

# karyopherin $\beta$ 2 (L5E3): sc-101539

## 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 (EBNA-1). 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

- 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.
- 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.
- Lounsbury, K.M., et al. 1996. Ran binding domains promote the interaction of Ran with p97/karyopherin  $\beta$ , linking the docking and translocation steps of nuclear import. *J. Biol. Chem.* 271: 2357-2360.
- 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.
- 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.
- 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.
- Yaseen, N.R., et al. 1997. Cloning and characterization of human karyopherin  $\beta$ 3. *Proc. Natl. Acad. Sci. USA* 94: 4451-4456.
- Bonifaci, N., et al. 1997. Karyopherin  $\beta$ 2 mediates nuclear import of a mRNA binding protein. *Proc. Natl. Acad. Sci. USA* 94: 5055-5060.

## CHROMOSOMAL LOCATION

Genetic locus: TNPO1 (human) mapping to 5q13.2; Tnp01 (mouse) mapping to 13 D1.

## SOURCE

karyopherin  $\beta$ 2 (L5E3) is a rat monoclonal antibody raised against full-length recombinant karyopherin  $\beta$ 2 of human origin.

## PRODUCT

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

## APPLICATIONS

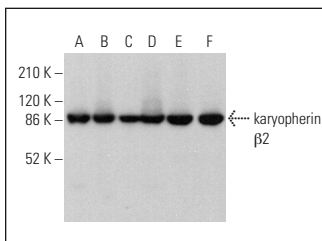
karyopherin  $\beta$ 2 (L5E3) is recommended for detection of karyopherin  $\beta$ 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with other members of the importin  $\beta$  family.

Suitable for use as control antibody for karyopherin  $\beta$ 2 siRNA (h): sc-35737, karyopherin  $\beta$ 2 siRNA (m): sc-35738, karyopherin  $\beta$ 2 shRNA Plasmid (h): sc-35737-SH, karyopherin  $\beta$ 2 shRNA Plasmid (m): sc-35738-SH, karyopherin  $\beta$ 2 shRNA (h) Lentiviral Particles: sc-35737-V and karyopherin  $\beta$ 2 shRNA (m) Lentiviral Particles: sc-35738-V.

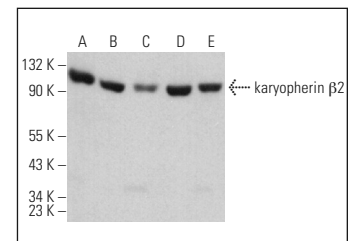
Molecular Weight of karyopherin  $\beta$ 2: 101 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Neuro-2A whole cell lysate: sc-364185 or PC-3 cell lysate: sc-2220.

## DATA



karyopherin  $\beta$ 2 (L5E3): sc-101539. Western blot analysis of karyopherin  $\beta$ 2 expression in HeLa (A), DU 145 (B), EOC 20 (C), C6 (D), Y79 (E) and F9 (F) whole cell lysates.



karyopherin  $\beta$ 2 (L5E3): sc-101539. Western blot analysis of karyopherin  $\beta$ 2 expression in HeLa (A), Caco-2 (B), PC-3 (C), Neuro-2A (D) and RPE-J (E) whole cell lysates.

## STORAGE

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

## 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.