**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
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 telomerase 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 susceptibility 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.

**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 synthesis.

**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**

**Images**

*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

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.

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
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