

# karyopherin $\alpha$ 2 (B-9): sc-55538

## 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  $\alpha$ 1 and karyopherin  $\beta$ 1 subunits. Karyopherin  $\alpha$ 1 functions in the recognition and targeting of substrates destined for nuclear import, while karyopherin  $\beta$ 1 serves as an adapter, tethering the karyopherin  $\alpha$ 1/substrate complex to docking proteins on the nuclear envelope termed nucleoporins. Karyopherin  $\alpha$ 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  $\beta$ 2, and karyopherin  $\beta$ 3 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  $\alpha$ 2 (B-9) is a mouse monoclonal antibody raised against amino acids 480-529 of karyopherin  $\alpha$ 2 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2b</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

karyopherin  $\alpha$ 2 (B-9) is available conjugated to agarose (sc-55538 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-55538 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-55538 PE), fluorescein (sc-55538 FITC), Alexa Fluor<sup>®</sup> 488 (sc-55538 AF488), Alexa Fluor<sup>®</sup> 546 (sc-55538 AF546), Alexa Fluor<sup>®</sup> 594 (sc-55538 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-55538 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-55538 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-55538 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

karyopherin  $\alpha$ 2 (B-9) is recommended for detection of karyopherin  $\alpha$ 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ 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  $\alpha$ 2 siRNA (h): sc-35741, karyopherin  $\alpha$ 2 siRNA (m): sc-35742, karyopherin  $\alpha$ 2 shRNA Plasmid (h): sc-35741-SH, karyopherin  $\alpha$ 2 shRNA Plasmid (m): sc-35742-SH, karyopherin  $\alpha$ 2 shRNA (h) Lentiviral Particles: sc-35741-V and karyopherin  $\alpha$ 2 shRNA (m) Lentiviral Particles: sc-35742-V.

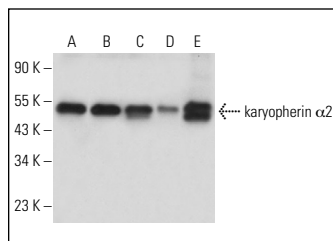
Molecular Weight of karyopherin  $\alpha$ 2: 52 kDa.

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

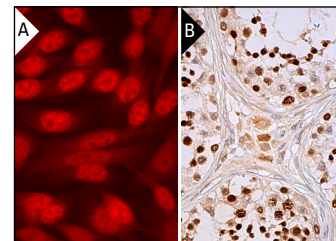
## STORAGE

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

## DATA



karyopherin  $\alpha$ 2 (B-9): sc-55538. Western blot analysis of karyopherin  $\alpha$ 2 expression in HeLa nuclear extract (A) and A-375 (B), NIH/3T3 (C), RAW 264.7 (D) and KNRK (E) whole cell lysates.



karyopherin  $\alpha$ 2 (B-9) Alexa Fluor<sup>®</sup> 594: sc-55538 AF594. Direct immunofluorescence staining of formalin-fixed SW480 cells showing nuclear and cytoplasmic localization. Blocked with UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 (A), karyopherin  $\alpha$ 2 (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

- Kodiha, M., et al. 2008. Oxidative stress mislocalizes and retains transport factor Importin- $\alpha$  and nucleoporins Nup153 and Nup88 in nuclei where they generate high molecular mass complexes. *Biochim. Biophys. Acta* 1783: 405-418.
- Wang, C.I., et al. 2015. Quantitative proteomics reveals a novel role of karyopherin  $\alpha$ 2 in cell migration through the regulation of vimentin-pErk protein complex levels in lung cancer. *J. Proteome Res.* 14: 1739-1751.
- Wang, C.I., et al. 2016. mTOR regulates proteasomal degradation and Dp1/E2F1-mediated transcription of KPNA2 in lung cancer cells. *Oncotarget* 7: 25432-25442.
- Chen, W.S., et al. 2017. Ran-dependent TPX2 activation promotes acentrosomal microtubule nucleation in neurons. *Sci. Rep.* 7: 42297.
- 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.
- 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.
- Radhakrishnan, K., et al. 2020. Karyopherin  $\alpha$ -2 mediates MDC1 nuclear import through a functional nuclear localization signal in the tBRC domain of MDC1. *Int. J. Mol. Sci.* 21: 2650.
- Lai, K.Y., et al. 2021. A Ran-binding protein facilitates nuclear import of human papillomavirus type 16. *PLoS Pathog.* 17: e1009580.

## RESEARCH USE

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

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