abcam

ab57083

Anti-UHRF1 antibody [3A11]

Key facts

Isotype	IgG1
Host species	Mouse
Storage buffer	pH: 7.4
Form	Liquid
Clonality	Monoclonal
Immunogen	Recombinant Fragment Protein within Human UHRF1 aa 650 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link Q96T88
Clone number	3A11
Purity	Tissue culture supernatant
Light chain type	kappa

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	-
Notes	ab170190 - Mouse monoclonal IgG1, is suitable for use as an isotype control with this antibody.

WB

Tested

Species	Human
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Target data

See full target information UHRF1

Function

E3 ubiquitin-protein ligase that acts as a key epigenetic regulator by bridging DNA methylation and chromatin modification (PubMed:10646863, PubMed:15009091, PubMed:19056828, PubMed:23022729, PubMed:24013172, PubMed:27595565, PubMed:30104358, PubMed:30392929, PubMed:30392931, PubMed:39607687). Plays a key role in DNA methylation inheritance by promoting recruitment of DNMT1 to hemimethylated DNA and ensure faithful propagation of the DNA methylation patterns through DNA replication (PubMed:23022729, PubMed:24013172, PubMed:27595565, PubMed:30104358, PubMed:30392929, PubMed:30392931, PubMed:39607687). Acts both as a histone reader and writer: specifically recognizes and binds (1) hemimethylated DNA at replication forks and (2) histone H3 trimethylated at 'Lys-9' and unmethylated at 'Arg-2' (H3K9me3 and H3R2me0, respectively), thereby activating its E3 ubiquitin-protein ligase activity (PubMed:15361834, PubMed:17673620, PubMed:17967883, PubMed:18772889, PubMed:21745816, PubMed:21777816, PubMed:22100450, PubMed:22837395, PubMed:23022729, PubMed:27595565, PubMed:30104358). UHRF1 then mediates histone H3 'Lys-18' monoubiquitination (H3K18ub), a docking site for DNMT1,

leading to DNMT1 recruitment and replication-coupled DNA methylation maintenance (PubMed:27595565). Also mediates histone H3 'Lys-14' and 'Lys-23' ubiquitination (H3K14ub and H3K23ub) at lower level (PubMed:24013172, PubMed:27595565). Histone ubiquitin ligase activity also stimulates the methyltransferase activity of SUV39H1 and/or SUV39H2, promoting accumulation of H3K9me3 histone mark to reinformce heterochromatin state (PubMed:39631394). Enriched in pericentric heterochromatin where it recruits different chromatin modifiers required for this chromatin replication. Also localizes to euchromatic regions where it negatively regulates transcription possibly by impacting DNA methylation and histone modifications (PubMed:21777816). Plays a role in DNA repair by cooperating with UHRF2 to ensure recruitment of FANCD2 to interstrand cross-links (ICLs) leading to FANCD2 activation (PubMed:30335751). Also ubiquitinates non-histone proteins, such as histone H3, KIF11 and PML (PubMed:22945642, PubMed:37728657). Acts as a critical player of proper spindle architecture by catalyzing the 'Lys-63'-linked ubiquitination of KIF11, thereby controlling KIF11 localization on the spindle (PubMed:37728657).

Storage

Shipped at conditions	Blue Ice
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

This product was changed from ascites to tissue culture supernatant on 25/2/19. Please note that the dilutions may need to be adjusted accordingly. If you have any questions, please do not hesitate to contact our scientific support team.

Supplementary info

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

Activity summary	UHRF1 also known as ICBP90 or Np95 is a nuclear protein playing key roles in epigenetic regulation. It weighs approximately 90 kDa. UHRF1 is expressed in various tissues most highly in proliferating cells. Functionally UHRF1 recognizes hemimethylated DNA and recruits DNA methyltransferase 1 (DNMT1) to maintain DNA methylation after replication. This ability to interact with both DNA and chromatin makes UHRF1 central to chromatin modification processes.

