

Supplementary Tables

Table S1. Clinical characteristics of cohort

	Sporadics	<i>gBRCA2</i>	<i>gBRCA1</i>	<i>gATM</i>	<i>gCHEK2</i>	<i>gFANCI</i>	<i>gMSH2+gBRCA2</i>	<i>gPALB2</i>
Patients (N)	26	26	5	1	1	1	1	1
Age at diagnosis (Mean)	61.5 (47-78)	61.96 (39-77)	63 (59-69)	55	67	70	57	53
PSA at diagnosis (Mean)	13.07 (2.0-56.0)	10.75 (1.9-65.3)	14.6 (2.0-49.1)	5	7.7	6500	8.8	4.3
Grade group 1 (N)	2	2						
Grade group 2 (N)	2	7	1				1	
Grade group 3 (N)	6	5	2		1			
Grade group 4 (N)	3	1						
Grade group 5 (N)	13	11	2	1		1		1

Table S2: Variants of germline mutations

Sample ID	Mutation	Variant	Pathogenicity
Pt 1	<i>gBRCA1</i>	BRCA1 c.5095 C>T pArg1699Trp in exon 18	C5
Pt 2	<i>gBRCA1</i>	BRCA1 c.2071 del A	C5
Pt 3	<i>gBRCA1</i>	BRCA1 917_918 del TT (STOP 285)	C5
Pt 4	<i>gBRCA1</i>	BRCA1 c.135-1G>T	C5
Pt 5	<i>gBRCA1</i>	BRCA1 c135-1G>T	C5
Pt 6	<i>gBRCA2</i>	BRCA2 6174 del T in exon 11	C5
Pt 7	<i>gBRCA2</i>	BRCA2 IVS 17-1 G>C	C5
Pt 8	<i>gBRCA2</i>	BRCA2 542 T>G (L105X)	C5
Pt 9	<i>gBRCA2</i>	BRCA2 c.8585dupT; p.Glu2863Argfs*6 exon 20	C5
Pt 10	<i>gBRCA2</i>	BRCA2 5910 C>G (Y1894X)	C5
Pt 11	<i>gBRCA2</i>	BRCA2 2041_2042 del A (STOP 613)	C5
Pt 12	<i>gBRCA2</i>	BRCA2 c.6275_6276delTT; p.Leu2092Profs*7 exon 11	C5
Pt 13	<i>gBRCA2</i>	BRCA2 c.2760delC; p.Ile921PhefsX39 in exon 11	C5
Pt 14	<i>gBRCA2</i>	BRCA2 c.7480C>T; p.Arg2494* in exon 15	C5
Pt 15	<i>gBRCA2</i>	BRCA2 c.5682C>G; p.Tyr1894* in exon 11	C5
Pt 16	<i>gBRCA2</i>	BRCA2 c.1813delA; p.lie605Tyrf* in exon 10	C5
Pt 17	<i>gBRCA2</i>	BRCA2 c.4211C>G; p.Ser1404*	C5
Pt 18	<i>gBRCA2</i>	BRCA2 978_983del4 in exon 9	C5
Pt 19	<i>gBRCA2</i>	BRCA2 2041_2042 del A (STOP 613)	C5
Pt 20	<i>gBRCA2</i>	BRCA2 c.5279C>G; p.Ser1760X in exon 11	C5
Pt 21	<i>gBRCA2</i>	BRCA2 9117 G>A (P3039P)	C5
Pt 22	<i>gBRCA2</i>	BRCA2 7985G>A	C5
Pt 23	<i>gBRCA2</i>	BRCA2 c.9097dupA; p.Thr3033Asnfs*11 exon 23	C5
Pt 24	<i>gBRCA2</i>	BRCA2 9132 del C (STOP 2975)	C5
Pt 25	<i>gBRCA2</i>	BRCA2 c.778_779delGA; p.Glu260Serfs*15 exon 9	C5
Pt 26	<i>gBRCA2</i>	BRCA2 c.5073dupA p.Trp1692MetfsTer3	C5
Pt 27	<i>gBRCA2</i>	BRCA2 9522 C>G (Y3098X)	C5
Pt 28	<i>gBRCA2</i>	BRCA2 983delACAG exon 9	C5
Pt 29	<i>gBRCA2</i>	BRCA2 9345 G>A (splice variant)	C5
Pt 30	<i>gBRCA2</i>	BRCA2 c.771_775delTCAAA; p.Asn257Lysfs*17 exon 9	C5
Pt 31	<i>gBRCA2</i>	BRCA2 c.68-?_6841+?del	C5

