SANTA CRUZ BIOTECHNOLOGY, INC.

karyopherin α2 (B-9): sc-55538

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.

CHROMOSOMAL LOCATION

Genetic locus: KPNA2 (human) mapping to 17q24.2; Kpna2 (mouse) mapping to 11 E1.

SOURCE

karyopherin α2 (B-9) is a mouse monoclonal antibody raised against amino acids 480-529 of karyopherin α2 of human origin.

PRODUCT

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

karyopherin α2 (B-9) is available conjugated to agarose (sc-55538 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-55538 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-55538 PE), fluorescein (sc-55538 FITC), Alexa Fluor® 488 (sc-55538 AF488), Alexa Fluor® 546 (sc-55538 AF546), Alexa Fluor® 594 (sc-55538 AF594) or Alexa Fluor® 647 (sc-55538 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-55538 AF680) or Alexa Fluor® 790 (sc-55538 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

karyopherin α2 (B-9) is recommended for detection of karyopherin α2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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 α2 siRNA (h): sc-35741, karyopherin α2 siRNA (m): sc-35742, karyopherin α2 shRNA Plasmid (h): sc-35741-SH, karyopherin α2 shRNA Plasmid (m): sc-35742-SH, karyopherin α2 shRNA (h) Lentiviral Particles: sc-35741-V and karyopherin α2 shRNA (m) Lentiviral Particles: sc-35742-V.

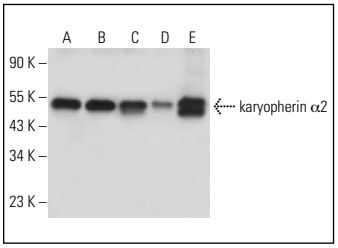
Molecular Weight of karyopherin α2: 52 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, A-375 cell lysate: sc-3811 or NIH/3T3 whole cell lysate: sc-2210.

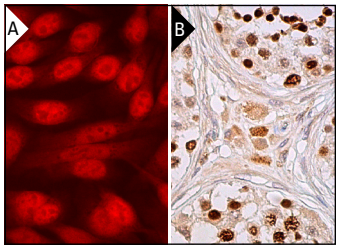
STORAGE

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

DATA



karyopherin α2 (B-9): sc-55538. Western blot analysis of karyopherin α2 expression in HeLa nuclear extract (**A**) and A-375 (**B**), NIH/3T3 (**C**), RAW 264.7 (**D**) and KNRK (**E**) whole cell lysates.



karyopherin α2 (B-9) Alexa Fluor® 594: sc-55538 AF594. Direct immunofluorescence staining of formalin-fixed SW480 cells showing nuclear and cytoplasmic localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (**A**). karyopherin α2 (B-9): sc-55538. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear staining of cells in seminiferous ducts and cytoplasmic staining of Leydig cells (**B**).

SELECT PRODUCT CITATIONS

1. Kodiha, M., et al. 2008. Oxidative stress mislocalizes and retains transport factor Importin-α and nucleoporins Nup153 and Nup88 in nuclei where they generate high molecular mass complexes. Biochim. Biophys. Acta 1783: 405-418.
2. Rodriguez-Bravo, V., et al. 2018. Nuclear pores promote lethal prostate cancer by increasing POM121-driven E2F1, MYC, and AR nuclear import. Cell 174: 1200-1215.e20.
3. Tang, Y.S., et al. 2019. The extended C-terminal region of influenza C virus nucleoprotein is important for nuclear import and ribonucleoprotein activity. J. Virol. 93: e02048-18.
4. Radhakrishnan, K., et al. 2020. Karyopherin α2 mediates MDC1 nuclear import through a functional nuclear localization signal in the tBRCT domain of MDC1. Int. J. Mol. Sci. 21: 2650.
5. Lai, K.Y., et al. 2021. A Ran-binding protein facilitates nuclear import of human papillomavirus type 16. PLoS Pathog. 17: e1009580.
6. Salvi, A., et al. 2022. PHY34 inhibits autophagy through V-ATPase V0A2 subunit inhibition and CAS/CSE1L nuclear cargo trafficking in high grade serous ovarian cancer. Cell Death Dis. 13: 45.
7. Feng, H.P., et al. 2023. Acetylation regulates the nucleocytoplasmic distribution and oncogenic function of karyopherin α2 in lung adenocarcinoma. Biochem. Biophys. Res. Commun. 659: 96-104.
8. Yamada, A., et al. 2024. Analysis of the effects of importin α1 on the nuclear translocation of IL-1α in HeLa cells. Sci. Rep. 14: 1322.

RESEARCH USE

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