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RAG2 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1384a

Product Information

Application	WB, E
Primary Accession	P55895
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	4D5
Isotype	IgG1
Calculated MW	59241
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.

Additional Information

Gene ID	5897
Other Names	V(D)J recombination-activating protein 2, RAG-2, RAG2
Dilution	WB~~1/500 - 1/2000 E~~N/A
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.

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.

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.

Images

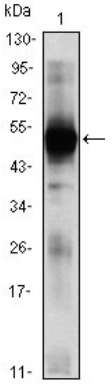
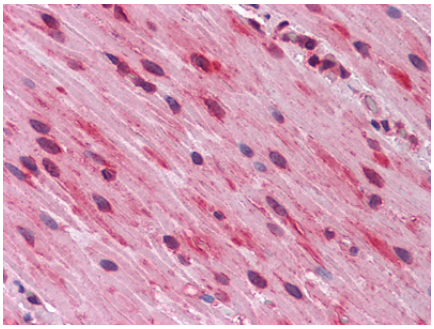


Figure 1: Western blot analysis using RAG2 mouse mAb against RAG2(AA: 350-527)-hIgGFc transfected HEK293 (1)cell lysate.

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



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