

17:41203248-41203248	A	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41203249-41203249	A	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41203250-41203250	A	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41203251-41203251	A	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41222818-41222818	T	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41222819-41222819	G	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41222881-41222881	C	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41222882-41222882	G	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41222883-41222883	G	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41222884-41222884	C	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41222885-41222885	G	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41222886-41222886	GA	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41234634-41234634	T	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41243319-41243319	C	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41243998-41244000	CTC	intron_variant	MODIFIER	BRCA1	transcript	NM_007298.3	protein_coding
17:41244291-41244291	C	intron_variant	MODIFIER	BRCA1	transcript	NM_007298.3	protein_coding
17:41244435-41244435	C	intron_variant	MODIFIER	BRCA1	transcript	NM_007298.3	protein_coding
17:41244936-41244936	A	intron_variant	MODIFIER	BRCA1	transcript	NM_007298.3	protein_coding
17:41245231-41245231	G	intron_variant	MODIFIER	BRCA1	transcript	NM_007298.3	protein_coding
17:41245466-41245466	A	intron_variant	MODIFIER	BRCA1	transcript	NM_007298.3	protein_coding
17:41245471-41245471	T	intron_variant	MODIFIER	BRCA1	transcript	NM_007298.3	protein_coding
17:41245511-41245511	C	intron_variant	MODIFIER	BRCA1	transcript	NM_007298.3	protein_coding
17:41245900-41245900	G	intron_variant	MODIFIER	BRCA1	transcript	NM_007298.3	protein_coding
17:41246092-41246092	G	intron_variant	MODIFIER	BRCA1	transcript	NM_007298.3	protein_coding
17:41246166-41246166	G	intron_variant	MODIFIER	BRCA1	transcript	NM_007298.3	protein_coding
17:41246481-41246481	C	intron_variant	MODIFIER	BRCA1	transcript	NM_007298.3	protein_coding
17:41246948-41246948	A	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41246949-41246949	G	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41246950-41246950	A	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41251931-41251931	A	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41256089-41256103	-	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41256513-41256513	C	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41256514-41256514	C	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41256515-41256515	C	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41256516-41256516	T	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41256518-41256518	C	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41256519-41256519	T	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41256520-41256520	C	intron_variant	MODIFIER	BRCA1	transcript	NM_007294.4	protein_coding
17:41256321-41256321	C	intron_variant	MODIFIER	BRCA1	Transcript	NM_007294.4	protein_coding

Supplementary Table 3. Legend?

