abcam

ab110240

Anti-GRIM19 antibody [6E1BH7]

KO Validated

Key facts

Isotype	IgG2b
Host species	Mouse
Storage buffer	pH: 7.5 Preservative: 0.02% Sodium azide Constituents: HEPES buffered saline
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	6E1BH7
Light chain type	kappa
Concentration	1 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	ab110240 was produced in vitro using hybridomas grown in serum-free medium, and then purified by biochemical fractionation.

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	1 µg/mL

Notes	ab170192 - Mouse monoclonal IgG2b, is suitable for use as an isotype control with this antibody.

Expected

Species	Mouse, Cow, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Species	Mouse
Dilution info	1 µg/mL
Notes	-

Species	Cow
Dilution info	1 µg/mL
Notes	-

Species	Rat
Dilution info	1 µg/mL
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1 µg/mL
Notes	-

Expected

Species	Mouse, Cow, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information NDUFA13

Function	Accessory subunit of the mitochondrial membrane respiratory chain NADH dehydrogenase (Complex I), that is believed not to be involved in catalysis (PubMed:27626371). Complex I functions in the transfer of electrons from NADH to the respiratory chain. The immediate electron acceptor for the enzyme is believed to be ubiquinone (PubMed:27626371). Involved in the interferon/all-trans-retinoic acid (IFN/RA) induced cell death. This apoptotic activity is inhibited by interaction with viral IRF1. Prevents the transactivation of STAT3 target genes. May play a role in CARD15-mediated innate mucosal responses and serve to regulate intestinal epithelial cell responses to microbes (PubMed:15753091).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

Supplementary info

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

Activity summary	GRIM19 also known as NDUFA13 is a small protein with a molecular mass of approximately 16 kDa. It expresses mainly in mitochondria where it forms an integral component of the mitochondrial respiratory chain complex I. GRIM19 plays an important role in the functioning of complex I by facilitating the assembly and stabilization of the complex enabling efficient electron transport and ATP synthesis.
Biological function summary	GRIM19 interacts with several complexes and proteins within the mitochondrial inner membrane. As a part of complex I also known as NADH:ubiquinone oxidoreductase it contributes to the initial step of mitochondrial oxidative phosphorylation. GRIM19 also participates in the regulation of apoptosis and its expression is influenced during cellular stress situations highlighting its significance in cellular survival and energy production.
Pathways	GRIM19 integrates closely with mitochondrial apoptosis and energy metabolism pathways. Its interactions within oxidative phosphorylation place it in concert with both the electron transport chain and the apoptosis regulatory network. GRIM19 shares associations with related proteins such as cytochrome c oxidase and other complex I subunits highlighting its essential contribution to these important biological processes.
Associated diseases and disorders	GRIM19 demonstrates links to various pathologies including cancer and mitochondrial diseases. Alterations in GRIM19 expression or function have been implicated in the progression of certain cancers such as colorectal and thyroid cancer where GRIM19's usual regulatory role in apoptosis can be disrupted. Additionally its involvement in mitochondrial disease connects to proteins like COX-A1 emphasizing the importance of maintaining functional complexes for 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

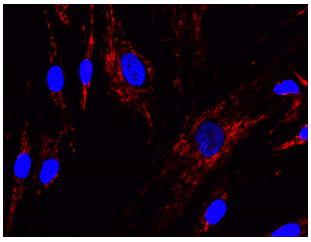
We do not recommend this combination. It is not covered by our product promise.

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.

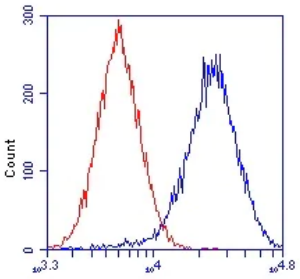
6 product images



Immunocytochemistry/ Immunofluorescence - Anti-GRIM19 antibody [6E1BH7] (ab110240)

GRIM19 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-GRIM19 antibody

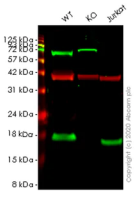
Mitochondrial localization of GRIM19 visualized by immunocytochemistry using ab110240 at a concentration of 1 µg/mL. Cultured Human fibroblasts were fixed, permeabilized and then labeled with ab110240 followed by Alexa® 488 goat-anti-mouse IgG.



Flow Cytometry - Anti-GRIM19 antibody [6E1BH7] (ab110240)

GRIM19 Flow Cytometry staining using mouse Anti-GRIM19 antibody

HeLa cells were stained with 1 µg/mL ab110240 (blue) or an equal amount of an isotype control antibody (red) and analyzed by flow cytometry.



Western blot - Anti-GRIM19 antibody [6E1BH7] (ab110240)

GRIM19 Western blot staining using mouse Anti-GRIM19 antibody

Lanes 1-3: Merged signal (red and green). Green - ab110240 observed at 17 kDa. Red - loading control ab181602 observed at 36 kDa.
ab110240 GRIM19 antibody [6E1BH7] was shown to specifically react with GRIM19 in wild-type HeLa cells. Loss of signal was observed when knockout cell line ab265863 (knockout cell lysate ab257136) was used. Wild-type and GRIM19 knockout samples were subjected to SDS-PAGE. ab110240 and Anti-GAPDH antibody[EPR16891] - Loading Control (ab181602) were incubated overnight at 4°C at 1 in 1000 dilution and 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 680RD) preadsorbed (ab216777) and Goat anti-Mouse IgG H&L (IRDye® 800CW) preadsorbed (ab216772) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-GRIM19 antibody [6E1BH7] (ab110240) at 1/1000 dilution

