

RAG2 Antibody (C-term) Blocking peptide Synthetic peptide

Catalog # BP12445b

Specification

RAG2 Antibody (C-term) Blocking peptide - Product Information

Primary Accession

<u>P55895</u>

RAG2 Antibody (C-term) Blocking peptide - Additional Information

Gene ID 5897

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

Format

Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions This product is for research use only. Not for use in diagnostic or therapeutic procedures.

RAG2 Antibody (C-term) Blocking peptide - Protein Information

Name RAG2

Function

Core component of the RAG complex, a multiprotein complex that mediates the DNA cleavage phase during V(D) recombination. V(D) 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) 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 (C-term) Blocking peptide - Protocols

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

Blocking Peptides

RAG2 Antibody (C-term) Blocking peptide - Images

RAG2 Antibody (C-term) Blocking peptide - Background

This gene encodes a protein that is involved in theinitiation 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 recombinationsignal 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 motifin this protein is necessary for interactions with chromatin components, specifically with histone H3 that is trimethylated atlysine 4. Mutations in this gene cause Omenn syndrome, a form of severe combined immunodeficiency associated with autoimmune-like symptoms.

RAG2 Antibody (C-term) Blocking peptide - 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)