SANTA CRUZ BIOTECHNOLOGY, INC.

NPC Marker (RL1): sc-58815

BACKGROUND

The nuclear pore complexes (NPCs) cross the nuclear envelope and allow the transport of water-soluble molecules across the nuclear envelope. Proteins transportred through the NPC include RNA and ribosomes moving from nucleus to the cytoplasm as well as DNA polymerase, lamins, carbohydrates, signal molecules and lipids moving into the nucleus from the cytoplasm. NPCs have a diameter of about 120 nm and are comprised of nucleoporins. About half of the nucleoporins contain either an α-solenoid and/or a β-propeller fold. FG nucleoporins make up the other half and represent highly flexible proteins that lack an ordered secondary structure and contain many phenylalanine-glycine repeats. NPC markers are useful labratory tools in the analysis of behavior and activity of these specialized protein complexes.

REFERENCES

1. Reed, R., et al. 2002. A conserved mRNA export machinery coupled to pre-mRNA splicing. Cell 108: 523-531.
2. Denning, D.P. et al. 2003. Disorder in the nuclear pore complex: the FG repeat regions of nucleoporins are natively unfolded. Proc. Natl. Acad. Sci. USA 100: 2450-2455.
3. Wozniak, R.W., et al. 2003. Nuclear pore complexes. Curr. Biol. 13: R169.
4. Hinshaw, J.E., et al. 2003. Nuclear pore complexes exceeding eightfold rotational symmetry. J. Struct. Biol. 141: 259-268.
5. Strawn, L.A., et al. 2004. Minimal nuclear pore complexes define FG repeat domains essential for transport. Nat. Cell Biol. 6: 197-206.
6. Rodriguez, M.S., et al. 2004. Nuclear export of RNA. Biol. Cell 96: 639-655.
7. Peters, R., et al. 2006. Introduction to nucleocytoplasmic transport: molecules and mechanisms. Methods Mol. Biol. 322: 235-258.
8. Tran, E.J., et al. 2006. Dynamic nuclear pore complexes: life on the edge. Cell 125:1041-1053.
9. Naim, B., et al. 2007. Passive and facilitated transport in nuclear pore complexes is largely uncoupled. J. Biol. Chem. 282: 3881-3888.

SOURCE

NPC Marker (RL1) is a mouse monoclonal antibody raised against pore complex-lamina fraction purified from liver nuclear envelopes of rat origin.

PRODUCT

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

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.

APPLICATIONS

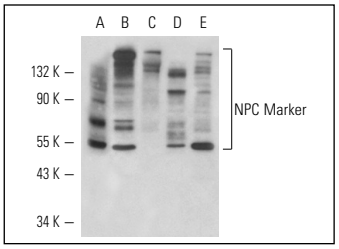
NPC Marker (RL1) is recommended for detection of NPC Marker of mouse, rat, human and *Xenopus laevis* origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Positive Controls: Hep G2 cell lysate: sc-2227, HeLa nuclear extract: sc-2120 or 3611-RF nuclear extract: sc-2143.

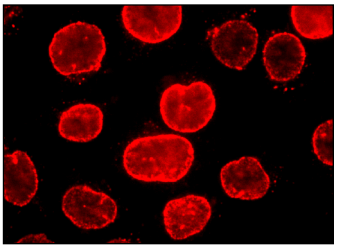
RECOMMENDED SUPPORT REAGENTS

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 L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



NPC Marker (RL1): sc-58815. Western blot analysis of Nuclear Envelope Polypeptides in Hep G2 (**A**) and c4 (**B**) whole cell lysates and rat liver tissue extract (**C**) and HeLa (**D**) and 3611-RF (**E**) nuclear extracts.



NPC Marker (RL1): sc-58815. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear envelope localization.

RESEARCH USE

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