abcam

Product datasheet

Anti-Telomerase reverse transcriptase antibody [Y182] ab32020

Recombinant RabMAb

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Overview

Product name	Anti-Telomerase reverse transcriptase antibody [Y182]
Description	Rabbit monoclonal [Y182] to Telomerase reverse transcriptase
Host species	Rabbit
Tested applications	**Suitable for:** WB, IP **Unsuitable for:** ICC/IF or IHC-P
Species reactivity	**Reacts with:** Human **Predicted to work with:** Cow
Immunogen	Synthetic peptide. This information is proprietary to Abcam and/or its suppliers.
Positive control	WB: HeLa, HEK-293, Jurkat, SK-BR-3, HL60, MCF7, PC-3 and K-562 cell lysates. IP: HeLa whole cell lysate.
General notes	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**. Mouse: We have preliminary internal testing data to indicate this antibody may not react with this species. Please contact us for more information.

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Upon delivery aliquot and store at -20°C. Avoid freeze / thaw cycles.
Storage buffer	pH: 7.20 Preservative: 0.01% Sodium azide Constituents: PBS, 0.05% BSA, 40% Glycerol

Purity	Protein A purified
Purification notes	Cells supernatant
Clonality	Monoclonal
Clone number	Y182
Isotype	IgG

Applications

The Abpromise guarantee Our **Abpromise guarantee** covers the use of ab32020 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	★★★★★ (2)	1/1000. Detects a band of approximately 122 kDa (predicted molecular weight: 127 kDa).
IP	★★★★★ (1)	1/100.

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

Target

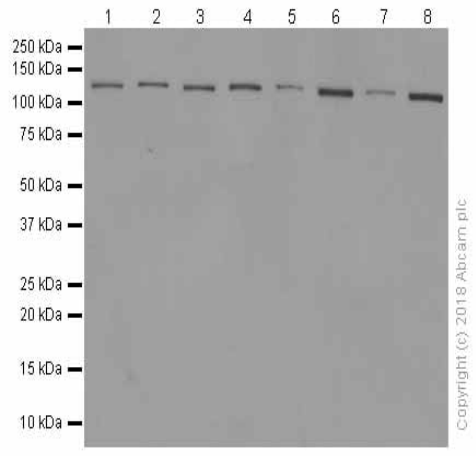
Function Telomerase is a ribonucleoprotein enzyme essential for the replication of chromosome termini in most eukaryotes. Active in progenitor and cancer cells. Inactive, or very low activity, in normal somatic cells. Catalytic component of the teleromerase holoenzyme complex whose main activity is the elongation of telomeres by acting as a reverse transcriptase that adds simple sequence repeats to chromosome ends by copying a template sequence within the RNA component of the enzyme. Catalyzes the RNA-dependent extension of 3'-chromosomal termini with the 6-nucleotide telomeric repeat unit, 5'-TTAGGG-3'. The catalytic cycle involves primer binding, primer extension and release of product once the template boundary has been reached or nascent product translocation followed by further extension. More active on substrates containing 2 or 3 telomeric repeats. Telomerase activity is regulated by a number of factors including telomerase complex-associated proteins, chaperones and polypeptide modifiers. Modulates Wnt signaling. Plays important roles in aging and antiapoptosis.

Tissue specificity Expressed at a high level in thymocyte subpopulations, at an intermediate level in tonsil T lymphocytes, and at a low to undetectable level in peripheral blood T lymphocytes.

Involvement in disease Note=Activation of telomerase has been implicated in cell immortalization and cancer cell pathogenesis.
Defects in TERT are associated with susceptibilty to aplastic anemia (AA) [MIM:609135]. AA is a rare disease in which the reduction of the circulating blood cells results from damage to the stem cell pool in bone marrow. In most patients, the stem cell lesion is caused by an autoimmune attack. T-lymphocytes, activated by an endogenous or exogenous, and most often unknown antigenic stimulus, secrete cytokines, including IFN-gamma, which would in turn be able to suppress hematopoiesis.
Note=Genetic variations in TERT are associated with coronary artery disease (CAD).
Defects in TERT are a cause of dyskeratosis congenita autosomal dominant (ADDKC) [MIM:127550]; also known as dyskeratosis congenita Scoggins type. ADDKC is a rare, progressive bone marrow failure syndrome characterized by the triad of reticulated skin

