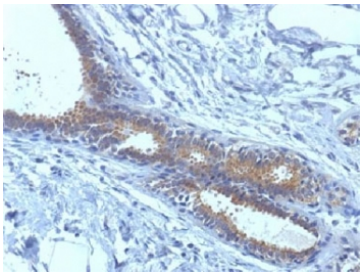
BRCA1 Antibody / Hereditary Breast Cancer DNA Repair Marker [clone BRCA1/1398] (V3240)

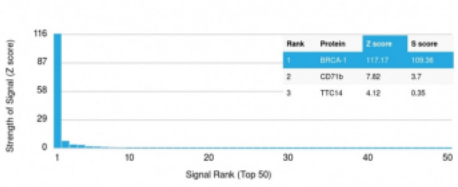
Catalog No.	Formulation	Size
V3240-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	100 ug
V3240-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	20 ug
V3240SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

Bulk quote request

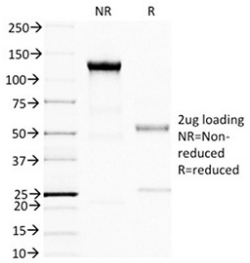
Availability	1-3 business days
Species Reactivity	Human
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG1, kappa
Clone Name	BRCA1/1398
Purity	Protein G affinity chromatography
UniProt	P38398
Localization	Nuclear, cytoplasmic
Applications	Immunohistochemistry (FFPE): 1-2ug/ml for 60 min at RT
Limitations	This BRCA1 Antibody / Hereditary Breast Cancer DNA Repair Marker is available for research use only.



BRCA1 Antibody Breast Carcinoma IHC. Immunohistochemistry analysis of FFPE human breast carcinoma tissue using BRCA1 antibody clone BRCA1/1398. Tumor epithelial cells demonstrate predominantly nuclear HRP-DAB brown staining consistent with the chromatin-associated localization of BRCA1 in hereditary breast cancer-associated DNA repair, homologous recombination signaling, and genomic stability maintenance pathways, while surrounding stromal regions show comparatively lower signal intensity. Nuclei are counterstained blue. Heat-induced epitope retrieval was performed by boiling tissue sections in Tris-EDTA buffer, pH9.



BRCA1 Antibody Protein Array Validation. Analysis of a HuProt protein microarray containing more than 19,000 full-length human proteins using BRCA1 antibody clone BRCA1/1398. The antibody demonstrates highly selective recognition of BRCA1 with a Z-score of 117.17 and an S-score of 109.36, supporting exceptionally strong target specificity for this hereditary breast cancer-associated DNA repair protein relative to other proteins represented on the array. CD71b and TTC14 were identified as substantially lower-ranking signals. Z-scores represent signal intensity above array background in standard deviation units, while S-scores reflect the specificity gap between the top-ranked target and subsequent proteins. An S-score greater than 2.5 is generally considered supportive of target-specific antibody recognition.



BRCA1 Antibody Purity SDS-PAGE. SDS-PAGE analysis of purified BRCA1 antibody clone BRCA1/1398 demonstrating antibody integrity and purity under non-reducing (NR) and reducing (R) conditions. Under non-reducing conditions, the antibody migrates predominantly as an intact immunoglobulin species near approximately 150 kDa. Under reducing conditions, characteristic heavy and light chain bands are observed near approximately 50 kDa and 25 kDa, respectively, consistent with expected monoclonal antibody structure following disulfide bond reduction.

Description

BRCA1 antibody recognizes Breast cancer type 1 susceptibility protein, a chromatin-associated tumor suppressor encoded by the BRCA1 gene that functions as a central regulator of homologous recombination-mediated DNA repair and genomic stability maintenance. BRCA1 antibody, also referred to as Breast cancer susceptibility protein 1 antibody and BRCC1 antibody in the literature, is widely used in hereditary breast cancer and ovarian cancer research due to the critical role of BRCA1 in DNA double-strand break signaling, checkpoint activation, and chromatin remodeling following genotoxic stress. BRCA1 is predominantly localized within the nucleus where it forms multi-protein complexes involved in DNA damage recognition and repair pathway coordination.

BRCA1 is located on chromosome 17q21 and encodes a large multifunctional phosphoprotein containing an N-terminal RING finger domain and tandem BRCT domains near the C-terminus. These structural regions mediate interactions with numerous DNA repair and cell cycle regulatory proteins including BARD1, RAD51, PALB2, CtIP, and components of the MRN complex. Through these interactions, BRCA1 functions in homologous recombination repair, replication fork protection, chromatin ubiquitination, and maintenance of genomic integrity during DNA replication stress. Loss of BRCA1 activity results in impaired DNA repair capacity, chromosomal instability, and increased susceptibility to malignant transformation.

The BRCA1 Antibody / Hereditary Breast Cancer DNA Repair Marker format is especially relevant for studies investigating hereditary tumor syndromes, genomic instability pathways, and sensitivity to DNA damaging therapeutics. Germline BRCA1 mutations are strongly associated with hereditary breast and ovarian cancer syndromes, while somatic BRCA1 dysregulation has also been implicated in prostate cancer, pancreatic cancer, and other aggressive malignancies. Reduced BRCA1 expression or functional inactivation contributes to homologous recombination deficiency, a clinically important phenotype associated with responsiveness to PARP inhibitors and platinum-based therapies.

BRCA1 expression is commonly observed in proliferative epithelial tissues and actively cycling cell populations where ongoing DNA replication requires coordinated genomic surveillance mechanisms. Following DNA damage, BRCA1 rapidly accumulates at sites of DNA strand breaks where it participates in recruitment of repair machinery and checkpoint signaling proteins. BRCA1 also contributes to transcriptional regulation, centrosome maintenance, and chromatin organization, highlighting its broad influence on nuclear stability and cell cycle progression.

Clone BRCA1/1398 is useful for investigating nuclear BRCA1 expression patterns in cancer biology, chromatin-associated DNA repair signaling, and hereditary cancer pathway studies. Protein microarray specificity validation data

further support selective target recognition for BRCA1, making this antibody valuable for applications examining homologous recombination pathways, tumor suppressor biology, and genomic maintenance mechanisms in normal and malignant tissues.

BRCA1 is part of a broader network of clinically relevant tumor suppressors and DNA repair proteins featured in our Cancer Marker Antibodies collection supporting oncology and genomic instability research.

Application Notes

Optimal dilution of the BRCA1 Antibody / Hereditary Breast Cancer DNA Repair Marker should be determined by the researcher.

Immunogen

Amino acids 445-620 were used as the immunogen for the BRCA1 antibody.

Storage

Store the BRCA1 antibody at 2-8oC (with azide) or aliquot and store at -20oC or colder (without azide).

Alternate Names

BRCA1 DNA repair antibody, Breast cancer susceptibility protein 1 antibody, BRCC1 antibody, BRCAI antibody, BRCA1 homologous recombination antibody, BRCA1 breast cancer marker antibody

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