SANTA CRUZ BIOTECHNOLOGY, INC.

XPA (12F5): sc-56813

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.

SOURCE

XPA (12F5) 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.

XPA (12F5) is available conjugated to agarose (sc-56813 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-56813 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-56813 PE), fluorescein (sc-56813 FITC), Alexa Fluor® 488 (sc-56813 AF488), Alexa Fluor® 546 (sc-56813 AF546), Alexa Fluor® 594 (sc-56813 AF594) or Alexa Fluor® 647 (sc-56813 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-56813 AF680) or Alexa Fluor® 790 (sc-56813 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

XPA (12F5) is recommended for detection of XPA of 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), 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 shRNA Plasmid (h): sc-36853-SH and XPA shRNA (h) Lentiviral Particles: sc-36853-V.

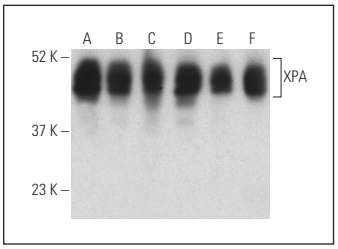
Molecular Weight of XPA: 40 kDa.

Positive Controls: BJAB nuclear extract: sc-2145, MCF7 nuclear extract: sc-2149 or HeLa nuclear extract: sc-2120.

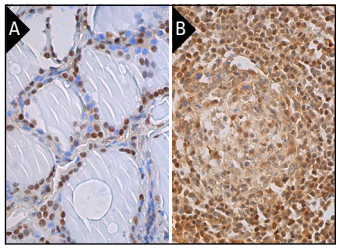
STORAGE

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

DATA



XPA (12F5): sc-56813. Western blot analysis of XPA expression in BJAB (**A**), MCF7 (**B**), HeLa (**C**) and TF-1 (**D**) nuclear extracts and MDA-MB-231 (**E**) and MOLT-4 (**F**) whole cell lysates. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.



XPA (12F5): sc-56813. Immunoperoxidase staining of formalin fixed, paraffin-embedded human thyroid gland tissue showing nuclear staining of subset of glandular cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human lymph node tissue showing nuclear and cytoplasmic staining of cells in germinal center and cells in non-germinal center (**B**).

SELECT PRODUCT CITATIONS

1. Besancon, O.G., et al. 2012. Synergistic interaction between cisplatin and gemcitabine in neuroblastoma cell lines and multicellular tumor spheroids. Cancer Lett. 319: 23-30.
2. Holcomb, N., et al. 2016. Exposure of human lung cells to tobacco smoke condensate inhibits the nucleotide excision repair pathway. PLoS ONE 11: e0158858.
3. Xiong, Y., et al. 2016. Co-delivery of polymeric metformin and cisplatin by self-assembled core-membrane nanoparticles to treat non-small cell lung cancer. J. Control. Release 244: 63-73.
4. Ng, P.K., et al. 2018. Systematic functional annotation of somatic mutations in cancer. Cancer Cell 33: 450-462.e10.
5. de Sousa Leal, A.M., et al. 2020. XPA deficiency affects the ubiquitin-proteasome system function. DNA Repair 94: 102937.
6. Banicka, V., et al. 2022. Homozygous CRISPR/Cas9 knockout generated a novel functionally active exon 1 skipping XPA variant in melanoma cells. Int. J. Mol. Sci. 23: 11649.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.