

karyopherin β 1 (H-7): sc-137016

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 (EBNA1). 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.

REFERENCE

- 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., et al. 1995. Protein export from the nucleus requires the GTPase Ran and GTP hydrolysis. *Proc. Natl. Acad. Sci. USA* 92: 4318-4322.

CHROMOSOMAL LOCATION

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

SOURCE

karyopherin β 1 (H-7) is a mouse monoclonal antibody raised against amino acids 1-300 of karyopherin β 1 of human origin.

PRODUCT

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

karyopherin β 1 (H-7) is available conjugated to agarose (sc-137016 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-137016 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-137016 PE), fluorescein (sc-137016 FITC), Alexa Fluor® 488 (sc-137016 AF488), Alexa Fluor® 546 (sc-137016 AF546), Alexa Fluor® 594 (sc-137016 AF594) or Alexa Fluor® 647 (sc-137016 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-137016 AF680) or Alexa Fluor® 790 (sc-137016 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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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

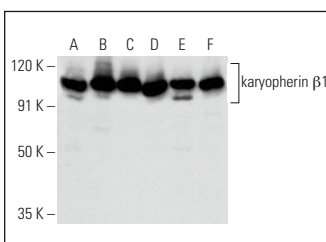
karyopherin β 1 (H-7) is recommended for detection of karyopherin β 1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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 (H-7) is also recommended for detection of karyopherin β 1 in additional species, including canine, bovine and porcine.

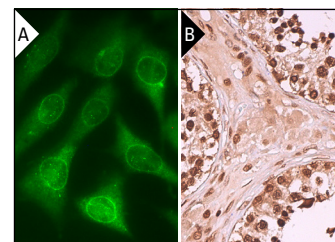
Suitable for use as control antibody for karyopherin β 1 siRNA (h): sc-35736, karyopherin β 1 siRNA (m): sc-35735, karyopherin β 1 siRNA (r): sc-156145, karyopherin β 1 shRNA Plasmid (h): sc-35736-SH, karyopherin β 1 shRNA Plasmid (m): sc-35735-SH, karyopherin β 1 shRNA Plasmid (r): sc-156145-SH, karyopherin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

DATA



karyopherin β 1 (H-7): sc-137016. Western blot analysis of karyopherin β 1 expression in ARPE-19 (A), Y79 (B), NIH/3T3 (C), 3T3-L1 (D), C6 (E) and PC-12 (F) whole cell lysates.



karyopherin β 1 (H-7): sc-137016. Immunofluorescence staining of methanol-fixed NIH/3T3 cells showing cytoplasmic and nuclear envelope localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear and cytoplasmic staining of cells in seminiferous ducts and Leydig cells (B).

SELECT PRODUCT CITATIONS

- Mahmoudi, S., et al. 2010. WRAP53 is essential for Cajal body formation and for targeting the survival of motor neuron complex to Cajal bodies. *PLoS Biol.* 8: e1000521.
- Okpara, M.O., et al. 2022. A mass spectrometry-based approach for the identification of Kpn β 1 binding partners in cancer cells. *Sci. Rep.* 12: 20171.
- Bagka, M., et al. 2023. Targeted protein degradation reveals BET bromodomains as the cellular target of Hedgehog pathway inhibitor-1. *Nat. Commun.* 14: 3893.
- Zhang, C., et al. 2024. Targeting KPNB1 with genkwadaphnin suppresses gastric cancer progression through the Nur77-mediated signaling pathway. *Eur. J. Pharmacol.* 977: 176697.

RESEARCH USE

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