SANTA CRUZ BIOTECHNOLOGY, INC.

NTF2 (5E8): sc-13523

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Protein transport across the nucleus is a selective, multistep process involving several cytoplasmic factors. Proteins must be recognized as import substrates, dock at the nuclear pore complex and translocate across the nuclear envelope in an ATP-dependent fashion. Two cytosolic factors centrally involved in the recognition and docking process are the karyopherin-α and karyopherin-β proteins. The karyopherin holoenzyme is a heterodimer of α and β subunits. Karyopherin-α functions in the recognition and targeting of substrates destined for nuclear import, while karyopherin-β serves as an adapter, tethering the karyopherin-α/substrate complex to docking proteins on the nuclear envelope termed nucleoporins. p62 glycoprotein is one such nucleoporin, and is not only involved in the nuclear import of proteins, but also the export of nascent mRNA strands. An additional protein, NTF2 (nuclear transport factor 2), interacts with nucleoporin p62 as a homodimer, and may be an obligate component of functional p62.

REFERENCES

1. Moroianu, J., et al. 1995. Previously identified protein of uncertain function is karyopherin α and together with karyopherin β docks import substrate at nuclear pore complexes. Proc. Natl. Acad. Sci. USA 92: 2008-2011.
2. Moroianu, J. and Blobel, G. 1995. Protein export from the nucleus requires the GTPase ran and GTP hydrolysis. Proc. Natl. Acad. Sci. USA 92: 4318-4322.
3. Dargemont, C., et al. 1995. Direct interaction of nucleoporin p62 with mRNA during its export from the nucleus. J. Cell Sci. 108: 257-263.
4. Buss, F. and Stewart, M. 1995. Macromolecular interactions in the nucleoporin p62 complex of rat nuclear pores: binding of nucleoporin p54 to the rod domain of p62. J. Cell Biol. 128: 251-261.
5. Paschal, B.M. and Gerace, L. 1995. Identification of NTF2, a cytosolic factor for nuclear import that interacts with nuclear pore complex protein p62. J. Cell Biol. 129: 925-937.
6. Lounsbury, K.M., et al. 1996. Ran binding domains promote the interaction of Ran with p97/β-karyopherin, linking the docking and translocation steps of nuclear import. J. Biol. Chem. 271: 2357-2360.
7. Moroianu, J., et al. 1996. The binding site of karyopherin α for karyopherin β overlaps with a nuclear localization sequence. Proc. Natl. Acad. Sci. USA 93: 6572-6576.
8. Moroianu, J., et al. 1996. Nuclear protein import: Ran-GTP dissociates the karyopherin αβ heterodimer by displacing α from an overlapping binding site on β. Proc. Natl. Acad. Sci. USA 93: 7059-7062.

CHROMOSOMAL LOCATION

Genetic locus: NUTF2 (human) mapping to 16q22.1; Nutf2 (mouse) mapping to 8 D3.

SOURCE

NTF2 (5E8) is a mouse monoclonal antibody raised against a synthetic peptide near the N-terminus of NTF2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

NTF2 (5E8) is recommended for detection of NTF2 p10 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for NTF2 siRNA (h): sc-36105, NTF2 siRNA (m): sc-36106, NTF2 shRNA Plasmid (h): sc-36105-SH, NTF2 shRNA Plasmid (m): sc-36106-SH, NTF2 shRNA (h) Lentiviral Particles: sc-36105-V and NTF2 shRNA (m) Lentiviral Particles: sc-36106-V.

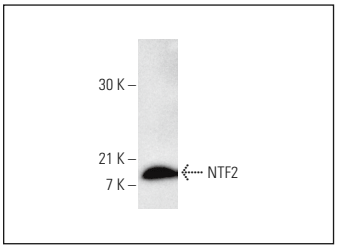
Molecular Weight of NTF2: 14 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, K-562 whole cell lysate: sc-2203 or COLO 320DM cell lysate: sc-2226.

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



NTF2 (5E8): sc-13523. Western blot analysis of NTF2 expression in HeLa whole cell lysate.

SELECT PRODUCT CITATIONS

1. Fan, P., et al. 2007. Long-term treatment with tamoxifen facilitates translocation of estrogen receptor α out of the nucleus and enhances its interaction with EGFR in MCF7 breast cancer cells. Cancer Res. 67: 1352-1360.

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.