SANTA CRUZ BIOTECHNOLOGY, INC.

SA-2 (B-11): sc-376026

BACKGROUND

The cohesion complex is a multi-protein structure that is required for cohesion of sister chromatids after DNA replication and may be involved in mitotic spindle pole assembly. There are several versions of the cohesion complex, all of which are composed of a heterodimer between SMC1 (SMC1A or SMC1B) and SMC3, as well as a linker protein called Rad21 and an additional binding protein. Depending on the complex, the additional protein can be SA-1 (stromal antigen 1), SA-2 (stromal antigen 2) or SA-3 (stromal antigen 3). SA-2, also known as STAG2, is a 1,231 amino acid component of the cohesion complex that interacts directly with Rad21. Localized to the nucleus, SA-2 associates with chromatin and, upon phosphorylation by Plk, dissociates from chromatin to allow proper chromosome separation during anaphase. SA-2 is able to en-hance the activity of tumor necrosis factor α (TNFα) and may be a puttive transcriptional regulator.

REFERENCES

1. Sumara, I., et al. 2000. Characterization of vertebrate cohesin complexes and their regulation in prophase. J. Cell Biol. 151: 749-762.
2. Prieto, I., et al. 2002. STAG2 and Rad21 mammalian mitotic cohesins are implicated in meiosis. EMBO Rep. 3: 543-550.
3. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604359. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Lara-Pezzi, E., et al. 2004. Evidence of a transcriptional co-activator function of cohesin STAG/SA/Scc3. J. Biol. Chem. 279: 6553-6559.
5. Hauf, S., et al. 2005. Dissociation of cohesin from chromosome arms and loss of arm cohesion during early mitosis depends on phosphorylation of SA2. PLoS Biol. 3: e69.
6. McGuinness, B.E., et al. 2005. Shugoshin prevents dissociation of cohesin from centromeres during mitosis in vertebrate cells. PLoS Biol. 3: e86.
7. Krasikova, A., et al. 2005. Cohesion proteins are present in centromere protein bodies associated with avian lampbrush chromosomes. Chromosome Res. 13: 675-685.

CHROMOSOMAL LOCATION

Genetic locus: STAG2 (human) mapping to Xq25; Stag2 (mouse) mapping to X A4.

SOURCE

SA-2 (B-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 1137-1175 near the C-terminus of SA-2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_3 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-376026 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

SA-2 (B-11) is recommended for detection of SA-2 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).

SA-2 (B-11) is also recommended for detection of SA-2 in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for SA-2 siRNA (h): sc-62970, SA-2 siRNA (m): sc-62971, SA-2 shRNA Plasmid (h): sc-62970-SH, SA-2 shRNA Plasmid (m): sc-62971-SH, SA-2 shRNA (h) Lentiviral Particles: sc-62970-V and SA-2 shRNA (m) Lentiviral Particles: sc-62971-V.

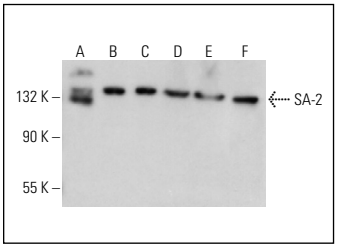
Molecular Weight of SA-2: 141 kDa.

Positive Controls: Jurkat nuclear extract: sc-2132, NIH/3T3 nuclear extract: sc-2138 or K-562 nuclear extract: sc-2130.

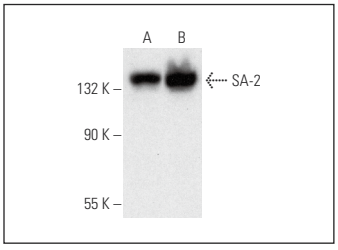
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



SA-2 (B-11): sc-376026. Western blot analysis of SA-2 expression in NIH/3T3 (**A**), K-562 (**B**), MCF7 (**C**), Jurkat (**D**) and HeLa (**E**) nuclear extracts and 3T3-L1 whole cell lysate (**F**). Detection reagent used: m-IgGκ BP-HRP: sc-516102.



SA-2 (B-11): sc-376026. Western blot analysis of SA-2 expression in MCF7 (**A**) and Jurkat (**B**) nuclear extracts.

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.