13:32905084-32905084	A	C	missense_variant	MODERATE	BRCA2	NM_000059.4	9/27	909	710	237	D/A	gAt/gCt	deleterious(0.02) probably_damaging(0.962)	-	-	D	0.743739367	D	N,N
13:32906480-32906480	A	C	missense_variant	MODERATE	BRCA2	NM_000059.4	10/27	1064	865	289	N/H	Aat/Cat	deleterious(0.05) possibly_damaging(0.861)	0.073682109	0.032526475	T	0.010384419	-	P,P
13:32906729-32906729	A	C	missense_variant	MODERATE	BRCA2	NM_000059.4	10/27	1313	1114	372	N/H	Aat/Cat	tolerated(0.06) possibly_damaging(0.864)	0.249400958	0.083963691	T	0.001231995	-	P,P
13:32906980-32906980	A	G	synonymous_variant	LOW	BRCA2	NM_000059.4	10/27	1564	1365	455	S	tCtA/tcG	-	-	-	-	-	-	-
13:32910721-32910721	T	C	synonymous_variant	LOW	BRCA2	NM_000059.4	11/27	2428	2229	743	H	caT/caC	-	-	-	-	-	-	-
13:32911436-32911436	A	C	missense_variant	MODERATE	BRCA2	NM_000059.4	11/27	3143	2944	982	I/L	Ata/Cta	tolerated(0.14) benign(0.059)	-	-	T	0.063511093	D	N,N
13:32911463-32911463	A	G	missense_variant	MODERATE	BRCA2	NM_000059.4	11/27	3170	2971	991	N/D	Aac/Gac	tolerated(1) benign(0)	0.080071885	0.055219365	T	0.000950996	-	P,P
13:32911756-32911756	T	C	synonymous_variant	LOW	BRCA2	NM_000059.4	11/27	3463	3264	1088	P	ccT/ccC	-	-	-	-	-	-	-
13:32911888-32911888	A	G	synonymous_variant	LOW	BRCA2	NM_000059.4	11/27	3595	3396	1132	K	aaA/aaG	-	-	-	-	-	-	-
13:32912299-32912299	T	C	synonymous_variant	LOW	BRCA2	NM_000059.4	11/27	4006	3807	1269	V	gtT/gtC	-	-	-	-	-	-	-
13:32912644-32912644	G	A	synonymous_variant	LOW	BRCA2	NM_000059.4	11/27	4351	4152	1384	L	ttG/ttA	-	-	-	-	-	-	-
13:32913055-32913055	A	G	synonymous_variant	LOW	BRCA2	NM_000059.4	11/27	4762	4563	1521	L	ctA/ctG	-	-	-	-	-	-	-
13:32913910-32913910	A	G	synonymous_variant	LOW	BRCA2	NM_000059.4	11/27	5617	5418	1806	E	gaA/gaG	-	-	-	-	-	-	-

13:32914814-32914814	C	T	missense_variant	MODERATE	BRCA2	NM_000059.4	11/27	6521	6322	2108	R/C	Cgt/Tgt	tolerated(0.18)	benign(0)	0.001198083	0	T	0.027538207	D	N,N
13:32915005-32915005	G	C	synonymous_variant	LOW	BRCA2	NM_000059.4	11/27	6712	6513	2171	V	gtG/gtC	-	-	-	-	-	-	-	-
13:32929232-32929232	A	G	synonymous_variant	LOW	BRCA2	NM_000059.4	14/27	7441	7242	2414	S	tcA/tcG	-	-	-	-	-	-	-	-
13:32929309-32929309	A	G	missense_variant	MODERATE	BRCA2	NM_000059.4	14/27	7518	7319	2440	H/R	cAt/cGt	tolerated(0.27)	possibly_damaging(0.544)	0.010383387	0.039334342	T	0.007776356	-	N,N
13:32929387-32929387	T	C	missense_variant	MODERATE	BRCA2	NM_000059.4	14/27	7596	7397	2466	V/A	gTa/gCa	tolerated(1)	benign(0)	0.975838658	0.910741301	T	0.007368047	-	P,P
13:32929408-32929408	G	T	missense_variant	MODERATE	BRCA2	NM_000059.4	14/27	7617	7418	2473	C/F	tGt/tTt	tolerated(0.7)	benign(0.14)	-	-	T	0.020356195	D	N,N
13:32972884-32972884	A	G	missense_variant	MODERATE	BRCA2	NM_000059.4	27/27	10433	10234	3412	I/V	Att/Gtt	tolerated(0.15)	benign(0.009)	0.044928115	0.118759455	T	0.00057133	-	N,N
Location 1000Gp3_AFR_AF ClinPred_pred ClinPred_score M-CAP_pred MutationTaster_pred BRCA2 NM_000059.4 2/27 174																				
GIVEN_REF		Allele		Consequence		IMPACT		SYMBOL		Feature		EXON		cDNA_position		CDS_position		Protein_position		
1000Gp3_AFR_AF		ClinPred_pred		ClinPred_score		M-CAP_pred		MutationTaster_pred						dinvar_clsng		gnomAD_exomes_AFR_AF		Amino_acids		
2/27		174																Codons		
																		SIFT		
																		G		
																		PolyPhen		
																		A		
																		S_5_prime_UTR_variant		
																		MODIFIER		

Supplementary Table (4): Variant Effect Predictors annotations of *BRCA2* gene intronic.

