abcam

Product datasheet

Anti-RAG2 antibody ab95955

2 References 3 Images

Overview

Product name	Anti-RAG2 antibody
Description	Rabbit polyclonal to RAG2
Host species	Rabbit
Tested applications	**Suitable for:** WB, IHC-P, ICC/IF
Species reactivity	**Reacts with:** Human **Predicted to work with:** Mouse, Rat, Rabbit, Cow, Pig
Immunogen	Recombinant fragment, corresponding to a region within amino acids 271 - 519 of Human RAG2 (UniProt ID: P55895).
Positive control	WB: MOLT4 whole cell lysate ICC/IF: Hela cell IHC-P: DLD1 Xenograft Others: 293T, A431, H1299, HeLa, HepG2 and Raji cells
General notes	The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing. If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&As

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Upon delivery aliquot and store at -20°C. Avoid repeated freeze / thaw cycles.
Storage buffer	pH: 7.00 Preservative: 0.01% Thimerosal (merthiolate) Constituents: 1.21% Tris, 0.75% Glycine, 10% Glycerol (glycerin, glycerine)
Purity	Immunogen affinity purified
Clonality	Polyclonal
Isotype	IgG

Applications

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The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab95955 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
WB		1/500 - 1/3000. Predicted molecular weight: 59 kDa.
IHC-P		1/100 - 1/500.
ICC/IF		1/100 - 1/200.

Target

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.

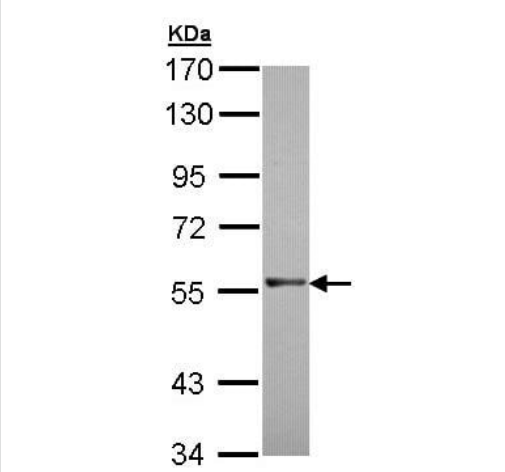
Tissue specificity Cells of the B- and T-lymphocyte lineages.

Involvement in disease Defects in RAG2 are a cause of combined cellular and humoral immune defects with granulomas (CHIDG) [MIM:233650]. CHIDG is an immunodeficiency disease with granulomas in the skin, mucous membranes, and internal organs. Other characteristics include hypogammaglobulinemia, a diminished number of T and B cells, and sparse thymic tissue on ultrasonography.
Defects in RAG2 are a cause of severe combined immunodeficiency autosomal recessive T-cell-negative/B-cell-negative/NK-cell-positive (T(-)B(-)NK(+) SCID) [MIM:601457]. A form of severe combined immunodeficiency (SCID), a genetically and clinically heterogeneous group of rare congenital disorders characterized by impairment of both humoral and cell-mediated immunity, leukopenia, and low or absent antibody levels. Patients present in infancy recurrent, persistent infections by opportunistic organisms. The common characteristic of all types of SCID is absence of T-cell-mediated cellular immunity due to a defect in T-cell development.
Defects in RAG2 are a cause of Omenn syndrome (OS) [MIM:603554]. OS is a severe immunodeficiency characterized by the presence of activated, anergic, oligoclonal T-cells, hypereosinophilia, and high IgE levels.

Sequence similarities Belongs to the RAG2 family.
Contains 1 PHD-type zinc finger.

Domain	The atypical PHD-type zinc finger recognizes and binds histone H3 trimethylated on 'Lys-4' (H3K4me3). The presence Tyr-445 instead of a carboxylate in classical PHD-type zinc fingers results in an enhanced binding to H3K4me3 in presence of dimethylated on 'Arg-2' (H3R2me2) rather than inhibited. The atypical PHD-type zinc finger also binds various phosphoinositides, such as phosphatidylinositol-3,4-bisphosphate binding (PtdIns(3,4)P2), phosphatidylinositol-3,5-bisphosphate binding (PtdIns(3,5)P2), phosphatidylinositol-4,5-bisphosphate (PtdIns(4,5)P2) and phosphatidylinositol-3,4,5-trisphosphate binding (PtdIns(3,4,5)P3).
Cellular localization	Nucleus.

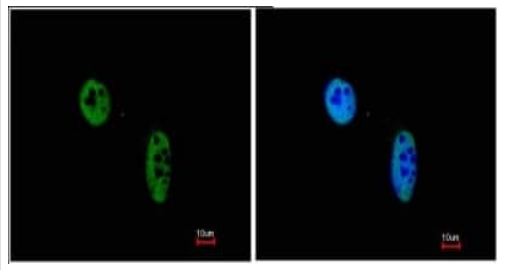
Images



Western blot - Anti-RAG2 antibody (ab95955)

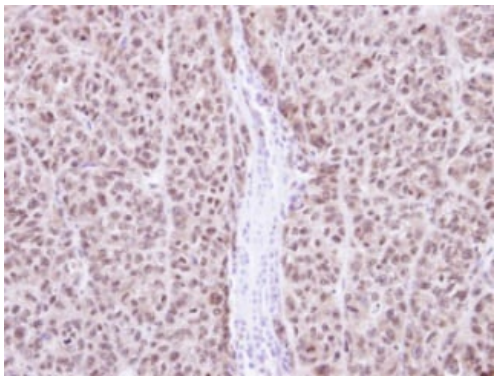
Anti-RAG2 antibody (ab95955) at 1/1000 dilution + MOLT4 whole cell lysate at 30 µg

Predicted band size: 59 kDa



Immunocytochemistry/ Immunofluorescence - Anti-RAG2 antibody (ab95955)

ab95955, at a 1/200 dilution, staining RAG2 in paraformaldehyde fixed HeLa by Immunofluorescence analysis.
The image on the right was co-stained using Hoechst 33342.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-RAG2 antibody (ab95955)

ab95955, at a 1/100 dilution, staining RAG2 in paraffin embedded DLD1 Xenograft by Immunohistochemistry.

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