Histone H2AX Monoclonal Antibody (pSer139) [9F3]

(Cat. No. A-0466)

Background
Histone H2A.X is a variant histone of H2A and is necessary for DNA repair and checkpoint-mediated cell cycle arrest that occurs after double-stranded DNA breaks. DNA damage from ionizing radiation, radiomimetic agents, or UV-light causes rapid phosphorylation of H2A.X at Ser139 via PI3K-like kinases. Very soon after DNA damage occurs, H2A.X is phosphorylated at Ser139 at sites of DNA damage. This is required for the recruitment of DNA-damage response proteins, such as MDC1, NBS1, RAD50, MRE11, 53BP1, and BRCA1. H2A.X is also involved in the fragmentation of DNA during apoptosis and, in response to apoptotic signals, is phosphorylated by various kinases. H2A.X can be phosphorylated at Ser139 by DNA-PK, c-Jun N-terminal Kinase (JNK1), and p38 MAPK. In undamaged cells, H2A.X is phosphorylated on Tyr142 by WSTF (Williams-Beuren syndrome transcription factor). Tyr142 is dephosphorylated at DNA damage sites by EYA1 and EYA3 phosphatases. This happens as soon as DNA damage and phosphorylation of Ser139 occur. Phosphorylation at Ser139 helps recruit DNA repair and apoptotic proteins to DNA damage sites, and phosphorylation at Tyr142 determines which set of proteins are recruited. H2A.X phosphorylation at Tyr142 inhibits the enlistment of DNA repair proteins and endorses binding of pro-apoptotic factors such as JNK1. Fibroblasts studied in mouse embryos that only express mutant H2A.X Y142F display diminished apoptotic response to ionizing radiation. This suggests that the balance of H2A.X Tyr142 phosphorylation and dephosphorylation acts as a switch mechanism in determining cell fate following DNA damage.

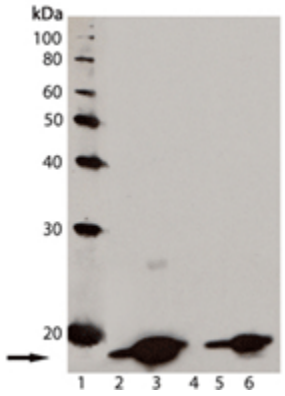

Fig. 1. *Western blot analysis of Histone H2AX Monoclonal Antibody (pSer139) [9F3]. Lane 1: MW marker; Lane 2: Jurkat cell lysate; Lane 3: Jurkat cell lysate treated with staurosporine; Lane 4: 3T3 cell lysate; Lane 5: CHO-K1 cell lysate; Lane 6: Rat-2 cell lysate.*

Description
Mouse monoclonal antibody to Histone H2AX (pSer139), Clone 9F3

Formulation
Liquid. In PBS, pH 7.2, containing 50% glycerol and 0.09% sodium azide.

Immunogen
Synthetic peptide corresponding to a portion of human Histone H2AX phosphorylated at Ser139.

Specificity
Human, Mouse, Rat, Bovine, Dog, Chicken, Guinea pig, Hamster, Monkey, Pig, Rabbit, Sheep

Isotype
IgG

Purification
Protein G- affinity purified.

Storage
Store at -20°C. Avoid multiple freeze/thaw cycles.

Application
WB (1:1000, ECL)

Ordering Information

Product	Size	Cat. No.
Histone H2AX Monoclonal Antibody (pSer139) [9F3]	200 µg	A-0466-200

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