SANTA CRUZ BIOTECHNOLOGY, INC.

Ku70 (A-9): sc-5309

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.

CHROMOSOMAL LOCATION

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

SOURCE

Ku70 (A-9) is a mouse monoclonal antibody raised against amino acids 302-609 of the 70 kDa subunit of the Ku protein of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Ku70 (A-9) is available conjugated to agarose (sc-5309 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-5309 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-5309 PE), fluorescein (sc-5309 FITC), Alexa Fluor® 488 (sc-5309 AF488), Alexa Fluor® 546 (sc-5309 AF546), Alexa Fluor® 594 (sc-5309 AF594) or Alexa Fluor® 647 (sc-5309 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-5309 AF680) or Alexa Fluor® 790 (sc-5309 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Ku70 (A-9) 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)], 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), flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

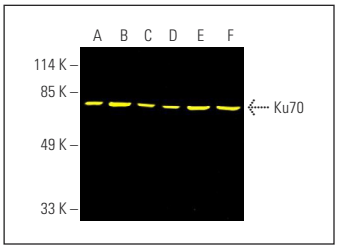
Suitable for use as control antibody for Ku70 siRNA (h): sc-29383, Ku70 shRNA Plasmid (h): sc-29383-SH and Ku70 shRNA (h) Lentiviral Particles: sc-29383-V.

Molecular Weight of Ku70: 70 kDa.

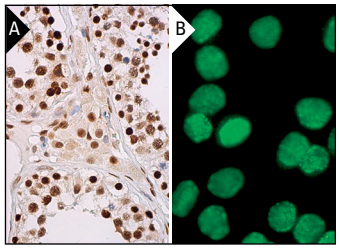
STORAGE

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

DATA



Ku70 (A-9) Alexa Fluor® 488: sc-5309 AF488. Direct fluorescent western blot analysis of Ku70 expression in SK-MEL-24 (**A**) and MDA-MB-435S (**B**) whole cell lysates and A-431 (**C**), K-562 (**D**), Jurkat (**E**) and MCF7 (**F**) nuclear extracts. Blocked with UltraCruz® Blocking Reagent: sc-516214.



Ku70 (A-9): sc-5309. Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing nuclear staining of cells in seminiferous ducts and Leydig cells (**A**). Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear staining (**B**).

SELECT PRODUCT CITATIONS

1. Karmakar, P., et al. 2002. Ku heterodimer binds to both ends of the Werner protein and functional interaction occurs at the Werner N-terminus. Nucleic Acids Res. 30: 3583-3591.
2. Harding, S.M. and Bristow, R.G. 2012. Discordance between phosphorylation and recruitment of 53BP1 in response to DNA double-strand breaks. Cell Cycle 11: 1432-1444.
3. Gao, M., et al. 2014. Ago2 facilitates Rad51 recruitment and DNA double-strand break repair by homologous recombination. Cell Res. 24: 532-541.
4. Wu, Z., et al. 2015. An LRP16-containing preassembly complex contributes to NFκB activation induced by DNA double-strand breaks. Nucleic Acids Res. 43: 3167-3179.
5. Iuchi, K. and Yagura, T. 2016. DNA binding activity of Ku during chemotherapeutic agent-induced early apoptosis. Exp. Cell Res. 342: 135-144.
6. Harada, K., et al. 2017. Gimeracil enhances the antitumor effect of cisplatin in oral squamous cell carcinoma cells *in vitro* and *in vivo*. Oncol. Lett. 14: 3349-3356.
7. Gong, P., et al. 2018. HDAC and Ku70 axis-an effective target for apoptosis induction by a new 2-cyano-3-oxo-1,9-dien glycyrrhetinic acid analogue. Cell Death Dis. 9: 623.
8. Pucci, S., et al. 2019. Pro-oncogenic action of LOX-1 and its splice variant LOX-1Δ4 in breast cancer phenotypes. Cell Death Dis. 10: 53.
9. Ma, Q., et al. 2020. Targeting Ku86 enhances X-ray-induced radiotherapy sensitivity in serous ovarian cancer cells. Int. J. Biochem. Cell Biol. 121: 105705.

RESEARCH USE

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