10320 Camino Santa Fe, Suite G
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RAG1 Antibody
Purified Mouse Monoclonal Antibody
Catalog # AO1762a

Specification

RAG1 Antibody - Product Information

Application	**E, WB**
Primary Accession	P15918
Reactivity	**Human**
Host	**Mouse**
Clonality	**Monoclonal**
Isotype	**IgG1**
Calculated MW	**119kDa KDa**

Description
The protein encoded by this gene is involved in activation of immunoglobulin V-D-J recombination. The encoded protein is involved in recognition of the DNA substrate, but stable binding and cleavage activity also requires RAG2. Defects in this gene can be the cause of several diseases.

Immunogen
Purified recombinant fragment of human RAG1 (AA: 818-868) expressed in E. Coli.

Formulation
Purified antibody in PBS with 0.05% sodium azide

RAG1 Antibody - Additional Information

Gene ID 5896

Other Names
V(D)J recombination-activating protein 1, RAG-1, RING finger protein 74, Endonuclease RAG1, 3.1.-.-, E3 ubiquitin-protein ligase RAG1, 6.3.2.-, RAG1, RNF74

Dilution
E~~1/10000
WB~~1/500 - 1/2000

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions
RAG1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

RAG1 Antibody - Protein Information

Name RAG1

Synonyms RNF74

Function
Catalytic component of the RAG complex, a multiprotein complex that mediates the DNA cleavage phase during V(D)J recombination. V(D)J recombination assembles a diverse repertoire of immunoglobulin and T-cell receptor genes in developing B and T- lymphocytes through rearrangement of different V (variable), in some cases D (diversity), and J (joining) gene segments. In the RAG complex, RAG1 mediates the DNA-binding to the conserved recombination signal sequences (RSS) and catalyzes the DNA cleavage activities by introducing a double-strand break between the RSS and the adjacent coding segment. RAG2 is not a catalytic component but is required for all known catalytic activities. DNA cleavage occurs in 2 steps: a first nick is introduced in the top strand immediately upstream of the heptamer, generating a 3'-hydroxyl group that can attack the phosphodiester bond on the opposite strand in a direct transesterification reaction, thereby creating 4 DNA ends: 2 hairpin coding ends and 2 blunt, 5'-phosphorylated ends. The chromatin structure plays an essential role in the V(D)J recombination reactions and the presence of histone H3 trimethylated at 'Lys-4' (H3K4me3) stimulates both the nicking and haipinning steps. The RAG complex also plays a role in pre-B cell allelic exclusion, a process leading to expression of a single immunoglobulin heavy chain allele to enforce clonality and monospecific recognition by the B-cell antigen receptor (BCR) expressed on individual B-lymphocytes. The introduction of DNA breaks by the RAG complex on one immunoglobulin allele induces ATM- dependent repositioning of the other allele to pericentromeric heterochromatin, preventing accessibility to the RAG complex and recombination of the second allele. In addition to its endonuclease activity, RAG1 also acts as an E3 ubiquitin-protein ligase that mediates monoubiquitination of histone H3. Histone H3 monoubiquitination is required for the joining step of V(D)J recombination. Mediates polyubiquitination of KPNA1 (By similarity).

Cellular Location
Nucleus {ECO:0000255|PROSITE-ProRule:PRU00820}.

Tissue Location
Maturing lymphoid cells.

RAG1 Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

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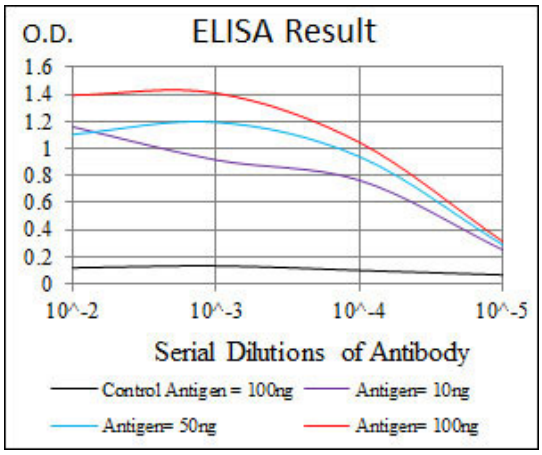

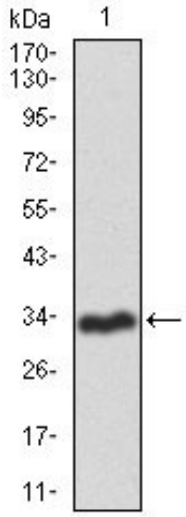

Figure 1: Western blot analysis using RAG1 mAb against human RAG1 recombinant protein. (Expected MW is 31.6 kDa)

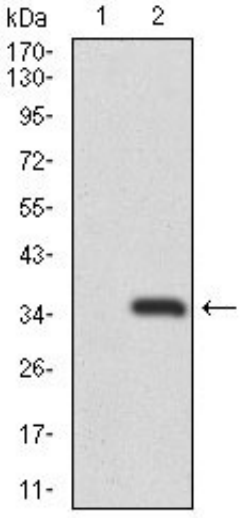

Figure 2: Western blot analysis using RAG1 mAb against HEK293 (1) and RAG1 (AA: 818-868)-hIgGFc transfected HEK293 (2) cell lysate.

RAG1 Antibody - References

1.PLoS One. 2011;6(5):e20475.2.Immunol Lett. 2011 May;136(2):156-62.

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