SANTA CRUZ BIOTECHNOLOGY, INC.

Ku70 (3C3.11) : sc-12729

SANTA CRUZ BIOTECHNOLOGY
The Power to Question

BACKGROUND

The Ku protein is localized in the nucleus and is composed of subunits referred to as Ku70 (p70) and Ku86 (p86) which is also known by the synonym Ku80 or (p80). Ku was first described as an autoantigen to which antibodies were produced in a patient with scleroderma polymyositis overlap syndrome, and was later found in the sera of patients with other rheumatic diseases. Both subunits of the Ku protein have been cloned, and a number of functions have been proposed for Ku, including cell signaling, DNA replication and transcriptional activation. Ku is involved in Pol II-directed transcription by virtue of its DNA binding activity, serving as the regulatory component of the DNA-associated protein kinase that phosphorylates Pol II and transcription factor Sp. Ku proteins also activate transcription from the U1 small nuclear RNA and the human transferrin receptor gene promoters. A Ku-related protein designated the enhancer 1 binding factor (E1BF), composed of two subunits, has been identified as a positive regulator of RNA polymerase I transcription initiation.

REFERENCES

1. Mimori, T., et al. 1981. Characterization of a high molecular weight acidic nuclear protein recognized by autoantibodies in sera from patients with polymyositis-scleroderma overlap. J. Clin. Invest. 68: 611-620.
2. Mimori, T., et al. 1986. Characterization of the DNA-binding protein antigen Ku recognized by autoantibodies from patients with rheumatic disorders. J. Biol. Chem. 261: 2274-2278.

CHROMOSOMAL LOCATION

Genetic locus: XRCC6 (human) mapping to 22q13.2.

SOURCE

Ku70 (3C3.11) is a mouse monoclonal antibody raised against partially purified extract from HeLa cells.

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

Ku70 (3C3.11) is recommended for detection of Ku70 of 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)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Ku70 siRNA (h): sc-29383, Ku70 shRNA Plasmid (h): sc-29383-SH and Ku70 shRNA (h) Lentiviral Particles: sc-29383-V.

Molecular Weight of Ku70: 70 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203, Jurkat whole cell lysate: sc-2204 or MCF7 whole cell lysate: sc-2206.

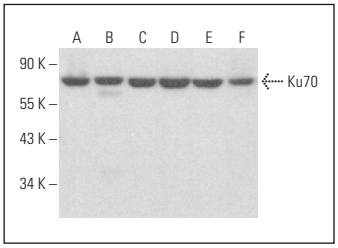
RESEARCH USE

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

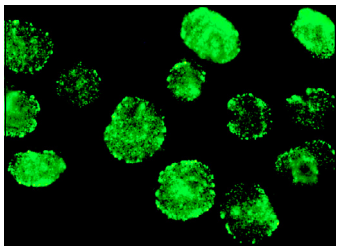
STORAGE

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

DATA



Ku70 (3C3.11): sc-12729. Western blot analysis of Ku70 expression in MDA-MB-435S (**A**), C32 (**B**), K-562 (**C**), Jurkat (**D**), MCF7 (**E**) and SK-MEL-24 (**F**) whole cell lysates.



Ku70 (3C3.11): sc-12729. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Huang, J., et al. 2012. CCDC134 interacts with hADA2a and functions as a regulator of hADA2a in acetyltransferase activity, DNA damage-induced apoptosis and cell cycle arrest. Histochem. Cell Biol. 138: 41-55.
2. Al-Ubaidi, F.L., et al. 2013. Castration therapy results in decreased Ku70 levels in prostate cancer. Clin. Cancer Res. 19: 1547-1556.
3. Antoniali, G., et al. 2014. SIRT1 gene expression upon genotoxic damage is regulated by APE1 through nCaRE-promoter elements. Mol. Biol. Cell 25: 532-547.
4. Zhang, Y., et al. 2016. Nucleation of DNA repair factors by FOXA1 links DNA demethylation to transcriptional pioneering. Nat. Genet. 48: 1003-1013.
5. Gravina, G.L., et al. 2016. c-Myc sustains transformed phenotype and promotes radioresistance of embryonal rhabdomyosarcoma cell lines. Radiat. Res. 185: 411-422.
6. Postigo, A., et al. 2017. Cytoplasmic ATR activation promotes vaccinia virus genome replication. Cell Rep. 19: 1022-1032.
7. Mishra, A., et al. 2018. RAD51C/XRCC3 facilitates mitochondrial DNA replication and maintains integrity of the mitochondrial genome. Mol. Cell. Biol. 38: e00489-17.
8. Austria, T., et al. 2018. Mechanism of cytokinesis failure in ovarian cystadenomas with defective BRCA1 and p53 pathways. Int. J. Cancer 143: 2932-2942.
9. Liu, X., et al. 2021. UHRF2 commissions the completion of DNA demethylation through allosteric activation by 5hmC and K33-linked ubiquitination of XRCC1. Mol. Cell 81: 2960-2974.e7.

CONJUGATES

See **Ku-70 (E-5): sc-17789** for Ku-70 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.