SANTA CRUZ BIOTECHNOLOGY, INC.

Artemis (E-18): sc-23100

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Distinct DNA repair pathways minimize the consequences of mutagenic events. Reactive oxygen species (ROS) are highly reactive atoms with an unpaired electron that are conducive to double-strand DNA breaking events. Artemis, named after the Greek goddess for the protection of children, is one of the major proteins contributing to the preservation of double-strand breaks in DNA by cutting away the damaged parts of the DNA, which allows the strands to rejoin. Artemis is a single-strand-specific 5' to 3' exonuclease that forms a complex with the 469 kDa DNA-dependent protein kinase (DNA-PKcs). DNA-PKcs phosphorylates Artemis, and Artemis acquires endonucleolytic activity on 5' and 3' overhangs and hairpins. These activities are essential for V(D)J recombination and for the 5' and 3' overhang processing in nonhomologous DNA end joining. Mutations in the human Artemis protein result in hypersensitivity to DNA double-strand break-inducing agents and absence of B and T lymphocytes, which is known as "bubble boy" disease or severe combined immunodeficiency disease (SCID). The human Artemis gene maps to chromosome 10p13, and encodes a 577 amino acid protein.

REFERENCES

1. Li, L., et al. 1998. The gene for severe combined immunodeficiency disease in Athabascan-speaking Native Americans is located on chromosome 10p. Am. J. Hum. Genet. 62: 136-144.
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3. Moshous, D., et al. 2001. Artemis, a novel DNA double-strand break repair/V(D)J recombination protein, is mutated in human severe combined immune deficiency. Cell 105: 177-186.
4. Wood, R.D., et al. 2001. Human DNA repair genes. Science 291: 1284-1289.
5. Ma, Y., et al. 2002. Hairpin opening and overhang processing by an Artemis/DNA-dependent protein kinase complex in nonhomologous end joining and V(D)J recombination. Cell 108: 781-794.
6. Schlissel, M.S. 2002. Does artemis end the hunt for the hairpin-opening activity in V(D)J recombination? Cell 109: 1-4.
7. Li, L., et al. 2002. A founder mutation in Artemis, an SNM1-like protein, causes SCID in Athabascan-speaking Native Americans. J. Immunol. 168: 6323-6329.
8. LocusLink Report (LocusID: 64421). http://www.ncbi.nlm. nih.gov/LocusLink

CHROMOSOMAL LOCATION

Genetic locus: DCLRE1C (human) mapping to 10p13; Dclre1c (mouse) mapping to 2 A1.

SOURCE

Artemis (E-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of Artemis 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-23100 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

Artemis (E-18) is recommended for detection of Artemis of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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.