SANTA CRUZ BIOTECHNOLOGY, INC.

karyopherin β2/2B (A-11): sc-365179

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 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 (EBNA-1). Karyopherin β2 and karyopherin β2B (also designated transportin 1 and transportin 2) share 84% sequence identity at the amino acid level, however, they have been shown to have different substrate specificities. Karyopherin β2 mediates hnRNPA1 nuclear import while karyopherin β2B has been implicated in the export of cellular mRNAs through complexes formed with the mRNA export factor TAP.

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. and Blobel, G. 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: TNPO1 (human) mapping to 5q13.2, TNPO2 (human) mapping to 19p13.2; Tnpo1 (mouse) mapping to 13 D1, Tnpo2 (mouse) mapping to 8 C3.

SOURCE

karyopherin β2/2B (A-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 2-29 at the N-terminus of karyopherin β2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

karyopherin β2/2B (A-11) is available conjugated to agarose (sc-365179 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365179 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365179 PE), fluorescein (sc-365179 FITC), Alexa Fluor® 488 (sc-365179 AF488), Alexa Fluor® 546 (sc-365179 AF546), Alexa Fluor® 594 (sc-365179 AF594) or Alexa Fluor® 647 (sc-365179 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365179 AF680) or Alexa Fluor® 790 (sc-365179 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-365179 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

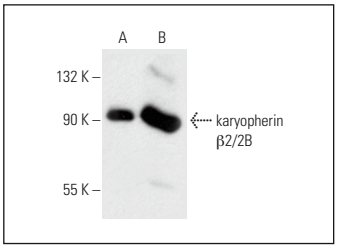
karyopherin β2/2B (A-11) is recommended for detection of karyopherin β2 and karyopherin β2B of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

karyopherin β2/2B (A-11) is also recommended for detection of karyopherin β2 and karyopherin β2B in additional species, including bovine and avian.

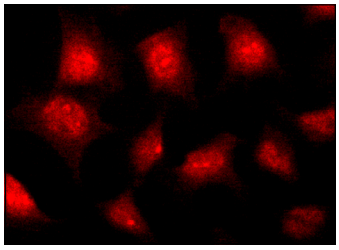
Molecular Weight of karyopherin β2/2B: 55-97 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Jurkat whole cell lysate: sc-2204 or A-431 whole cell lysate: sc-2201.

DATA



karyopherin β2/2B (A-11): sc-365179. Western blot analysis of karyopherin β2/2B expression in Jurkat (**A**) and A-431 (**B**) whole cell lysates.



karyopherin β2/2B (A-11): sc-365179. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Hwang, B., et al. 2015. IPO3-mediated nonclassical nuclear import of NFκB essential modulator (NEMO) drives DNA damage-dependent NFκB activation. J. Biol. Chem. 290: 17967-17984.
2. Goodman, L.D., et al. 2021. TNPO2 variants associate with human developmental delays, neurologic deficits, and dysmorphic features and alter TNPO2 activity in *Drosophila*. Am. J. Hum. Genet. 108: 1669-1691.
3. Gao, H., et al. 2024. Extracellular vesicles from organoid-derived human retinal progenitor cells prevent lipid overload-induced retinal pigment epithelium injury by regulating fatty acid metabolism. J. Extracell. Vesicles 13: e12401.

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 for detailed protocols and support products.