

Rad51 Protein (human), functional

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 oncogene proteins and tumor suppressors such as BRCA1, BRCA2, and P53 for the maintenance of genome stability (1).

Rad51 protein was highly purified from *E. coli* over-expressing human Rad51 protein as a recombinant protein (Fig. 1). Since the tag was removed from the recombinant protein (it still contains Gly-Ser-His at the N-terminal), it has been shown to retain nuclear filament forming and strand-exchange activity as well as interaction with Rad52 (2). This product was confirmed to possess single strand DNA stimulated ATPase activity.

Applications

- 1) Studies on homologous recombination in mammals including human
- 2) Studies on the interaction of Rad51 protein with various proteins
- 3) To be used as a standard for Western blotting

Specification

Purity: > 95% as judged from SDS-PAGE analysis (Fig.1)

Form: 1.0 mg/ml in 20 mM Tris-HCl pH8.0, 100 mM KCl, 1 mM DTT, 0.5 mM EDTA, 10% glycerol

Size: 100 ug

Storage: Sent at 4°C or with dry-ice. Store at -80°C for long period

Data Link UniProtKB/Swiss-Prot [Q06609](https://www.uniprot.org/entry/Q06609) (RAD51_HUMAN)

References: This product was used in references 2 and 3.

1. Friedberg EC *et al* *DNA Repair and Mutagenesis* 2nd ed., ASM Press (2006)
2. Kurumizaka H *et al* "Human Rad51 amino acid residues required for Rad52 binding." *J Mol Biol* 291: 537-548 (1999) PMID: [10448035](https://pubmed.ncbi.nlm.nih.gov/10448035/)
3. Murayama Y *et al* "Formation and branch migration of Holliday junctions mediated by eukaryotic recombinases." *Nature* 451:1018-1021 (2008) PMID: [18256600](https://pubmed.ncbi.nlm.nih.gov/18256600/)

Related Products:

[70-001EX](#) Anti-Rad51 (human) rabbit serum, [70-003EX](#) Anti-Rad51 (human) chicken serum,
[70-005EX](#) anti-Rad51 (human) antibody IgY, [70-009EX](#) Anti-Rad51 (human) antibody (affinity purified IgY),
[01-001EX](#) *E. coli* RecA Protein, [10-003EX](#) Rad52 (human) Protein, [61-003EX](#) Anti-RecA rabbit serum,
[62-101EX](#) Ant-Rad51 (*S.cerevisiae*) rabbit serum, [63-001 EX](#) Anti-Rhp51 (*S.pombe*) rabbit serum

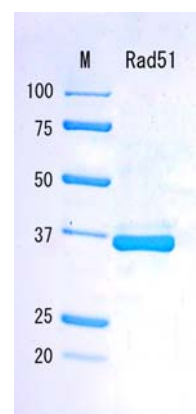


Fig.1 Analysis of purified human Rad51 protein by SDS-PAGE