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RAG2 Antibody (C-term) Blocking peptide

Synthetic peptide
Catalog # BP12445b

Specification

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

Primary Accession P55895

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)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 (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 adjacentrecombination activating gene 1, and this complex can formdouble-strand breaks by cleaving DNA at conserved recombinationsignal sequences. The recombination activating gene 1 component isthought to contain most of the catalytic activity, while theN-terminal of the recombination activating gene 2 component isthought to form a six-bladed propeller in the active core thatserves as a binding scaffold for the tight association of thecomplex with DNA. A C-terminal plant homeodomain finger-like motifin this protein is necessary for interactions with chromatincomponents, specifically with histone H3 that is trimethylated atlysine 4. Mutations in this gene cause Omenn syndrome, a form ofsevere combined immunodeficiency associated with autoimmune-likesymptoms.

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)