Phospho-Gamma H2AX (pSer139) Antibody / DNA Damage and Double-Strand Break Marker [clone RM224] (R20244)

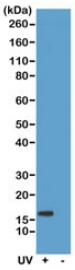
Catalog No.	Formulation	Size
R20244-100UG	1 mg/ml in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	100 ug
R20244-25UG	1 mg/ml in PBS with 50% glycerol, 1% BSA and 0.09% sodium azide	25

Recombinant RABBIT MONOCLONAL

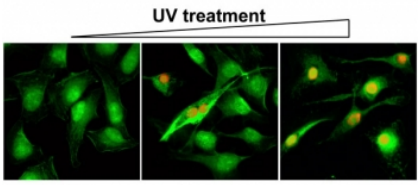
Citations (1)

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human, Vertebrates
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	RM224
Purity	Protein A purified from animal origin-free supernatant
UniProt	P16104
Gene ID	3014
Applications	Western Blot : 0.5-2ug/ml ELISA : 0.2-1ug/ml Immunocytochemistry : 0.5-2ug/ml
Limitations	This Phospho-Gamma H2AX (pSer139) Antibody / DNA Damage and Double-Strand Break Marker is available for research use only.



Phospho-Gamma H2AX (pSer139) Antibody HeLa WB. Western blot analysis of acid-extracted proteins from human HeLa cells untreated (-) or treated (+) with ultraviolet (UV) radiation using phospho-H2AX antibody detecting H2AX phosphorylated at Ser139, clone RM224. A band is detected at approximately 15 kDa, consistent with the predicted molecular weight of histone H2AX. Signal intensity is increased in the UV-treated sample, consistent with induction of DNA damage and activation of the DNA damage response.



Phospho-Gamma H2AX Antibody HeLa IF. Immunofluorescence analysis of human HeLa cells stained with phospho-gamma H2AX antibody detecting H2AX phosphorylated at Ser139 (red), clone RM224. Nuclear punctate foci are observed and increase following UV treatment, consistent with induction of DNA double-strand breaks and activation of the DNA damage response. Actin filaments are labeled with fluorescein phalloidin (green), highlighting cell morphology.

Description

Histone H2A.X (H2AX) is a variant of the H2A histone family that plays a central role in the cellular response to DNA damage. Phospho-Gamma H2AX (pSer139) Antibody, clone RM224, is designed to detect H2AX phosphorylated at serine 139, a modification commonly referred to as gamma H2AX (ÃŽÂ³H2AX). This phosphorylation event occurs rapidly at sites of DNA double-strand breaks and serves as one of the earliest and most sensitive markers of DNA damage.

Upon induction of DNA damage by stimuli such as ultraviolet radiation, ionizing radiation, or genotoxic agents, H2AX is phosphorylated at Ser139 by kinases including ATM, ATR, and DNA-PK. This modification leads to the formation of ÃŽÂ³H2AX foci surrounding sites of DNA breaks, which recruit DNA repair proteins and facilitate assembly of the DNA damage response machinery. Detection of Ser139 phosphorylation is therefore widely used to monitor DNA damage and repair processes.

Unlike total H2AX detection, which reflects histone abundance, phospho-specific detection at Ser139 provides direct insight into DNA damage signaling activity. Phosphorylation levels increase rapidly following DNA damage and decrease as repair is completed, making ÃŽÂ³H2AX a dynamic marker for assessing both induction and resolution of DNA lesions.

Subcellularly, ÃŽÂ³H2AX is localized within the nucleus, where it appears as discrete punctate foci corresponding to sites of DNA double-strand breaks. Immunofluorescence and immunohistochemistry studies often reveal nuclear staining patterns that increase in number and intensity following DNA damage, reflecting activation of the repair response. This nuclear localization distinguishes ÃŽÂ³H2AX from many cytoplasmic phospho-signaling markers.

ÃŽÂ³H2AX is widely used in cancer research, toxicology, and drug development as a biomarker for genotoxic stress. Elevated levels are observed in tumor cells exposed to chemotherapy or radiation therapy, as well as in cells undergoing replication stress or genomic instability. Detection of Ser139 phosphorylation is therefore essential for evaluating DNA damage, therapeutic efficacy, and cellular responses to environmental stressors.

Phospho-Gamma H2AX (pSer139) Antibody, clone RM224, enables selective detection of the phosphorylated form of H2AX, supporting studies of DNA damage signaling, repair mechanisms, and genome stability. Its specificity for Ser139 phosphorylation makes it a valuable tool for investigating double-strand break formation and the cellular response to genotoxic stress.

This antibody is part of our full phospho antibody collection which can be explored for additional phosphorylation-specific targets and pathway markers.

Application Notes

The stated application concentrations are suggested starting points. Titration of the Phospho-Gamma H2AX (pSer139) Antibody / DNA Damage and Double-Strand Break Marker may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

A phospho-peptide corresponding to phospho-Histone H2AX (pS139) was used as the immunogen for this Phospho-Gamma H2AX (pSer139) Antibody.

Storage

Store the Phospho-Gamma H2AX (pSer139) Antibody at -20oC (with glycerol) or aliquot and store at -20oC (without glycerol).

Alternate Names

Phospho-H2AX antibody, gamma H2AX antibody, H2AX pSer139 antibody, Î³H2AX antibody, phosphorylated H2AX antibody, DNA damage marker antibody, H2AX Ser139 antibody, clone RM224 antibody

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