abcam

ab243906

Anti-gamma H2A.X (phospho S139) antibody [BLR053F]

Recombinant

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.8 - 8.6 Preservative: 0.09% Sodium azide Constituents: 98% Borate buffered saline, 0.1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	Synthetic Peptide within Human H2AX pS139. The exact immunogen used to generate this antibody is proprietary information. Database link P16104
Clone number	BLR053F
Concentration	2 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Recombinant antibody was purified from cell culture supernatant.

Reactivity data

IHC-P

Tested

Species	Mouse
Dilution info	1/100 - 1/500
Notes	

	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/100 - 1/500
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

ICC

Tested

Species	Human
Dilution info	1/100 - 1/500
Notes	-

Expected

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

IP

Tested

Species	Human
Dilution info	-
Notes	Use 20µl/mg lysate.

Expected

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

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Expected

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

Flow Cyt

Tested

Species	Human
Dilution info	1 µL for 10^6 Cells
Notes	-

Expected

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

Target data

See full target information H2AX pS139

Function Variant histone H2A which replaces conventional H2A in a subset of nucleosomes. Nucleosomes wrap and compact DNA into chromatin, limiting DNA accessibility to the cellular machineries which require DNA as a template. Histones thereby play a central role in transcription regulation, DNA repair, DNA replication and chromosomal stability. DNA accessibility is regulated via a complex set of post-translational modifications of histones, also called histone code, and nucleosome remodeling. Required for checkpoint-mediated arrest of cell cycle progression in response to low doses of ionizing radiation and for efficient repair of DNA double strand breaks (DSBs) specifically when modified by C-terminal phosphorylation.

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	+4°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

REACH authorisation
Abcam has not and does not intend to apply for the REACH Authorisation of customers' uses of products that contain European Authorisation list (Annex XIV) substances.
It is the responsibility of our customers to check the necessity of application of REACH Authorisation, and any other relevant authorisations, for their intended uses.

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Supplementary info

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

Activity summary	Gamma H2A.X also known as phospho H2A.X or γH2A.X is a phosphorylated form of the histone variant H2A.X. It has a molecular weight of about 14 kilodaltons and occurs primarily in they nucleus. When DNA double-strand breaks (DSBs) occur serine 139 in H2A.X undergoes rapid phosphorylation resulting in gamma H2A.X. This modification happens swiftly at the site of damage and gamma H2A.X spreads over a large chromatin area facilitating the recruitment of DNA repair proteins. Gamma H2A.X staining typically evaluated using gamma H2A.X immunofluorescence techniques aids in identifying the presence and extent of DNA damage.

Biological function summary	Gamma H2A.X plays a role in DNA damage response and repair. It does not operate alone; it acts as part of a complex with other repair proteins. The formation of gamma H2A.X foci at DNA damage sites creates a signal attracting repair factors that help maintain genome stability. Its interaction with MDC1 and ATM proteins exemplifies its significant role in orchestrating an effective response to DNA damage. Beyond DNA repair gamma H2A.X influences cell cycle checkpoints permitting cells to pause and repair before proceeding with division.
Pathways	Gamma H2A.X plays a pivotal role in the DNA damage response (DDR) pathway. This pathway is essential for detecting and repairing DNA lesions to uphold genomic integrity. Within the DDR pathway gamma H2A.X is closely associated with proteins such as NBS1 and BRCA1 which assist in repairing double-strand breaks. In addition gamma H2A.X is integral to the ATM-ATR signaling pathway where its activation promotes cell survival following genotoxic stress by signaling for damage repair or triggering apoptosis.
Associated diseases and disorders	Gamma H2A.X has connections to cancer and neurodegeneration. Aberrant DNA repair pathways often indicated by persistent gamma H2A.X signals correlate with tumor formation and progression. For instance a failure to repair DNA damage effectively can lead to mutations that drive cancer development. Gamma H2A.X also links to neurodegenerative diseases where dysregulated DNA repair contributes to neuronal cell death. Proteins like p53 which regulate cell cycle and apoptosis further connect to gamma H2A.X bridging its role in disease pathogenesis.

