

**Supplemental Materials for “Common variants associated with breast cancer in genome wide association studies are modifiers of breast cancer risk in BRCA1 and BRCA2 mutation carriers”**

**Supplemental Table 1.** Associations between GWAS SNPs and risk of breast cancer ( $P_{\text{trend}} \leq 0.05$ ) in BRCA1 mutation carriers.

rsID	Gene Name	HR (95% CI) (Per Allele)	$P_{\text{trend}}$	HR (95% CI)		$P_{2df}$
				1 copy	2 copies	
rs6138178	<i>SNRPB</i>	0.78 (0.69-0.90)	$3.6 \times 10^{-4}$	0.75 (0.63-0.90)	0.66 (0.49-0.90)	0.0015
rs6602595	<i>CAMK1D</i>	1.25 (1.10-1.41)	$4.2 \times 10^{-4}$	1.23 (1.02-1.48)	1.56 (1.21-2.01)	0.0019
rs6590224	<i>KIRREL3</i>	1.26 (1.10-1.45)	0.0013	1.25 (1.05-1.50)	1.61 (1.10-2.37)	0.0056
rs1048635	<i>TRIM45</i>	1.50 (1.17-1.94)	0.0015	1.59 (1.22-2.09)	1.15 (0.24-5.44)	0.0029
rs7629693	<i>HMG2P7</i>	0.83 (0.73-0.94)	0.0041	0.88 (0.74-1.05)	0.65 (0.49-0.86)	0.0104
rs6005863	<i>HSCB</i>	0.85 (0.76-0.95)	0.0049	1.01 (0.84-1.22)	0.66 (0.52-0.85)	0.0007
rs4415084	<i>MRPS30</i>	0.84 (0.75-0.95)	0.0052	0.80 (0.67-0.96)	0.73 (0.57-0.93)	0.015
rs2292326	<i>NECAB2</i>	1.27 (1.06-1.52)	0.0087	1.31 (1.07-1.61)	1.33 (0.68-2.57)	0.026
rs2107425	<i>H19</i>	0.85 (0.75-0.97)	0.015	0.84 (0.70-1.00)	0.74 (0.55-0.99)	0.049
rs3174298	<i>CDC37L1</i>	1.16 (1.03-1.32)	0.018	1.14 (0.95-1.37)	1.37 (1.05-1.79)	0.055
rs9518578	<i>FGF14</i>	0.79 (0.65-0.96)	0.019	0.72 (0.58-0.89)	1.21 (0.61-2.43)	0.009
rs448203	<i>SEPT9</i>	1.15 (1.02-1.29)	0.024	1.23 (1.02-1.47)	1.27 (0.99-1.63)	0.051
rs10941679	<i>MRPS30</i>	0.85 (0.75-0.98)	0.024	0.80 (0.67-0.95)	0.83 (0.60-1.15)	0.039
rs4294134	<i>NUP205</i>	1.19 (1.02-1.39)	0.031	1.21 (1.00-1.47)	1.32 (0.84-2.08)	0.092
rs1451036	<i>COL11A1</i>	1.18 (1.01-1.39)	0.039	1.16 (0.96-1.39)	1.53 (0.94-2.48)	0.19
rs7121523	<i>PPFIBP2</i>	0.84 (0.72-0.99)	0.040	0.82 (0.68-1.00)	0.78 (0.48-1.26)	0.10
rs1024454	<i>SKAP2</i>	1.13 (1.00-1.28)	0.045	1.08 (0.89-1.33)	1.28 (1.01-1.64)	0.12

**Supplemental Table 2:** Significant associations with breast cancer risk in BRCA1 mutation carriers after excluding ovarian cancer cases.

