SANTA CRUZ BIOTECHNOLOGY, INC.

Ku70 (N3H10): sc-56129

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; Xrcc6 (mouse) mapping to 15 E1.

SOURCE

Ku70 (N3H10) is a mouse monoclonal antibody raised against PSE1-PL human placental cells.

PRODUCT

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

Ku70 (N3H10) is available conjugated to agarose (sc-56129 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-56129 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-56129 PE), fluorescein (sc-56129 FITC), Alexa Fluor® 488 (sc-56129 AF488), Alexa Fluor® 546 (sc-56129 AF546), Alexa Fluor® 594 (sc-56129 AF594) or Alexa Fluor® 647 (sc-56129 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-56129 AF680) or Alexa Fluor® 790 (sc-56129 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Ku70 (N3H10) is recommended for detection of Ku70 of mouse, rat, human and *Xenopus laevis* 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Ku70 siRNA (h): sc-29383, Ku70 siRNA (m): sc-35764, Ku70 shRNA Plasmid (h): sc-29383-SH, Ku70 shRNA Plasmid (m): sc-35764-SH, Ku70 shRNA (h) Lentiviral Particles: sc-29383-V and Ku70 shRNA (m) Lentiviral Particles: sc-35764-V.

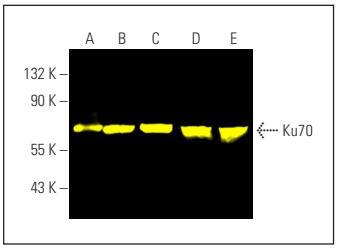
Molecular Weight of Ku70: 70 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200.

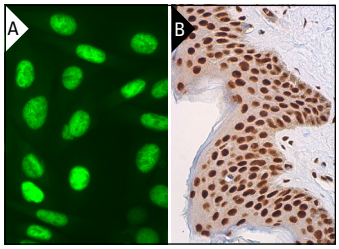
STORAGE

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

DATA



Ku70 (N3H10) AF488: sc-56129 AF488. Direct fluorescent western blot analysis of Ku70 expression in K-562 (**A**), HeLa (**B**), C32 (**C**), Caki-1 (**D**) and HEL 92.1.7 (**E**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214.



Ku70 (N3H10) Alexa Fluor® 488: sc-56129 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing nuclear localization. Blocked with UltraCruz® Blocking Reagent: sc-516214. Ku70 (N3H10): sc-56129 (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human skin tissue showing nuclear staining of keratinocytes, fibroblasts, Langerhans cells and melanocytes (**B**).

SELECT PRODUCT CITATIONS

1. Koike, M., et al. 1999. The nuclear localization signal of the human Ku70 is a variant bipartite type recognized by the two components of nuclear pore-targeting complex. Exp. Cell Res. 250: 401-413.
2. Hsu, S.H., et al. 2013. Methylation of the PTPRO gene in human hepatocellular carcinoma and identification of VCP as its substrate. J. Cell. Biochem. 114: 1810-1818.
3. Jeannot, V., et al. 2014. The PI3K/Akt pathway promotes gefitinib resistance in mutant KRAS lung adenocarcinoma by a deacetylase-dependent mechanism. Int. J. Cancer 134: 2560-2571.
4. Salemi, L.M., et al. 2015. Characterization of RanBPM molecular determinants that control its subcellular localization. PLoS ONE 10: e0117655.
5. Aparicio, T., et al. 2016. MRN, CtIP, and BRCA1 mediate repair of topoisomerase II-DNA adducts. J. Cell Biol. 212: 399-408.
6. Morii, M., et al. 2017. Src acts as an effector for Ku70-dependent suppression of apoptosis through phosphorylation of Ku70 at Tyr-530. J. Biol. Chem. 292: 1648-1665.
7. Majera, D., et al. 2019. Targeting genotoxic and proteotoxic stress-response pathways in human prostate cancer by clinically available PARP inhibitors, vorinostat and disulfiram. Prostate 79: 352-362.
8. Zhu, S., et al. 2020. Kinesin Kif2C in regulation of DNA double strand break dynamics and repair. Elife 9: e53402.
9. Abbasi, S. and Schild-Poulter, C. 2021. Identification of Ku70 domain-specific interactors using BioID2. Cells 10: 646.

RESEARCH USE

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