10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

RAG2 Antibody (C-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP12445b

Product Information

Application	WB, IHC-P, FC, E
Primary Accession	P55895
Other Accession	P34089, P21784, NP_000527.2
Reactivity	Human, Rat, Mouse
Predicted	Rabbit, Bovine, Canine
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB31188
Calculated MW	59241
Antigen Region	349-377

Additional Information

Gene ID	5897
Other Names	V(D)J recombination-activating protein 2, RAG-2, RAG2
Target/Specificity	This RAG2 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 349-377 amino acids from the C-terminal region of human RAG2.
Dilution	WB~~1:1000 IHC-P~~1:100~500 FC~~1:10~50 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	RAG2 Antibody (C-term) 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.

Background

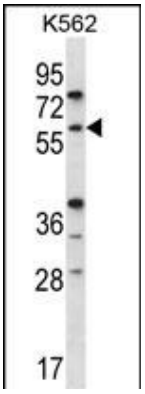
This gene encodes a protein that is involved in the initiation of V(D)J recombination during B and T cell development. This protein forms a complex with the product of the adjacent recombination activating gene 1, and this complex can form double-strand breaks by cleaving DNA at conserved recombination 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.

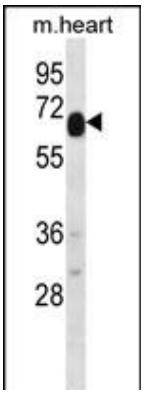
References

Davila, S., et al. Genes Immun. 11(3):232-238(2010)
Couedel, C., et al. J. Clin. Invest. 120(4):1337-1344(2010)
Hosgood, H.D. III, et al. Occup Environ Med 66(12):848-853(2009)
Liang, X.S., et al. Br. J. Haematol. 146(4):418-423(2009)
Ameratunga, R., et al. N. Z. Med. J. 122(1304):46-53(2009)

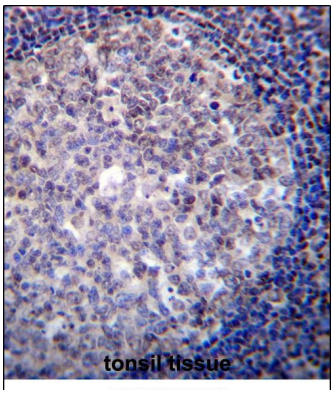
Images

RAG2 Antibody (C-term) (Cat. #AP12445b) western blot analysis in K562 cell line lysates (35ug/lane).This demonstrates the RAG2 antibody detected the RAG2 protein (arrow).

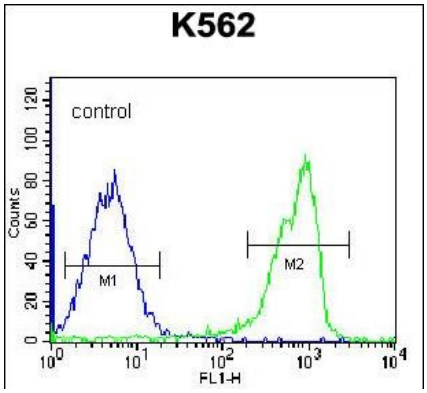




RAG2 Antibody (C-term) (Cat. #AP12445b) western blot analysis in mouse heart tissue lysates (35ug/lane).This demonstrates the RAG2 antibody detected the RAG2 protein (arrow).



RAG2 Antibody (C-term) (Cat. #AP12445b)immunohistochemistry analysis in formalin fixed and paraffin embedded human tonsil tissue followed by peroxidase conjugation of the secondary antibody and DAB staining.This data demonstrates the use of RAG2 Antibody (C-term) for immunohistochemistry. Clinical relevance has not been evaluated.



RAG2 Antibody (C-term) (Cat. #AP12445b) flow cytometric analysis of K562 cells (right histogram) compared to a negative control cell (left histogram).FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.