Biological function summary	UHRF1 engages in preserving the DNA methylation landscape ensuring proper gene expression patterns. It is part of a multi-protein complex and processes both histone modification and DNA methylation. Its presence is critical for gene silencing through the recruitment of DNMT1 and histone deacetylases. UHRF1 therefore influences regulatory regions of genes important for cell cycle progression and development.
Pathways	UHRF1 integrates into methylation-dependent gene silencing and cell cycle regulation. It actively participates in DNA damage repair pathways by modulating the p53 pathway aiding cell survival post-DNA damage. UHRF1 closely interacts with epigenetic regulators such as DNMT1 and histone deacetylases bridging methylation and chromatin remodeling to ensure proper cell cycle and transcriptional control.
Associated diseases and disorders	UHRF1's dysregulation links to cancers including breast and lung cancer due to its role in maintaining aberrant methylation. Abnormal UHRF1 expression leads to improper silencing of tumor suppressor genes. UHRF1's interaction with DNMT1 and modulation of pathways involving p53 are important for cancer cell proliferation making it a potential target for cancer therapies.

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

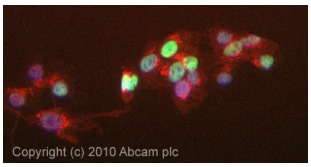
We do not recommend this combination. It is not covered by our product promise.

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

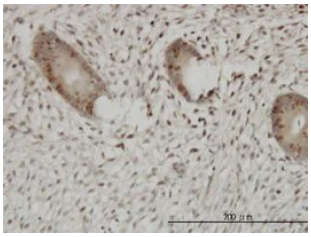


Immunocytochemistry/ Immunofluorescence - Anti-UHRF1 antibody [3A11] (ab57083)

UHRF1 Immunocytochemistry/ Immunofluorescence staining using mouse Anti-UHRF1 antibody

ICC/IF image of ab57083 stained HepG2 cells. The cells were 4% formaldehyde fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab57083, 5µg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-mouse IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.

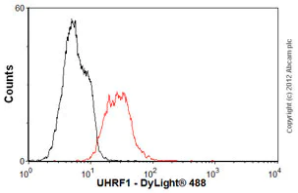
This image was generated using the ascites version of the product.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-UHRF1 antibody [3A11] (ab57083)

UHRF1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using mouse Anti-UHRF1 antibody

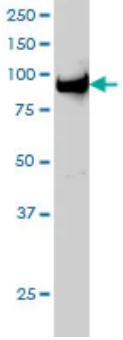
UHRF1 antibody (ab57083) used in immunohistochemistry at 3ug/ml on formalin fixed and paraffin embedded human endometrium.
This image was generated using the ascites version of the product.



Flow Cytometry - Anti-UHRF1 antibody [3A11] (ab57083)

UHRF1 Flow Cytometry staining using mouse Anti-UHRF1 antibody

Overlay histogram showing MCF7 cells stained with ab57083 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab57083, 1µg/1x10^6 cells) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-mouse IgG (H+L) (ab96879) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was mouse IgG1 [ICIGG1] (ab91353, 2µg/1x10^6 cells) used under the same conditions. Acquisition of >5,000 events was performed.
This image was generated using the ascites version of the product.



Western blot - Anti-UHRF1 antibody [3A11] (ab57083)

UHRF1 Western blot staining using mouse Anti-UHRF1 antibody

UHRF1 antibody (ab57083) at 1ug/lane + HeLa cell lysate at 25ug/lane.
This image was generated using the ascites version of the product.

All lanes:
Western blot - Anti-UHRF1 antibody [3A11] (ab57083)

Predicted band size: 89 kDa

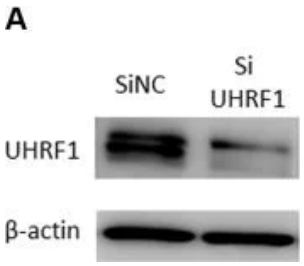


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Western blot - Anti-UHRF1 antibody [3A11] (ab57083)

UHRF1 western blot using anti-UHRF1 antibody [3A11] ab57083. Publication image and figure legend from Nakamura, K., Baba, Y., et al., 2016, Oncotarget, PubMed 27507047.

ab57083 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 ab57083 please see the product overview.

Knockdown of UHRF1 with siRNA caused upregulation of LINE-1 methylation levels in ESCC cell lines(A) Western blot analysis of UHRF1 expression in cells transfected with siUHRF1. (B, C) Changes in DNA methylation after cotransfection with siUHRF1 and EGFP-MBD1 vector. (D) EGFP-MBD1 expression after cotransfection, as determined by western blot.

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