SANTA CRUZ BIOTECHNOLOGY, INC.

XPA (3F396): sc-73273

BACKGROUND

Xeroderma pigmentosum (XP) is an autosomal recessive disorder characterized by a genetic predisposition to sunlight-induced skin cancer due to deficiencies in the DNA repair enzymes. The most frequent mutations are found in the XP genes of group A through G and group V, which encode nucleotide excision repair proteins. Nucleotide excision repair (NER) is the normal cellular response to DNA damage induced by UV irradiation and is disrupted in patients with XP. Xeroderma pigmentosum group A (XPA) is an essential NER factor that coordinates the collection of a preincision complex during the processing of DNA damage. XPA may also have a role in the repair of oxidized DNA bases. XPA is sensitive not only to the structure of the DNA double helix, but also to bulky groups incorporated into DNA. XPA forms a homodimer in the absence of DNA, but binds to DNA in both monomeric and dimeric forms. The dimerically bound XPA is much more efficient, so cells probably regulate XPA activity in a concentration-dependent manner. XPA deficient organisms cannot repair UV-induced DNA damage and thus acquire skin cancers by UV irradiation very easily.

REFERENCES

1. 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.
2. 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.
3. Kuraoka, I., et al. 1996. Identification of a damaged-DNA binding domain of the XPA protein. Mutat. Res. 362: 87-95.
4. Riou, L., et al. 1999. The relative expression of mutated XPB genes results in xeroderma pigmentosum/Cockayne's syndrome or trichothiodystrophy cellular phenotypes. Hum. Mol. Genet. 8: 1125-1133.
5. Horio, T., et al. 2001. Photobiologic and photoimmunologic characteristics of XPA gene-deficient mice. J. Investig. Dermatol. Symp. Proc. 6: 58-63.
6. Liu, Y., et al. 2005. Cooperative interaction of human XPA stabilizes and enhances specific binding of XPA to DNA damage. Biochemistry 44: 7361-7368.

CHROMOSOMAL LOCATION

Genetic locus: XPA (human) mapping to 9q22.33; Xpa (mouse) mapping to 4 B1.

SOURCE

XPA (3F396) is a mouse monoclonal antibody raised against full length XPA 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, 0.1% gelatin and 0.1% stabilizer protein.

APPLICATIONS

XPA (3F396) is recommended for detection of XPA of mouse, rat and 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for XPA siRNA (h): sc-36853, XPA siRNA (m): sc-36854, XPA shRNA Plasmid (h): sc-36853-SH, XPA shRNA Plasmid (m): sc-36854-SH, XPA shRNA (h) Lentiviral Particles: sc-36853-V and XPA shRNA (m) Lentiviral Particles: sc-36854-V.

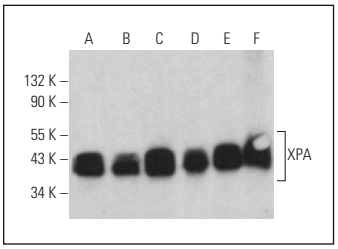
Molecular Weight of XPA: 40 kDa.

Positive Controls: GM637 whole cell lysate: sc-364361, MCF7 nuclear extract: sc-2149 or BJAB nuclear extract: sc-2145.

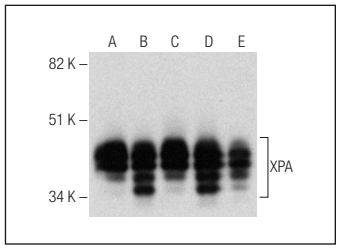
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



XPA (3F396): sc-73273. Western blot analysis of XPA expression in A-431 (**A**), A549 (**B**), MOLT-4 (**C**), WiDr (**D**) and COLO 205 (**E**) whole cell lysates and BJAB nuclear extract (**F**).



XPA (3F396): sc-73273. Western blot analysis of XPA expression in BJAB (**A**), MCF7 (**B**), TF-1 (**C**) and HeLa (**D**) nuclear extracts and GM637 whole cell lysate (**E**).

STORAGE

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

RESEARCH USE

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