SANTA CRUZ BIOTECHNOLOGY, INC.

XPA (B-1): sc-28353

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.

CHROMOSOMAL LOCATION

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

SOURCE

XPA (B-1) is a mouse monoclonal antibody raised against amino acids 1-273 representing full length XPA of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

XPA (B-1) is available conjugated to agarose (sc-28353 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-28353 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-28353 PE), fluorescein (sc-28353 FITC), Alexa Fluor® 488 (sc-28353 AF488), Alexa Fluor® 546 (sc-28353 AF546), Alexa Fluor® 594 (sc-28353 AF594) or Alexa Fluor® 647 (sc-28353 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-28353 AF680) or Alexa Fluor® 790 (sc-28353 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

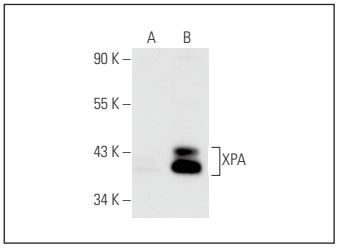
XPA (B-1) is recommended for detection of XPA of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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 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.

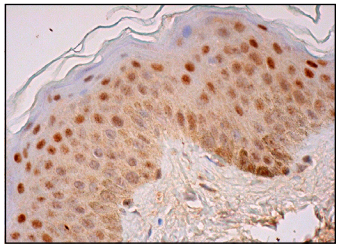
STORAGE

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

DATA



XPA (B-1): sc-28353. Western blot analysis of XPA expression in non-transfected: sc-117752 (**A**) and mouse XPA transfected: sc-126255 (**B**) 293T whole cell lysates.



XPA (B-1): sc-28353. Immunoperoxidase staining of formalin fixed, paraffin-embedded human skin tissue showing nuclear staining of fibroblasts, keratinocytes, Langerhans cells and melanocytes.

SELECT PRODUCT CITATIONS

1. Lu, S.Y, et al. 2006. Ripe areca nut extract induces G_1 phase arrests and senescence-associated phenotypes in normal human oral keratinocyte. Carcinogenesis 27: 1273-1284.
2. Anabtawi, N., et al. 2021. Pharmacological inhibition of cryptochrome and REV-ERB promotes DNA repair and cell cycle arrest in cisplatin-treated human cells. Sci. Rep. 11: 17997.
3. Khan, S., et al. 2022. XPA is susceptible to proteolytic cleavage by cathepsin L during lysis of quiescent cells. DNA Repair 109: 103260.
4. Ma, S., et al. 2022. eIF3a regulation of mTOR signaling and translational control via HuR in cellular response to DNA damage. Oncogene 41: 2431-2443.
5. Sales, A.H., et al. 2022. Treatment of human HeLa cells with black raspberry extracts enhances the removal of DNA lesions by the nucleotide excision repair mechanism. Antioxidants 11: 2110.
6. Templeton, C.W., et al. 2022. UV irradiation of vaccinia virus-infected cells impairs cellular functions, introduces lesions into the viral genome, and uncovers repair capabilities for the viral replication machinery. J. Virol. 96: e0213721.
7. Herrero, J.M., et al. 2023. Dithiobiureas Palladium(II) complexes' studies: from their synthesis to their biological action. J. Inorg. Biochem. 246: 112261.
8. Yang, Z., et al. 2024. The m6A reader YTHDC2 regulates UVB-induced DNA damage repair and histone modification. Photochem. Photobiol. 100: 1031-1040.
9. Liu, T., et al. 2024. Molecular basis of CX-5461-induced DNA damage response in primary vascular smooth muscle cells. Heliyon 10: e37227.

RESEARCH USE

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