abcam

ab230851

Anti-Werner's syndrome helicase WRN 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 WRN aa 750-850 conjugated to Keyhole Limpet Haemocyanin. The exact immunogen used to generate this antibody is proprietary information. Database link Q14191
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

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/100
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information WRN

Function

Multifunctional enzyme that has magnesium and ATP-dependent 3'-5' DNA-helicase activity on partially duplex substrates (PubMed:9224595, PubMed:9288107, PubMed:9611231). Also has 3'->5' exonuclease activity towards double-stranded (ds)DNA with a 5'-overhang (PubMed:11863428). Has no nuclease activity towards single-stranded (ss)DNA or blunt-ended dsDNA (PubMed:11863428). Helicase activity is most efficient with (d)ATP, but (d)CTP will substitute with reduced efficiency; strand displacement is enhanced by single-strand binding-protein (heterotrimeric replication protein A complex, RPA1, RPA2, RPA3) (PubMed:9611231). Binds preferentially to DNA substrates containing alternate secondary structures, such as replication forks and Holliday junctions. May play an important role in the dissociation of joint DNA molecules that can arise as products of homologous recombination, at stalled replication forks or during DNA repair. Alleviates stalling of DNA polymerases at the site of DNA lesions. Plays a role in the formation of DNA replication focal centers; stably associates with foci elements generating binding sites for RP-A (By similarity). Plays a role in double-strand break repair after gamma-irradiation (PubMed:9224595, PubMed:9288107, PubMed:9611231). Unwinds some G-quadruplex DNA (d(CGG)n tracts); unwinding seems to occur in both 5'-3' and 3'-5' direction and requires a short single-stranded tail (PubMed:10212265). d(CGG)n tracts have a propensity to assemble into tetraplex structures; other G-rich substrates from a telomeric or IgG switch sequence are not unwound (PubMed:10212265). Depletion leads to chromosomal breaks and genome instability (PubMed:33199508).

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	Werner's syndrome helicase also known as WRN plays a mechanical role in DNA replication and repair. WRN is a 160 kDa protein containing both helicase and exonuclease activities making it unique among RecQ helicases. It unwinds DNA duplexes and resolves complex DNA structures that can arise during replication and repair processes. WRN is expressed in the nucleus of various cell types including fibroblasts where it maintains genome stability. This helicase is critical in processing DNA intermediates to prevent genomic instability.
Biological function summary	WRN functions as a part of larger protein complexes that participate in DNA damage response and repair. It interacts with several proteins involved in the homologous recombination and base excision repair pathways. WRN's unique enzymatic activities enable it to stabilize and process DNA ends during replication fork collapse and double-strand break repair. By operating in concert with proteins such as RAD51 and replication protein A (RPA) WRN ensures accurate replication and repair preventing mutation accumulation.
Pathways	WRN plays a central role in the maintenance of genomic integrity through its involvement in DNA repair pathways and the aging process. It is integral to the process of homologous recombination where it works closely with the MRE11-RAD50-NBS1 (MRN) complex. Additionally WRN has a function in the DNA damage checkpoint pathway collaborating with proteins like ATM and ATR which help to sense damaged DNA and initiate repair processes. These pathways are important for maintaining DNA integrity and preventing cellular senescence.
Associated diseases and disorders	WRN is closely linked to Werner syndrome and cancer. Mutations in the WRN gene lead to Werner syndrome a rare disorder characterized by premature aging and cancer predisposition. WRN's interaction with tumor suppressor proteins such as p53 connects it to pathways that can contribute to tumorigenesis when dysregulated. Understanding WRN's function and its role in these diseases provides insight into mechanisms of aging and cancer development offering potential therapeutic targets.

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.

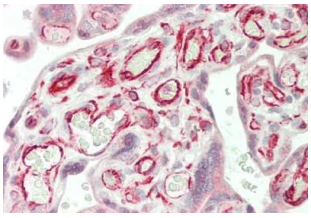
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

---

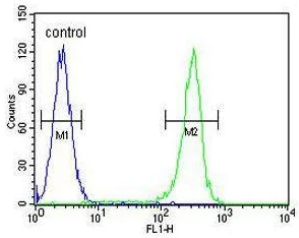
3 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Werner's syndrome helicase WRN antibody (ab230851)

Werner's syndrome helicase WRN Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Werner's syndrome helicase WRN antibody

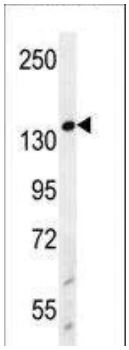
Formalin-fixed, paraffin-embedded human placenta tissue stained for Werner's syndrome helicase WRN using ab230851 at 1/100 dilution in immunohistochemical analysis.



Flow Cytometry (Intracellular) - Anti-Werner's syndrome helicase WRN antibody (ab230851)

Werner's syndrome helicase WRN Flow Cytometry (Intracellular) staining using rabbit Anti-Werner's syndrome helicase WRN antibody

Intracellular flow cytometric analysis ofK562 (human chronic myelogenous leukemia cell line from bone marrow) cell line labeling Werner's syndrome helicase WRN with ab230851 at 1/10 dilution (green) compared with anegative control cell line (blue). FITC-conjugated goat anti-rabbit secondary antibodies were used for the analysis.



Western blot - Anti-Werner's syndrome helicase WRN antibody (ab230851)

All lanes:
Western blot - Anti-Werner's syndrome helicase WRN antibody (ab230851) 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: 162 kDa

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