

XPG (G-4): sc-393004

BACKGROUND

Seven complementation groups (A-G) of xeroderma pigmentosum have been described. The xeroderma pigmentosum group A protein, XPA, is a zinc metalloprotein which preferentially binds to DNA damaged by ultraviolet (UV) radiation and chemical carcinogens. XPA is a DNA repair enzyme that has been shown to be required for the incision step of nucleotide excision repair. XPG (also designated ERCC5) is an endonuclease that makes the 3' incision in DNA nucleotide excision repair. Mammalian XPG is similar in sequence to yeast Rad2. Conserved residues in the catalytic center of XPG are important for nuclease activity and function in nucleotide excision repair.

REFERENCES

1. Scherly, D., et al. 1993. Complementation of the DNA repair defect in xeroderma pigmentosum group G cells by a human cDNA related to yeast RAD2. *Nature* 363: 182-185.
2. Shiomi, T., et al. 1994. An ERCC5 gene with homology to yeast RAD2 is involved in group G xeroderma pigmentosum. *Mutat. Res.* 314: 167-175.
3. Tateishi, S., et al. 1995. Separation of protein factors that correct the defects in the seven complementation groups of xeroderma pigmentosum cells. *J. Biochem.* 118: 819-824.
4. Nakane, H., et al. 1995. High incidence of ultraviolet-B or chemical-carcinogen-induced skin tumours in mice lacking the xeroderma pigmentosum group A gene. *Nature* 377: 165-168.
5. Li, L., et al. 1995. Mutations in XPA that prevent association with ERCC1 are defective in nucleotide excision repair. *Mol. Cell. Biol.* 15: 1993-1998.
6. Kuraoka, I., et al. 1996. Identification of a damaged-DNA binding domain of the XPA protein. *Mutat. Res.* 362: 87-95.
7. Constantinou, A., et al. 1999. Conserved residues of human XPG protein important for nuclease activity and function in nucleotide excision repair. *J. Biol. Chem.* 274: 5637-5648.
8. Cappelli, E., et al. 1999. The DNA helicases acting in nucleotide excision repair, XPD, CSB and XPB, are not required for PCNA-dependent repair of abasic sites. *Eur. J. Biochem.* 259: 325-330.

CHROMOSOMAL LOCATION

Genetic locus: ERCC5 (human) mapping to 13q33.1.

SOURCE

XPG (G-4) is a mouse monoclonal antibody raised against amino acids 887-1186 mapping at the C-terminus of XPG of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

XPG (G-4) is recommended for detection of XPG of human origin by Western Blotting (starting dilution 1:100, 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for XPG siRNA (h): sc-36857, XPG shRNA Plasmid (h): sc-36857-SH and XPG shRNA (h) Lentiviral Particles: sc-36857-V.

Molecular Weight (predicted) of XPG isoforms: 133/47 kDa.

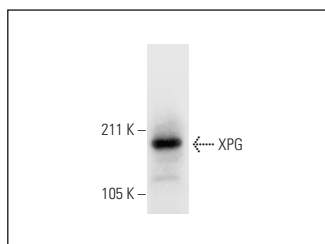
Molecular Weight (observed) of XPG isoforms: 200/90 kDa.

Positive Controls: Jurkat nuclear extract: sc-2132.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



XPG (G-4): sc-393004. Western blot analysis of XPG expression in Jurkat nuclear extract.

SELECT PRODUCT CITATIONS

1. Stork, C.T., et al. 2016. Co-transcriptional R-loops are the main cause of estrogen-induced DNA damage. *Elife* 5: e17548.

RESEARCH USE

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



See **XPG (8H7): sc-13563** for XPG antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.