SNP ID	Gene Name	HR (95% CI)	$P_{\text{trend}}$	HR <sub>het</sub> (95% CI)	HR <sub>hom</sub> (95% CI)	$P_{2df}$
rs6590224	<i>KIRREL3</i>	1.45 (1.23-1.71)	0.00001	1.53 (1.25-1.88)	1.86 (1.19-2.91)	0.00004
rs7629693	<i>HMG2P7</i>	0.80 (0.69-0.93)	0.0029	0.91 (0.73-1.13)	0.56 (0.41-0.77)	0.0019
<b>rs6602595</b>	<b><i>CAMK1D</i></b>	<b>1.23 (1.07-1.41)</b>	<b>0.0039</b>	<b>1.17 (0.94-1.45)</b>	<b>1.53 (1.15-2.03)</b>	<b>0.013</b>
rs1048635	<i>TRIM45</i>	1.56 (1.15-2.11)	0.0039	1.79 (1.31-2.46)	0.72 (0.14-3.70)	0.0013
rs2738545	<i>WWOX</i>	0.80 (0.69-0.94)	0.0051	0.75 (0.61-0.92)	0.71 (0.49-1.02)	0.011
rs1024454	<i>SKAP2</i>	1.22 (1.06-1.41)	0.0067	1.20 (0.94-1.52)	1.49 (1.12-1.99)	0.025
rs1451036	<i>COL11A1</i>	1.28 (1.07-1.54)	0.0082	1.20 (0.96-1.49)	2.08 (1.24-3.48)	0.010
rs2562343	<i>MYO10</i>	1.20 (1.05-1.37)	0.0092	1.44 (1.13-1.83)	1.40 (1.06-1.84)	0.0090
rs2292326	<i>NECAB2</i>	1.31 (1.06-1.62)	0.012	1.36 (1.06-1.74)	1.40 (0.69-2.83)	0.042
rs6005863	<i>HSCB</i>	0.84 (0.73-0.96)	0.013	1.07 (0.86-1.33)	0.63 (0.47-0.85)	0.00066
rs17570439	<i>TRIT1</i>	1.23 (1.04-1.46)	0.019	1.22 (1.00-1.50)	1.54 (0.93-2.54)	0.060
rs12907709	<i>MCTP2</i>	1.18 (1.02-1.36)	0.022	1.23 (0.99-1.53)	1.36 (1.01-1.83)	0.072
rs649944	<i>PIWILA</i>	0.86 (0.75-0.98)	0.024	0.91 (0.71-1.16)	0.73 (0.56-0.96)	0.063
rs13387042	<i>TNPI</i>	1.18 (1.02-1.37)	0.026	1.21 (0.96-1.53)	1.40 (1.04-1.87)	0.077
rs3174298	<i>CDC37L1</i>	1.18 (1.02-1.36)	0.026	1.15 (0.92-1.43)	1.42 (1.04-1.94)	0.073
rs13079811	<i>CYP51P1</i>	1.19 (1.02-1.38)	0.027	1.16 (0.93-1.45)	1.44 (1.03-2.03)	0.082
rs9518578	<i>FGF14</i>	0.77 (0.60-0.97)	0.030	0.69 (0.53-0.89)	1.51 (0.67-3.41)	0.010
rs10231161	<i>SKAP2</i>	1.17 (1.01-1.35)	0.031	1.16 (0.93-1.45)	1.37 (1.02-1.84)	0.096
<b>rs6138178</b>	<b><i>SNRPB</i></b>	<b>0.84 (0.72-0.98)</b>	<b>0.031</b>	<b>0.82 (0.66-1.02)</b>	<b>0.73 (0.50-1.06)</b>	<b>0.097</b>
rs8064773	<i>ACCN1</i>	1.31 (1.02-1.67)	0.031	1.31 (1.00-1.72)	1.68 (0.59-4.77)	0.099
rs9923960	<i>TOX3</i>	0.84 (0.71-0.99)	0.033	0.81 (0.66-1.00)	0.73 (0.50-1.07)	0.091
rs694975	<i>LOC442271</i>	0.82 (0.68-0.99)	0.034	0.89 (0.71-1.11)	0.54 (0.32-0.91)	0.058
rs6890833	<i>MCC</i>	1.31 (1.02-1.69)	0.034	1.45 (1.10-1.92)	0.83 (0.28-2.53)	0.028
rs3738097	<i>ALPL</i>	1.25 (1.01-1.53)	0.036	1.25 (0.99-1.58)	1.50 (0.68-3.27)	0.11
rs6735174	<i>TNPI</i>	0.82 (0.69-0.99)	0.036	0.83 (0.66-1.03)	0.66 (0.38-1.16)	0.11
rs3134615	<i>MYCL1</i>	1.20 (1.01-1.42)	0.036	1.14 (0.93-1.39)	1.60 (1.01-2.53)	0.093
rs6053812	<i>MCM8</i>	1.19 (1.01-1.52)	0.037	1.24 (1.01-1.53)	1.25 (0.81-1.92)	0.10
rs12101585	<i>LOC100130789</i>	0.86 (0.74-0.99)	0.038	0.77 (0.64-0.94)	0.81 (0.60-1.11)	0.034
rs3738099	<i>ALPL</i>	1.24 (1.01-1.52)	0.038	1.25 (0.99-1.58)	1.50 (0.68-3.27)	0.12
rs1461282	<i>MKRN5</i>	1.17 (1.00-1.36)	0.04444	1.07 (0.87-1.31)	1.45 (1.05-2.02)	0.083
rs1378506	<i>LOC100130252</i>	0.87 (0.75-1.00)	0.04666	0.80 (0.64-1.01)	0.76 (0.57-1.02)	0.095
rs956993	<i>HNT</i>	1.17 (1.00-1.36)	0.04889	1.12 (0.91-1.38)	1.40 (1.00-1.94)	0.13

**Supplemental Table 3:** Significant associations with breast cancer risk in BRCA1 mutation carriers after excluding prevalent cases (> 5 years between cancer diagnosis and ascertainment).