Location	Allele	Consequence	IMPACT	SYMBOL	Feature_type	Feature	BIOTYPE	INTRON	STRAND
13:32890558-32890558	C	splice_acceptor_variant	HIGH	BRCA2	Transcript	NM_000059.4	protein_coding	1/26	1
13:32899095-32899095	C	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	3/26	1
13:32899388-32899388	C	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	4/26	1
13:32903685-32903685	T	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	8/26	1
13:32904998-32904998	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	8/26	1
13:32904999-32904999	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	8/26	1
13:32905000-32905000	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	8/26	1
13:32905001-32905001	T	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	8/26	1
13:32905003-32905003	C	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	8/26	1
13:32906314-32906314	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	9/26	1
13:32906315-32906315	A	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	9/26	1
13:32906319-32906319	T	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	9/26	1
13:32906321-32906321	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	9/26	1
13:32906322-32906322	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	9/26	1
13:32906323-32906323	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	9/26	1
13:32906324-32906324	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	9/26	1
13:32906328-32906328	A	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	9/26	1
13:32910373-32910373	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	10/26	1
13:32910374-32910374	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	10/26	1
13:32915396-32915396	T	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	11/26	1
13:32918632-32918632	T	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	11/26	1
13:32918633-32918633	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	11/26	1
13:32918635-32918635	A	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	11/26	1
13:32918636-32918636	C	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	11/26	1
13:32918637-32918637	C	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	11/26	1
13:32918638-32918638	A	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	11/26	1
13:32918640-32918640	T	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	11/26	1
13:32918641-32918641	C	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	11/26	1
13:32918642-32918642	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	11/26	1
13:32918644-32918644	A	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	11/26	1
13:32921077-32921077	C	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	13/26	1
13:32921078-32921078	T	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	13/26	1
13:32921079-32921079	C	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	13/26	1
13:32921082-32921082	A	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	13/26	1
13:32928936-32928936	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	13/26	1
13:32930539-32930539	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	14/26	1
13:32930541-32930541	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	14/26	1
13:32936646-32936646	C	splice_polypyrimidine_tract_variant,intron_variant	LOW	BRCA2	Transcript	NM_000059.4	protein_coding	16/26	1

13:32936853-32936853	T	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	17/26	1
13:32944741-32944741	T	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	19/26	1
13:32953364-32953364	C	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	21/26	1
13:32953365-32953365	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	21/26	1
13:32953371-32953371	A	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	21/26	1
13:32953373-32953373	A	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	21/26	1
13:32953388-32953388	C	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	21/26	1
13:32954340-32954340	T	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	24/26	1
13:32968759-32968759	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	24/26	1
13:32968760-32968760	A	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	24/26	1
13:32968762-32968762	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	24/26	1
13:32968763-32968763	A	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	24/26	1
13:32970977-32970977	T	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	25/26	1
13:32970982-32970982	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	25/26	1
13:32970984-32970984	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	25/26	1
13:32970986-32970986	C	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	25/26	1
13:32970987-32970987	G	intron_variant	MODIFIER	BRCA2	Transcript	NM_000059.4	protein_coding	25/26	1

Supplementary Table (5): Mutational allele frequency for breast cancer patients and control groups.

# locus	MAF in Egyptian breast cancer patient	MAF in Egyptian control
chr1332906729	16%	27%
chr1332906730	38%	27%
chr1332906731	100%	92%
chr1332906732	98%	98%
chr1332906733	3%	0%
chr1332906734	100%	96%
chr1332906735	61%	43%
chr1332906736	22%	8%
chr1332906737	28%	21%
chr1332906738	26%	13%
chr1332906739	43%	8%

