SANTA CRUZ BIOTECHNOLOGY, INC.

RAG-1 (D-5): sc-377127

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. 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., et al. 1989. The V(D)J recombination activating gene, RAG-1. Cell 59: 1035-1048.
2. Schatz, D.G., et al. 1992. V(D)J recombination: molecular biology and regulation. Annu. Rev. Immunol. 10: 359-383.

CHROMOSOMAL LOCATION

Genetic locus: RAG1 (human) mapping to 11p12; Rag1 (mouse) mapping to 2 E2.

SOURCE

RAG-1 (D-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 727-765 within an internal domain of RAG-1 of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-377127 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

RAG-1 (D-5) is recommended for detection of RAG-1 of mouse, rat and 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 RAG-1 siRNA (h): sc-42962, RAG-1 siRNA (m): sc-42963, RAG-1 shRNA Plasmid (h): sc-42962-SH, RAG-1 shRNA Plasmid (m): sc-42963-SH, RAG-1 shRNA (h) Lentiviral Particles: sc-42962-V and RAG-1 shRNA (m) Lentiviral Particles: sc-42963-V.

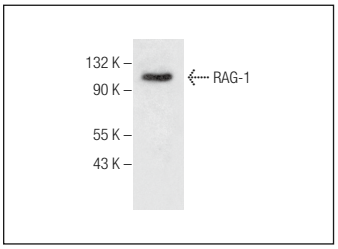
Molecular Weight of RAG-1: 130 kDa.

Positive Controls: Hs 67 whole cell lysate or NIH/3T3 whole cell lysate: sc-2210.

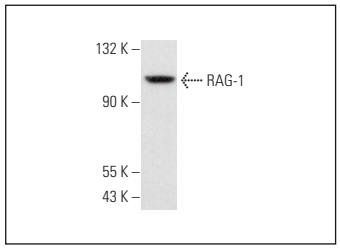
RECOMMENDED SUPPORT REAGENTS

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 L-Agarose: sc-2336 (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



RAG-1 (D-5): sc-377127. Western blot analysis of RAG-1 expression in Hs 67 whole cell lysate.



RAG-1 (D-5): sc-377127. Western blot analysis of RAG-1 expression in NIH/3T3 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Miao, J., et al. 2018. Characterization of an N-terminal non-core domain of RAG-1 gene disrupted Syrian hamster model generated by CRISPR Cas9. Viruses 10: 243.
2. Kang, T., et al. 2019. Arsenic sulfide induces RAG-1-dependent DNA damage for cell killing by inhibiting NFATc3 in gastric cancer cells. J. Exp. Clin. Cancer Res. 38: 487.
3. Ashraf, Y., et al. 2019. Immunotherapy of triple-negative breast cancer with cathepsin D-targeting antibodies. J. Immunother. Cancer 7: 29.
4. Kumari, R., et al. 2021. MicroRNA miR-29c regulates RAG-1 expression and modulates V(D)J recombination during B cell development. Cell Rep. 36: 109390.
5. Zhang, H., et al. 2021. DNA crosslinking and recombination-activating genes 1/2 (RAG-1/2) are required for oncogenic splicing in acute lymphoblastic leukemia. Cancer Commun. 41: 1116-1136.

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.