SNP ID	Gene Name	HR (95% CI)	$P_{\text{trend}}$	HR <sub>het</sub> (95% CI)	HR <sub>hom</sub> (95% CI)	$P_{2df}$
rs9473086	<i>PHACTR1</i>	1.31 (1.09-1.58)	0.0047	1.22 (0.98-1.51)	2.33 (1.28-4.22)	0.0071
<b>rs6138178</b>	<b><i>SNRPB</i></b>	<b>0.81 (0.70-0.94)</b>	<b>0.0061</b>	<b>0.80 (0.65-0.98)</b>	<b>0.68 (0.47-0.98)</b>	<b>0.022</b>
rs10092157	<i>MRPL9P1</i>	1.19 (1.04-1.35)	0.010	1.11 (0.89-1.38)	1.42 (1.09-1.84)	0.029
rs12101585	<i>LOC100130789</i>	0.82 (0.71-0.96)	0.011	0.77 (0.64-0.94)	0.73 (0.53-1.01)	0.023
rs2562343	<i>MYO10</i>	1.19 (1.04-1.37)	0.011	1.31 (1.05-1.64)	1.41 (1.06-1.87)	0.027
rs1607237	<i>PIK3CA</i>	1.19 (1.04-1.36)	0.014	1.22 (0.99-1.51)	1.39 (1.05-1.84)	0.047
rs17732513	<i>FBLN5</i>	1.20 (1.04-1.40)	0.014	1.07 (0.87-1.31)	1.64 (1.19-2.26)	0.010
<b>rs6602595</b>	<b><i>CAMK1D</i></b>	<b>1.18 (1.03-1.35)</b>	<b>0.017</b>	<b>1.20 (0.96-1.50)</b>	<b>1.38 (1.05-1.82)</b>	<b>0.057</b>
rs13260143	<i>MRPL9P1</i>	0.85 (0.75-0.97)	0.019	0.82 (0.65-1.03)	0.73 (0.56-0.95)	0.059
rs3174298	<i>CDC37L1</i>	1.17 (1.02-1.33)	0.021	1.28 (1.04-1.57)	1.27 (0.95-1.70)	0.042
rs7629693	<i>HMGN2P7</i>	0.85 (0.73-0.98)	0.022	0.87 (0.71-1.07)	0.70 (0.51-0.96)	0.073
rs4766950	<i>CIT</i>	1.17 (1.02-1.35)	0.024	1.14 (0.91-1.44)	1.37 (1.04-1.81)	0.075
rs9518578	<i>FGF14</i>	0.77 (0.62-0.97)	0.025	0.70 (0.54-0.89)	1.14 (0.52-2.49)	0.016
rs4415084	<i>MRPS30</i>	0.86 (0.75-0.98)	0.027	0.83 (0.68-1.02)	0.75 (0.57-0.99)	0.079
rs16902126	<i>POU5F1P1</i>	1.15 (1.01-1.32)	0.035	1.29 (1.03-1.61)	1.30 (0.98-1.71)	0.059
rs918979	<i>ELMO1</i>	1.15 (1.01-1.35)	0.038	1.06 (0.85-1.33)	1.35 (1.04-1.76)	0.062
rs6590224	<i>KIRREL3</i>	1.19 (1.01-1.40)	0.038	1.15 (0.94-1.41)	1.51 (0.98-2.32)	0.099
rs7342847	<i>PRKCA</i>	0.87 (0.76-0.99)	0.042	0.89 (0.72-1.09)	0.74 (0.55-0.99)	0.12
rs17184313	<i>RIN3</i>	0.84 (0.71-1.00)	0.045	0.81 (0.65-1.00)	0.79 (0.48-1.29)	0.11
rs7121523	<i>PPFIBP2</i>	0.84 (0.70-1.00)	0.045	0.87 (0.70-1.08)	0.60 (0.34-1.04)	0.11
rs1024454	<i>SKAP2</i>	1.16 (1.00-1.33)	0.045	1.08 (0.86-1.37)	1.33 (1.01-1.76)	0.10

**Supplemental Table 4:** Significant associations with breast cancer risk in BRCA1 mutation carriers after accounting for oophorectomy as time-dependent covariate.