	hyperpigmentation, nail dystrophy, and mucosal leukoplakia. Early mortality is often associated with bone marrow failure, infections, fatal pulmonary complications, or malignancy. Defects in TERT are a cause of susceptibility to pulmonary fibrosis idiopathic (IPF) [MIM:178500]. Pulmonary fibrosis is a lung disease characterized by shortness of breath, radiographically evident diffuse pulmonary infiltrates, and varying degrees of inflammation and fibrosis on biopsy. It results in acute lung injury with subsequent scarring and endstage lung disease.
Sequence similarities	Belongs to the reverse transcriptase family. Telomerase subfamily. Contains 1 reverse transcriptase domain.
Domain	The primer grip sequence in the RT domain is required for telomerase activity and for stable association with short telomeric primers. The RNA-interacting domain 1 (RD1)/N-terminal extension (NTE) is required for interaction with the pseudoknot-template domain of each of TERC dimers. It contains anchor sites that bind primer nucleotides upstream of the RNA-DNA hybrid and is thus an essential determinant of repeat addition processivity. The RNA-interacting domain 2 (RD2) is essential for both interaction with the CR4-CR5 domain of TERC and for DNA sythesis.
Post-translational modifications	Ubiquitinated, leading to proteasomal degradation. Phosphorylation at Tyr-707 under oxidative stress leads to translocation of TERT to the cytoplasm and reduces its antiapoptotic activity. Dephosphorylated by SHP2/PTPN11 leading to nuclear retention. Phosphorylation by the AKT pathway promotes nuclear location.
Cellular localization	Nucleus > nucleolus. Nucleus > nucleoplasm. Nucleus. Chromosome > telomere. Cytoplasm. Nucleus > PML body. Shuttling between nuclear and cytoplasm depends on cell cycle, phosphorylation states, transformation and DNA damage. Diffuse localization in the nucleoplasm. Enriched in nucleoli of certain cell types. Translocated to the cytoplasm via nuclear pores in a CRM1/RAN-dependent manner involving oxidative stress-mediated phosphorylation at Tyr-707. Dephosphorylation at this site by SHP2 retains TERT in the nucleus. Translocated to the nucleus by phosphorylation by AKT.

Images



Western blot - Anti-Telomerase reverse transcriptase antibody [Y182] (ab32020)

All lanes : Anti-Telomerase reverse transcriptase antibody [Y182] (ab32020) at 1/1000 dilution (Purified)

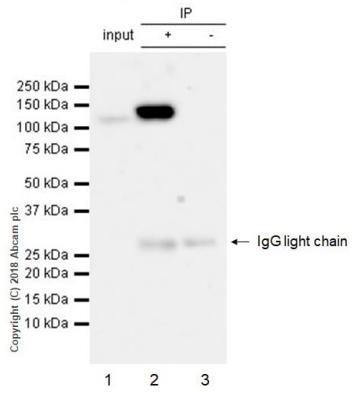
Lane 1 : HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysates
Lane 2 : HEK-293 (Human embryonic kidney epithelial cell) whole cell lysates
Lane 3 : Jurkat (Human T cell leukemia T lymphocyte) whole cell lysates
Lane 4 : SK-BR-3 (Human breast adenocarcinoma epithelial cell) whole cell lysates
Lane 5 : HL-60 (Human acute promyelocytic leukemia promyeloblast) whole cell lysates
Lane 6 : MCF7 (Human breast adenocarcinoma epithelial cell) whole cell lysates
Lane 7 : PC-3 (Human prostate adenocarcinoma epithelial cell)

whole cell lysates
Lane 8 : K-562 (Human chronic myelogenous leukemia lymphoblast) whole cell lysates

Lysates/proteins at 20 µg per lane.

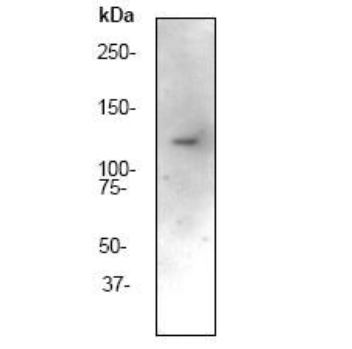
Secondary
All lanes : Goat Anti-Rabbit IgG H&L (HRP) (**ab97051**) at 1/20000 dilution

Predicted band size: 127 kDa
Observed band size: 127 kDa



Immunoprecipitation - Anti-Telomerase reverse transcriptase antibody [Y182] (ab32020)

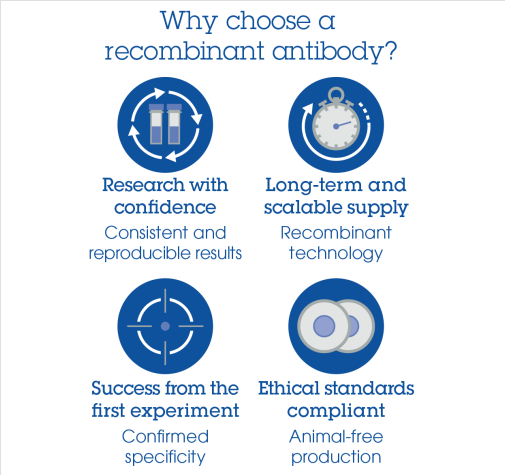
ab32020 (purified) at 1:100 dilution (2µg) immunoprecipitating Telomerase reverse transcriptase in HeLa whole cell lysate.
Lane 1 (input): HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate 10µg
Lane 2 (+): ab32020 & HeLa whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (**ab172730**) instead of ab32020 in HeLa whole cell lysate
For western blotting, VeriBlot for IP Detection Reagent (HRP) (**ab131366**) was used for detection at 1:1000 dilution.
Blocking and diluting buffer: 5% NFDM/TBST.



Western blot - Anti-Telomerase reverse transcriptase antibody [Y182] (ab32020)

Anti-Telomerase reverse transcriptase antibody [Y182] (ab32020) at 1/1000 dilution + Hela (human epithelial cell line from cervix adenocarcinoma) cell lysate

Predicted band size: 127 kDa
Observed band size: 122 kDa



Anti-Telomerase reverse transcriptase antibody [Y182] (ab32020)

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