Lane 1:
Wild-type HeLa cell lysate at 20 µg

Lane 2:
NDUFA13 knockout HeLa cell lysate at 20 µg

Lane 2:
Western blot - Human NDUFA13 (GRIM19) knockout HeLa cell line (ab265863)

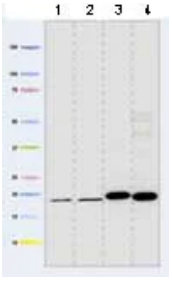
Lane 3:
Jurkat cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (IRDye® 680RD) preadsorbed (ab216777) at 1/10000 dilution

Predicted band size: 17 kDa, 184 kDa, 28 kDa, 56 kDa, 62 kDa, 76 kDa

Observed band size: 17 kDa, 184 kDa, 29 kDa, 56 kDa, 70 kDa, 75 kDa



Western blot - Anti-GRIM19 antibody [6E1BH7] (ab110240)

All lanes:
Western blot - Anti-GRIM19 antibody [6E1BH7] (ab110240) at 1 µg/mL

Lane 1:
Human heart mitochondria

Lane 2:
Bovine heart mitochondria

Lane 3:
Rat heart mitochondria

Lane 4:
Mouse heart mitochondria

Predicted band size: 17 kDa

c

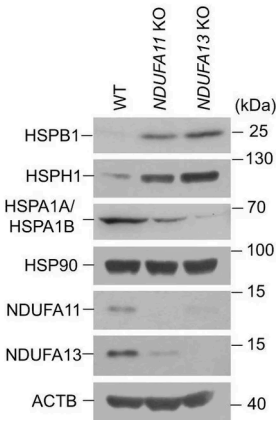


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Western blot - Anti-GRIM19 antibody [6E1BH7] (ab110240)

GRIM19 Western blot staining using mouse Anti-GRIM19 antibody

Western Blotting using Anti-GRIM19 antibody [6E1BH7], ab110240. Publication image from Kim, M. J. et al., 2023, Nat Commun, 37433777. Legend direct from paper.

Small HSP and HSP110 families have a tendency to be increased under mitochondrial stress.a RNA-seq analysis of HSPs gene expression log2 fold changes (log2FC) in NDUFA11 KO and NDUFA13 KO compared to WT HEK293T cells (n = 4). Up- and down-regulated genes (q-value < 0.05) are shown in green and pink, respectively. The intensity of the color shades depends on the level of expression change. Gray indicates genes with not statistically significant expression changes. b mRNA expression patterns of selected transcripts validated by RT-qPCR. The mRNA levels are presented as fold changes relative to WT. Data shown are mean ± SD (n = 3 biological replicates with two technical replicates). p-value from an ordinary one-way ANOVA with Dunnett's multiple comparisons test using GraphPad Prism. c Western blot analysis of HSPs expression performed in whole cell lysates of NDUFA11 KO, NDUFA13 KO and WT HEK293T cells. ACTB was used as a loading control. Data shown are representative of three independent experiments. d Quantification of HSPs in western blot analysis normalized to ACTB using ImageJ. The protein levels are presented as fold changes relative to WT. Data shown are mean ± SD (n = 3). p-value from two-sided, unpaired t-test using GraphPad Prism. Source data are provided as a Source Data file.

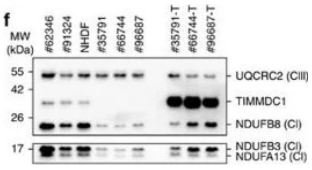


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Western blot - Anti-GRIM19 antibody [6E1BH7] (ab110240)

GRIM19 Western blot staining using mouse Anti-GRIM19 antibody

Western Blotting using Anti-GRIM19 antibody [6E1BH7], ab110240. Publication image from Kopajtich, R. et al., 2017, Nat Commun, 28604674. Legend direct from paper.

RNA aberrant expression detection and validation.(a) Aberrantly expressed genes (Hochberg corrected P value<0.05 and |Z-score|>3) for each patient fibroblasts. (b) Gene-wise RNA expression volcano plot of nominal P values (−log10P value) against Z-scores of the patient #35791 compared against all other fibroblasts. Z-scores with absolute value >5 are plotted at ±5, respectively. (c) Same as (b) for patient #73804. (d) Sample-wise RNA expression is ranked for the genes TIMMDC1 (top) and MGST1 (bottom). Samples with aberrant expression for the corresponding gene are highlighted in red (#35791, #66744, and #73804). (e) Gene-wise comparison of RNA and protein fold changes of patient #35791 compared to the average across the fibroblast cell lines of all other patients. Subunits of the mitochondrial respiratory chain complex I are highlighted (red squares). Reliably detected proteins that were not detected in this sample are shown separately with their corresponding RNA fold changes (points below solid horizontal line). (f) Western blot of TIMMDC1, NDUFA13, NDUFB3 and NDUFB8 protein in three fibroblast cell lines without (#62346, #91324, NHDF) and three with a variant in TIMMDC1 (#35791, #66744 and #96687), and fibroblasts re-expressing TIMMDC1 (‘-T’) (#35791-T, #66744-T and #96687-T). UQCRC2 was used as loading control. CI, complex I subunit; CIII, complex III subunit; MW, molecular weight. (g) Blue native PAGE blot of the control fibroblasts re-expressing TIMMDC1 (NHDF-T), the control fibroblasts (NHDF), patient fibroblasts (#96687) and patient fibroblast re-expressing TIMMDC1 (#96687-T). Immunodecoration for complex I and complex III was performed using NDUFB8 and UQCRC2 antibodies, respectively. CI, complex I subunit; CIII, complex III subunit.

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