Arabidopsis* CTR1. *J. Exp. Bot.* 58: 3905-3914.
8. Achard, P., Baghour, M., Chapple, A., Hedden, P., Van Der Straeten, D., Genschik, P., Moritz, T. and Harberd, N.P. 2007. The plant stress hormone ethylene controls floral transition via DELLA-dependent regulation of floral meristem-identity genes. *Proc. Natl. Acad. Sci. U.S.A.* 104: 6484-6489.
9. Qu, X., Hall, B.P., Gao, Z. and Schaller, G.E. 2007. A strong constitutive ethylene-response phenotype conferred on *Arabidopsis* plants containing null mutations in the ethylene receptors ETR1 and ERS1. *BMC Plant Biol.* 7: 3-3.

SOURCE

CTR1 (aC-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of CTR1 of *Arabidopsis thaliana* origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-12690 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

CTR1 (aC-19) is recommended for detection of CTR1 of *Arabidopsis thaliana* 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).

Molecular Weight of CTR1: 92 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.