chr1332906740	45%	8%
chr1332906741	29%	35%
chr1332906742	28%	31%
chr1332906743	28%	6%
chr1332906744	28%	31%
chr1332906745	26%	31%
chr1332906746	28%	35%
chr1332906747	28%	6%
chr1332906748	2%	0%
chr1332906749	2%	0%
chr1332906750	5%	13%
chr1332906751	17%	6%
chr1332906752	2%	0%
chr1332906753	2%	0%
chr1332906754	2%	0%
chr1332906755	2%	0%
chr1332906756	2%	0%
chr1332906757	2%	0%
chr1332906758	2%	0%
chr1332906759	2%	0%
chr1332906760	5%	0%
chr1332906761	5%	0%
chr1332906762	5%	0%
chr1332906763	5%	0%
chr1332906764	5%	0%
chr1332906765	2%	0%
chr1332906766	14%	2%
chr1332906767	2%	0%
chr1332906768	5%	2%
chr1332906769	2%	0%
chr1332906770	2%	0%
chr1332906771	2%	0%
chr1332906772	2%	0%
chr1332906773	2%	0%
chr1332906774	2%	0%
chr1332906775	7%	2%
chr1332906776	2%	4%
chr1332906777	2%	0%
chr1332906778	2%	0%
chr1332906779	3%	6%
chr1332906780	3%	0%
chr1332906781	2%	0%
chr1332906782	2%	0%
chr1332906783	2%	0%
chr1332906784	2%	0%
chr1332906785	2%	0%
chr1332906786	2%	0%
chr1332906787	2%	0%
chr1332906788	2%	0%
chr1332906789	2%	0%
chr1332906790	2%	0%
chr1332906791	2%	0%
chr1332906792	2%	0%
chr1332906793	2%	0%
chr1332906794	2%	0%
chr1332906795	2%	0%
chr1332906796	2%	0%
chr1332906797	2%	0%
chr1332906798	2%	0%
chr1332906799	2%	0%
chr1332906800	2%	0%
chr1332906801	2%	0%
chr1332906802	2%	0%
chr1332906803	2%	0%
chr1332906804	2%	0%
chr1332906805	2%	0%
chr1332906806	2%	0%
chr1332906807	2%	0%
chr1332906808	2%	0%
chr1332906809	2%	0%
chr1332906810	2%	0%
chr1332906811	2%	0%
chr1332906812	2%	0%
chr1332906813	2%	0%
chr1332906814	2%	0%
chr1332906815	2%	0%
chr1332906816	2%	0%
chr1332906817	2%	0%
chr1332906818	2%	0%
chr1332906819	2%	0%
chr1332906820	2%	0%
chr1332906821	2%	0%
chr1332906822	2%	0%
chr1332906823	2%	0%
chr1332906824	2%	0%
chr1332906825	2%	0%
chr1332906826	2%	0%

chr1332906827	2%	0%
chr1332906828	2%	0%
chr1332906829	2%	0%
chr1332906830	2%	0%
chr1332906831	2%	0%
chr1332906832	2%	0%
chr1332906833	2%	0%
chr1332906834	2%	0%
chr1332906835	2%	0%
chr1332906836	2%	0%
chr1332906837	2%	0%
chr1332906838	2%	0%
chr1332906839	2%	0%
chr1332906840	2%	0%
chr1332906841	2%	0%
chr1332906842	2%	0%
chr1332906843	2%	0%
chr1332906844	2%	0%
chr1332906845	2%	0%
chr1332906846	2%	0%
chr1332906847	2%	0%
chr1332906848	2%	0%
chr1332906849	2%	0%
chr1332906850	2%	0%
chr1332906851	2%	0%
chr1332906852	2%	0%
chr1332906853	2%	0%
chr1332906854	2%	0%
chr1332906855	2%	0%
chr1332906856	2%	0%
chr1332906857	2%	0%
chr1332906858	2%	0%
chr1332906859	2%	0%
chr1332906860	2%	0%
chr1332906861	2%	0%
chr1332906862	2%	0%
chr1332906863	2%	0%