

Product Information

Anti-CRISPR/CAS9-FITC antibody, Mouse monoclonal
clone 7A9-3A3, purified from hybridoma cell culture

Product Number **SAB4200735**

Product Description

Anti-CRISPR/CAS9-FITC antibody, Mouse monoclonal (mouse IgG1 isotype) is derived from the hybridoma 7A9-3A3 produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a recombinant protein within the N-terminal region of *Streptococcus pyogenes* Cas9. The isotype is determined by ELISA using Mouse Monoclonal Antibody Isotyping Reagents, Product Number ISO2. The antibody is purified from culture supernatant of hybridoma cells. The purified antibody is conjugated to fluorescein isothiocyanate (FITC).

Monoclonal Anti-CRISPR/CAS9-FITC recognizes the CAS9 protein in CAS9 construct overexpression systems. The antibody successfully recognizes mutant Cas9 variants, including nickase Cas9 and dead Cas9 (dCas9) and does not cross react with FnCas9 from *Francisella novicida* bacteria and Cpf1 proteins from *Acidaminococcus sp.* (strain BV3L6) and *Lachnospiraceae bacterium* ND2006. The antibody may be used in various immunochemical techniques including Immunofluorescence.

Genetic and epigenetic control of cells with genome engineering technologies enable a broad range of applications including animal models, genetically modified products, food safety, bio-fuel, gene therapy, and drug development.¹

CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) belongs to the type II CRISPR/CAS9 system. It is part of an adaptive immune system of the *Streptococcus pyogenes* SF370, protecting from pathogens' target genes by cleaving the foreign DNA in a sequence-dependent manner.²

The type II CRISPR/Cas system has been adapted to expression in eukaryotic cells. The Cas9 endonuclease can be engineered with a single gRNA (guide RNA), directing a DNA double-strand break (DSB) at a desired genomic location. As a result, the cell activates endogenous DNA repair processes, either non-homologous end joining (NHEJ) or homology-directed repair (HDR).

In comparison to other genome-editing technologies such as designer zinc fingers (ZFs), transcription activator-like effectors (TALEs) and homing meganucleases, the CRISPR/CAS9 system is scalable, affordable, and easy to engineer.¹⁻⁸

Therefore, the anti-CRISPR/CAS9-FITC conjugated antibody can be a useful tool for detecting CRISPR/CAS9 positively transfected cells, revealing DSB sites in their genome.

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline pH 7.4, containing 1% bovine serum albumin and 15 mM sodium azide as a preservative.

Antibody Concentration: ~1.0 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2–8 °C, protected from light for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation. Discard working dilution samples if not used within 12 hours. Protect from prolonged exposure to light.

Product Profile

Immunofluorescence: a working dilution of 1:200–1:400 is recommended using human HEK-293T cells over-expressing CAS9 protein.

Note: To obtain best results in different techniques and preparations, we recommend determining optimal working concentration by titration test.

References

1. Hsu, P.D. et al., *Cell*, **157**, 1262-78 (2014).
2. Bortesi, L., and Fischer, R., *Biotechnol. Adv.*, **33**, 41-52 (2015).
3. Cong, L. et al., *Science*, **339**, 819-23 (2013).
4. Jinek, M. et al., *Science*, **337**, 816-21 (2012).
5. Jinek, M. et al., *Elife*, **2**, e00471 (2013).
6. Deltcheva, E. et al. *Nature*, **471**, 602-7 (2011).
7. Marraffini, L.A., and Sontheimer, E.J., *Nature*, **463**, 568-71 (2010).
8. Wang, H. et al. *Cell*, **153**, 910-18 (2013).

DS,SG,DR,LV,OKF,PHC,MAM 07/18-1