abcam

ab230538

Anti-CTC1 antibody

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.4 Preservative: 0.09% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Polyclonal
Immunogen	Synthetic Peptide within Human CTC1 aa 750 to C-terminus conjugated to Keyhole Limpet Haemocyanin. The exact immunogen used to generate this antibody is proprietary information. Database link Q2NKJ3
Purification technique	Affinity purification Protein A
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/50
Notes	Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information CTC1

Function

Component of the CST complex proposed to act as a specialized replication factor promoting DNA replication under conditions of replication stress or natural replication barriers such as the telomere duplex. The CST complex binds single-stranded DNA with high affinity in a sequence-independent manner, while isolated subunits bind DNA with low affinity by themselves. Initially the CST complex has been proposed to protect telomeres from DNA degradation (PubMed:19854130). However, the CST complex has been shown to be involved in several aspects of telomere replication. The CST complex inhibits telomerase and is involved in telomere length homeostasis; it is proposed to bind to newly telomerase-synthesized 3' overhangs and to terminate telomerase action implicating the association with the ACD:POT1 complex thus interfering with its telomerase stimulation activity. The CST complex is also proposed to be involved in fill-in synthesis of the telomeric C-strand probably implicating recruitment and activation of DNA polymerase alpha (PubMed:22763445). The CST complex facilitates recovery from many forms of exogenous DNA damage; seems to be involved in the re-initiation of DNA replication at repaired forks and/or dormant origins (PubMed:25483097). Involved in telomere maintenance (PubMed:19854131, PubMed:22863775). Involved in genome stability (PubMed:22863775). May be in involved in telomeric C-strand fill-in during late S/G2 phase (By similarity).

Storage

Shipped at conditions Blue Ice

Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	CTC1 also known as CTS or conserved telomere maintenance component 1 is a protein with a mass of approximately 145 kDa. This protein is expressed in a variety of tissues including those with high cellular proliferation rates such as bone marrow and intestinal crypts. CTC1 is a core component of the CST complex which also consists of STN1 and TEN1. This complex plays an important role in maintaining telomere integrity by stabilizing telomeric DNA and facilitating telomere end protection.
Biological function summary	The CST complex that includes CTC1 serves as a mediator in the process of telomere replication. CTC1 specifically helps prevent telomere shortening and genomic instability by acting during the final stages of DNA replication. It independently ensures that single-strand overhangs at the telomere ends do not become excessively long. The CTC1 protein is particularly involved in preventing telomere degradation by negatively regulating the activity of telomerase an enzyme responsible for extending telomeres.
Pathways	CTC1 integrates into the telomere maintenance and DNA replication pathways. The CST complex works closely with POT1 and TPP1 proteins important elements of the shelterin complex to form a protective cap on chromosome ends. This interaction coordinates the transition from replication to proper telomere sealing. Furthermore CTC1 collaborates with DNA polymerase α to manage proper telomere length and integrity throughout the cell cycle ensuring genomic stability.
Associated diseases and disorders	Mutations or dysregulation in CTC1 have been implicated in conditions such as Coats plus syndrome and dyskeratosis congenita. These diseases highlight CTC1's role in maintaining telomere integrity and genomic stability. In particular Coats plus syndrome associates with reduced function of CTC1 affecting tissues with high turnover rates. The involvement of STN1 and TEN1 in these disorders emphasizes the critical function of the entire CST complex where deficient CTC1 activity disrupts their stabilizing role at telomeres.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

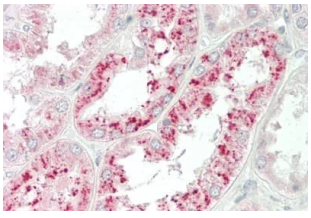
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

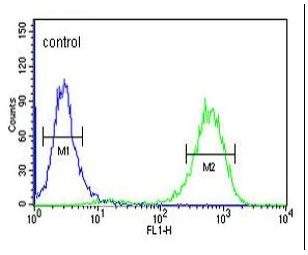
3 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CTC1 antibody (ab230538)

CTC1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-CTC1 antibody

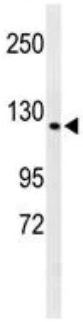
Formalin-fixed, parafin-embedded human kidney tissue stained for CTC1 using ab230538 at 1/50 dilution in immunohistochemical analysis.



Flow Cytometry (Intracellular) - Anti-CTC1 antibody (ab230538)

CTC1 Flow Cytometry (Intracellular) staining using rabbit Anti-CTC1 antibody

Intracellular flow cytometric analysis ofK562 (human chronic myelogenous leukemia cell line from bone marrow) cell line labeling CTC1 with ab230538 at 1/10 dilution (green) compared with a negative control (blue). FITC-conjugated goat-anti-rabbit secondary antibodies were used for the analysis.



Western blot - Anti-CTC1 antibody (ab230538)

All lanes:
Western blot - Anti-CTC1 antibody (ab230538) at 1/1000 dilution

All lanes:
K562 (human chronic myelogenous leukemia cell line from bone marrow) whole cell lysate at 35 µg

Developed using the ECL technique.

Predicted band size: 135 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.