



Anti-Rad51 (human) antibody, purified IgY

Immunized animal; Chicken

Polyclonal antibodies, purified IgY fraction

BACKGROUND

Human Rad51 protein is a functional and structural homolog of *E. coli* RecA protein, which plays a major role in genetic recombination and recombination repair by mediating strand exchange reaction between homologous DNA strands (1). Rad51 functionally and physically interacts with its paralogs, Dmc1, Rad51B, Rad51C, Rad51D, Xrcc2 and Xrcc3, and also with Rad52 in recombination processes. It also interacts with oncogenes and tumor suppressors such as BRACA1, BRACA2, and P53 for the maintenance of genome stability (1). The product was purified (Fig.1) from the eggs laid by immunized chicken with full-size recombinant Rap51 protein expressed in *E. coli* and purified.

Using this antibody, Rad51 protein (37 kD) in the crude extract was detected by Western blotting (Fig 2) at 40 kD position and Rad51 foci formation induced by stalled replication and DNA-damage (2) was detected by indirect immunofluorescence method. GFP-tagging of Rad51 protein at either N- or C- terminus inactivates the function of Rad51, and therefore, it cannot be used for the study of foci formation instead of the antibody. IgY antibody in chicken serum shows significantly less backgrounds than IgG antibody of mammals in immuno-reactions

Applications

- 1) Western blotting (1,000~5,000 fold dilution)
- 2) Immunoprecipitation
- 3) Detection of foci formation by indirect immunofluorescence method

Specification

Reactivity: React with human and mouse Rad51

Form: 1 mg/ml in 100 mM NaCl, 20 mM phosphate buffer (pH 7.4),
50% glycerol

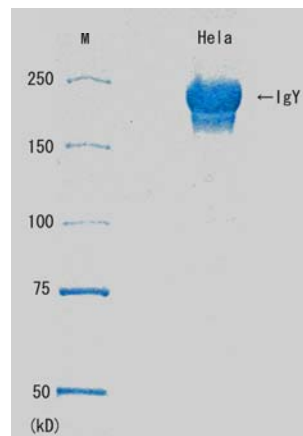
Size: 100 ug

Storage: -20°C

Data Link UniProtKB/Swiss-Prot [Q06609](#) (RAD51_HUMAN)

References

1. Friedberg EC *et al* *DNA Repair and Mutagenesis* 2nd ed., ASM Press (2006)
2. Tashiro S *et al* "Rad51 accumulation at sites of DNA damage and in post-replicative chromatin" *J Cell Biol* **150**: 283-291 (2000) PMID: [10908572](#)



**Fig.1 SDS-PAGE (without Et-SH)
analysis of the purified IgY**



Anti-Rad51 (human) antibody, purified IgY

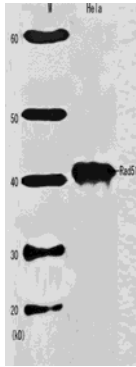


Fig. 2 Western blot analysis of Rad51 in HeLa cell extract

Anti-Rad51 antibody: at 1/100, at 1/1,000 dilution

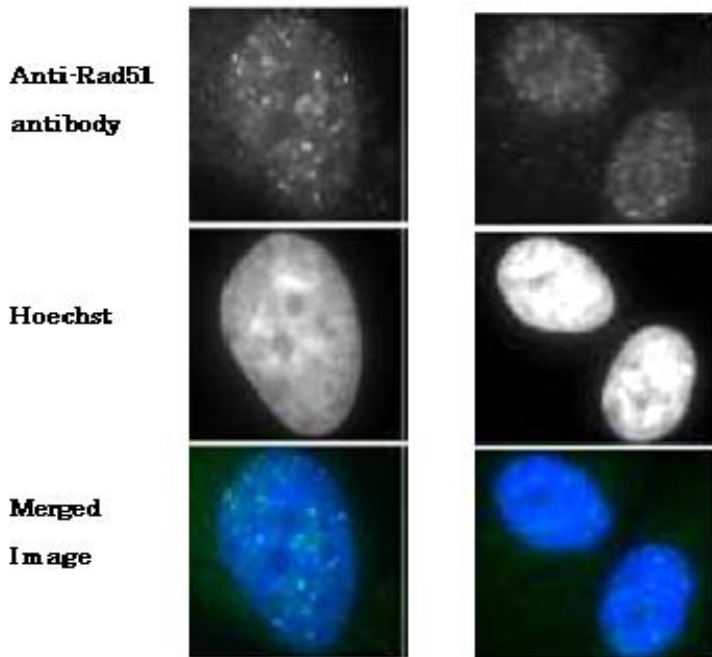


Fig. 3. Detection of Rad51 protein foci formation with the anti-Rad51 antibody in X-ray irradiated human fibroblast cells, GM0637.

- 1) The cells were irradiated with X-ray at 2 Gy, grown for 1 hr, fixed with 4% paraformaldehyde for 10 min and washed with PBS three times.
- 2) Permeabilized by treatment with 0.5% Triton for 5 min and washed with PBS three times.
- 3) Incubated with the anti-Rad51 antibody at 1/100 dilution (left panel) or 1/1,000 dilution (right panel) for 30 min at 37°C and washed with PBS three times.
- 4) As the second antibody, Alexa488-conjugated anti-chicken IgY antibody was used at 1/5,000 dilution.
- 5) DNA was stained with Hoechst for 1 min and mounted.

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