SANTA CRUZ BIOTECHNOLOGY, INC.

BIP (aC-19): sc-15897

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Arabidopsis growth is regulated by a wide variety of proteins that control cellular functions, such as the cell cycle, metabolism, cell signaling and survival. Many of these regulatory proteins control the expression of specific proteins through transcriptional regulation. In the nucleus, the 14-3-3 protein, which is highly conserved among plants, animals and yeast, mediates gene expression by direct protein interactions with transcriptional regulators, including the TATA-box binding protein (TBP) and the transcription factor IIB (TFIIB). In the cytosol, the 14-3-3 protein is involved in the nutrient-sensing pathway by controlling the cleavage of target proteins. Also, the 14-3-3 protein is a positive regulator of the plant plasma membrane H^+-ATPase. The carboxy terminal autoinhibitory domain of the H^+-ATPase is displaced upon binding with the 14-3-3 protein. Other regulatory proteins include the luminal binding protein (BiP), which is a molecular chaperone whose expression is induced in response to tunicamycin and heat-shock stress.

REFERENCES

1. Koizumi, N. 1996. Isolation and responses to stress of a gene that encodes a luminal binding protein in *Arabidopsis thaliana*. Plant Cell Physiol. 37: 862-865.
2. Jahn, T., et al. 1997. The 14-3-3 protein interacts directly with the C-terminal region of the plant plasma membrane H^+-ATPase. Plant Cell 9: 1805-1814.
3. Fuglsang, A.T., et al. 1999. Binding of 14-3-3 protein to the plasma membrane H^+-ATPase AHA2 involves the three C-terminal residues Tyr(946)-Thr-Val and requires phosphorylation of Thr(947). J. Biol. Chem. 274: 36774-36780.
4. Koizumi, N., et al. 1999. Overexpression of a gene that encodes the first enzyme in the biosynthesis of asparagine-linked glycans makes plants resistant to tunicamycin and obviates the tunicamycin-induced unfolded protein response. Plant Physiol. 121: 353-361.

SOURCE

BIP (aC-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of BIP 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-15897 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

PROTOCOLS

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

APPLICATIONS

BIP (aC-19) is recommended for detection of BIP of *Arabidopsis thaliana*, *Lycopersicon esculentum* and *Nicotiana tabacum* 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 BIP: 74 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.

SELECT PRODUCT CITATIONS

1. Swanton, E., et al. 2003. Role of calnexin in the glycan-independent quality control of proteolipid protein. EMBO J. 22: 2948-2958.
2. Cho, D.Y., et al. 2003. Molecular chaperone GRP78/BiP interacts with the large surface protein of hepatitis B virus *in vitro* and *in vivo*. J. Virol. 77: 2784-2788.
3. Higashi, Y., et al. 2004. Parkin attenuates manganese-induced dopaminergic cell death. J. Neurochem. 89: 1490-1497.
4. Zhao, L., et al. 2005. Protein accumulation and neurodegeneration in the woozy mutant mouse is caused by disruption of SIL1, a cochaperone of BiP. Nat. Genet. 37: 974-979.
5. Li, L., et al. 2006. MAIGO2 is involved in exit of seed storage proteins from the endoplasmic reticulum in *Arabidopsis thaliana*. Plant Cell 2006: 3535-3547.
6. Kyuhou, S., et al. 2006. Emergence of endoplasmic reticulum stress and activated microglia in Purkinje cell degeneration mice. Neurosci. Lett. 396: 91-96.
7. Macedo, B., et al. 2008. Anti-apoptotic treatment reduces transthyretin deposition in a transgenic mouse model of familial amyloidotic polyneuropathy. Biochim. Biophys. Acta 1782: 517-522.
8. Do Amaral, B., et al. 2009. Usefulness of labial salivary gland biopsy in familial amyloid polyneuropathy portuguese type. Amyloid 16: 232-238.
9. Tanaka, K.I., et al. 2012. Effect of cabergoline on increase of several ER stress-related molecules in 6-OHDA-lesioned mice. Neurol. Sci. 34: 259-261.

RESEARCH USE

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