Anti- H2AFX (Histone H2A.x) Phospho- Polyclonal Antibody

Synonym: H2AX

Category: Phospho-Polyclonal Antibody

Catalog #: Phospho-AB2D051(Phospho Site: 143Y)

Species Reactivity: Human

Immunogen/Specificity:
Polyclonal antibody produced in rabbits immunizing with a synthetic peptide corresponding to3 C-terminal residues of human H2AFX (Histone H2A.x)

Description: H2AFX (Histone H2A.x) 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. H2AFX (Histone H2A.x) is 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.
The nucleosome is a histone octamer containing two molecules each of H2A, H2B, H3 and H4 assembled in one H3-H4 heterotetramer and two H2A-H2B heterodimers. The octamer wraps approximately 147 bp of DNA. H2AFX interacts with numerous proteins required for DNA damage signaling and repair when phosphorylated on Ser-140. These include MDC1, TP53BP1, BRCA1 and the MRN complex, composed of MRE11A, RAD50, and NBN. Interaction with the MRN complex is mediated at least in part by NBN. Also interacts with DHX9/NDHII when phosphorylated on Ser-140. Phosphorylation at Tyr-143 (H2AXY142ph) by BAZ1B/WSTF determines the relative recruitment of either DNA repair or pro-apoptotic factors. Phosphorylation at Tyr-143 (H2AXY142ph) favors the recruitment of APBB1/FE65 and pro-apoptosis factors such as MAPK8/JNK1, triggering apoptosis. In contrast, dephosphorylation of Tyr-143 by EYA proteins (EYA1, EYA2, EYA3 or EYA4) favors the recruitment of MDC1-containing DNA repair complexes to the tail of phosphorylated Ser-140 (H2AX139ph).

Reference:
Rogakou,E.P., et al, J. Biol. Chem. 273 (10), 5858-5868 (1998)
Rogakou,E.P., et al, J. Cell Biol. 146 (5), 905-916 (1999)
Paull,T.T., et al, Curr. Biol. 10 (15), 886-895 (2000)
Ward,I.M. and Chen,J., J. Biol. Chem. 276 (51), 47759-47762 (2001)
Kobayashi,J., et al, Curr. Biol. 12 (21), 1846-1851 (2002)
Ward,I.M., et al, J. Biol. Chem. 278 (22), 19579-19582 (2003)
Furuta,T., etal, J. Biol. Chem. 278 (22), 20303-20312 (2003)
Stewart,G.S., et al, Nature 421 (6926), 961-966 (2003)
Stiff,T., et al, Cancer Res. 64 (7), 2390-2396 (2004)
Lukas,C., et al, EMBO J. 23 (13), 2674-2683 (2004)

For Research Use Only

Contact: Antagene, Inc. | Tel: 1 (866) 964-2589 | Fax: 1 (888) 225-1868 | Email: Info@antageneinc.com