Store at -20°C

#73211

Cas9 and Associated Proteins Antibody Sampler Kit

Cell Signaling TECHNOLOGY®

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

Products Included	Product #	Quantity	Mol. Wt.	Isotype/Source
Cas9 (*S. pyogenes*) (D8Y4K) Rabbit mAb	65832	20 µl	150 kDa	Rabbit IgG
Cas9 (*S. aureus*) (E4G3U) Rabbit mAb	51610	20 µl	124 kDa	Rabbit IgG
AsCpf1 (Strain *BV3L6*) (E1U7C) Rabbit mAb	19984	20 µl	151 kDa	Rabbit IgG
FnCpf1 (Strain *U112*) (E7I2B) Rabbit mAb	90111	20 µl	152 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 Cas9 and Associated Proteins Antibody Sampler Kit provides an economical means of detecting Cas9 and Cas9-related family members. The kit includes enough antibody to perform two western blot experiments with each primary antibody.

Background: CRISPR-Cas (clustered regularly interspaced short palindromic repeats and CRISPR-associated proteins) are RNA-guided nuclease effectors that are utilized for precise genome editing in mammalian systems (1). Class 2 CRISPR systems rely on single-component effector proteins to mediate DNA interference (2). Several Class 2 CRISPR effector proteins, derived from specific bacterial species, are used for genome editing. Cas9 family of proteins, derived from *S. pyogenes* and *S. aureus*, are some of the most well characterized and widely used editing effector enzymes. Additional members of the Class2 CRISPR system include Cpf1 (CRISPR from *Prevotella* and *Francisella*) endonucleases (3). Cpf1 endonucleases, compared to Cas9 systems, have several unique features that increase the utility of CRISPR-based genome editing techniques: 1) Cpf1-mediated cleavage relies on a single and short CRISPR RNA (crRNA) without the requirement of a trans-activating crRNA (tracrRNA), 2) Cpf1 utilizes T-Rich protospacer adjacent motif (PAM) sequences rather than a G-Rich PAM, and 3) Cpf1 generates a staggered, rather than a blunt-ended, DNA double-stranded break (3). These features broaden the utility of using CRISPR-Cas systems for specific gene regulation and therapeutic applications. Several Cpf1 bacterial orthologs, e.g. *Francisella novicida U112* and *Acidaminococcus sp. BV3L6*, have been characterized for CRISPR-mediated mammalian genome editing (3, 4).

Specificity/Sensitivity: Each antibody in the Cas9 and Associated Proteins Antibody Sampler Kit recognizes transfected levels of its target protein. Antibodies are specific for the indicated endonuclease target and cross-reactivity with other endonucleases is not observed.

Source/Purification: Monoclonal antibodies are produced by immunizing animals with synthetic peptides corresponding to residues surrounding Val16 of Cas9 (*S. pyogenes*), Val905 of Cas9 (*S. aureus*), Leu822 of *Acidaminococcus sp. Cpf1* (Strain *BV3L6*), and Ile841 of Cpf1 from *Francisella tularensis subsp. novicida* (Strain *U112*).

Storage: Monoclonals are 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 antibodies.*

Background References:

(1) Cong, L. et al. (2013) *Science* 339, 819-23.

(2) Horvath, P. and Barrangou, R. (2010) *Science* 327, 167-70.

(3) Zetsche, B. et al. (2015) *Cell* 163, 759-71.

(4) Zhang, Y. et al. (2017) *Sci Adv* 3, e1602814.

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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.