SANTA CRUZ BIOTECHNOLOGY, INC.

PI31 (26): sc-136416

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Proteasomes are the catalytic sites of intracellular protein degradation via proteolysis. The most common form of proteasome, the 26S proteasome, is composed of a cylindrical-shaped 20S core particle accompanied by two 19S regulatory subunits. PI31 (Proteasome inhibitor PI31 subunit) is a 271 amino acid protein that is a potent inhibitor of proteasome activity. PI31 is a proline-rich protein, particularly within its C-terminal domain, where nearly one-quarter of the amino acids are proline. Working within the ubiquitin-dependent pathway, PI31 inhibits the hydrolysis of protein and peptide substrates by the 20S proteasome and also inhibits proteasome activation by PA700 and PA28. PI31 functions as a monomer and localizes to the nuclear envelope and endoplasmic reticulum membrane.

REFERENCES

1. Zaiss, D.M., et al. 1999. The proteasome inhibitor PI31 competes with PA28 for binding to 20S proteasomes. FEBS Lett. 457: 333-338.
2. McCutchen-Maloney, S.L., et al. 2000. cDNA cloning, expression, and functional characterization of PI31, a proline-rich inhibitor of the proteasome. J. Biol. Chem. 275: 18557-18565.
3. Zaiss, D.M., et al. 2002. PI31 is a modulator of proteasome formation and antigen processing. Proc. Natl. Acad. Sci. USA 99: 14344-14349.
4. Dahlmann, B. 2005. Proteasomes. Essays Biochem. 41: 31-48.
5. Gharbi, S.I., et al. 2007. Exploring the specificity of the PI3K family inhibitor LY294002. Biochem. J. 404: 15-21.
6. Kuznetsova, E.B., et al. 2007. Novel methylation and expression markers associated with breast cancer. Mol. Biol. 41: 624-633.
7. Kirk, R., et al. 2008. Structure of a conserved dimerization domain within the F-box protein Fbxo7 and the PI31 proteasome inhibitor. J. Biol. Chem. 283: 22325-22335.
8. Cui, Y., et al. 2008. Proteomic analysis of testis biopsies in men treated with injectable testosterone undecanoate alone or in combination with oral levonorgestrel as potential male contraceptive. J. Proteome Res. 7: 3984-3993.

CHROMOSOMAL LOCATION

Genetic locus: PSMF1 (human) mapping to 20p13.

SOURCE

PI31 (26) is a mouse monoclonal antibody raised against amino acids 27-222 of PI31 of human origin.

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 for detailed protocols and support products.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

PI31 (26) is available conjugated to agarose (sc-136416 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-136416 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-136416 PE), fluorescein (sc-136416 FITC), Alexa Fluor® 488 (sc-136416 AF488), Alexa Fluor® 594 (sc-136416 AF594) or Alexa Fluor® 647 (sc-136416 AF647), 200 µg/ml, for IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-136416 AF680) or Alexa Fluor® 790 (sc-136416 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

PI31 (26) is recommended for detection of PI31 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for PI31 siRNA (h): sc-76129, PI31 shRNA Plasmid (h): sc-76129-SH and PI31 shRNA (h) Lentiviral Particles: sc-76129-V.

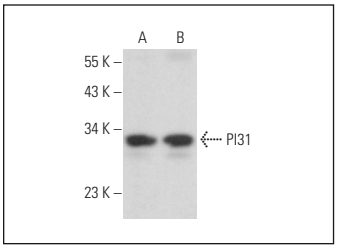
Molecular Weight of PI31: 31 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203 or HEL 92.1.7 cell lysate: sc-2270.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



PI31 (26): sc-136416. Western blot analysis of PI31 expression in K-562 (**A**) and HEL 92.1.7 (**B**) whole cell lysates.

RESEARCH USE

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