<b>SNP ID</b>	<b>Gene Name</b>	<b>HR (95% CI)</b>	<b><math>P_{\text{trend}}</math></b>	<b>HR<sub>het</sub> (95% CI)</b>	<b>HR<sub>hom</sub> (95% CI)</b>	<b><math>P_{2df}</math></b>
rs6138178	<i>SNRPB</i>	<b>0.77 (0.67-0.88)</b>	<b>0.00011</b>	<b>0.74 (0.62-0.89)</b>	<b>0.63 (0.46-0.87)</b>	<b>0.00049</b>
rs6602595	<i>CAMK1D</i>	<b>1.24 (1.10-1.40)</b>	<b>0.00062</b>	<b>1.26 (1.04-1.52)</b>	<b>1.53 (1.19-1.97)</b>	<b>0.0028</b>
rs6590224	<i>KIRREL3</i>	1.28 (1.11-1.48)	0.0007	1.27 (1.06-1.52)	1.68 (1.14-2.48)	0.0031
rs1048635	<i>TRIM45</i>	1.49 (1.16-1.49)	0.0019	1.57 (1.20-2.05)	1.27 (0.27-6.11)	0.0046
rs4415084	<i>MRPS30</i>	0.83 (0.74-0.94)	0.0033	0.78 (0.65-0.94)	0.71 (0.56-0.92)	0.0085
rs6005863	<i>HSCB</i>	0.84 (0.75-0.95)	0.0034	0.99 (0.83-1.19)	0.66 (0.62-0.84)	0.00077
rs7629693	<i>HMGN2P7</i>	0.83 (0.73-0.94)	0.0045	0.88 (0.74-1.06)	0.65 (0.49-0.86)	0.011
rs2107425	<i>H19</i>	0.84 (0.74-0.95)	0.0074	0.83 (0.69-0.99)	0.71 (0.53-0.96)	0.027
rs2292326	<i>NECAB2</i>	1.25 (1.05-1.50)	0.014	1.29 (1.05-1.58)	1.33 (0.68-2.58)	0.044
rs9518578	<i>FGF14</i>	0.79 (0.65-0.96)	0.017	0.72 (0.58-0.90)	1.14 (0.55-2.34)	0.012
rs448203	<i>SEPT9</i>	1.15 (1.02-1.29)	0.023	1.23 (1.02-1.48)	1.28 (1.00-1.64)	0.052
rs4294134	<i>NUP205</i>	1.20 (1.02-1.40)	0.024	1.22 (1.01-1.48)	1.35 (0.85-2.13)	0.075
rs4072373	<i>HMGCLL1</i>	0.86 (0.75-0.98)	0.029	0.87 (0.73-1.04)	0.72 (0.50-1.02)	0.088
rs10941679	<i>MRPS30</i>	0.86 (0.75-0.99)	0.030	0.80 (0.67-0.96)	0.84 (0.60-1.16)	0.047
rs3174298	<i>CDC37L1</i>	1.14 (1.01-1.29)	0.039	1.13 (0.94-1.36)	1.31 (1.00-1.72)	0.12
rs1451036	<i>COL11A1</i>	1.19 (1.01-1.40)	0.040	1.17 (0.97-1.41)	1.47 (0.89-2.43)	0.12
rs7121523	<i>PPFIBP2</i>	0.85 (0.72-1.00)	0.048	0.83 (0.68-1.00)	0.78 (0.48-1.27)	0.12

**Supplemental Table 5.** Associations between GWAS SNPs and risk of breast cancer ( $P_{\text{trend}} \leq 0.05$ ) in BRCA2 mutation carriers.

