

# RAG-2 (C-19): sc-7623

## 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.

## CHROMOSOMAL LOCATION

Genetic locus: RAG2 (human) mapping to 11p13; Rag2 (mouse) mapping to 2 E2.

## SOURCE

RAG-2 (C-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of RAG-2 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-7623 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

RAG-2 (C-19) is recommended for detection of RAG-2 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), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

RAG-2 (C-19) is also recommended for detection of RAG-2 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for RAG-2 siRNA (h): sc-36371, RAG-2 siRNA (m): sc-36372, RAG-2 shRNA Plasmid (h): sc-36371-SH, RAG-2 shRNA Plasmid (m): sc-36372-SH, RAG-2 shRNA (h) Lentiviral Particles: sc-36371-V and RAG-2 shRNA (m) Lentiviral Particles: sc-36372-V.

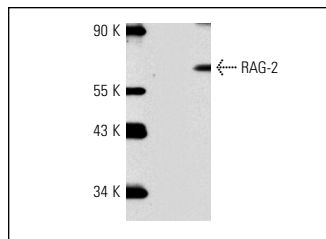
Molecular Weight of RAG-2: 58 kDa.

Positive Controls: Mouse thymus extract: sc-2406.

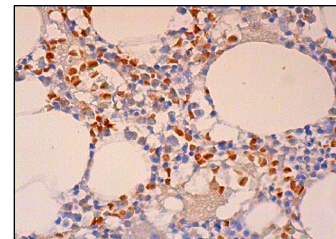
## STORAGE

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

## DATA



RAG-2 (C-19): sc-7623. Western blot analysis of RAG-2 expression in mouse thymus extract.



RAG-2 (C-19): sc-7623. Immunoperoxidase staining of formalin fixed, paraffin-embedded human bone marrow tissue showing nuclear staining of subset of hematopoietic cells.

## SELECT PRODUCT CITATIONS

- Serra, P., et al. 2002. RAG-dependent peripheral T cell receptor diversification in CD8<sup>+</sup> T lymphocytes. *Proc. Natl. Acad. Sci. USA* 99: 15566-15571.
- Vaitaitis, G.M., et al. 2003. Cutting edge: CD40-induced expression of recombination activating gene RAG-1 and RAG-2: a mechanism for the generation of autoaggressive T cells in the periphery. *J. Immunol.* 170: 3455-3459.
- Zheng, X., et al. 2004. B7-CD28 interaction promotes proliferation and survival but suppresses differentiation of CD4<sup>+</sup>CD8<sup>-</sup> T cells in the thymus. *J. Immunol.* 173: 2253-2261.
- Zhang, Z., et al. 2006. Transcription factor Pax-5 (BSAP) transactivates the RAG-mediated V(H)-to-DJ(H) rearrangement of immunoglobulin gene. *Nat. Immunol.* 7: 616-624.
- Zheng, H., et al. 2006. Expression and secretion of immunoglobulin  $\alpha$  heavy chain with diverse VDJ recombinations by human epithelial cancer cells. *Mol. Immunol.* 44: 2221-2227.

## RESEARCH USE

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

## PROTOCOLS

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Try **RAG-2 (4D5C7): sc-517209**, our highly recommended monoclonal alternative to RAG-2 (C-19).