

Recombinant BRCA1 protein

Catalog No: 31113

Expressed In: Baculovirus

Quantity: 2 µg

Concentration: 0.3 µg/µl

Source: Human

Buffer Contents: 2 µg of Recombinant BRCA1 protein in Dilution Buffer AM1 (20 mM Tris-Cl (pH 8), 20% glycerol, 100 mM KCl, 1 mM DTT and 0.2 mM EDTA).

Background: Breast cancer type 1 susceptibility (BRCA1) protein is a tumor suppressor that is expressed in breast tissue cells and other tissues where it primarily functions to sense and repair DNA damage. BRCA1 is an E3 ubiquitin-protein ligase that specifically mediates the formation of 'Lys6'-linked polyubiquitin chains and plays a central role in DNA repair by facilitating cellular responses to DNA damage. The E3 ubiquitin-protein ligase activity is required for its tumor suppressor function. BRCA1 associates with other tumor suppressors, DNA repair proteins, and signal transducers in a large complex known as the BRCA1-associated genome surveillance complex (BASC) that functions to identify double-strand DNA breaks and either repair them or destroy cells where DNA damage cannot be repaired. BRCA1 also associates with RNA pol II and histone deacetylase complexes to modulate transcription. In addition to its role in ubiquitination, DNA damage repair and transcriptional regulation, it is known to be required for normal cell cycle progression. Defects in BRCA1 are a cause of susceptibility to familial breast-ovarian cancer type 1 (BROVCA1), a condition associated with familial predisposition to cancer of the breast and ovaries, and pancreatic cancer type 4 (PNCA4).

Protein Details: The wild-type BRCA1 protein (1-1863 residues, accession number NM_007294) was expressed in a baculovirus system with an N-terminal His-Tag and purified by an affinity column in combination with FPLC chromatography. The purified recombinant protein is greater than 95% homogeneous and contains no detectable protease, DNase and RNase activity.

Application Notes: Recombinant BRCA1 is suitable for *in vitro* function studies including transcription and DNA repair, for protein-protein interaction assays and cell growth assays. 1 ng is sufficient for a gelshift assay in a 20 µl reaction volume; 50 ng is sufficient for reconstituted transcription assays and 100 ng is sufficient for protein-protein interaction studies. The molecular weight of the protein is ~205 kDa. NOTE: The presence of Poly [d(I-C)] in buffers may affect protein functionality and should be avoided.

References:

This product was used in the following publications:

Vazquez-Arreguin, K., *et al.* (2018). "BRCA1 through Its E3 Ligase Activity Regulates the Transcription Factor Oct1 and Carbohydrate Metabolism." *Mol. Cancer Res.* 16 (3):439-452. PMID: 29330289.

Storage and Guarantee: Recombinant proteins in solution are temperature sensitive and must be stored at -80°C to prevent degradation. Avoid repeated freeze/thaw cycles and keep on ice when not in storage. This product is for research use only and is not for use in diagnostic procedures. This product is guaranteed for 6 months from date of arrival.