Pt 32	<i>gMSH2+gBRCA2</i>	BRCA2 c.517-2A in intron 6 and MSH2 Deletion of exon 8	C5 (<i>MSH2</i>) and C4 (<i>BRCA2</i>)
Pt 33	<i>gCHEK2</i>	c.320-5T>A	C4
Pt 34	<i>gFANCI</i>	c.511C>T	C5
Pt 35	<i>gPALB2</i>	c.2368C>T	C5
Pt 36	<i>gATM</i>	c.7829_7830del	C5

Table S3: Differentially expressed genes between HRR and sporadic samples.
A positive log fold change (logFC) indicates upregulation in the HRR samples.

Gene	logFC	p-value	Adjusted p-value
<i>CCL25</i>	-0.6447166	9.54E-03	0.04131796
<i>CD1D</i>	0.76410547	1.82E-05	0.0003853
<i>FPR2</i>	-1.1590316	8.74E-06	0.0002076
<i>IL5</i>	-0.9124614	1.65E-03	0.01164058
<i>IKBKE</i>	0.65063944	2.71E-03	0.01600989
<i>INPP5D</i>	0.70148955	1.28E-06	5.59E-05
<i>CD53</i>	0.66022119	2.86E-06	9.74E-05
<i>CTSG</i>	-1.1592962	9.65E-05	0.00135076
<i>LTB</i>	1.13620959	1.63E-05	0.00035522
<i>CCL28</i>	0.9968652	1.82E-03	0.01221736
<i>CARD11</i>	0.85893254	5.01E-06	0.00013541
<i>SPN</i>	0.66862197	1.88E-04	0.00227019
<i>PRF1</i>	0.47406432	4.17E-04	0.00413459
<i>CCL26</i>	-0.8102846	1.62E-04	0.00201249
<i>CCL15</i>	-0.8678269	5.51E-04	0.00501949
<i>TNFSF10</i>	0.8393136	1.15E-04	0.00150524
<i>TLR6</i>	0.60338788	3.34E-04	0.00367032
<i>SI00B</i>	-1.1180312	5.98E-06	0.00015622
<i>TLR10</i>	0.79949463	8.57E-05	0.00125549
<i>CD22</i>	0.64550198	3.99E-03	0.02158515
<i>CD209</i>	-0.5871911	5.97E-03	0.02891531
<i>KLRG1</i>	0.67286043	4.86E-04	0.00453528
<i>CXCR2</i>	-0.8607383	3.67E-04	0.00383947
<i>MAGEA1</i>	-0.8063779	4.82E-03	0.02501223
<i>CD36</i>	-1.169591	8.28E-06	0.00020292
<i>CXCR3</i>	1.03951576	1.47E-08	1.32E-06
<i>TLR1</i>	0.7277777	3.34E-07	1.74E-05
<i>IL1R2</i>	-0.8248538	8.20E-04	0.00677105
<i>PTPRC</i>	0.80733115	9.93E-09	1.30E-06
<i>APOE</i>	0.83263548	6.84E-03	0.03136965
<i>LY9</i>	0.65223803	1.03E-03	0.00803614
<i>HLA-DMB</i>	1.09759019	6.43E-04	0.00549292
<i>FCER1G</i>	0.41530016	3.22E-03	0.01841075
<i>CD40</i>	0.378842	6.15E-03	0.02959895
<i>CASP1</i>	0.40231718	6.78E-03	0.0312727
<i>ITGAX</i>	0.46918834	2.14E-03	0.01363641
<i>CCL19</i>	0.96855437	2.16E-03	0.01363641

