

Store at
-20°C

#76696

Non-Homologous End Joining (NHEJ) DNA Repair Antibody Sampler Kit



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

Orders: 877-616-2355 (U.S.)
orders@cellsignal.com

New 04/20

For Research Use Only. Not For Use In Diagnostic Procedures.

Products Included	Product #	Quantity	Mol. Wt.	Isotype/Source
DNA-PKcs (E6U3A) Rabbit mAb	38168	20 µl	450 kDa	Rabbit IgG
Phospho-DNA-PKcs (Ser2056) (E9J4G) Rabbit mAb	68716	20 µl	450 kDa	Rabbit IgG
Ku70 (D10A7) Rabbit mAb	4588	20 µl	70 kDa	Rabbit IgG
Ku80 (C48E7) Rabbit mAb	2180	20 µl	86 kDa	Rabbit IgG
DNA Ligase IV (D5N5N) Rabbit mAb	14649	20 µl	100 kDa	Rabbit IgG
XLF Antibody	2854	20 µl	39 kDa	Rabbit
Artemis (D7O8V) Rabbit mAb	13381	20 µl	90 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 Non-Homologous End Joining (NHEJ) DNA Repair Antibody Sampler Kit provides an economical means of detecting proteins involved in NHEJ 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). DNA repair via the HR pathway is restricted to S and G2 phases of the cell cycle, while NHEJ can occur during any phase. NHEJ machinery is also utilized in V(D)J recombination, a process that generates diversity in immunoglobulin and T cell receptor genes. Defects in both pathways have been associated with human disease, including cancer (1).

DNA repair through the NHEJ pathway involves a core group of proteins that includes the Ku heterodimer (Ku70/Ku80), DNA-PKcs, DNA ligase IV, XRCC4, and XLF. XLF interacts with XRCC4 and promotes the ligation of DNA strands by DNA ligase IV and the ligase cofactor XRCC4. The ATP-dependent ligation of free DNA ends is the final step in the NHEJ repair pathway (2). DNA ligase IV and the endonuclease artemis suppress homologous recombination and promote NHEJ (3).

Specificity/Sensitivity: Each antibody in the Non-Homologous End Joining (NHEJ) DNA Repair Antibody Sampler Kit detects endogenous levels of its target protein. Phospho-DNA-PKcs (Ser2056) (E9J4G) Rabbit mAb recognizes endogenous levels of DNA-PKcs protein only when phosphorylated at Ser2056.

Source/Purification: Monoclonal antibodies are produced by immunizing animals with synthetic peptides corresponding to residues surrounding Pro608 of human DNA-PKcs protein, Val294 of mouse Ku70 protein, the carboxy terminus of human Ku80 protein, Leu771 of human DNA ligase IV protein, and Pro367 of human artemis protein. Phosphorylation-specific monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ser2056 of human DNA-PKcs protein. Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to amino acids near the carboxy terminus of human XLF 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) Tsai, C.J. et al. (2007) *Proc Natl Acad Sci U S A* 104, 7851-6.
- (3) Kurosawa, A. et al. (2013) *PLoS One* 8, e72253.

U.S. Patent No. 7,429,487, foreign equivalents, and child patents deriving therefrom.

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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.**