

karyopherin α 1 (187.1): sc-101292

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 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.

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., 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: KPNA1 (human) mapping to 3q21.1; Kpna1 (mouse) mapping to 16 B3.

SOURCE

karyopherin α 1 (187.1) is a mouse monoclonal antibody raised against recombinant karyopherin α 1 of human origin.

PRODUCT

Each vial contains 100 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

karyopherin α 1 (187.1) is recommended for detection of karyopherin α 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), 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).

Suitable for use as control antibody for karyopherin α 1 siRNA (h): sc-41277, karyopherin α 1 siRNA (m): sc-41278, karyopherin α 1 shRNA Plasmid (h): sc-41277-SH, karyopherin α 1 shRNA Plasmid (m): sc-41278-SH, karyopherin α 1 shRNA (h) Lentiviral Particles: sc-41277-V and karyopherin α 1 shRNA (m) Lentiviral Particles: sc-41278-V.

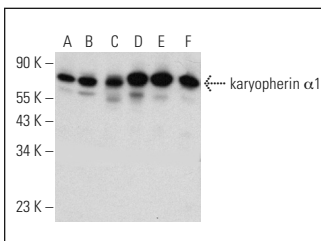
Molecular Weight of karyopherin α 1: 61 kDa.

Positive Controls: RAW 264.7 whole cell lysate: sc-2211, K-562 whole cell lysate: sc-2203 or HeLa whole cell lysate: sc-2200.

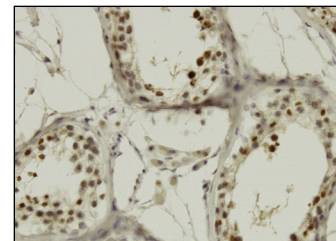
STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



karyopherin α 1 (187.1): sc-101292. Western blot analysis of karyopherin α 1 expression in HeLa (A), K-562 (B), HuT 78 (C), RAW 264.7 (D), NIH/3T3 (E) and PC-12 (F) whole cell lysates.



karyopherin α 1 (187.1): sc-101292. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human testis tissue showing nuclear and cytoplasmic localization.

SELECT PRODUCT CITATIONS

- Huang, X., et al. 2013. Identification and functional implication of nuclear localization signals in the N-terminal domain of JMJD5. *Biochimie* 95: 2114-2122.
- Jeong, S.A., et al. 2015. Akt-mediated phosphorylation increases the binding affinity of hTERT for Importin α to promote nuclear translocation. *J. Cell Sci.* 128: 2287-2301.
- Ren, Y., et al. 2016. Deubiquitinase USP2a sustains interferons antiviral activity by restricting ubiquitination of activated Stat1 in the nucleus. *PLoS Pathog.* 12: e1005764.
- Xiang, Y., et al. 2017. MRTF-A-miR-206-WDR1 form feedback loop to regulate breast cancer cell migration. *Exp. Cell Res.* 359: 394-404.
- Pallett, M.A., et al. 2019. Vaccinia virus BBK E3 ligase adaptor A55 targets importin-dependent NF κ B activation and inhibits CD8⁺ T-cell memory. *J. Virol.* 93: e00051-19.
- He, J., et al. 2020. Zika virus NS2A protein induces the degradation of KPNA2 (karyopherin subunit α 2) via chaperone-mediated autophagy. *Autophagy* 16: 2238-2251.
- Nagashima, S., et al. 2021. CSE1L promotes nuclear accumulation of transcriptional coactivator TAZ and enhances invasiveness of human cancer cells. *J. Biol. Chem.* 297: 100803.
- Ogawa, C., et al. 2022. BMP10 expression in the adult rat central nervous system. *J. Chem. Neuroanat.* 121: 102084.
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RESEARCH USE

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