SANTA CRUZ BIOTECHNOLOGY, INC.

karyopherin α3 (B-1): sc-514101

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Protein transport across the nucleus is a selective, multi-step process involving several cytoplasmic factors that mediate protein passage through the nuclear pore complex (NPC). Cytoplasmic proteins that contain nuclear localization signals (NLSs) must be recognized as import substrates, dock at the nuclear pore complex and translocate across the nuclear envelope in an ATP-dependent fashion. Karyopherin α3, also known as KPNA3 or QIP2, is a 521 amino acid protein that localizes to both the nucleus and the cytoplasm and contains one IBB domain and ten ARM repeats. Expressed ubiquitously with highest expression in heart and skeletal muscle, karyopherin α3 binds to NLS-containing proteins, as well as to HIV-1 proteins, and directs their import into the nucleus. Additionally, karyopherin α3 functions as an adaptor protein for karyopherin β1 and helps regulate karyopherin β1-mediated docking of target substrates to the NPC complex. The gene encoding karyopherin α3 maps to human chromosome 13q14.2 and may be involved in the pathogenesis of schizophrenia.

REFERENCES

1. Moore, M.S. and Blobel, G. 1992. The two steps of nuclear import, targeting to the nuclear envelope and translocation through the nuclear pore, require different cytosolic factors. Cell 69: 939-950.
2. Gallay, P., et al. 1996. Role of the karyopherin pathway in human immunodeficiency virus type 1 nuclear import. J. Virol. 70: 1027-1032.
3. Takeda, S., et al. 1997. Isolation and mapping of karyopherin α 3 (KPNA3), a human gene that is highly homologous to genes encoding *Xenopus* importin, yeast SRP1 and human RCH1. Cytogenet. Cell Genet. 76: 87-93.
4. Köhler, M., et al. 1997. Cloning of two novel human importin-α subunits and analysis of the expression pattern of the importin-α protein family. FEBS Lett. 417: 104-108.

CHROMOSOMAL LOCATION

Genetic locus: KPNA3 (human) mapping to 13q14.2; Kpna3 (mouse) mapping to 14 D1.

SOURCE

karyopherin α3 (B-1) is a mouse monoclonal antibody raised against amino acids 51-90 mapping near the N-terminus of karyopherin α3 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 α3 (B-1) is available conjugated to agarose (sc-514101 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-514101 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514101 PE), fluorescein (sc-514101 FITC), Alexa Fluor® 488 (sc-514101 AF488), Alexa Fluor® 546 (sc-514101 AF546), Alexa Fluor® 594 (sc-514101 AF594) or Alexa Fluor® 647 (sc-514101 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-514101 AF680) or Alexa Fluor® 790 (sc-514101 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

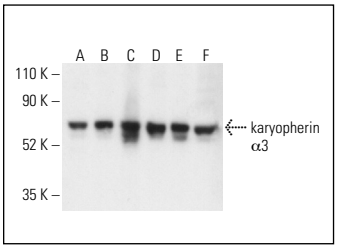
karyopherin α3 (B-1) is recommended for detection of karyopherin α3 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for karyopherin α3 siRNA (h): sc-105586, karyopherin α3 siRNA (m): sc-146340, karyopherin α3 shRNA Plasmid (h): sc-105586-SH, karyopherin α3 shRNA Plasmid (m): sc-146340-SH, karyopherin α3 shRNA (h) Lentiviral Particles: sc-105586-V and karyopherin α3 shRNA (m) Lentiviral Particles: sc-146340-V.

Molecular Weight of karyopherin α3: 58 kDa.

Positive Controls: A-673 cell lysate: sc-2414, K-562 nuclear extract: sc-2130 or Jurkat nuclear extract: sc-2132.

DATA



karyopherin α3 (B-1): sc-514101. Western blot analysis of karyopherin α3 expression in K-562 (**A**), HeLa (**B**), Jurkat (**C**) and NIH/3T3 (**D**) nuclear extracts and A-673 (**E**) and Hep G2 (**F**) whole cell lysates. Detection reagent used: m-IgG_1 BP-HRP: sc-525408.

SELECT PRODUCT CITATIONS

1. Behm, M., et al. 2017. Accumulation of nuclear ADAR2 regulates adenosine-to-inosine RNA editing during neuronal development. J. Cell Sci. 130: 745-753.
2. Wang, Y., et al. 2021. Orthogonal ubiquitin transfer reveals human papillomavirus E6 downregulates nuclear transport to disarm interferon-γ dependent apoptosis of cervical cancer cells. FASEB J. 35: e21986.
3. 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.

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.