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

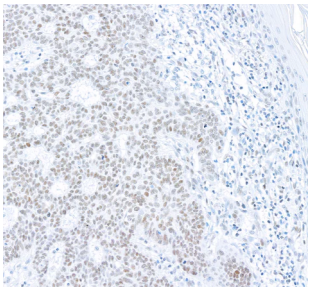
We do not recommend this combination. It is not covered by our product promise.

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.

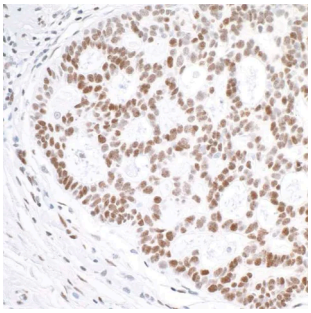
Full details and terms and conditions can be found here:

9 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-gamma H2A.X (phospho S139) antibody [BLR053F] (ab243906)

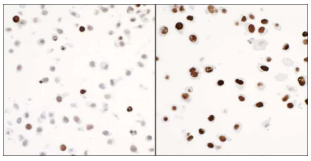
Immunohistochemical analysis of Formalin-Fixed Paraffin-Embedded human basal cell carcinoma labeling human gamma-H2AX with ab243906, followed by a HRP-conjugated goat anti-rabbit IgG as secondary. Substrate: DAB. Nuclear staining on human basal cell carcinoma is observed. Counter stained with hematoxylin. Epitope retrieval with citrate buffer pH 6.0 for 20 minutes is recommended.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-gamma H2A.X (phospho S139) antibody [BLR053F] (ab243906)

Gamma H2A.X (phospho S139) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-gamma H2A.X (phospho S139) antibody

Formalin-fixed, paraffin-embedded human G203basal cell carcinoma tissue stained for H2A.X (phospho S139) using ab243906 at 1/250 dilution in immunohistochemical analysis. A HRP-conjugated goat anti-rabbit antibody was used as the secondary. DAB staining.

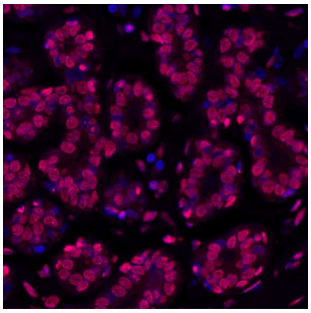


Immunocytochemistry - Anti-gamma H2A.X (phospho S139) antibody [BLR053F] (ab243906)

Gamma H2A.X (phospho S139) Immunocytochemistry staining using rabbit Anti-gamma H2A.X (phospho S139) antibody

Formalin-fixed, paraffin-embedded HeLa (human epithelial cell line from cervix adenocarcinoma) cells labeling gamma H2A.X (phospho S139) using ab243906 at 1/100 dilution in ICC analysis. An HRP-conjugated goat-anti rabbit IgG was used as the secondary. DAB staining.
Left panel: Untreated HeLa cells

Right panel: Etoposide treated HeLa cells

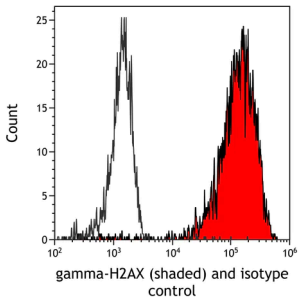


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-gamma H2A.X (phospho S139) antibody [BLR053F] (ab243906)

Gamma H2A.X (phospho S139) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-gamma H2A.X (phospho S139) antibody

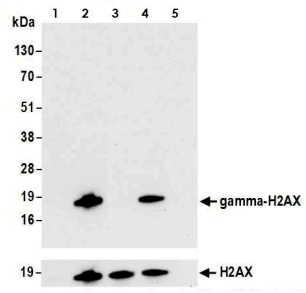
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human breast carcinoma tissue labelling gamma H2A.X with ab2439064 at 1/100 dilution, and secondary DyLight® 594 conjugated goat anti-rabbit IgG. Counterstain was DAPI.

Heat mediated antigen retrieval performed with citrate buffer pH 6 before commencing with IHC staining protocol.



Flow Cytometry - Anti-gamma H2A.X (phospho S139) antibody [BLR053F] (ab243906)

Flow cytometry overlay histogram of 4% formaldehyde fixed etoposide treated HEK293T cells permeabilized with 90% methanol labeling human gamma H2AX with ab243906 at 1 µl per 1 x 10^6 cells (shaded) compared with a Isotype control (unshaded). Secondary antibody details: Goat Anti-Rabbit IgG H&L (DyLight® 488) (ab96883).