<i>PTGS2</i>	-1.3062756	3.51E-04	0.00374182
<i>CD27</i>	0.79646604	8.43E-05	0.00125549
<i>PSMB10</i>	0.3641815	6.78E-03	0.0312727
<i>PSMB8</i>	0.58272919	1.29E-03	0.00969337
<i>HLA-A</i>	1.37660257	4.67E-11	3.66E-08
<i>SLAMF7</i>	0.70378776	1.15E-03	0.00890917
<i>IL6</i>	-2.3171993	1.08E-06	4.97E-05
<i>IL21R</i>	0.53395163	5.75E-03	0.02863919
<i>CD3G</i>	0.65156577	1.78E-03	0.01213017
<i>VEGFC</i>	-0.3526383	6.51E-03	0.03057212
<i>IL2RG</i>	0.97824948	5.65E-10	1.32E-07
<i>C3</i>	0.99426956	9.87E-05	0.00135786
<i>PRG2</i>	-0.7714846	1.68E-03	0.01164058
<i>IL1R1</i>	-0.6743912	3.90E-03	0.02138804
<i>CD96</i>	1.06576974	6.73E-10	1.32E-07
<i>GZMK</i>	0.7440735	1.70E-03	0.01169581
<i>CYBB</i>	0.69567433	6.23E-08	4.07E-06
<i>HLA-DOB</i>	0.6883734	4.39E-04	0.00424737
<i>NOD2</i>	0.47675574	2.01E-03	0.01314212
<i>SYK</i>	0.74392358	3.19E-04	0.00357288
<i>PIK3CD</i>	0.7697434	1.84E-06	6.89E-05
<i>CASP8</i>	0.5272876	1.36E-03	0.01006645
<i>CMKLR1</i>	0.35875128	3.87E-03	0.02138723
<i>HLA-DRA</i>	0.78770694	3.15E-04	0.00357288
<i>IL16</i>	0.65477757	9.21E-06	0.00021243
<i>GTF3C1</i>	-0.4977002	6.30E-03	0.02994698
<i>SH2D1A</i>	0.78018479	4.88E-05	0.0008411
<i>CMA1</i>	-0.9773325	1.53E-03	0.01108815
<i>TNFRSF13B</i>	0.81029717	6.24E-03	0.02983897
<i>CD58</i>	0.67750057	4.90E-06	0.00013541
<i>CD6</i>	0.47345671	2.72E-03	0.01600989
<i>KLRK1</i>	0.87998976	3.82E-05	0.00067979
<i>TLR7</i>	0.63338636	3.07E-04	0.00353862
<i>IRF1</i>	0.65901675	1.50E-03	0.01096402
<i>NFKBIA</i>	-0.3342822	9.34E-04	0.00747277
<i>CLEC4C</i>	0.70027323	1.02E-02	0.04257253
<i>IL22</i>	-0.7653724	5.92E-04	0.00527721
<i>NEFL</i>	-1.1387951	6.75E-03	0.0312727
<i>IL32</i>	0.70561418	6.25E-06	0.00015817
<i>IRF8</i>	0.59716456	1.13E-04	0.00150049
<i>NT5E</i>	-0.485135	4.34E-03	0.02315809
<i>TAL1</i>	-0.5060052	9.88E-03	0.04209206

