SANTA CRUZ BIOTECHNOLOGY, INC.

B23 (E-3): sc-271737

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.
3. Nozawa, Y., et al. 1996. Expression of nucleophosmin/B23 in normal and neoplastic colorectal mucosa. J. Pathol. 178: 48-52.

CHROMOSOMAL LOCATION

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

SOURCE

B23 (E-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 253-294 at the C-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.

B23 (E-3) is available conjugated to agarose (sc-271737 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-271737 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-271737 PE), fluorescein (sc-271737 FITC), Alexa Fluor® 488 (sc-271737 AF488), Alexa Fluor® 546 (sc-271737 AF546), Alexa Fluor® 594 (sc-271737 AF594) or Alexa Fluor® 647 (sc-271737 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-271737 AF680) or Alexa Fluor® 790 (sc-271737 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-271737 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

B23 (E-3) is recommended for detection of B23 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

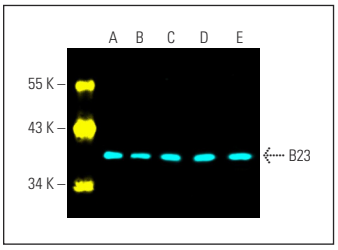
B23 (E-3) is also recommended for detection of B23 in additional species, including equine, canine, bovine and porcine.

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.

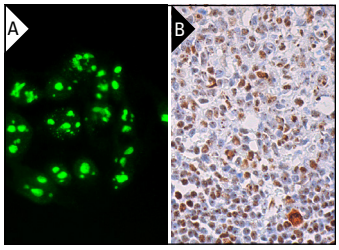
Molecular Weight of B23: 40 kDa.

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

DATA



B23 (E-3) Alexa Fluor® 647: sc-271737 AF647. Direct fluorescent western blot analysis of B23 expression in HEK293T (**A**), HEL 92.1.7 (**B**), K-562 (**C**), LNCaP (**D**) and DU 145 (**E**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 488: sc-516790.



B23 (E-3): sc-271737. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nucleolar localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lymph node tissue showing nucleolar and nuclear staining of cells in germinal center and cells in non-germinal center. Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214. Detection reagents used: m-IgGκ BP-B: sc-516142 and ImmunoCruz® ABC Kit: sc-516216 (**B**).

SELECT PRODUCT CITATIONS

1. Su, H., et al. 2013. Identification of novel markers that demarcate the nucleolus during severe stress and chemotherapeutic treatment. PLoS ONE 8: e80237.
2. Sasinková, M., et al. 2021. NSC348884 cytotoxicity is not mediated by inhibition of nucleophosmin oligomerization. Sci. Rep. 11: 1084.
3. Igata, T., et al. 2022. Loss of the transcription repressor ZHX3 induces senescence-associated gene expression and mitochondrial-nucleolar activation. PLoS ONE 17: e0262488.
4. Gan, Y., et al. 2023. UTP11 deficiency suppresses cancer development via nucleolar stress and ferroptosis. Redox Biol. 62: 102705.

RESEARCH USE

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