SANTA CRUZ BIOTECHNOLOGY, INC.

p-Atm (10H11.E12): sc-47739

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The phosphatidylinositol kinase (PIK) family members fall into two distinct subgroups. The first subgroup contains proteins such as the PI 3- and PI 4-kinases and the second group comprises the PIK-related kinases. The PIK-related kinases include Atm, DNA-PK_{CS} and FRAP. These proteins have in common a region of homology at their carboxy-termini that is not present in the PI 3- and PI 4-kinases. The Atm gene is mutated in the autosomal recessive disorder ataxia telangiectasia (AT) that is characterized by cerebellar degeneration (ataxia) and the appearance of dilated blood vessels (telangiectases) in the conjunctivae of the eyes. AT cells are hypersensitive to ionizing radiation, impaired in mediating the inhibition of DNA synthesis and they display delays in p53 induction. Cultured cells respond to breaks in double stranded DNA by immediate activation of ATM through autophosphorylation on Serine 1981. Most human tissues, however, contain the non-phosphorylated, inactive form of Atm.

CHROMOSOMAL LOCATION

Genetic locus: ATM (human) mapping to 11q22.3; Atm (mouse) mapping to 9 A5.3.

SOURCE

p-Atm (10H11.E12) is a mouse monoclonal antibody raised against a synthetic phosphopeptide corresponding to amino acids 1974-1988 surrounding the Ser 1981 phosphorylation site of human Atm.

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.

p-Atm (10H11.E12) is available conjugated to agarose (sc-47739 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-47739 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-47739 PE), fluorescein (sc-47739 FITC), Alexa Fluor® 488 (sc-47739 AF488), Alexa Fluor® 546 (sc-47739 AF546), Alexa Fluor® 594 (sc-47739 AF594) or Alexa Fluor® 647 (sc-47739 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-47739 AF680) or Alexa Fluor® 790 (sc-47739 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

p-Atm (10H11.E12) is recommended for detection of Ser 1981 phosphorylated Atm 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).

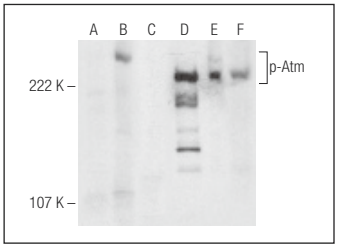
Suitable for use as control antibody for Atm siRNA (h): sc-29761, Atm siRNA (m): sc-29762, Atm shRNA Plasmid (h): sc-29761-SH, Atm shRNA Plasmid (m): sc-29762-SH, Atm shRNA (h) Lentiviral Particles: sc-29761-V and Atm shRNA (m) Lentiviral Particles: sc-29762-V.

Molecular Weight of p-Atm: 350 kDa.

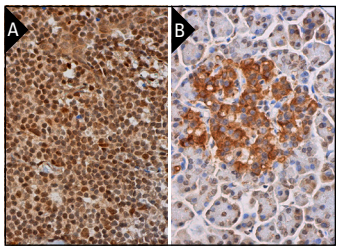
STORAGE

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

DATA



Western blot analysis of Atm phosphorylation in untreated (**A**,**D**), UV treated (**B**,**E**) and UV and lambda protein phosphatase (sc-200312A) treated (**C**,**F**) HeLa nuclear extracts. Antibodies tested include p-Atm (10H11.E12): sc-47739 (**A**,**B**,**C**) and Atm (ATM 11G12): sc-53173 (**D**,**E**,**F**).



p-Atm (10H11.E12): sc-47739. Immunoperoxidase staining of formalin fixed, paraffin-embedded human lymph node tissue showing nuclear and cytoplasmic staining of cells in non-germinal center (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human pancreas tissue showing nuclear staining of exocrine glandular cells and cytoplasmic staining of Islets of Langerhans (**B**).

SELECT PRODUCT CITATIONS

1. Ma, Y., et al. 2007. Growth factor signaling pathways modulate BRCA1 repression of estrogen receptor-α activity. Mol. Endocrinol. 21: 1905-1923.
2. Xu, Z., et al. 2017. Radiosensitizing effect of diosmetin on radioresistant lung cancer cells via Akt signaling pathway. PLoS ONE 12: e0175977.
3. Ochiai, Y., et al. 2018. Efficacy of ribavirin against malignant glioma cell lines: Follow-up study. Oncol. Rep. 39: 537-544.
4. Sekhar, K.R., et al. 2019. Radiosensitization by enzalutamide for human prostate cancer is mediated through the DNA damage repair pathway. PLoS ONE 14: e0214670.
5. Le, B.V., et al. 2020. TGFβR-SMAD3 signaling induces resistance to PARP inhibitors in the bone marrow microenvironment. Cell Rep. 33: 108221.
6. Petsalaki, E. and Zachos, G. 2021. An ATM-Chk2-INCENP pathway activates the abscission checkpoint. J. Cell Biol. 220: e202008029.
7. Ouyang, C., et al. 2022. Post-translational modification in control of SIRT1 stability during DNA damage response. Int. J. Biol. Sci. 18: 2655-2669.
8. Chakraborty, A., et al. 2023. Human DNA polymerase η promotes RNA-templated error-free repair of DNA double strand breaks. J. Biol. Chem. 299: 102991.
9. Sun, F., et al. 2024. Increased DNA damage in full-grown oocytes is correlated with diminished autophagy activation. Nat. Commun. 15: 9463.
10. Anand, J.R., et al. 2025. TRIP13 protects pancreatic cancer cells against intrinsic and therapy-induced DNA replication stress. bioRxiv. E-published.

RESEARCH USE

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