

## Ku-86 (433-732): sc-4413 WB

### BACKGROUND

The Ku protein is localized in the nucleus and is composed of subunits of 70 and 86 kDa (referred to as p70 and p86). Ku was first described as an autoantigen to which antibodies are produced in a patient with scleroderma polymyositis overlap syndrome, and 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 Sp1. 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 I binding factor (E1BF), composed of 72 and 85 kDa subunits, has been identified as a positive regulator of RNA polymerase I transcription initiation.

### REFERENCES

1. Mimori, T., Akizuki, M., Yamagata, H., Inada, S., Yoshida, S., and Homma, M. 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., Hardin, J.A., and Steitz, J.A. 1986. Characterization of the DNA-binding protein antigen Ku recognized by autoantibodies from patients with rheumatic disorders. *J. Biol. Chem.* 261: 2274-2278.
3. Chan, J.Y.C., Lerman, M.I., Prabhakar, B.S., Isozaki, O., Santisteban, P., Kuppers, R.C., Oates, E.L., Notkins, A.L., and Kohn, L.D. 1989. Cloning and characterization of a cDNA that encodes a 70-kDa novel human thyroid autoantigen. *J. Biol. Chem.* 264: 3651-3654.
4. Reeves, W.H. and Stoeber, Z.M. 1989. Molecular cloning of cDNA encoding the p70 (Ku) lupus autoantigen. *J. Biol. Chem.* 264: 5047-5052.
5. Yaneva, M., Wen, J., Ayala, A., and Cook, R. 1989. cDNA-derived amino acid sequence of the 86-kDa subunit of the Ku antigen. *J. Biol. Chem.* 264: 13407-13411.
6. Prabhakar, B.S., Allaway, G.P., Srinivasappa, J., and Notkins, A.L. 1990. Cell surface expression of the 70-kD component of Ku, a DNA-binding nuclear antigen. *J. Clin. Invest.* 86: 1301-1305.
7. Stuver, M.H., Coehjaerts, F.E.J., and van der Vliet, P.C. 1990. The autoantigen Ku is indistinguishable from NF IV, a protein forming multimeric protein-DNA complexes. *J. Exp. Med.* 172: 1049-1054.
8. Gottlieb, T.M. and Jackson, S.P. 1993. The DNA-dependent protein kinases: requirement for DNA ends and association with Ku antigen. *Cell* 72: 131-142.
9. Hoff, C.M., Ghosh, A.K., Prabhakar, B.S., and Jacob, S.T. 1994. Enhancer 1 binding factor, a Ku-related protein, is a positive regulator of RNA polymerase I transcription initiation. *Proc. Natl. Acad. Sci. USA* 91: 762-766.

### SOURCE

Ku-86 (433-732) is expressed in *E. coli* as a 60 kDa tagged fusion protein corresponding to amino acids 433-732 of Ku-86 of human origin.

### PRODUCT

Ku-86 (433-732) is purified from bacterial lysates (>98%) by column chromatography; supplied as 10 µg protein in 0.1 ml SDS-PAGE loading buffer.

### APPLICATIONS

Ku-86 (433-732) is suitable as a Western blotting control for sc-1484, sc-1485, sc-5280 and sc-9034.

### STORAGE

Store at -20° C; stable for one year from the date of shipment.

### RESEARCH USE

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