abcam

ab194358

Anti-GRSF1 antibody [EPR16679]

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR16679
Purification technique	Affinity purification Protein A
Concentration	2.423 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/1000 - 1/10000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/250
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/100
Notes	-

Target data

See full target information G-rich sequence factor 1

Function Regulator of post-transcriptional mitochondrial gene expression, required for assembly of the mitochondrial ribosome and for recruitment of mRNA and lncRNA. Binds RNAs containing the 14 base G-rich element. Preferentially binds RNAs transcribed from three contiguous genes on the light strand of mtDNA, the ND6 mRNA, and the long non-coding RNAs for MT-CYB and MT-ND5, each of which contains multiple consensus binding sequences (PubMed:23473033, PubMed:23473034, PubMed:29967381). Involved in the degradosome-mediated decay of non-coding mitochondrial transcripts (MT-ncRNA) and tRNA-like molecules (PubMed:29967381). Acts by unwinding G-quadruplex RNA structures in MT-ncRNA, thus facilitating their degradation by the degradosome (PubMed:29967381). G-quadruplexes (G4) are non-canonical 4 stranded structures formed by transcripts from the light strand of mtDNA (PubMed:29967381).

Storage

Shipped at conditions	Conditional Ambient
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

Notes

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
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 batch production

For more information, read more on recombinant antibodies.

Supplementary info

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

Activity summary	The G-rich RNA sequence binding factor 1 known as GRSF1 is a protein involved in RNA processing activities. Alternate names include MGC60760 and GAR1. This protein weighs approximately 48 kDa and demonstrates a wide expression pattern across different tissues with a marked presence in mitochondria. GRSF1 binds specifically to G-rich elements in RNA playing a mechanical role in stabilizing complex RNA structures and facilitating efficient RNA processing.
Biological function summary	The GRSF1 operates as an important player in mitochondrial RNA metabolism. It is known to interact within ribonucleoprotein complexes facilitating the regulation of mitochondrial gene expression. GRSF1 contributes to the maturation and processing of mitochondrial RNA impacting the proper synthesis of components essential for mitochondrial function. It ensures that mitochondrial encoded proteins are synthesized accurately aiding overall cellular energy production.

Pathways	GRSF1 engagement with organellar RNA processing integrates into mitochondrial biogenesis and maintenance pathways. This protein significantly influences the electron transport chain by ensuring the precise maturation of mitochondrial RNAs required for encoding electron transport chain components. It connects with proteins like LRPPRC as part of RNA granules coordinating gene expression regulation to support cellular respiration and energy conversion pathways.
Associated diseases and disorders	GRSF1 links closely to conditions involving mitochondrial dysfunctions such as mitochondrial myopathy. Alterations in GRSF1 function can result in impaired energy production leading to muscle weakness and other systemic symptoms associated with myopathy. It may also intersect with neurodegenerative disorders where mitochondrial impairment represents a common pathological feature. GRSF1's association with proteins like Twinkle helicase in such diseases emphasizes its broader implications in maintaining mitochondrial integrity and cellular health.

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

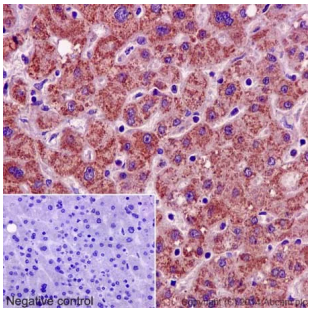
We do not recommend this combination. It is not covered by our product promise.

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.

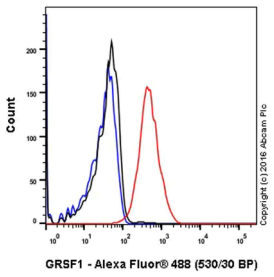
5 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GRSF1 antibody [EPR16679] (ab194358)

GRSF1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-GRSF1 antibody

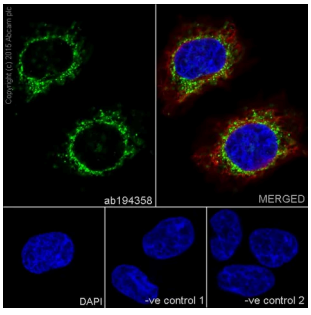
Immunohistochemical analysis of paraffin-embedded Human liver tissue labeling GRSF1 with ab194358 at 1/100 dilution followed by Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/500 dilution. Counter stained with Hematoxylin.
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-GRSF1 antibody [EPR16679] (ab194358)

