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Product datasheet

Anti-RAG1 antibody [EPRAGR1] ab172637

Recombinant RabMAb

3 References 2 Images

Overview

Product name	Anti-RAG1 antibody [EPRAGR1]
Description	Rabbit monoclonal [EPRAGR1] to RAG1
Host species	Rabbit
Tested applications	**Suitable for:** WB **Unsuitable for:** ICC/IF,IHC-P or IP
Species reactivity	**Reacts with:** Mouse, Human
Immunogen	Recombinant fragment within Mouse RAG1 aa 350 to the C-terminus. The exact sequence is proprietary. Database link: P15919
Positive control	Mouse thymus lysate.
General notes	Rat: We have preliminary internal testing data to indicate this antibody may not react with this species. Please contact us for more information. This product is a recombinant monoclonal antibody, which offers several advantages including: - High batch-to-batch consistency and reproducibility - Improved sensitivity and specificity - Long-term security of supply - Animal-free production For more information see here. Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents. Reproducibility is key to advancing scientific discovery and accelerating scientists' next breakthrough. Abcam is leading the way with our range of recombinant antibodies, knockout-validated antibodies and knockout cell lines, all of which support improved reproducibility. We are also planning to innovate the way in which we present recommended applications and species on our product datasheets, so that only applications & species that have been tested in our own labs, our suppliers or by selected trusted collaborators are covered by our Abpromise™ guarantee. In preparation for this, we have started to update the applications & species that this product is Abpromise guaranteed for.

We are also updating the applications & species that this product has been "predicted to work with," however this information is not covered by our Abpromise guarantee.

Applications & species from publications and Abreviews that have not been tested in our own labs or in those of our suppliers are not covered by the Abpromise guarantee.

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, as well as customer reviews and Q&As.

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C long term. Avoid freeze / thaw cycle.
Storage buffer	pH: 7.20 Preservative: 0.01% Sodium azide Constituents: 9% PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA, 50% Tissue culture supernatant
Purity	Tissue culture supernatant
Clonality	Monoclonal
Clone number	EPRAGR1
Isotype	IgG

Applications

Our Abpromise guarantee covers the use of **ab172637** 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		1/1000 - 1/5000. Predicted molecular weight: 119 kDa.

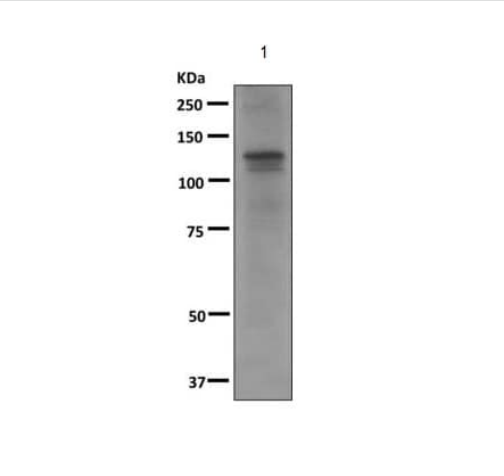
Application notes Is unsuitable for ICC/IF,IHC-P or IP.

Target

Function Catalytic 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. In the RAG complex, RAG1 mediates the DNA-binding to the conserved recombination signal sequences (RSS) and catalyzes the DNA cleavage activities by introducing a double-strand break between the RSS and the adjacent coding segment. RAG2 is not a catalytic component but is required for all known catalytic activities. DNA cleavage 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 addition to its endonuclease activity, RAG1 also acts as a E3 ubiquitin-protein ligase that mediates monoubiquitination of histone H3. Histone H3 monoubiquitination is required for the joining step of V(D)J recombination. Mediates polyubiquitination of KPNA1.
Tissue specificity	Maturing lymphoid cells.
Involvement in disease	Defects in RAG1 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 RAG1 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 RAG1 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. Defects in RAG1 are the cause of alpha/beta T-cell lymphopenia with gamma/delta T-cell expansion severe cytomegalovirus infection and autoimmunity (T-CMVA) [MIM:609889]. An immunological disorder characterized by oligoclonal expansion of TCR gamma/delta T cells, TCR alpha/beta T cell lymphopenia, severe, disseminated cytomegalovirus infection and autoimmune cytopenia.
Sequence similarities	Belongs to the RAG1 family. Contains 1 NBD (nonamer binding) DNA-binding domain. Contains 1 RAG1-type zinc finger. Contains 1 RING-type zinc finger.
Domain	The RING-type zinc finger mediates the E3 ubiquitin-protein ligase activity. The NBD (nonamer binding) DNA-binding domain mediates the specific binding to the nonamer RSS motif by forming a tightly interwoven homodimer that binds and synapses 2 nonamer elements, with each NBD making contact with both DNA molecules. Each RSS is composed of well-conserved heptamer (consensus 5'-CACAGTG-3') and nonamer (consensus 5'-ACAAAAACC-3') sequences separated by a spacer of either 12 bp or 23 bp.
Post-translational modifications	Autoubiquitinated in the presence of CDC34/UBCH3.
Cellular localization	Nucleus.

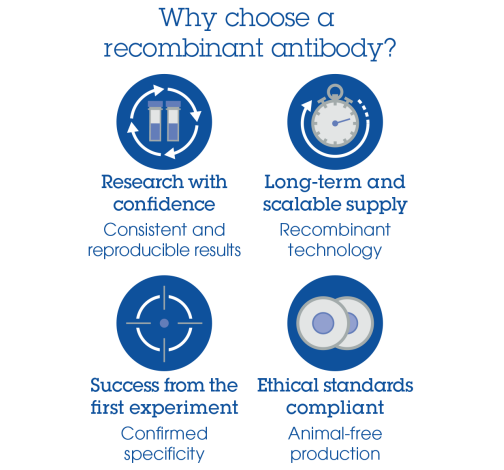
Images



Western blot - Anti-RAG1 antibody [EPRAGR1] (ab172637)

Anti-RAG1 antibody [EPRAGR1] (ab172637) at 1/1000 dilution + Mouse thymus lysate at 10 µg

Predicted band size: 119 kDa



Anti-RAG1 antibody [EPRAGR1] (ab172637)

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