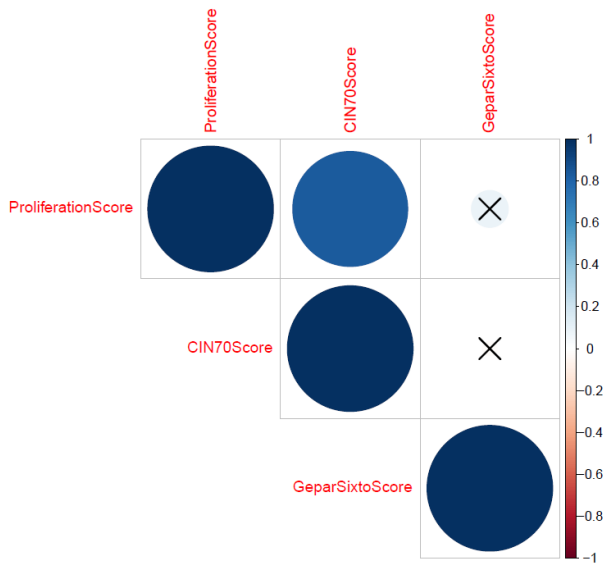


Supplementary Data

Matched Cohort Study of Germline BRCA Mutation Carriers with Triple-Negative Breast Cancer in BrighTNess Trial

Supplementary Figures: 1

Supplementary Tables: 4



Supplementary Figure 1. Correlation plot for proliferation, CIN70, and GeparSixto scores. Size of circle and darkness of color indicate magnitude of Pearson's r . Blue indicates a positive correlation and red indicates a negative correlation. Non-significant correlations are indicated with an "x".

Supplementary Table 1. *BRCA* status stratified analyses of pathologic complete response by treatment.

	Germline BRCA mutated (gBRCA)		Non-gBRCA	
	N	%	N	%
Arm A	24/39	61.5	47/78	60.3
Arm B	9/18	50.0	23/36	63.9
Arm C	8/18	44.4	9/36	25.0

Supplementary Table 2. *BRCA* status stratified analyses of pathologic complete response by treatment.

	Germline BRCA mutated (gBRCA)			Non-gBRCA		
	Odds Ratio	95% Confidence Interval	p-value	Odds Ratio	95% Confidence Interval	p-value
Arm A vs. C	2.0	(0.65,6.2)	0.23	4.5	(1.9,11.0)	0.0007
Arm B vs. C	1.3	(0.34,4.6)	0.74	5.3	(1.9,14.7)	0.001

Supplementary Table 3. Single Sample Hallmark Gene Set Enrichment Analysis of Germline BRCA Mutated Cases versus Matched Controls

