

BRCA1

Breast/Ovary Cancer Gene 1 Product, Tumor Suppressor Protein and Transcription Factor human, recombinant, Sf9 insect cells

Cat. No.	Amount
PR-763	2 μ g

For *in vitro* use only
Quality guaranteed for 12 months
Store at -80°C

Avoid freeze / thaw cycles

Form

Liquid. Supplied in 20 mM Tris-HCl, pH 8.0, 100 mM KCl, 0.2 mM EDTA, 1 mM DTT, 20% glycerol.

Activity

1 ng is sufficient for a gel mobility shift assay in a 20 μ l reaction, 50 ng are sufficient for reconstituted transcription assay and 100 ng are sufficient for a protein-protein interaction assay.

Application

Recombinant BRCA1 can be used

- 1) for *in vitro* function studies including transcription and DNA repair
- 2) for protein-protein interaction assay
- 3) for cell growth assay.

Purity

> 95% by SDS-PAGE.

Description

The human BRCA1, the product of breast/ovary cancer gene 1, is a hyperphosphorylated protein functioning as a tumor suppressor involved in both transcription regulation and DNA repair. BRCA1 associates with RAD51 and has shown to be required for transcription-coupled repair of DNA damage as well as for the repair of chromosomal double-strand breaks. Association with a human SWI/SNF-related complex has recently suggested a potential role of BRCA1 in linking chromatin remodeling to breast cancer.

Dysfunction of BRCA sensitizes cells to the inhibition of PARP [Poly(ADP-ribose) polymerase] enzymatic activity, resulting in chromosomal instability, cell cycle arrest, and subsequent apoptosis.

The wild type BRCA1 (1-1863 residues) is expressed in baculovirus system and purified by an affinity column in combination with FPLC chromatography.

Purified protein is greater than 95% homogeneous and contains no detectable proteases, DNase, and RNase activity.

Selected References:

- Maldonado et al. (1996) A human RNA polymerase II complex associated with SRB and DNA-repair proteins. *Nature* **381**:86.
- Scully et al. (1997) BRCA1 is a component of the RNA polymerase II holoenzyme. *Proc. Natl. Acad. Sci. USA* **94**:5605.
- Sharan et al. (1997) Embryonic lethality and radiation hypersensitivity mediated by Rad51 in mice lacking Brca2. *Nature* **386**:804.
- Wang et al. (2000) BASC, a super complex of BRCA1-associated proteins involved in the recognition and repair of aberrant DNA structures. *Genes & Dev.* **14**:927.
- Bochar et al. (2000) BRCA1 is associated with a human SWI/SNF-related complex: linking chromatin remodeling to breast cancer. *Cell* **102**:257.
- Farmer et al. (2005) Targeting the DNA repair defect in BRCA mutant cells as a therapeutic strategy. *Nature*. **434**:917.
- Cheng et al. (2006) Collaboration of Werner syndrome protein and BRCA1 in cellular response to DNA interstrand cross-links. *Nucleic Acids Research.* **34**:2751.