

## Product datasheet for **RC402918**

### **BRCA1 (NM\_007294) Human Mutant ORF Clone**

#### **Product data:**

Product Type:	Mutant ORF Clones
Product Name:	BRCA1 (NM_007294) Human Mutant ORF Clone
Mutation Description:	E489X
Affected Codon#:	489
Affected NT#:	1465
Nucleotide Mutation:	BRCA1 Mutant (E489X), Myc-DDK-tagged ORF clone of Homo sapiens breast Cancer, early onset (BRCA1), transcript variant 1 as transfection-ready DNA
Effect:	Breast cancer
Symbol:	BRCA1
Synonyms:	BRCAI; BRCC1; BROVCA1; FANCS; IRIS; PNCA4; PPP1R53; PSCP; RNF53
E. coli Selection:	Kanamycin (25 ug/mL)
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
Tag:	Myc-DDK
ACCN:	NM_007294
ORF Size:	1464 bp
Restriction Sites:	Sgfl-Mlul



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**ORF Nucleotide Sequence:**

>RC402918 representing NM\_007294  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**GCGATCGCC**

ATGGATTATCTGCTCTTCGCGTTGAAGAAGTACAAAATGTCATTAATGCTATGCAGAAAATCTTAGAGT  
 GTCCCATCTGTCTGGAGTTGATCAAGGAACCTGTCTCCACAAAGTGTGACCACATATTTTGCAAATTTTG  
 CATGCTGAAACTTCTCAACCAGAAGAAAGGGCCTTACAGTGTCTTTATGTAAGAATGATATAACCAAA  
 AGGAGCCTACAAGAAAGTACGAGATTTAGTCAACTTGTGAAGAGCTATTGAAAATCATTGTGCTTTTC  
 AGCTTGACACAGGTTTGGAGTATGCAAACAGCTATAATTTTGCAAAAAGGAAAAAAGTCTCCTGAACA  
 TCTAAAAGATGAAGTTTCTATCATCCAAAGTATGGGCTACAGAAAACCGTCCAAAAGACTTCTACAGAGT  
 GAACCCGAAAACTCTTCTTGCAGGAAACAGTCTCAGTGTCCAACCTCTAACCTTGGAACTGTGAGAA  
 CTCTGAGGACAAAGCAGCGGATACAACCTCAAAGACGCTGTCTACATTGAATTGGGATCTGATTCTTC  
 TGAAGATACCGTTAATAAGGCAACTTATTGCAGTGTGGGAGATCAAGAATTGTTACAAAATCACCCCTCAA  
 GGAACAGGGATGAAATCAGTTTGGATTCTGCAAAAAAGGCTGCTTGTGAATTTTCTGAGACGGATGAA  
 CAAACTGAACATCATCAACCCAGTAATAATGATTTGAACACCACTGAGAAGCGTGCAGCTGAGAGGCA  
 TCCAGAAAAGTATCAGGGTAGTTCTGTTTCAAACCTGTCATGTGGAGCCATGTGGCACAATACTCATGCC  
 AGCTCATTACAGCATGAGAACAGCAGTTTATTACTCACTAAAGACAGAATGAATGTAGAAAAGGCTGAAT  
 TCTGTAATAAAAGCAAACAGCCTGGCTTAGCAAGGAGCCAACATAACAGATGGGCTGGAAGTAAGGAAAC  
 ATGTAATGATAGCGGACTCCAGCACAGAAAAAAGGTAGATCTGAATGCTGATCCCTGTGTGAGAGA  
 AAAGAAATGGAATAAGCAGAACTGCCATGCTCAGAGAATCCTAGAGATACTGAAGATGTTCTCTGGATAA  
 CACTAAATAGCAGCATTAGAAAAGTTAATGAGTGGTTTTCCAGAAGTGAAGTGTAGTTTCTGGATAA  
 CTACATGATGGGGAGTCTGAATCAAATGCCAAAGTAGCTGATGTATTGGACGTTCTAAATGAGGTAGAT  
 GAATATTCTGTTCTTACAGAAAAATAGACTTACTGGCCAGTGTCTCATGAGGCTTTAATATGAAAA  
 GTGAAAGAGTTCACTCCAAATCAGTAGAGAGTAATATTGAAGACAAAATATTTGGGAAAACCTATCGGAA  
 GAAGGCAAGCCTCCCAACTTAAGCCATGTAAGTGAATAATATAGGAGCATTGTACT

AG**GCGACCG**ACGCGTACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAAATGATATCC  
 TGGATTACAAGGATGACGACGA TAAGGTTTAA

**Protein Sequence:**

>RC402918 representing NM\_007294  
 Red=Cloning site Green=Tags(s)

MDLSALRVEEVQNVINAMQKILECPICLLELIKEPVSTKCDHIFCKFCMLKLLNQKKGPSQCPLCKNDITK  
 RSLQESTRFSQ LVEELLKIIICAFQLDTGLEAYNSYNFAKKENNSPEHLKDEVSI IQSMGYRNRARLLQS  
 EPENPSLQETSLSVQLSNLGTVRTLRKQRIQPQKTSVYIELGSDSSEDTVNKATYCSVGDQELLQITPQ  
 GTRDEISLDSAKKAACEFSETDVTNTEHHQPSNNDLNTTEKRAAERHPEKYQGSSVSNLHVPCGNTNHA  
 SSLQHENSLLLLTKDRMNVEKA EFCNKSQKQPLARSQHNRWAGSKETCNDRRTPSTEKKVDLNADPLCER  
 KEWNKQKLP CSENPRDTEVPWITLNSSIQKVNEWFSRSDEL LGSDDSHDGESESNKVADVLDV LNEVD  
 EYSGSSEKIDLLASDPHEALICKSERVHKS SVESNIEDKIFGKTYRKKASLPNL SHVTENLIIGAFVT

SGP**TRRRLEQKLI SEEDLAANDILDYKDDDDK**V

**Restriction Sites:**

Sgfl-MluI

**Cloning Scheme:**

**OTI Disclaimer:**

Due to the inherent nature of this plasmid, standard methods to replicate additional amounts of DNA in *E. coli* are highly likely to result in mutations and/or rearrangements. Therefore, OriGene does not guarantee the capability to replicate this plasmid DNA. Additional amounts of DNA can be purchased from OriGene with batch-specific, full-sequence verification at a reduced cost. Please contact our customer care team at [custsupport@origene.com](mailto:custsupport@origene.com) or by calling 301.340.3188 option 3 for pricing and delivery.

The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. [More info](#)

**OTI Annotation:**

This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.

**Components:**

The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).

**RefSeq:**

[NP\\_009225](#)

**RefSeq Size:**

1464 bp

**RefSeq ORF:**

5592 bp

**Locus ID:**

672

**Cytogenetics:**

17q21.31

**Domains:**

BRCT, RING

**Protein Families:**

Druggable Genome, Transcription Factors

**Protein Pathways:**

Ubiquitin mediated proteolysis

**MW:** 53.7 kDa

**Gene Summary:** This gene encodes a 190 kD nuclear phosphoprotein that plays a role in maintaining genomic stability, and it also acts as a tumor suppressor. The BRCA1 gene contains 22 exons spanning about 110 kb of DNA. 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. [provided by RefSeq, May 2020]