

Store at
-20°C

#99891

Homologous Recombination (HR) DNA Repair Antibody Sampler Kit



Support: +1-978-867-2388 (U.S.)
www.cellsignal.com/support

Orders: 877-616-2355 (U.S.)
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For Research Use Only. Not For Use In Diagnostic Procedures.

Products Included	Product #	Quantity	Mol. Wt.	Isotype/Source
ATM (D2E2) Rabbit mAb	2873	20 µl	350 kDa	Rabbit IgG
Phospho-ATM (Ser1981) (D25E5) Rabbit mAb	13050	20 µl	350 kDa	Rabbit IgG
Rad51 (D4B10) Rabbit mAb	8875	20 µl	37 kDa	Rabbit IgG
BRCA1 (A8X9F) Rabbit mAb	14823	20 µl	220 kDa	Rabbit IgG
BRCA2 (D9S6V) Rabbit mAb	10741	20 µl	380 kDa	Rabbit IgG
Rad54 (D4W3Z) Rabbit mAb	15016	20 µl	84 kDa	Rabbit IgG
p95/NBS1 (D6J5I) Rabbit mAb	14956	20 µl	95 kDa	Rabbit IgG
Phospho-p95/NBS1 (Ser343) Antibody	3001	20 µl	95 kDa	Rabbit
CtIP (D76F7) Rabbit mAb	9201	20 µl	110 kDa	Rabbit IgG
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

See www.cellsignal.com for individual component applications, species cross-reactivity, dilutions and additional application protocols.

Description: The Homologous Recombination (HR) DNA Repair Antibody Sampler Kit provides an economical means of detecting proteins involved in HR DNA repair. The kit includes enough antibodies to perform two western blot experiments with each primary antibody.

Background: DNA double-strand breaks (DSBs) are potentially hazardous lesions that can be induced by ionizing radiation (IR), radiomimetic chemicals, or DNA replication inhibitors. Cells recognize and repair DSBs via two distinct but partly overlapping signaling pathways, non-homologous end joining (NHEJ) and homologous recombination (HR). DSBs that arise during S or G2 phase are repaired via HR, using the replicated sister chromatid as a repair template (1). Activation of ATM by autophosphorylation on Ser1981 occurs in response to exposed DNA DSBs. ATM regulates various responses to DNA damage, including regulation of HR factors (2). Rad51 recombinase polymerizes and forms a filament along single-stranded DNA, mediating HR with the help of auxiliary proteins, including Rad54 and BRCA2 (3). BRCA2 has been shown to be required for localization of Rad51 to sites of DSBs, and cells lacking BRCA1 and BRCA2 cannot repair DSBs through HR (4). NBS1 is critical for HR, and requires CDK-dependent association with CtIP and subsequent phosphorylation by ATM at Ser278 and Ser343 (5-6).

Specificity/Sensitivity: Each antibody in the Homologous Recombination (HR) DNA Repair Antibody Sampler Kit detects endogenous levels of its target protein. Phospho-ATM (Ser1981) (D25E5) Rabbit mAb recognizes endogenous levels of ATM protein only when phosphorylated at Ser1981. Phospho-p95/NBS1 (Ser343) Antibody detects endogenous levels of p95/NBS1 protein only when phosphorylated at Ser343.

Source/Purification: Monoclonal antibodies are produced by immunizing animals with recombinant human ATM, Rad51, BRCA1 and BRCA2, or synthetic peptides corresponding to residues surrounding Gly246 of human Rad54, Ala740 of human p95/NBS1, or residues near the carboxy terminus of human CtIP protein. Phosphorylation-specific monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ser1981 of human ATM. Phosphorylation-specific polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to Ser343 of human p95/NBS1 protein. Polyclonal antibodies are purified by peptide affinity chromatography.

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

For product specific protocols and a complete listing of recommended companion products please see the product web page at www.cellsignal.com.

Background References:

- (1) Hartlerode, A.J. and Scully, R. (2009) *Biochem J* 423, 157-68.
- (2) Lee, J.H. and Paull, T.T. (2007) *Oncogene* 26, 7741-8.
- (3) Sung, P. et al. (2003) *J Biol Chem* 278, 42729-32.
- (4) Tutt, A. and Ashworth, A. (2002) *Trends Mol Med* 8, 571-6.
- (5) Wang, H. et al. (2013) *PLoS Genet* 9, e1003277.
- (6) Wen, J. et al. (2013) *Oncogene* 32, 4448-56.

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Applications: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide **Species Cross-Reactivity:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected **Species enclosed in parentheses are predicted to react based on 100% homology.**