

## Anti-SaCas9 mAb

<b>CODE No.</b>	D366-3
<b>CLONALITY</b>	Monoclonal
<b>CLONE</b>	11E7-9
<b>ISOTYPE</b>	Mouse IgG2a $\kappa$
<b>QUANTITY</b>	100 $\mu$ L, 1 mg/mL
<b>SOURCE</b>	Purified IgG from hybridoma supernatant
<b>IMMUNOGEN</b>	Recombinant protein, corresponding to amino acids 1-462 of <i>Staphylococcus aureus</i> Cas9
<b>REACTIVITY</b>	This clone specifically reacts with <i>Staphylococcus aureus</i> Cas9 (SaCas9) and does not cross-reacts with <i>Streptococcus pyogenes</i> Cas9 (SpCas9).
<b>FORMULATION</b>	PBS containing 50% Glycerol (pH 7.2). No preservative is contained.
<b>STORAGE</b>	This antibody solution is stable for one year from the date of purchase when stored at -20°C.

### APPLICATIONS-CONFIRMED

<u>Western blotting</u>	0.5 $\mu$ g/mL
<u>Immunoprecipitation</u>	1 $\mu$ g/sample
<u>Immunocytochemistry</u>	1 $\mu$ g/mL

### SPECIES CROSS REACTIVITY on WB

Species	Human	Mouse	Rat	Staphylococcus aureus
Cell	Not tested	Not tested	Not tested	Transfectant
Reactivity				+

**REFERENCE** 1) Ran, F. A., *et al.*, *Nature* **520**, 186-191 (2015)

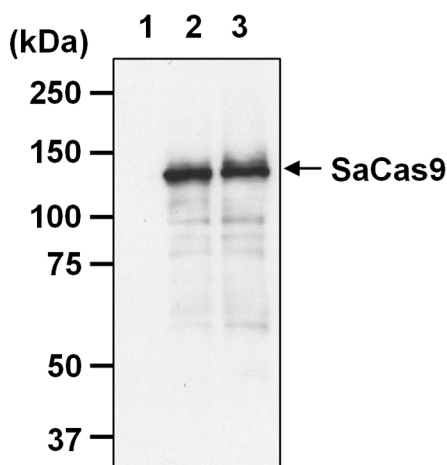
For more information, please visit our website at <https://ruo.mbl.co.jp/>.

The descriptions of the following protocols are examples. Each user should determine the appropriate condition.

### **SDS-PAGE & Western blotting**

- 1) Wash the cells 3 times with PBS and suspends them in 1 mL of Laemmli's sample buffer, then sonicate briefly (up to 10 sec.).
- 2) Boil the samples for 3 min. and centrifuge. Load 10  $\mu$ L of the sample per lane in a 1-mm-thick SDS-polyacrylamide gel (7.5% acrylamide) for electrophoresis.
- 3) Blot the protein to a polyvinylidene difluoride (PVDF) membrane at 1 mA/cm<sup>2</sup> for 1 hr. in a semi-dry transfer system (Transfer Buffer: 25 mM Tris, 190 mM glycine, 20% methanol). See the manufacturer's manual for precise transfer procedure.
- 4) To reduce nonspecific binding, soak the membrane in 10% skimmed milk (in PBS) overnight at 4°C.
- 5) Incubate the membrane with primary antibody diluted with 1% skimmed milk (in PBS) as suggested in the **APPLICATIONS** for 1 hr. at room temperature. (The concentration of antibody will depend on the conditions.)
- 6) Wash the membrane with PBS-T [0.05% Tween-20 in PBS] (3 times for 5 min.).
- 7) Incubate the membrane with 1:10,000 of Anti-IgG (Mouse) pAb-HRP (MBL, code no. 330) diluted with 1% skimmed milk (in PBS) for 1 hr. at room temperature.
- 8) Wash the membrane with PBS-T (3 times for 5 min.).
- 9) Wipe excess buffer on the membrane, and then incubate it with appropriate chemiluminescence reagent for 1 min. Remove extra reagent from the membrane by dabbing with paper towel, and seal it in plastic wrap.
- 10) Expose to an X-ray film for 1 min. in a dark room. Develop the film as usual. The condition for exposure and development may vary.

