

## Proliferating Cell Nuclear Antigen (PCNA), human, functional

10-151      20ug,      10-152      100ug

**Proliferating cell nuclear antigen (PCNA)** is a 36 kDa homotrimeric protein known to act as a co-factor for DNA polymerase  $\delta$ , which is responsible for leading strand DNA replication. **PCNA** was originally identified as an antigen that is expressed in the nuclei of cells during the DNA synthesis phase of the cell cycle. A cell cycle-dependent protein called cyclin was shown to be identical to **PCNA**. Crystal structure data suggests that a **PCNA** homotrimer ring can encircle and slide along the DNA double helix. Multiple proteins involved in DNA replication, DNA repair, and cell cycle control bind to **PCNA** rather than directly associating with DNA, thus facilitating fast processing of DNA. **PCNA** is a useful marker for DNA synthesis and is highly conserved among most species. Human **PCNA** was over-expressed in *E. coli* as a recombinant full-size protein without any tag and highly purified.

### Applications:

1. Research for DNA replication, recombination and repair.
2. Identification of proteins that interact with PCNA.
3. Useful for studying autoimmune diseases such as systemic lupus erythematosus.

**Form:** 1.0 mg/ml in 25 mM HEPES (pH7.9), 1 mM EDTA,  
0.01% NP40, 1 mM DTT, 2 ug/ml leupeptin, 0.1 mM PMSF,  
75 mM NaCl, 50% glycerol

**Storage:** -70°C

**Quality:** Greater than 98% purity determined by SDS-PAGE  
(CBB staining) (Fig.1)

**Activities:** Promotes DNA replication in vitro by polymerase delta.

Facilitates ATPase activity of RFC

**Data Link:** Swiss-Prot [P12004](#) (human), [P04961](#) (rat),

[P17918](#) (mouse), [Q9PTP1](#) (Zebrafish)

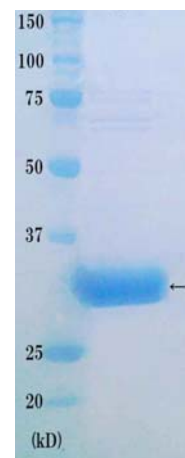


Fig.1 SDS-PAGE of PCNA

**References:** This product has been used in Ref. 2~4.

1. Friedberg EC *et al* (2006) *DNA repair and mutagenesis*, 2<sup>nd</sup> Edition, ASM Press Washington, D.C.
2. Ohta S *et al* (2002) "A proteomics approach to identify proliferating cell nuclear antigen (PCNA)-binding proteins in human cell lysates. Identification of the human CHL12/RFCs2-5 complex as a novel PCNA-binding protein." *J Biol Chem* **277**: 40362-40367 PMID: [12171929](#)
3. Iida T *et al* (2002) "PCNA clamp facilitates action of DNA cytosine methyltransferase 1 on hemimethylated DNA." *Genes Cells* **7**: 997-1007 PMID: [12354094](#)
4. Fukuda K *et al* (1995) "Structure-Function Relationship of the Eukaryotic DNA Replication Factor, Proliferating Cell Nuclear Antigen" *J Biol Chem* **270**: 22527-22534 PMID: [12171929](#)