<i>ICOS</i>	0.52961005	8.00E-03	0.03581009
<i>TNF</i>	0.8876652	1.80E-03	0.01214208
<i>CD180</i>	0.62779565	7.46E-04	0.00629116
<i>CIR</i>	0.56759448	1.54E-03	0.01108815
<i>ATG7</i>	0.35312935	2.24E-03	0.01385269
<i>ITGA4</i>	0.51101712	8.65E-05	0.00125549
<i>CXCL13</i>	1.49997177	1.02E-02	0.04257253
<i>MCAM</i>	-0.6676763	3.72E-04	0.00383947
<i>BTLA</i>	0.81988418	3.53E-04	0.00374182
<i>JAK3</i>	0.54863152	7.29E-05	0.00114369
<i>CD3D</i>	1.13147557	4.91E-10	1.32E-07
<i>ARG1</i>	-1.1440988	1.87E-04	0.00227019
<i>CD247</i>	0.83268811	2.15E-08	1.69E-06
<i>C8B</i>	-0.8824562	4.36E-06	0.00012672
<i>THBD</i>	-0.6702777	5.82E-04	0.00524068
<i>UBC</i>	-0.4072711	5.85E-03	0.02868688
<i>LBP</i>	-0.7929712	7.00E-03	0.03190039
<i>SPANXB1</i>	-0.728331	7.23E-03	0.03278202
<i>ITGAM</i>	0.60873521	3.52E-05	0.00065692
<i>TNFRSF17</i>	1.00886744	1.64E-03	0.01164058
<i>TREMI</i>	-1.4611974	1.67E-03	0.01164058
<i>IFNA8</i>	-0.8822249	5.77E-03	0.02863919
<i>SLC11A1</i>	-0.8986624	1.36E-03	0.01006645
<i>ABL1</i>	-0.3976347	4.37E-04	0.00424737
<i>TIGIT</i>	0.61174755	2.23E-03	0.01385269
<i>TCF7</i>	0.46456448	6.44E-03	0.03042148
<i>CXCL11</i>	1.02009402	4.81E-03	0.02501223
<i>BLK</i>	0.86000239	2.30E-03	0.01395583
<i>CCL5</i>	0.4453199	4.89E-03	0.02505203
<i>CD79A</i>	1.52641399	9.13E-05	0.00130149
<i>CTSH</i>	0.57327396	5.13E-03	0.02613011
<i>ITGAL</i>	1.15685313	1.70E-07	9.53E-06
<i>AMICA1</i>	0.55943575	1.11E-04	0.00150049
<i>IL12RB1</i>	0.45919552	4.74E-03	0.02495711
<i>CX3CR1</i>	1.05877515	4.07E-04	0.00413459
<i>CD34</i>	-0.7084816	8.05E-04	0.00671713
<i>CTAGE1</i>	-0.809441	3.65E-05	0.00066567
<i>SEMG1</i>	-4.6145887	6.06E-04	0.00528853
<i>PSMB9</i>	0.96142368	1.24E-07	7.48E-06
<i>HLA-G</i>	0.84861689	5.00E-05	0.0008411
<i>OSM</i>	-1.0870104	6.45E-04	0.00549292
<i>TNFRSF12A</i>	-1.1058863	2.26E-03	0.01385754

