**1. Brief description of its function in your own words.**

This gene is tumor suppressor, which encodes a phosphoprotein that can combine with other tumor suppressors and repair the damage of DNA.

**2. What type of tissues express this gene?**

40% of breast cancer and 80% ovarian cancer are related to mutation of this gene.

**3. On what chromosome is this gene located?**

Chr 17

**4. The exact location of this gene on the genome according to GRCh38.p7 assembly.**

I didn’t find GRCh38.p7.

Instead I found GRCh38.p12:

Start: 43044295

End: 43125483

**5. Names of the 3 genes neighboring this gene on the chromosome.**

Right: RND2 VAT1 IFI35

Left: NBR2 BRCA1P1 NBR1

**6. How many papers have been published on this gene?**

5 papers

**7. What genetic diseases is associated with mutations of thig gene?**

**8. What proteins interact with the BRCA1 protein? Name 2 with references.**

Tat: <https://www.ncbi.nlm.nih.gov/protein/9629358>

and

Vpr: <https://www.ncbi.nlm.nih.gov/protein/28872817>

**9. What molecular pathways is the BRCA1 protein part of? Name 2.**

[ATF-2 transcription factor network, organism-specific biosystem](https://www.ncbi.nlm.nih.gov/biosystems/138006?Sel=geneid:672#show=genes)

[Breast cancer, organism-specific biosystem](https://www.ncbi.nlm.nih.gov/biosystems/1435207?Sel=geneid:672#show=genes)

**10. How many alternatively spliced transcripts (variants) does this gene have?**

**11. How many protein isoforms does this gene encode?**

5 different protein isoforms

**12. For the transcript called NM\_007294.3, how many exons and introns?**

23 exons

4 introns

**13. Retrieve the following sequences for the transcript NM\_007294.3. First report their length and then paste the FASTA formatted sequence.**

**a. Spanning genomic DNA sequence**

**b. mRNA sequence**

**c. Corresponding protein sequence**

**d. First exon (Hint: easier to find in Ensembl.org, see below )**

**e. 5’ Untranslated region (UTR)**

**f. 3’ untranslated region (UTR)**

**g. 1000bp promoter sequence upstream of transcription start site(TSS)**