

Ku70 (A-9): sc-5309

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.

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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 10⁶ cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

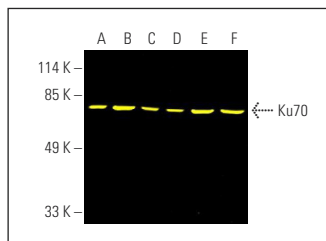
Suitable for use as control antibody for Ku70 siRNA (h): sc-29383, Ku70 shRNA Plasmid (h): sc-29383-SH and Ku70 shRNA (h) Lentiviral Particles: sc-29383-V.

Molecular Weight of Ku70: 70 kDa.

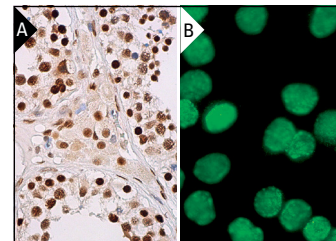
STORAGE

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

- 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.
- 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.
- 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 glycyrrhetic acid analogue. *Cell Death Dis.* 9: 623.
- 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.
- 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.
- Lee, K.Y. and Dutta, A. 2021. Chk1 promotes non-homologous end joining in G₁ through direct phosphorylation of ASF1A. *Cell Rep.* 34: 108680.
- Dhooonmoon, A., et al. 2022. The KU-PARP14 axis differentially regulates DNA resection at stalled replication forks by MRE11 and EXO1. *Nat. Commun.* 13: 5063.
- Kim, D.M., et al. 2023. RUNX3 regulates the susceptibility against EGFR-targeted non-small cell lung cancer therapy using ⁴⁷Sc-conjugated cetuximab. *BMC Cancer* 23: 652.
- Lifshits, L.A., et al. 2024. Nature-inspired peptide of MtDef4 C-terminus tail enables protein delivery in mammalian cells. *Sci. Rep.* 14: 4604.

RESEARCH USE

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