rsID	Gene Name	HR (95% CI) (Per Allele)	$P_{\text{trend}}$	HR (95% CI)		$P_{2df}$
				1 copy	2 copies	
rs9393597	<i>LOC134997</i>	<b>1.55 (1.25-1.92)</b>	<b><math>6.0 \times 10^{-5}</math></b>	<b>1.56 (1.18-2.08)</b>	<b>2.33 (1.23-4.39)</b>	<b>0.00030</b>
rs12652447	<i>FBXL7</i>	<b>1.37 (1.16-1.62)</b>	<b><math>1.7 \times 10^{-4}</math></b>	<b>1.25 (0.96-1.62)</b>	<b>1.92 (1.39-2.67)</b>	<b>0.00041</b>
rs6837016	<i>LOC729902</i>	0.76 (0.63-0.90)	0.0020	0.68 (0.53-0.88)	0.60 (0.42-0.85)	0.0046
rs909116	<i>TNNT3</i>	0.79 (0.68-0.92)	0.0025	0.88 (0.68-1.14)	0.61 (0.45-0.84)	0.0078
rs2067980	<i>MRPS30</i>	1.42 (1.12-1.80)	0.0036	1.31 (1.02-1.69)	3.86 (1.40-10.6)	0.0053
rs4660891	<i>MAST2</i>	1.32 (1.09-1.60)	0.0040	1.50 (1.18-1.92)	1.44 (0.88-2.35)	0.0040
rs10941679	<i>MRPS30</i>	1.31 (1.08-1.58)	0.0054	1.33 (1.06-1.68)	1.65 (1.00-2.72)	0.019
rs1533802	<i>LOC339778</i>	0.79 (0.67-0.94)	0.0072	0.89 (0.70-1.13)	0.50 (0.32-0.78)	0.0090
rs17827708	<i>DSEL</i>	0.74 (0.59-0.93)	0.0093	0.70 (0.54-0.90)	0.77 (0.37-1.62)	0.018
rs7185203	<i>CMIP</i>	0.79 (0.67-0.95)	0.010	0.84 (0.66-1.07)	0.59 (0.40-0.88)	0.032
rs6504950	<i>STXBP4</i>	1.27 (1.06-1.53)	0.010	1.31 (1.04-1.65)	1.53 (0.94-2.49)	0.034
rs7090828	<i>PCBD1</i>	0.81 (0.69-0.95)	0.010	0.93 (0.72-1.21)	0.62 (0.45-0.87)	0.012
rs7871803	<i>TUSC1</i>	0.83 (0.71-0.96)	0.015	0.78 (0.60-1.01)	0.69 (0.51-0.94)	0.044
rs10808749	<i>RRS1</i>	0.83 (0.72-0.97)	0.018	0.91 (0.70-1.18)	0.68 (0.50-0.92)	0.040
rs1329499	<i>LOC100129859</i>	1.23 (1.03-1.46)	0.020	1.16 (0.92-1.47)	1.61 (1.08-2.41)	0.055
rs6914091	<i>FYN</i>	0.82 (0.69-0.97)	0.020	0.79 (0.61-1.02)	0.68 (0.49-0.96)	0.064
rs9518578	<i>FGF14</i>	1.36 (1.05-1.76)	0.021	1.44 (1.08-1.91)	1.40 (0.48-4.12)	0.041
rs1607237	<i>PIK3CA</i>	1.23 (1.02-1.47)	0.026	1.03 (0.80-1.32)	1.62 (1.12-2.34)	0.021
rs785467	<i>PIK3R3</i>	0.82 (0.69-0.98)	0.026	0.76 (0.60-0.96)	0.76 (0.52-1.11)	0.057
rs17383211	<i>LOC100129774</i>	0.83 (0.70-0.98)	0.027	0.84 (0.67-1.06)	0.67 (0.47-0.98)	0.087
rs2473253	<i>WNT4</i>	0.78 (0.63-0.98)	0.029	0.84 (0.65-1.09)	0.44 (0.21-0.93)	0.057
rs7190785	<i>GRIN2A</i>	1.21 (1.02-1.44)	0.031	1.14 (0.90-1.44)	1.56 (1.05-2.32)	0.080
rs15958	<i>RASSF3</i>	1.19 (1.02-1.40)	0.031	1.18 (0.91-1.54)	1.42 (1.03-1.95)	0.097
rs2352593	<i>TEC</i>	1.21 (1.02-1.47)	0.032	1.17 (0.93-1.47)	1.51 (1.01-2.24)	0.096
rs4546928	<i>LOC100129950</i>	0.78 (0.63-0.98)	0.032	0.76 (0.59-0.99)	0.68 (0.34-1.35)	0.088
rs9564996	<i>LOC730242</i>	1.26 (1.02-1.56)	0.035	1.29 (0.99-1.67)	1.46 (0.74-2.89)	0.11
rs16886165	<i>MAP3K1</i>	1.24 (1.01-1.53)	0.040	1.31 (1.02-1.68)	1.32 (0.69-2.51)	0.093
rs6735174	<i>TNP1</i>	0.79 (0.62-0.99)	0.040	0.81 (0.62-1.06)	0.52 (0.23-1.19)	0.12
rs1374468	<i>TACC3</i>	1.24 (1.01-1.53)	0.040	1.21 (0.94-1.55)	1.65 (0.94-2.92)	0.12
rs1433211	<i>LOC644624</i>	1.19 (1.01-1.40)	0.043	1.22 (0.96-1.56)	1.39 (0.97-1.99)	0.12
rs2107425	<i>H19</i>	1.19 (1.00-1.42)	0.044	1.29 (1.02-1.64)	1.30 (0.85-1.99)	0.079
rs8014727	<i>TRA@</i>	0.84 (0.71-1.00)	0.046	1.07 (0.83-2.37)	0.52 (0.35-0.78)	0.0015
rs448203	<i>SEPT9</i>	0.83 (0.69-1.00)	0.046	0.76 (0.59-0.98)	0.74 (0.51-1.08)	0.080
rs17755917	<i>BTG3</i>	1.29 (1.00-1.67)	0.047	1.33 (1.00-1.78)	1.37 (0.50-3.77)	0.13
rs6837118	<i>LDB2</i>	1.34 (1.00-1.79)	0.049	1.27 (0.94-1.73)	2.62 (0.73-9.36)	0.12

**Supplemental Table 6:** Significant associations with breast cancer risk in BRCA2 mutation carriers after excluding ovarian cancer cases.

