

# karyopherin $\alpha 2$ (m): 293T Lysate: sc-125512

## 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  $\alpha 1$  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.

## REFERENCES

1. Moroianu, J., et al. 1995. Previously identified protein of uncertain function is karyopherin  $\alpha$  and together with karyopherin  $\beta$  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.
3. Lounsbury, K.M., et al. 1996. Ran binding domains promote the interaction of Ran with p97/ $\beta$ -karyopherin, linking the docking and translocation steps of nuclear import. *J. Biol. Chem.* 271: 2357-2360.
4. Moroianu, J., et al. 1996. The binding site of karyopherin  $\alpha$  for karyopherin  $\beta$  overlaps with a nuclear localization sequence. *Proc. Natl. Acad. Sci. USA* 93: 6572-6576.
5. Moroianu, J., et al. 1996. Nuclear protein import: Ran-GTP dissociates the karyopherin  $\alpha/\beta$  heterodimer by displacing  $\alpha$  from an overlapping binding site on  $\beta$ . *Proc. Natl. Acad. Sci. USA* 93: 7059-7062.
6. Fischer, N., et al. 1997. Epstein-Barr virus nuclear antigen 1 forms a complex with the nuclear transporter karyopherin  $\alpha 2$ . *J. Biol. Chem.* 272: 3999-4005.
7. Yaseen, N.R., et al. 1997. Cloning and characterization of human karyopherin  $\beta 3$ . *Proc. Natl. Acad. Sci. USA* 94: 4451-4456.
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## CHROMOSOMAL LOCATION

Genetic locus: Kpna2 (mouse) mapping to 11 E1.

## PRODUCT

karyopherin  $\alpha 2$  (m): 293T Lysate represents a lysate of mouse karyopherin  $\alpha 2$  transfected 293T cells and is provided as 100  $\mu$ g protein in 200  $\mu$ l SDS-PAGE buffer.

## STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

## APPLICATIONS

karyopherin  $\alpha 2$  (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive karyopherin  $\alpha 2$  antibodies. Recommended use: 10-20  $\mu$ l per lane.

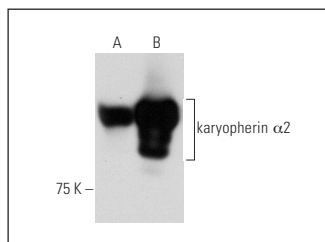
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

karyopherin  $\alpha 2$  (B-9): sc-55538 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse karyopherin  $\alpha 2$  expression in karyopherin  $\alpha 2$  transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

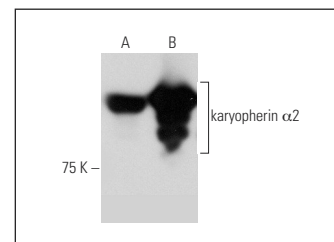
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:  
1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

## DATA



karyopherin  $\alpha 2$  (B-9): sc-55538. Western blot analysis of karyopherin  $\alpha 2$  expression in non-transfected: sc-117752 (A) and mouse karyopherin  $\alpha 2$  transfected: sc-125512 (B) 293T whole cell lysates.



karyopherin  $\alpha 2$  (G-11): sc-55537. Western blot analysis of karyopherin  $\alpha 2$  expression in non-transfected: sc-117752 (A) and mouse karyopherin  $\alpha 2$  transfected: sc-125512 (B) 293T whole cell lysates.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.