(Positive control for Western blotting; Transfectant)



### ***Western blotting analysis of SaCas9***

Lane 1: 293T

Lane 2: SaCas9-DN-HA/293T

Lane 3: SaCas9-WT-HA/293T

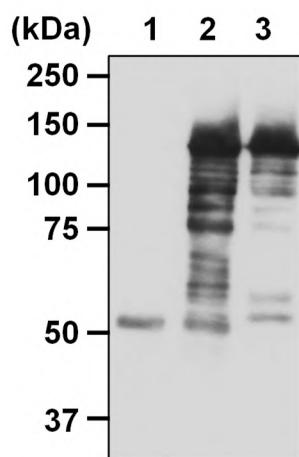
Immunoblotted with Anti-SaCas9 mAb (MBL, code no. D366-3)

Samples were kindly provided by Dr. Haruhiko Siomi.  
(Department of Molecular Biology, Keio University School of Medicine)

## **Immunoprecipitation**

- 1) Wash  $1 \times 10^7$  cells 3 times with PBS and suspend them with 2 mL of Extraction buffer [50 mM Tris-HCl (pH 7.4), 150 mM NaCl, 0.05% NP-40] containing appropriate protease inhibitors, then sonicate briefly (up to 15 sec.).
- 2) Incubate the tube for 15 min. on ice.
- 3) Centrifuge the tube at 12,000 x g for 5 min. at 4°C and transfer the supernatant to another tube.
- 4) Mix 20  $\mu$ L of 50% protein A agarose beads slurry resuspended in 200  $\mu$ L of IP buffer [10 mM Tris-HCl (pH 8.0), 500 mM NaCl, 0.1% NP-40] with primary antibody as suggested in the **APPLICATIONS**. Incubate with gentle agitation for 1 hr. at room temperature.
- 5) Centrifuge the tube at 2,500 x g for 10 seconds and discard the supernatant.
- 6) Resuspend the beads with 1 mL of IP buffer.
- 7) Centrifuge the tube at 2,500 x g for 10 seconds and discard the supernatant.
- 8) Repeat steps 6)-7) twice.
- 9) Add 200  $\mu$ L of cell lysate (prepared sample from step 3) into the tube. Incubate with gentle agitation for 1 hr. at room temperature.
- 10) Centrifuge the tube at 2,500 x g for 10 seconds and discard the supernatant.
- 11) Resuspend the beads with 1 mL of Extraction buffer.
- 12) Centrifuge the tube at 2,500 x g for 10 seconds and discard the supernatant.
- 13) Repeat steps 11)-12) 5 times.
- 14) Resuspend the beads in 20  $\mu$ L of Laemmli's sample buffer, boil for 3 min. and centrifuge.
- 15) Load 10  $\mu$ L per lane in a 1-mm-thick SDS-polyacrylamide gel (7.5% acrylamide) for electrophoresis.
- 16) Blot the protein to a polyvinylidene difluoride (PVDF) membrane at 1 mA/cm<sup>2</sup> for 1 hr. in a semi-dry transfer system (Transfer Buffer: 25 mM Tris, 190 mM glycine, 20% methanol). See the manufacturer's manual for precise transfer procedure.
- 17) To reduce nonspecific binding, soak the membrane in 10% skimmed milk (in PBS) overnight at 4°C.
- 18) Incubate the membrane with primary antibody diluted with 1% skimmed milk (in PBS) as suggested in the **APPLICATIONS** for 1 hr. at room temperature. (The concentration of antibody will depend on the conditions.)
- 19) Wash the membrane with PBS-T [0.05% Tween-20 in PBS] (3 times for 5 min.).
- 20) Incubate the membrane with 1:10,000 of Anti-IgG (Mouse) pAb-HRP (MBL, code no. 330) diluted with 1% skimmed milk (in PBS) for 1 hr. at room temperature.
- 21) Wash the membrane with PBS-T (3 times for 5 min.).
- 22) Wipe excess buffer on the membrane, and then incubate it with appropriate chemiluminescence reagent for 1 min. Remove extra reagent from the membrane by dabbing with paper towel, and seal it in plastic wrap.
- 23) Expose to an X-ray film for 1 min. in a dark room. Develop the film as usual. The condition for exposure and development may vary.