SNP ID	Gene Name	HR (95% CI)	$P_{\text{trend}}$	HR <sub>het</sub> (95% CI)	HR <sub>hom</sub> (95% CI)	$P_{2df}$
rs12652447	<i>FBXL7</i>	<b>1.38 (1.15-1.66)</b>	<b>0.00056</b>	<b>1.23 (0.91-1.65)</b>	<b>1.97 (1.38-2.83)</b>	<b>0.00079</b>
rs4777792	<i>UNQ9370</i>	1.35 (1.12-1.63)	0.0015	1.68 (1.30-2.17)	1.34 (0.84-2.13)	0.00032
rs4660891	<i>MAST2</i>	1.34 (1.09-1.65)	0.0049	1.39 (1.06-1.82)	1.69 (1.04-2.74)	0.019
rs909116	<i>TNNT3</i>	0.80 (0.68-0.94)	0.0070	0.96 (0.73-1.27)	0.62 (0.44-0.87)	0.013
rs7185203	<i>CMIP</i>	0.77 (0.63-0.93)	0.0075	0.82 (0.63-1.07)	0.55 (0.35-0.86)	0.027
rs9393597	<i>LOC134997</i>	<b>1.40 (1.09-1.79)</b>	<b>0.0078</b>	<b>1.35 (0.99-1.85)</b>	<b>2.16 (0.97-4.82)</b>	<b>0.028</b>
rs6837016	<i>LOC729902</i>	0.77 (0.64-0.94)	0.0087	0.75 (0.56-1.00)	0.61 (0.41-0.89)	0.030
rs7090828	<i>PCBD1</i>	0.79 (0.66-0.94)	0.0088	0.89 (0.67-1.19)	0.59 (0.41-0.86)	0.014
rs17033285	<i>SRBD1</i>	1.53 (1.11-2.10)	0.0089	1.35 (0.97-1.88)	17.9 (4.66-68.6)	0.00006
rs4546928	<i>LOC100129950</i>	0.73 (0.57-0.92)	0.0095	0.76 (0.57-1.01)	0.46 (0.20-1.07)	0.036
rs1533802	<i>LOC339778</i>	0.78 (0.64-0.95)	0.012	0.98 (0.75-1.29)	0.40 (0.24-0.68)	0.0024
rs1433211	<i>LOC644624</i>	1.26 (1.05-1.52)	0.014	1.26 (0.97-1.64)	1.60 (1.06-2.40)	0.047
rs848124	<i>SLC25A21</i>	1.26 (1.05-1.51)	0.014	1.05 (0.78-1.40)	1.64 (1.15-2.36)	0.012
rs2067980	<i>MRPS30</i>	1.38 (1.06-1.80)	0.016	1.29 (0.97-1.72)	3.12 (1.03-9.44)	0.036
rs6914091	<i>FYN</i>	0.80 (0.66-0.96)	0.017	0.80 (0.61-1.07)	0.63 (0.43-0.93)	0.057
rs1460475	<i>KCNIP4</i>	0.78 (0.63-0.96)	0.020	0.81 (0.61-1.07)	0.55 (0.31-0.98)	0.065
rs1418884	<i>FRMD4A</i>	0.80 (0.66-0.97)	0.024	0.78 (0.58-1.04)	0.65 (0.43-0.97)	0.074
rs4817896	<i>KCNJ6</i>	0.80 (0.66-0.97)	0.024	0.78 (0.60-1.02)	0.65 (0.41-1.04)	0.075
rs10450393	<i>SORBS1</i>	1.23 (1.02-1.47)	0.026	1.50 (1.13-1.99)	1.35 (0.92-1.99)	0.018
rs10808749	<i>RRS1</i>	0.83 (0.69-0.98)	0.030	0.84 (0.63-1.12)	0.68 (0.48-0.96)	0.089
rs2107425	<i>H19</i>	1.24 (1.02-1.50)	0.031	1.34 (1.02-1.74)	1.39 (0.86-2.25)	0.066
rs2061771	<i>ZNF765</i>	0.74 (0.56-0.98)	0.034	0.60 (0.44-0.82)	1.56 (0.69-3.52)	0.0015
rs2074985	<i>FOXMI</i>	1.23 (1.02-1.49)	0.034	1.22 (0.93-1.66)	1.53 (1.01-2.33)	0.10
rs37936	<i>GNAT3</i>	1.21 (1.01-1.46)	0.039	1.21 (0.90-1.61)	1.48 (1.02-2.14)	0.11
rs7871803	<i>TUSC1</i>	0.84 (0.71-0.99)	0.044	0.78 (0.59-1.04)	0.71 (0.50-1.01)	0.10
rs12608723	<i>FLJ12355</i>	1.28 (1.01-1.63)	0.044	1.25 (0.93-1.68)	1.80 (0.83-3.90)	0.12
rs6504950	<i>STXBP4</i>	1.23 (1.00-1.50)	0.046	1.26 (0.98-1.64)	1.41 (0.83-2.40)	0.13
rs3109633	<i>SHISA3</i>	1.32 (1.00-1.73)	0.047	1.34 (0.99-1.82)	1.58 (0.57-4.40)	0.13
rs4766886	<i>KSR2</i>	0.82 (0.68-1.00)	0.047	0.86 (0.66-1.12)	0.65 (0.42-1.01)	0.14
rs9564996	<i>LOC730242</i>	1.26 (1.00-1.59)	0.050	1.37 (1.03-1.83)	1.20 (0.60-2.41)	0.097

**Supplemental Table 7:** Significant associations with breast cancer risk in BRCA2 mutation carriers after excluding prevalent cases (> 5 years between cancer diagnosis and ascertainment).