<i>IFNAR2</i>	0.43105011	5.04E-05	0.0008411
<i>CIQB</i>	0.44096031	3.37E-03	0.019022
<i>IFNA7</i>	-0.6614625	4.13E-04	0.00413459
<i>LCK</i>	0.77070067	1.26E-08	1.32E-06
<i>MAPKAPK2</i>	0.39291615	5.30E-03	0.02665665
<i>CD5</i>	0.73861026	3.68E-06	0.00011537
<i>IRF4</i>	0.61626213	8.97E-03	0.03927201
<i>SELE</i>	-1.0268323	3.65E-03	0.02030067
<i>CEACAM8</i>	-0.5103837	8.17E-03	0.03617375
<i>CD79B</i>	1.25592713	2.14E-06	7.64E-05
<i>ZAP70</i>	0.69506213	2.48E-04	0.00289662
<i>HLA-B</i>	0.44554884	4.53E-03	0.02400743
<i>PDGFRB</i>	0.43193063	4.10E-03	0.02202151
<i>CD19</i>	0.93733979	7.26E-05	0.00114369
<i>PASDI</i>	-0.7926381	3.61E-03	0.02023
<i>IL3</i>	-0.5725111	5.95E-03	0.02891531
<i>MME</i>	-1.0487269	1.03E-02	0.04257253
<i>CDKN1A</i>	-0.7789121	9.49E-04	0.00751616
<i>SYCP1</i>	-0.6779428	5.82E-03	0.02868688
<i>NLRC5</i>	0.65062957	3.48E-06	0.00011382
<i>LILRB2</i>	-0.5717309	3.93E-03	0.02138804
<i>FAS</i>	0.6415598	2.09E-03	0.01353227
<i>IL2RB</i>	0.98161871	2.39E-05	0.00046811
<i>IL25</i>	-0.5139503	7.65E-03	0.03447953
<i>MAGEA12</i>	-0.7583705	1.85E-03	0.01227819
<i>IL1RL2</i>	-0.5130586	8.65E-03	0.03810807
<i>STAT4</i>	0.38386429	1.19E-02	0.04895978
<i>LAMP3</i>	1.17939883	2.04E-05	0.00040929
<i>CXCL10</i>	1.12446021	8.56E-04	0.00698742
<i>CCR1</i>	0.54657274	9.96E-03	0.04209206
<i>ITGA6</i>	-0.5071367	3.36E-03	0.019022
<i>ITGB3</i>	-0.7050994	4.59E-04	0.00438913
<i>SI00A8</i>	-1.2524339	5.15E-04	0.00475433
<i>CSF1R</i>	0.48264615	2.31E-03	0.01395583
<i>LY86</i>	0.49571349	2.24E-03	0.01385269
<i>CEACAM6</i>	1.19018642	2.71E-03	0.01600989
<i>CXCL9</i>	1.30328179	5.50E-05	0.0008989
<i>IDO1</i>	0.58183069	4.85E-03	0.02503681
<i>CAMP</i>	-1.0084129	2.15E-03	0.01363641
<i>MS4A1</i>	1.5660516	8.20E-05	0.00125549
<i>PIK3CG</i>	0.79089215	3.63E-07	1.78E-05
<i>CTSS</i>	0.65391267	6.07E-04	0.00528853

<i>IL27</i>	-0.5753489	8.04E-03	0.03581009
<i>IFNA17</i>	-0.68553	9.99E-03	0.04209206
<i>PSMD7</i>	-0.477481	4.82E-04	0.00453528
<i>CCR5</i>	0.44618618	1.99E-03	0.01313675
<i>SI00A12</i>	-1.454304	1.18E-04	0.00151423
<i>IL10RA</i>	0.75049818	1.52E-08	1.32E-06
<i>GZMA</i>	0.81502376	4.13E-06	0.00012461
<i>VEGFA</i>	-1.1444038	8.73E-04	0.00705863
<i>HLA-DPB1</i>	0.91690008	2.80E-09	4.39E-07
<i>CD48</i>	0.64271578	3.46E-05	0.00065692
<i>PRM1</i>	-0.6321258	2.93E-03	0.01703077
<i>PDCD1LG2</i>	0.5586415	1.26E-03	0.00957928
<i>LRP1</i>	0.53110812	1.91E-04	0.00227183
<i>CCR2</i>	0.71013786	1.95E-05	0.00040271
<i>ITGA2</i>	0.46289456	2.75E-03	0.01610079
<i>HLA-DMA</i>	0.55430088	5.51E-08	3.93E-06
<i>FLT3LG</i>	0.4490659	9.61E-03	0.04139419
<i>HLA-DPA1</i>	0.92938676	1.37E-05	0.00030788
<i>TNFSF13B</i>	0.69860489	1.28E-04	0.00161705
<i>DPP4</i>	-0.9443008	9.09E-03	0.03959375
<i>CD2</i>	0.50826695	1.20E-03	0.00924521
<i>ITGB2</i>	0.55424083	1.84E-06	6.89E-05
<i>CD74</i>	0.46141186	3.37E-04	0.00367032
<i>CD3E</i>	0.80863298	1.71E-06	6.89E-05
<i>DNAJC14</i>	-0.5333717	5.18E-03	0.02622498
<i>ZNF346</i>	0.42545459	3.18E-03	0.01834309
<i>GPATCH3</i>	-0.4016687	9.89E-03	0.04209206