



RAG-1 (744-1043): sc-4380 WB

BACKGROUND

Immunoglobulin (Ig) and the T cell receptor are the receptors of B and T lymphocytes and are encoded in multiple germ line DNA segments, V, D and J, that are rearranged during lymphocyte development. This is the only known example of site specific recombination in vertebrate genes. Several genes are essential for V(D)J rearrangement. The recombination activator genes 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. The sequences of RAG-1 and RAG-2 predict proteins of 118 and 58 kDa, respectively. It is yet to be resolved as to whether RAG-1 and RAG-2 encode components of the V(D)J recombinase itself or regulatory proteins that potentiate V(D)J recombination.

REFERENCES

1. Schatz, D.G., Oettinger, M.A., and Baltimore, D. 1989. The V(D)J recombination activating gene, RAG-1. *Cell* 59: 1035-1048.
2. Schatz, D.G., Oettinger, M.A., and Schliessel, M.S. 1992. V(D)J recombination: molecular biology and regulation. *Ann. Rev. Immunol.* 10: 359-383.
3. Shinkai, Y., Rathbun, G., Lam, K., Oltz, E.M., Stewart, V., Mendelsohn, M., Charron, J., Datta, M., Young, F., Stall, A.M., and Alt, F.W. 1992. RAG-2-deficient mice lack mature lymphocytes owing to inability to initiate V(D)J rearrangement. *Cell* 68: 855-867.
4. Mombaerts, P., Iacomini, J., Johnson, R.S., Herrup, K., Tonegawa, S., and Papaioannou, V.E. 1992. RAG-1-deficient mice have no mature B and T lymphocytes. *Cell* 68: 869-877.
5. Lin, W. and Desiderio, S. 1993. Regulation of V(D)J recombination activator protein RAG-2 by phosphorylation. *Science* 260: 953-959.
6. 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.
7. Chen, J., Lansford, R., Stewart, V., Young, F., and Alt, F.W. 1993. RAG-2-deficient blastocyst complementation: an assay of gene function in lymphocyte development. *Proc. Natl. Acad. Sci. USA* 90: 4528-4532.

SOURCE

RAG-1 (744-1043) is expressed in *E. coli* as a 60 kDa tagged fusion protein corresponding to amino acids 744-1043 of RAG-1 of human origin.

PRODUCT

RAG-1 (744-1043) is purified from bacterial lysates (>98%) by column chromatography; supplied as 10 µg protein in 0.1 ml SDS-PAGE loading buffer.

APPLICATIONS

RAG-1 (744-1043) is suitable as a Western blotting control for sc-5599.

STORAGE

Store at -20° C; stable for one year from the date of shipment.

RESEARCH USE

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