SNP ID	Gene Name	HR (95% CI)	$P_{\text{trend}}$	HR <sub>het</sub> (95% CI)	HR <sub>hom</sub> (95% CI)	$P_{2df}$
<b>rs9393597</b>	<b>LOC134997</b>	<b>1.58 (1.24-2.00)</b>	<b>0.00016</b>	<b>1.51 (1.10-2.09)</b>	<b>2.77 (1.47-5.20)</b>	<b>0.00045</b>
rs6837016	LOC729902	0.70 (0.58-0.85)	0.00040	0.63 (0.47-0.83)	0.52 (0.35-0.77)	0.00069
rs17033285	SRBD1	1.64 (1.18-2.28)	0.0030	1.55 (1.12-2.16)	5.19 (1.14-23.7)	0.0062
rs10941679	MRPS30	1.39 (1.11-1.74)	0.0042	1.39 (1.06-1.81)	1.94 (1.04-3.62)	0.015
<b>rs12652447</b>	<b>FBXL7</b>	<b>1.31 (1.09-1.59)</b>	<b>0.0047</b>	<b>1.23 (0.91-1.68)</b>	<b>1.76 (2.21-2.55)</b>	<b>0.012</b>
rs7871803	TUSC1	0.78 (0.66-0.93)	0.0064	0.89 (0.65-1.20)	0.60 (0.41-0.86)	0.018
rs6914091	FYN	0.77 (0.63-0.93)	0.0077	0.73 (0.54-0.98)	0.61 (0.41-0.91)	0.024
rs17827708	DSEL	0.69 (0.52-0.92)	0.0099	0.67 (0.49-0.92)	0.60 (0.23-1.55)	0.033
rs1533802	LOC339778	0.78 (0.65-0.94)	0.011	0.86 (0.65-1.13)	0.52 (0.32-0.85)	0.026
rs10808749	RRS1	0.80 (0.68-0.95)	0.012	0.97 (0.71-1.32)	0.61 (0.43-0.89)	0.019
rs6567201	LOC100129867	1.36 (1.06-1.74)	0.014	1.31 (0.97-1.76)	2.11 (0.99-4.46)	0.041
rs15958	RASSF3	1.26 (1.04-1.52)	0.016	1.16 (0.85-1.59)	1.59 (1.10-2.29)	0.041
rs2067980	MRPS30	1.38 (1.06-1.79)	0.016	1.30 (0.98-1.72)	3.05 (1.09-8.52)	0.027
rs918979	ELMO1	1.25 (1.04-1.50)	0.019	1.37 (1.01-1.87)	1.54 (1.05-2.26)	0.050
rs12210212	GFRAL	0.77 (0.62-0.96)	0.019	0.78 (0.59-1.02)	0.59 (0.35-0.99)	0.064
rs12907709	MCTP2	0.80 (0.66-0.97)	0.020	0.80 (0.60-1.07)	0.63 (0.42-0.95)	0.065
rs785467	PIK3R3	0.78 (0.63-0.96)	0.020	0.66 (0.50-0.88)	0.75 (0.48-1.18)	0.019
rs2107425	H19	1.27 (1.03-1.55)	0.022	1.33 (1.01-1.76)	1.50 (0.91-2.48)	0.061
rs37936	GNAT3	1.23 (1.03-1.48)	0.022	1.51 (1.12-2.03)	1.40 (0.94-2.08)	0.020
rs8014727	TRA@	0.79 (0.64-0.97)	0.024	1.03 (0.77-1.38)	0.43 (0.25-0.72)	0.0022
rs2352593	TEC	1.25 (1.03-1.51)	0.027	1.26 (0.96-1.64)	1.54 (1.00-2.38)	0.086
rs4660891	MAST2	1.27 (1.02-1.58)	0.031	1.62 (1.20-2.18)	1.07 (0.59-1.94)	0.0062
rs4546928	LOC100129950	0.75 (0.57-0.98)	0.032	0.68 (0.50-0.93)	0.83 (0.40-1.73)	0.050
rs6504950	STXBP4	1.25 (1.01-1.54)	0.037	1.21 (0.92-1.57)	1.67 (0.96-2.91)	0.10
rs9564996	LOC730242	1.28 (1.01-1.61)	0.041	1.39 (1.05-1.84)	1.15 (0.53-2.52)	0.068
rs1457020	LOC730105	0.80 (0.64-0.99)	0.042	0.76 (0.58-1.01)	0.70 (0.39-1.23)	0.11
rs12425296	KSR2	1.26 (1.01-1.57)	0.042	1.30 (0.98-1.73)	1.50 (0.87-2.60)	0.11
rs1370182	LOC391774	0.78 (0.61-0.99)	0.045	0.72 (0.54-0.96)	0.78 (0.38-1.61)	0.074
rs10892162	DSCAML1	0.76 (0.58-0.99)	0.045	0.76 (0.55-1.04)	0.57 (0.25-1.28)	0.13



**Supplemental Table 8:** Significant associations with breast cancer risk in BRCA2 mutation carriers after accounting for oophorectomy as a time-dependent covariate.