(Positive control for Immunoprecipitation; Transfectant)



← SaCas9

### ***Immunoprecipitation of SaCas9 from 293T transfectant***

Sample: SaCas9-WT-HA/293T

Lane 1: Mouse IgG2a (isotype control) (MBL, code no. M076-3)

Lane 2: Anti-SaCas9 mAb (MBL, code no. D366-3)

Lane 3: Anti-HA-tag mAb (MBL, code no. M180-3)

Immunoblotted with Anti-SaCas9 mAb (MBL, code no. D366-3)

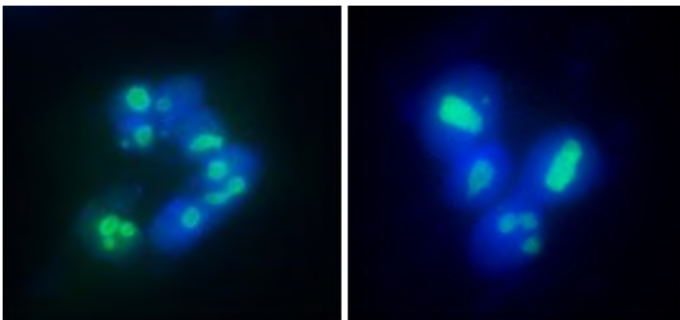
Sample was kindly provided by Dr. Haruhiko Siomi.

(Department of Molecular Biology, Keio University School of Medicine)

### **Immunocytochemistry**

- 1) Spread the cells on a glass slide, then incubate in a CO<sub>2</sub> incubator overnight.
- 2) Remove the culture supernatant by careful aspiration.
- 3) Wash the slide twice with PBS.
- 4) Fix the cells with 4% paraformaldehyde/PBS for 10 min. at room temperature (20~25°C).
- 5) Wash the slide twice with PBS.
- 6) Permeabilize the cells with 0.1% Triton X-100/PBS for 10 min. at room temperature.
- 7) Wash the slide twice with PBS.
- 8) Tip off PBS and add the primary antibody diluted with PBS as suggested in the **APPLICATIONS** onto the cells. Incubate for 1 hr. at room temperature. (Optimization of antibody concentration or incubation condition is recommended if necessary.)
- 9) Wash the slide 3 times with PBS.
- 10) Add 200 µL of 1:500 Alexa Fluor® 488 Goat Anti-mouse IgG (Thermo Fisher Scientific, code no. A-11001) diluted with PBS onto the cells. Incubate for 30 min. at room temperature. Keep out light by aluminum foil.
- 11) Wash the slide 3 times with PBS.
- 12) Wipe excess liquid from the slide but take care not to touch the cells. Never leave the cells to dry.
- 13) Counterstain with DAPI for 5 min. at room temperature.
- 14) Wash the slide once with PBS.
- 15) Promptly add mounting medium onto the slide, then put a cover slip on it.

(Positive control for Immunocytochemistry; Transfectant)



### ***Immunocytochemical detection of SaCas9 in HeLa transfectants***

Right: SaCas9-WT-HA/HeLa

Left: SaCas9-DN-HA/HeLa

Green: Anti-SaCas9 mAb (MBL, code no. D366-3)

Blue: DAPI

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