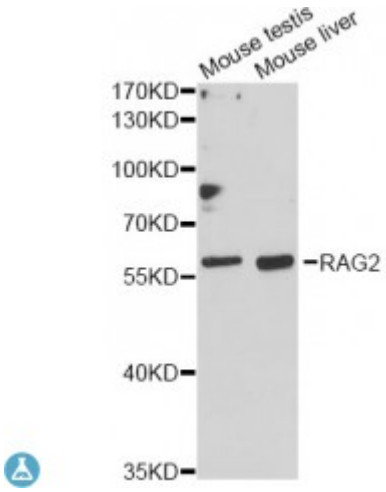
Anti-RAG2 Antibody



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.

Model	STJ114362
Host	Rabbit
Reactivity	Human, Mouse
Applications	WB
Immunogen	Recombinant fusion protein containing a sequence corresponding to amino acids 258-527 of human RAG2 (NP_001230715.1).
Gene ID	5897
Gene Symbol	RAG2
Dilution range	WB 1:500 - 1:2000
Tissue Specificity	Cells of the B- and T-lymphocyte lineages

Purification	Affinity purification
Note	For Research Use Only (RUO).
Protein Name	V(D J recombination-activating protein 2 RAG-2
Molecular Weight	59.241 kDa
Clonality	Polyclonal
Conjugation	Unconjugated
Isotype	IgG
Formulation	PBS with 0.02% sodium azide, 50% glycerol, pH7.3.
Storage Instruction	Store at -20C. Avoid freeze / thaw cycles.
Database Links	HGNC:9832OMIM:179616Reactome:R-HSA-1266695
Alternative Names	V(D J recombination-activating protein 2 RAG-2
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 ,
Cellular Localization	Nucleus