Immunoprecipitation - Anti-gamma H2A.X (phospho S139) antibody [BLR053F] (ab243906)

Gamma H2A.X was immunoprecipitated from 1.0 mg Jurkat (human T cell leukemia cell line from peripheral blood) whole cell lysate with ab243906 at 20 µl per reaction. Western blot was performed on the immunoprecipitate using ab243864 at 1/1000 dilution.
Lane 1: ab243906 IP in Jurkat (untreated) whole cell lysate.

Lane 2: ab243906 IP in Jurkat (treated with Etoposide) whole cell lysate.

Lane 3: rabbit anti-gamma-H2AX antibody IP in Jurkat (untreated) whole cell lysate.

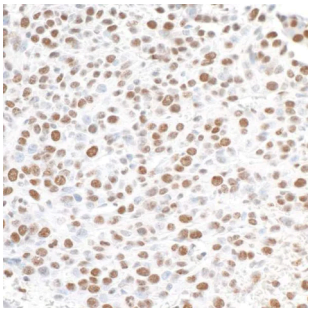
Lane 4: rabbit anti-gamma-H2AX antibody IP in Jurkat (treated with Etoposide) whole cell lysate

Lane 5: Control IgG IP in Jurkat (treated with Etoposide) whole cell lysate.

Detection: Chemiluminescence with an exposure time of 3 seconds.

All lanes:
Immunoprecipitation - Anti-gamma H2A.X (phospho S139) antibody [BLR053F] (ab243906)

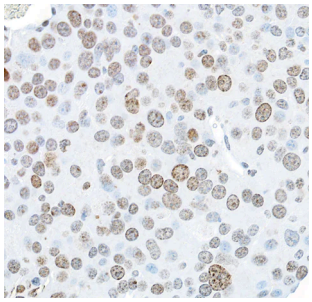
Predicted band size: 15 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-gamma H2A.X (phospho S139) antibody [BLR053F] (ab243906)

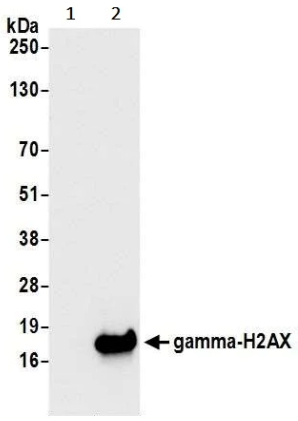
Gamma H2A.X (phospho S139) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-gamma H2A.X (phospho S139) antibody

Formalin-fixed, paraffin-embedded mouse CT26 colon carcinoma tissue stained for H2A.X (phospho S139) using ab243906 at 1/250 dilution in immunohistochemical analysis. A HRP-conjugated goat anti-rabbit antibody was used as the secondary. DAB staining.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-gamma H2A.X (phospho S139) antibody [BLR053F] (ab243906)

Immunohistochemical analysis of Formalin-Fixed Paraffin-Embedded mouse CT26 tumor labeling mouse gamma-H2AX with ab243906, followed by a HRP-conjugated goat anti-rabbit IgG as secondary. Substrate: DAB. Nuclear staining on mouse CT26 tumor is observed. Counter stained with hematoxylin. Epitope retrieval with citrate buffer pH 6.0 for 20 minutes is recommended.



Western blot - Anti-gamma H2A.X (phospho S139) antibody [BLR053F] (ab243906)

Gamma H2A.X (phospho S139) Western blot staining using rabbit Anti-gamma H2A.X (phospho S139) antibody

Western blot analysis using ab243906 at 1/1000 dilution.
Lane 1: Jurkat (human T cell leukemia cell line from peripheral blood) (untreated) whole cell lysate (50 µg) .

Lane 2: Jurkat (Etoposide-treated) whole cell lysate (50 µg).

A HRP-conjugated goat anti-rabbit IgG antibody was used as the secondary.

All lanes:
Western blot - Anti-gamma H2A.X (phospho S139) antibody [BLR053F] (ab243906)

Predicted band size: 15 kDa

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