

karyopherin β 1 (E-7): sc-365299

BACKGROUND

Protein transport across the nucleus is a selective, multi-step 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 1 and karyopherin β 1 subunits. Karyopherin α 1 functions in the recognition and targeting of substrates destined for nuclear import, while karyopherin β 1 serves as an adapter, tethering the karyopherin α 1/substrate complex to docking proteins on the nuclear envelope, termed nucleoporins. Karyopherin α 2 has been shown to complex with Epstein-Barr virus nuclear antigen 1 (EBNA-1). Certain RNA-binding proteins are imported to the nucleus by karyopherin β 2, and karyopherin β 3 appears to be involved in the import of some ribosomal proteins.

REFERENCES

- 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.
- 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.
- 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.
- 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.
- Moroianu, J., et al. 1996. Nuclear protein import: Ran-GTP dissociates the karyopherin α/β heterodimer by displacing α from an overlapping binding site on β . *Proc. Natl. Acad. Sci. USA* 93: 7059-7062.

CHROMOSOMAL LOCATION

Genetic locus: KPNB1 (human) mapping to 17q21.32; Kpnb1 (mouse) mapping to 11 D.

SOURCE

karyopherin β 1 (E-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 851-876 at the C-terminus of karyopherin β 1 of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-365299 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

karyopherin β 1 (E-7) is recommended for detection of karyopherin β 1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], 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).

karyopherin β 1 (E-7) is also recommended for detection of karyopherin β 1 in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for karyopherin β 1 siRNA (h): sc-35736, karyopherin β 1 siRNA (m): sc-35735, karyopherin β 1 siRNA (r): sc-156145, karyopherin β 1 shRNA Plasmid (h): sc-35736-SH, karyopherin β 1 shRNA Plasmid (m): sc-35735-SH, karyopherin β 1 shRNA Plasmid (r): sc-156145-SH, karyopherin β 1 shRNA (h) Lentiviral Particles: sc-35736-V, karyopherin β 1 shRNA (m) Lentiviral Particles: sc-35735-V and karyopherin β 1 shRNA (r) Lentiviral Particles: sc-156145-V.

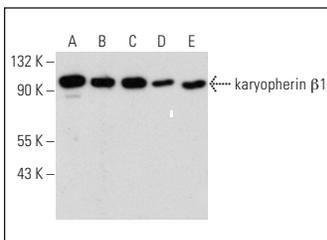
Molecular Weight of karyopherin β 1: 97 kDa.

Positive Controls: Y79 cell lysate: sc-2240, C6 whole cell lysate: sc-364373 or PC-12 cell lysate: sc-2250.

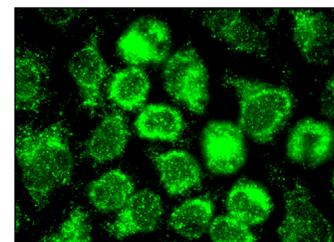
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ 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



karyopherin β 1 (E-7): sc-365299. Western blot analysis of karyopherin β 1 expression in Y79 (A), NIH/3T3 (B), 3T3-L1 (C), C6 (D) and PC-12 (E) whole cell lysates.



karyopherin β 1 (E-7): sc-365299. Immunofluorescence staining of methanol-fixed HeLa cells showing perinuclear localization.

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.