SANTA CRUZ BIOTECHNOLOGY, INC.

karyopherin α1 (187.1): sc-101292

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 α1 and karyopherin β1 subunits. Karyopherin α1 functions in the recognition and targeting of substrates destined for nuclear import, while karyopherin β1 serves as an adapter, tethering the karyopherin α1/substrate complex to docking proteins on the nuclear envelope termed nucleoporins. Karyopherin α2 has been shown to complex with Epstein-Barr virus nuclear antigen 1 (EBNA1). Certain RNA-binding proteins are imported to the nucleus by karyopherin β2, and karyopherin β3 appears to be involved in the import of some ribosomal proteins.

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., 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 α1 (187.1) is a mouse monoclonal antibody raised against recombinant karyopherin α1 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

karyopherin α1 (187.1) is recommended for detection of karyopherin α1 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)], 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 α1 siRNA (h): sc-41277, karyopherin α1 siRNA (m): sc-41278, karyopherin α1 shRNA Plasmid (h): sc-41277-SH, karyopherin α1 shRNA Plasmid (m): sc-41278-SH, karyopherin α1 shRNA (h) Lentiviral Particles: sc-41277-V and karyopherin α1 shRNA (m) Lentiviral Particles: sc-41278-V.

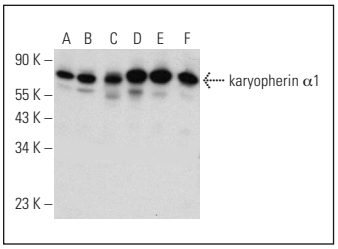
Molecular Weight of karyopherin α1: 61 kDa.

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

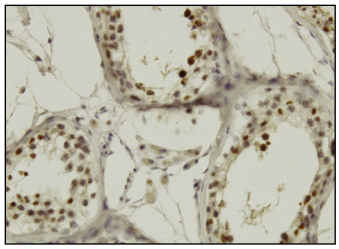
STORAGE

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

DATA



karyopherin α1 (187.1): sc-101292. Western blot analysis of karyopherin α1 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 α1 (187.1): sc-101292. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human testis tissue showing nuclear and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Huang, X., et al. 2013. Identification and functional implication of nuclear localization signals in the N-terminal domain of JMJD5. Biochimie 95: 2114-2122.
2. Wang, R., et al. 2013. Porcine reproductive and respiratory syndrome virus Nsp1β inhibits interferon-activated JAK/Stat signal transduction by inducing karyopherin-α1 degradation. J. Virol. 87: 5219-5228.
3. 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.
4. Ren, Y., et al. 2016. Deubiquitinase USP2a sustains interferons antiviral activity by restricting ubiquitination of activated Stat1 in the nucleus. PLoS Pathog. 12: e1005764.
5. 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.
6. Behm, M., et al. 2017. Accumulation of nuclear ADAR2 regulates adenosine-to-inosine RNA editing during neuronal development. J. Cell Sci. 130: 745-753.
7. Pallett, M.A., et al. 2019. Vaccinia virus BBK E3 ligase adaptor A55 targets importin-dependent NFκB activation and inhibits $CD8^+$ T-cell memory. J. Virol. 93: e00051-19.
8. Li, J., et al. 2019. Antiviral activity of a purine synthesis enzyme reveals a key role of deamidation in regulating protein nuclear import. Sci. Adv. 5: eaaw7373.
9. He, J., et al. 2020. Zika virus NS2A protein induces the degradation of KPNA2 (karyopherin subunit α 2) via chaperone-mediated autophagy. Autophagy. E-published.

RESEARCH USE

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