

RAG-2 (4D5C7): sc-517209

BACKGROUND

Immunoglobulin (Ig) and T cell receptors of B and T lymphocytes are encoded in multiple germ line DNA segments known as V, D and J, that are rearranged during lymphocyte development. V(D)J recombination is a site specific recombination event in vertebrate genes. The assembly of antigen receptor genes by V(D)J recombination is initiated by a recombination activator genes 1 and 2 (RAG1/RAG2) protein complex, which introduces double-strand breaks between recombination signal sequences and their coding DNA. The RAG-1 and RAG-2 were originally identified on the basis of their ability to activate rearrangement of an exogenous recombinational substrate in fibroblasts; moreover, both genes are required for this activity. RAG1 and RAG2 proteins catalyze V(D)J are essential for generation of the diverse repertoire of antigen receptor genes and effective immune responses. RAG2 is composed of a "core" domain that is required for the recombination reaction and a C-terminal nonessential or "non-core" region. Activated mature CD5-positive human tonsil B cells coexpress both RAG1 and RAG2 mRNA and protein, and display DNA cleavage resulting from their recombinase activity.

REFERENCES

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- Shinkai, Y., et al. 1992. RAG-2-deficient mice lack mature lymphocytes owing to inability to initiate V(D)J rearrangement. *Cell* 68: 855-867.
- Mombaerts, P., et al. 1992. RAG-1-deficient mice have no mature B and T lymphocytes. *Cell* 68: 869-877.
- Schatz, D.G., et al. 1992. V(D)J recombination: molecular biology and regulation. *Annu. Rev. Immunol.* 10: 359-383.
- Lin, W. and Desiderio, S. 1993. Regulation of V(D)J recombination activator protein RAG-2 by phosphorylation. *Science* 260: 953-959.
- Wang, L.C. and Rosenberg, N. 1993. RAG-1 and RAG-2 are not sufficient to direct all phases of immunoglobulin gene rearrangement in pre-B-cell lines. *Mol. Cell. Biol.* 13: 3890-3899.
- Chen, J., et al. 1993. RAG-2-deficient blastocyst complementation: an assay of gene function in lymphocyte development. *Proc. Natl. Acad. Sci. USA* 90: 4528-4532.

CHROMOSOMAL LOCATION

Genetic locus: RAG2 (human) mapping to 11p12.

SOURCE

RAG-2 (4D5C7) is a mouse monoclonal antibody raised against a recombinant protein corresponding to amino acids 350-527 of RAG-2 of human origin.

PRODUCT

Each vial contains 50 μ l ascites containing IgG₁ kappa light chain with < 0.1% sodium azide.

RESEARCH USE

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

APPLICATIONS

RAG-2 (4D5C7) is recommended for detection of RAG-2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for RAG-2 siRNA (h): sc-36371, RAG-2 shRNA Plasmid (h): sc-36371-SH and RAG-2 shRNA (h) Lentiviral Particles: sc-36371-V.

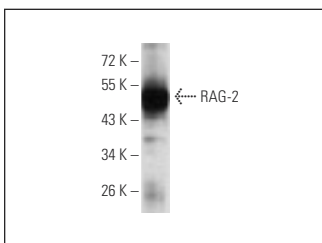
Molecular Weight of RAG-2: 58 kDa.

Positive Controls: human RAG-2 (350-527)-hlgGfc transfected HEK293 whole cell lysate.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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).

DATA



RAG-2 (4D5C7): sc-517209. Western blot analysis of RAG-2 expression in human RAG-2 (350-527)-hlgGfc transfected HEK293 whole cell lysate.

SELECT PRODUCT CITATIONS

- Zhang, H., et al. 2021. DNA crosslinking and recombination-activating genes 1/2 (RAG1/2) are required for oncogenic splicing in acute lymphoblastic leukemia. *Cancer Commun.* E-published.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

PROTOCOLS

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