Revision 1

Store at -20C

#76696

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

1 Kit (7 x 20 microliters)

Cell Signaling TECHNOLOGY®

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

Support: 877-678-TECH (8324)

Web: info@cellsignal.com
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

For Research Use Only. Not for Use in Diagnostic Procedures.

Product Includes	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

Please visit cellsignal.com for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

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.

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.*

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).

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.

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