SANTA CRUZ BIOTECHNOLOGY, INC.

Atm (K-19): sc-1214

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-PKCS 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 display delays in p53 induction.

REFERENCES

1. Hartley, K.O., et al. 1995. DNA-dependent protein kinase catalytic subunit: a relative of phosphatidylinositol 3-kinase and the ataxia telangiectasia gene product. Cell 82: 849-856.
2. Nowak, R. 1995. Discovery of AT gene sparks biomedical research bonanza. Science 268: 1700-1701.
3. Savitsky, K., et al. 1995. A single ataxia telangiectasia gene with a product similar to PI-3 kinase. Science 268: 1749-1753.
4. Keith, C.T., et al. 1995. PIK-related kinases: DNA repair, recombination, and cell cycle checkpoints. Science 270: 50-51.
5. Starczynski, J. et al. 2003. Variations in ATM protein expression during normal lymphoid differentiation and among B cell-derived neoplasias. Am. J. Pathol. 163: 423-432.
6. Hickson I., et al. 2004. Identification and characterization of a novel and specific inhibitor of the ataxia-telangiectasia mutated kinase Atm. Cancer Res. 64: 9152-9159.
7. Chen L., et al. 2005 Ataxia-telangiectasia-mutated dependent phosphorylation of Artemis in response to DNA damage. Cancer Sci. 96: 134-141.
8. Liu A., et al. 2005. Alterations of DNA damage-response genes Atm and ATR in pyothorax-associated lymphoma. Lab. Invest. 85: 436-446.

CHROMOSOMAL LOCATION

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

SOURCE

Atm (K-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of Atm of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-1214 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Atm (K-19) is recommended for detection of Atm of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Atm (K-19) is also recommended for detection of Atm in additional species, including equine, canine, bovine, porcine and avian.

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 Atm: 370 kDa.

Positive Controls: KNRK nuclear extract: sc-2141, HeLa whole cell lysate: sc-2200 or RAW 264.7 whole cell lysate: sc-2211.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

SELECT PRODUCT CITATIONS

1. Bao, S., et al. 2001. ATR/Atm-mediated phosphorylation of human Rad17 is required for genotoxic stress responses. Nature 411: 969-974.
2. Pérez-Caro, M., et al. 2008. Transcriptomal profiling of the cellular response to DNA damage mediated by Slug (Snai2). Br. J. Cancer 98: 480-488.

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.

PROTOCOLS

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