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BRCA1 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1812a

Product Information

Application	WB, IHC, E
Primary Accession	P38398
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	6C6D2
Isotype	IgG1
Calculated MW	207721
Description	This gene encodes a nuclear phosphoprotein that plays a role in maintaining genomic stability, and it also acts as a tumor suppressor. The encoded protein combines with other tumor suppressors, DNA damage sensors, and signal transducers to form a large multi-subunit protein complex known as the BRCA1-associated genome surveillance complex (BASC). This gene product associates with RNA polymerase II, and through the C-terminal domain, also interacts with histone deacetylase complexes. This protein thus plays a role in transcription, DNA repair of double-stranded breaks, and recombination. Mutations in this gene are responsible for approximately 40% of inherited breast cancers and more than 80% of inherited breast and ovarian cancers. Alternative splicing plays a role in modulating the subcellular localization and physiological function of this gene. Many alternatively spliced transcript variants, some of which are disease-associated mutations, have been described for this gene, but the full-length natures of only some of these variants has been described. A related pseudogene, which is also located on chromosome 17, has been identified.
Immunogen	Purified recombinant fragment of human BRCA1 (AA: 229-335) expressed in E. Coli.
Formulation	Purified antibody in PBS with 0.05% sodium azide

Additional Information

Gene ID	672
Other Names	Breast cancer type 1 susceptibility protein, 6.3.2.-, RING finger protein 53, BRCA1, RNF53
Dilution	WB~~1/500 - 1/2000 IHC~~1/200 - 1/1000 E~~1/10000
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions	BRCA1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	BRCA1
Synonyms	RNF53
Function	E3 ubiquitin-protein ligase that specifically mediates the formation of 'Lys-6'-linked polyubiquitin chains and plays a central role in DNA repair by facilitating cellular responses to DNA damage (PubMed:10500182, PubMed:12887909, PubMed:12890688, PubMed:14976165, PubMed:16818604, PubMed:17525340, PubMed:19261748). It is unclear whether it also mediates the formation of other types of polyubiquitin chains (PubMed:12890688). The BRCA1-BARD1 heterodimer coordinates a diverse range of cellular pathways such as DNA damage repair, ubiquitination and transcriptional regulation to maintain genomic stability (PubMed:12890688, PubMed:14976165, PubMed:20351172). Regulates centrosomal microtubule nucleation (PubMed:18056443). Required for appropriate cell cycle arrests after ionizing irradiation in both the S-phase and the G2 phase of the cell cycle (PubMed:10724175, PubMed:11836499, PubMed:12183412, PubMed:19261748). Required for FANCD2 targeting to sites of DNA damage (PubMed:12887909). Inhibits lipid synthesis by binding to inactive phosphorylated ACACA and preventing its dephosphorylation (PubMed:16326698). Contributes to homologous recombination repair (HRR) via its direct interaction with PALB2, fine-tunes recombinational repair partly through its modulatory role in the PALB2-dependent loading of BRCA2-RAD51 repair machinery at DNA breaks (PubMed:19369211). Component of the BRCA1-RBBP8 complex which regulates CHEK1 activation and controls cell cycle G2/M checkpoints on DNA damage via BRCA1-mediated ubiquitination of RBBP8 (PubMed:16818604). Acts as a transcriptional activator (PubMed:20160719).
Cellular Location	Nucleus. Chromosome. Cytoplasm. Note=Localizes at sites of DNA damage at double-strand breaks (DSBs); recruitment to DNA damage sites is mediated by ABRAXAS1 and the BRCA1-A complex (PubMed:26778126) Translocated to the cytoplasm during UV-induced apoptosis (PubMed:20160719). [Isoform 5]: Cytoplasm
Tissue Location	Isoform 1 and isoform 3 are widely expressed. Isoform 3 is reduced or absent in several breast and ovarian cancer cell lines

Background

This gene encodes a nuclear phosphoprotein that plays a role in maintaining genomic stability, and it also acts as a tumor suppressor. The encoded protein combines with other tumor suppressors, DNA damage sensors, and signal transducers to form a large multi-subunit protein complex known as the BRCA1-associated genome surveillance complex (BASC). This gene product associates with RNA polymerase II, and through the C-terminal domain, also interacts with histone deacetylase complexes. This protein thus plays a role in transcription, DNA repair of double-stranded breaks, and recombination. Mutations in this gene are responsible for approximately 40% of inherited breast cancers and more than 80% of inherited breast and ovarian cancers. Alternative splicing plays a role in modulating the subcellular localization and physiological function of this gene. Many alternatively spliced transcript variants, some of which are disease-associated mutations, have been described for this gene, but the full-length natures of only some of these variants has been described. A related pseudogene, which is also located on chromosome 17, has been identified. ; ; ;

References

1. Cancer Res. 2013 Jan 15;73(2):706-15. 2. J Biol Chem. 2012 Nov 23;287(48):40618-28.

Images

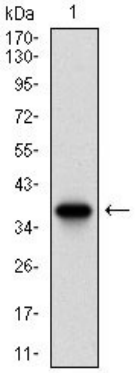

Figure 1: Western blot analysis using BRCA1 mAb against human BRCA1 recombinant protein. (Expected MW is 37.5 kDa)

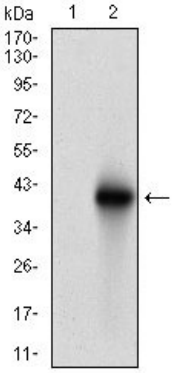

Figure 2: Western blot analysis using BRCA1 mAb against HEK293 (1) and BRCA1 (AA: 229-335)-hIgGFc transfected HEK293 (2) cell lysate.

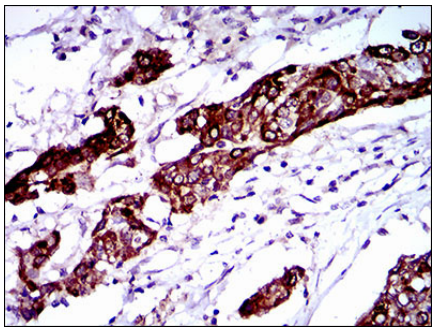

Figure 3: Immunohistochemical analysis of paraffin-embedded esophagus cancer tissues using BRCA1 mouse mAb with DAB staining.

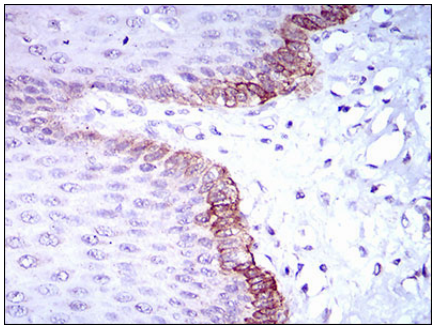

Figure 4: Immunohistochemical analysis of paraffin-embedded esophagus tissues using BRCA1 mouse mAb with DAB staining.