SANTA CRUZ BIOTECHNOLOGY, INC.

B23 (3F291): sc-70392

BACKGROUND

The transport of proteins across the nuclear envelope 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. Several cytosolic and nuclear proteins that are central to this process have been identified. For example, two cytosolic factors critically involved in the recognition and docking process are the karyopherin α and karyopherin β proteins. The karyopherin holoenzyme is a heterodimer of α and β subunits. The nuclear protein B23 (also referred to as nucleophosmin) is involved in ribosomal assembly and rRNA transport. B23 is an abundant protein that is highly phosphorylated by Cdc2 kinase during mitosis.

REFERENCES

1. 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.
2. Chou, Y.H., et al. 1995. Cell cycle phase-dependent changes of localization and oligomerization states of nucleophosmin/B23. Biochem. Biophys. Res. Commun. 217: 313-325.

CHROMOSOMAL LOCATION

Genetic locus: NPM1 (human) mapping to 5q35.1; Npm1 (mouse) mapping to 11 A4.

SOURCE

B23 (3F291) is a mouse monoclonal antibody raised against a recombinant protein corresponding to the N-terminus of B23 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.

APPLICATIONS

B23 (3F291) is recommended for detection of B23 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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 immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for B23 siRNA (h): sc-29771, B23 siRNA (m): sc-29772, B23 shRNA Plasmid (h): sc-29771-SH, B23 shRNA Plasmid (m): sc-29772-SH, B23 shRNA (h) Lentiviral Particles: sc-29771-V and B23 shRNA (m) Lentiviral Particles: sc-29772-V.

Molecular Weight of B23: 40 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, DU 145 cell lysate: sc-2268 or HEL 92.1.7 cell lysate: sc-2270.

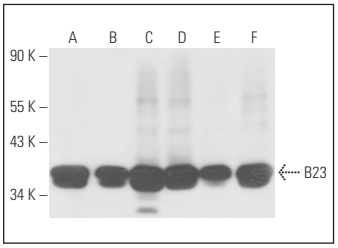
RESEARCH USE

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

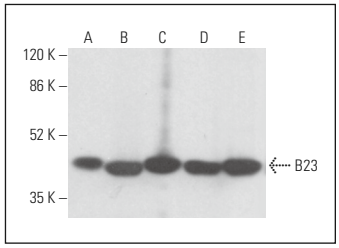
STORAGE

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

DATA



B23 (3F291): sc-70392. Western blot analysis of B23 expression in HEL 92.1.7 (**A**), DU 145 (**B**), HeLa (**C**), K-562 (**D**), CCRF-CEM (**E**) and MCF7 (**F**) whole cell lysates.



B23 (3F291): sc-70392. Western blot analysis of B23 expression in HEL 92.1.7 (**A**), BT-20 (**B**), PC-3 (**C**), AT3B-1 (**D**) and MDA-MB-231 (**E**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Zhou, Y., et al. 2008. TAT-mediated intracellular delivery of NPM-derived peptide induces apoptosis in leukemic cells and suppresses leukemogenesis in mice. Blood 112: 2474-2483.
2. Brodska, B., et al. 2016. Low-dose actinomycin-D induces redistribution of wild-type and mutated nucleophosmin followed by cell death in leukemic cells. J. Biol. Chem. 117: 1319-1329.
3. Brodska, B., et al. 2017. Localization of AML-related nucleophosmin mutant depends on its subtype and is highly affected by its interaction with wild-type NPM. PLoS ONE 12: e0175175.
4. Holoubek, A., et al. 2018. Monitoring of nucleophosmin oligomerization in live cells. Methods Appl. Fluoresc. 6: 035016.
5. Sasinkova, M., et al. 2018. AML-associated mutation of nucleophosmin compromises its interaction with nucleolin. Int. J. Biochem. Cell Biol. 103: 65-73.
6. Šašinková, M., et al. 2021. NSC348884 cytotoxicity is not mediated by inhibition of nucleophosmin oligomerization. Sci. Rep. 11: 1084.
7. Holoubek, A., et al. 2021. AML-related NPM mutations drive p53 delocalization into the cytoplasm with possible impact on p53-dependent stress response. Cancers 13: 3266.
8. Szaflarski, W., et al. 2022. Early rRNA processing is a stress-dependent regulatory event whose inhibition maintains nucleolar integrity. Nucleic Acids Res. 50: 1033-1051.
9. Strachotová, D., et al. 2023. Cytoplasmic localization of Mdm2 in cells expressing mutated NPM is mediated by p53. FEBS J. 290: 4281-4299.

CONJUGATES

See **B23 (E-3): sc-271737** for B23 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.