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RAG2 Antibody
Purified Mouse Monoclonal Antibody
Catalog # AO1384a

Specification

RAG2 Antibody - Product Information

Application	**WB, IHC**
Primary Accession	P55895
Reactivity	**Human**
Host	**Mouse**
Clonality	**Monoclonal**
Isotype	**IgG1**
Calculated MW	**59kDa KDa**

Description
This gene encodes a protein that is involved in the initiation of V(D)J recombination during B and T cell development. This protein forms a complex with the product of the adjacent recombination activating gene 1, and this complex can form double-strand breaks by cleaving DNA at conserved recombination signal sequences. The recombination activating gene 1 component is thought to contain most of the catalytic activity, while the N-terminal of the recombination activating gene 2 component is thought to form a six-bladed propeller in the active core that serves as a binding scaffold for the tight association of the complex with DNA. A C-terminal plant homeodomain finger-like motif in this protein is necessary for interactions with chromatin components, specifically with histone H3 that is trimethylated at lysine 4. Mutations in this gene cause Omenn syndrome, a form of severe combined immunodeficiency associated with autoimmune-like symptoms.

Immunogen
Purified recombinant fragment of human RAG2(350-527aa) expressed in E. Coli.

Formulation
Ascitic fluid containing 0.03% sodium azide.

RAG2 Antibody - Additional Information

Gene ID 5897

Other Names
V(D)J recombination-activating protein 2, RAG-2, RAG2

Dilution
WB~~1/500 - 1/2000
IHC~~1:200~~1000

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
RAG2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

RAG2 Antibody - Protein Information

Name RAG2

Function
Core 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. DNA cleavage by the RAG complex 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 the RAG complex, RAG2 is not the catalytic component but is required for all known catalytic activities mediated by RAG1. It probably acts as a sensor of chromatin state that recruits the RAG complex to H3K4me3 (By similarity).

Cellular Location
Nucleus.

Tissue Location
Cells of the B- and T-lymphocyte lineages.

RAG2 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

RAG2 Antibody - Images

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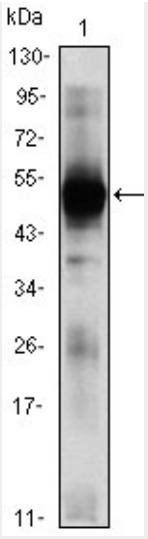

Figure 1: Western blot analysis using RAG2 mouse mAb against RAG2(AA: 350-527)-hIgGFc transfected HEK293 (1)cell lysate.

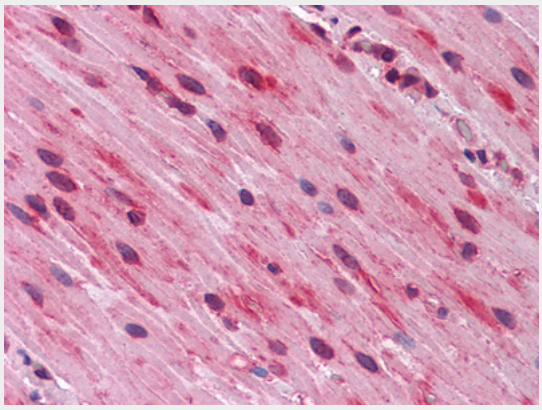

Figure 2: Immunohistochemical analysis of paraffin-embedded human Small Intestine, muscularis propria tissues using anti-GATA3 mouse mAb

RAG2 Antibody - References

1. J Biol Chem. 2004 Sep 10;279(37):38360-8. 2. Immunity. 2005 Aug;23(2):203-12. 3. J Clin Invest. 2010 Apr 1;120(4):1337-44. doi: 10.1172/JCI41305.