

Artemis (C-8): sc-518193

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 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

- 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.
- Wood, R.D., et al. 2001. Human DNA repair genes. *Science* 291: 1284-1289.
- 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.
- Online Mendelian Inheritance in Man, OMIM[™]. 2001. Johns Hopkins University, Baltimore, MD. MIM Number: 602450. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

CHROMOSOMAL LOCATION

Genetic locus: DCLRE1C (human) mapping to 10p13.

SOURCE

Artemis (C-8) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 362-384 of Artemis of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Artemis (C-8) is available conjugated to agarose (sc-518193 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-518193 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-518193 PE), fluorescein (sc-518193 FITC), Alexa Fluor[®] 488 (sc-518193 AF488), Alexa Fluor[®] 546 (sc-518193 AF546), Alexa Fluor[®] 594 (sc-518193 AF594) or Alexa Fluor[®] 647 (sc-518193 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-518193 AF680) or Alexa Fluor[®] 790 (sc-518193 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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

APPLICATIONS

Artemis (C-8) is recommended for detection of Artemis of 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Artemis siRNA (h): sc-42734, Artemis shRNA Plasmid (h): sc-42734-SH and Artemis shRNA (h) Lentiviral Particles: sc-42734-V.

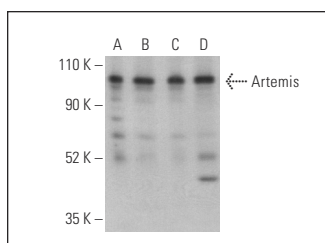
Molecular Weight of Artemis: 91-106 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, ZR-75-1 cell lysate: sc-2241 or SK-BR-3 cell lysate: sc-2218.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker[™] Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

DATA



Artemis (C-8): sc-518193. Western blot analysis of Artemis expression in HT-29 (A), MCF7 (B), ZR-75-1 (C) and SK-BR-3 (D) whole cell lysates. Detection reagent used: m-IgG₁ BP-HRP: sc-525408.

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 for detailed protocols and support products.