<b>SNP ID</b>	<b>Gene Name</b>	<b>HR (95% CI)</b>	<b><math>P_{\text{trend}}</math></b>	<b>HR<sub>het</sub> (95% CI)</b>	<b>HR<sub>hom</sub> (95% CI)</b>	<b><math>P_{2df}</math></b>
rs9393597	<i>LOC134997</i>	<b>1.53 (1.23-1.90)</b>	<b>0.00011</b>	<b>1.54 (1.15-2.06)</b>	<b>2.29 (1.23-4.29)</b>	<b>0.00056</b>
rs12652447	<i>FBXL7</i>	<b>1.38 (1.17-1.63)</b>	<b>0.00017</b>	<b>1.23 (0.95-1.60)</b>	<b>1.95 (1.40-2.71)</b>	<b>0.00035</b>
rs6837016	<i>LOC729902</i>	0.76 (0.63-0.90)	0.0022	0.68 (0.52-0.88)	0.60 (0.42-0.86)	0.0042
rs909116	<i>TNNT3</i>	0.79 (0.68-0.92)	0.0028	0.88 (0.68-1.15)	0.62 (0.45-0.85)	0.0084
rs2067980	<i>MRPS30</i>	1.43 (1.13-1.82)	0.0031	1.33 (1.03-1.72)	3.82 (1.39-10.5)	0.0048
rs10941679	<i>MRPS30</i>	1.32 (1.09-1.61)	0.0047	1.34 (1.06-1.71)	1.70 (1.02-2.82)	0.017
rs17827708	<i>DSEL</i>	0.73 (0.58-0.91)	0.0059	0.68 (0.53-0.88)	0.76 (0.36-1.59)	0.012
rs4660891	<i>MAST2</i>	1.30 (1.08-1.58)	0.0068	1.48 (1.16-1.90)	1.39 (0.85-2.28)	0.0063
rs1533802	<i>LOC339778</i>	0.79 (0.67-0.94)	0.0077	0.89 (0.70-1.14)	0.49 (0.31-0.78)	0.0094
rs1329499	<i>LOC100129859</i>	1.26 (1.06-1.50)	0.0099	1.14 (0.90-1.45)	1.78 (1.20-2.66)	0.017
rs6504950	<i>STXBP4</i>	1.27 (1.06-1.53)	0.0099	1.32 (1.05-1.67)	1.51 (0.92-2.46)	0.031
rs7185203	<i>CMIP</i>	0.80 (0.67-0.95)	0.010	0.85 (0.67-1.08)	0.59 (0.39-0.88)	0.031
rs7090828	<i>PCBD1</i>	0.81 (0.69-0.95)	0.011	0.95 (0.73-1.24)	0.62 (0.44-0.87)	0.0098
rs6914091	<i>FYN</i>	0.81 (0.69-0.96)	0.014	0.78 (0.60-1.01)	0.67 (0.48-0.94)	0.044
rs7871803	<i>TUSC1</i>	0.83 (0.72-0.97)	0.018	0.78 (0.60-1.02)	0.70 (0.52-0.95)	0.054
rs7190785	<i>GRIN2A</i>	1.23 (1.03-1.47)	0.019	1.15 (0.90-1.46)	1.62 (1.09-2.41)	0.050
rs15958	<i>RASSF3</i>	1.21 (1.03-1.42)	0.019	1.22 (0.93-1.60)	1.46 (1.06-2.01)	0.065
rs2473253	<i>WNT4</i>	0.77 (0.62-0.96)	0.023	0.83 (0.64-1.08)	0.42 (0.19-0.92)	0.049
rs9518578	<i>FGF14</i>	1.36 (1.04-1.78)	0.025	1.43 (1.07-1.92)	1.41 (0.44-4.53)	0.047
rs785467	<i>PIK3R3</i>	0.82 (0.69-0.98)	0.025	0.76 (0.60-0.97)	0.74 (0.51-1.09)	0.061
rs2352593	<i>TEC</i>	1.22 (1.02-1.45)	0.026	1.18 (0.94-1.49)	1.52 (1.03-2.26)	0.080
rs12922061	<i>LOC643714</i>	1.24 (1.02-1.51)	0.028	1.17 (0.92-1.49)	1.71 (1.03-2.84)	0.077
rs8014727	<i>TRA@</i>	0.82 (0.69-0.98)	0.028	1.06 (0.83-1.37)	0.49 (0.33-0.74)	0.00063
rs17383211	<i>LOC100129774</i>	0.83 (0.70-0.98)	0.028	0.84 (0.66-1.06)	0.68 (0.47-0.99)	0.091
rs10808749	<i>RRS1</i>	0.85 (0.73-0.99)	0.032	0.91 (0.69-1.19)	0.70 (0.52-0.96)	0.076
rs9564996	<i>LOC730242</i>	1.27 (1.02-1.58)	0.034	1.28 (0.99-1.66)	1.53 (0.75-3.11)	0.10
rs4546928	<i>LOC100129950</i>	0.78 (0.62-0.98)	0.034	0.76 (0.58-0.99)	0.69 (0.34-1.37)	0.090
rs1607237	<i>PIK3CA</i>	1.21 (1.01-1.44)	0.040	1.01 (0.79-1.30)	1.58 (1.10-2.28)	0.027
rs4817896	<i>KCNJ6</i>	0.83 (0.69-0.99)	0.041	0.80 (0.63-1.03)	0.72 (0.48-1.07)	0.12
rs6735174	<i>TNP1</i>	0.79 (0.62-1.00)	0.047	0.81 (0.62-1.06)	0.54 (0.23-1.26)	0.14
rs1374468	<i>TACC3</i>	1.23 (1.00-1.52)	0.049	1.20 (0.93-1.54)	1.63 (0.92-2.89)	0.14