GRSF1 Flow Cytometry (Intracellular) staining using rabbit Anti-GRSF1 antibody

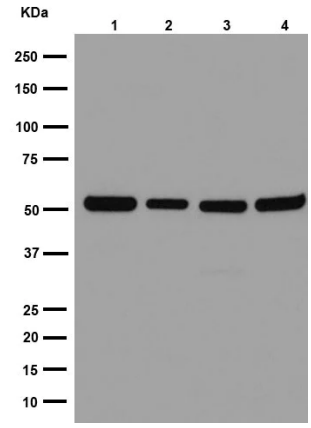
Intracellular Flow Cytometry analysis of HeLa cells labelling GRSF1 (red) with purified ab194358 at dilution of 1/250. The secondary antibody used was Alexa Fluorr® 488 goat-anti-rabbit IgG (1/2000). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. Isotype control antibody was Rabbit monoclonal IgG (black). The blue line shows cells without incubation with primary antibody and secondary antibody.



Immunocytochemistry/ Immunofluorescence - Anti-GRSF1 antibody [EPR16679] (ab194358)

GRSF1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-GRSF1 antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed 0.1% Triton X-100 permeabilized HeLa cells labeling GRSF1 with ab194358 at 1/100 dilution followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/400 dilution. The nuclear counter stain is DAPI (blue).



Western blot - Anti-GRSF1 antibody [EPR16679] (ab194358)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-GRSF1 antibody [EPR16679] (ab194358) at 1/10000 dilution

Lane 1:
HeLa cell lysate at 20 µg

Lane 2:
293 cell lysate at 20 µg

Lane 3:
HepG2 cell lysate at 20 µg

Lane 4:
Jurkat cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size: 53 kDa

Observed band size: 53 kDa

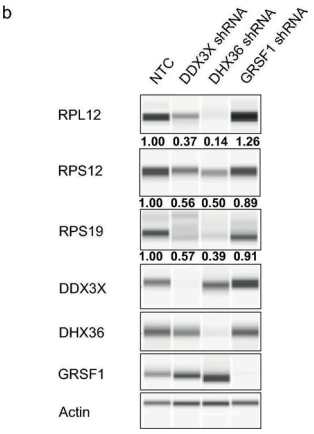


Image collected and cropped by CiteAb under a CC-BY license from the publication

Western blot - Anti-GRSF1 antibody [EPR16679] (ab194358)

GRSF1 Western blot staining using rabbit Anti-GRSF1 antibody

GRSF1 western blot using anti-GRSF1 antibody [EPR16679] ab194358. Publication image and figure legend from Varshney, D., Cuesta, S. M., et al., 2021, Sci Rep, PubMed 34815422.

ab194358 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab194358 please see the product overview.

RNA G4s in ribosomal protein mRNA regulate translation. (a) Example snapshots demonstrating BG4 peaks in 5' UTRs and overlapping iCLAE peaks. BG4 track depict logFC of BG4 IP vs input and iCLAE track depict counts per million. (b) Western blot analysis of ribosomal protein levels following shRNA mediated depletion of DDX3X, DHX36 and GRSF1. Actin serves as loading control. Number below each lane represents fold change in ribosomal protein levels compared to non-targeting control (NTC) when normalised to actin. (c) Fold change in luminescence comparing in vitro translation of luciferase gene from wild-type ribosomal protein UTRs containing G4 (UTRQ) to mutant UTRs with G4 disruption (MutQ). (d) UV absorption at 254 nM following sucrose fractionation for polysome profiling of cells treated with DMSO (black) and 2 μM PDS (blue) for 45 min. Monosomal and polysomal fractions are highlighted. (e) Fold change in translation efficiency (logFC TE) of each transcript plotted against the significance (- log10 p-value) over three independent biological replicates. All ribosomal protein mRNAs are highlighted in red and those with significant changes (FDR < 0.1) are labelled with the corresponding protein names.

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