Signature	T.test_Pvalue	FDR_Pvalue
HALLMARK_WNT_BETA_CATENIN_SIGNALING	0.032812987	0.885565934
HALLMARK_PROTEIN_SECRETION	0.129824967	0.885565934
HALLMARK_ALLOGRAFT_REJECTION	0.137540348	0.885565934
HALLMARK_ESTROGEN_RESPONSE_EARLY	0.150629922	0.885565934
HALLMARK_GLYCOLYSIS	0.179441125	0.885565934
HALLMARK_KRAS_SIGNALING_UP	0.183980092	0.885565934
HALLMARK_APICAL_JUNCTION	0.19917611	0.885565934
HALLMARK_NOTCH_SIGNALING	0.20454539	0.885565934
HALLMARK_COMPLEMENT	0.261703241	0.885565934
HALLMARK_DNA_REPAIR	0.265367764	0.885565934
HALLMARK_TNFA_SIGNALING_VIA_NFKB	0.268393765	0.885565934
HALLMARK_UNFOLDED_PROTEIN_RESPONSE	0.312149705	0.885565934
HALLMARK_INFLAMMATORY_RESPONSE	0.314928077	0.885565934
HALLMARK_SPERMATOGENESIS	0.324627538	0.885565934
HALLMARK_TGF_BETA_SIGNALING	0.33856888	0.885565934
HALLMARK_APOPTOSIS	0.340159966	0.885565934
HALLMARK_ANGIOGENESIS	0.379319253	0.885565934
HALLMARK_CHOLESTEROL_HOMEOSTASIS	0.389575707	0.885565934
HALLMARK_PANCREAS_BETA_CELLS	0.415323297	0.885565934
HALLMARK_COAGULATION	0.430364402	0.885565934
HALLMARK_UV_RESPONSE_DN	0.438149373	0.885565934
HALLMARK_EPITHELIAL_MESENCHYMAL_TRANSITION	0.453465358	0.885565934
HALLMARK_HEME_METABOLISM	0.474087948	0.885565934
HALLMARK_XENOBIOTIC_METABOLISM	0.498728702	0.885565934
HALLMARK_BILE_ACID_METABOLISM	0.50695935	0.885565934
HALLMARK_ESTROGEN_RESPONSE_LATE	0.521187964	0.885565934
HALLMARK_MYOGENESIS	0.543984314	0.885565934
HALLMARK_KRAS_SIGNALING	0.545898788	0.885565934
HALLMARK_MTORC1_SIGNALING	0.551413552	0.885565934
HALLMARK_ANDROGEN_RESPONSE	0.565042417	0.885565934
HALLMARK_PEROXISOME	0.583716397	0.885565934
HALLMARK_MYC_TARGETS_V2	0.604203365	0.885565934
HALLMARK_E2F_TARGETS	0.616297805	0.885565934
HALLMARK_UV_RESPONSE	0.618384249	0.885565934
HALLMARK_HEDGEHOG_SIGNALING	0.640043188	0.885565934
HALLMARK_PI3K_AKT_MTOR_SIGNALING	0.64682362	0.885565934
HALLMARK_OXIDATIVE_PHOSPHORYLATION	0.653270694	0.885565934
HALLMARK_INTERFERON_GAMMA_RESPONSE	0.675133373	0.885565934
HALLMARK_APICAL_SURFACE	0.679193238	0.885565934
HALLMARK_KRAS_SIGNALING_DN	0.681204564	0.885565934
HALLMARK_IL2_STAT5_SIGNALING	0.703781314	0.887906098
HALLMARK_FATTY_ACID_METABOLISM	0.717154925	0.887906098
HALLMARK_P53_PATHWAY	0.746258372	0.902451985
HALLMARK_HYPOXIA	0.770993075	0.911173634
HALLMARK_G2M_CHECKPOINT	0.824588226	0.952857506
HALLMARK_MYC_TARGETS_V1	0.853475994	0.96479895
HALLMARK_INTERFERON_ALPHA_RESPONSE	0.904727096	0.968350969
HALLMARK_MITOTIC_SPINDLE	0.913879961	0.968350969
HALLMARK_UV_RESPONSE_UP	0.92300621	0.968350969
HALLMARK_REACTIVE_OXIGEN_SPECIES_PATHWAY	0.943799376	0.968350969
HALLMARK_IL6_JAK_STAT3_SIGNALING	0.952125237	0.968350969
HALLMARK_ADIPOGENESIS	0.968350969	0.968350969

Supplementary Table 4. Single Sample Immune Response In Silico Gene Set Enrichment Analysis of Germline BRCA Mutated Cases versus Matched Controls

Signature	T.test_Pvalue	FDR_Pvalue
GSE22886_NEUTROPHIL_VS_DC	0.052923328	0.992449816
GSE22886_NAIVE_VS_IGM_MEMORY_BCELL	0.054589297	0.992449816
GSE22886_NEUTROPHIL_VS_DC_UP	0.067489042	0.992449816
GSE22886_IGG_IGA_MEMORY_BCELL_VS_BM_PLASMA_CELL_UP	0.082740987	0.992449816
GSE22886_NAIVE_VS_IGM_MEMORY_BCELL_UP	0.084395373	0.992449816
GSE22886_IGM_MEMORY_BCELL_VS_BM_PLASMA_CELL_UP	0.10910867	0.992449816
GSE22886_DAY0_VS_DAY7_MONOCYTE_IN_CULTURE_UP	0.11180083	0.992449816
GSE22886_NAIVE_CD8_TCELL_VS_NKCELL	0.123627711	0.992449816
GSE22886_NAIVE_CD4_TCELL_VS_MONOCYTE_UP	0.155678174	0.992449816
GSE22886_NAIVE_BCELL_VS_MONOCYTE_DN	0.158466133	0.992449816
GSE22886_NAIVE_CD4_TCELL_VS_MONOCYTE_DN	0.159572469	0.992449816
GSE22886_NAIVE_BCELL_VS_MONOCYTE_UP	0.159743287	0.992449816
GSE22886_IGA_VS_IGM_MEMORY_BCELL	0.163567329	0.992449816
GSE22886_DC_VS_MONOCYTE_DN	0.163684792	0.992449816
GSE22886_IGA_VS_IGM_MEMORY_BCELL_DN	0.169889527	0.992449816
GSE22886_DAY0_VS_DAY1_MONOCYTE_IN_CULTURE_DN	0.196352045	0.992449816
GSE22886_NAIVE_TCELL_VS_MONOCYTE_DN	0.196617726	0.992449816
GSE22886_NAIVE_CD8_TCELL_VS_MONOCYTE_DN	0.202673149	0.992449816
GSE22886_NAIVE_VS_IGM_MEMORY_BCELL_DN	0.208200895	0.992449816
GSE22886_DC_VS_MONOCYTE	0.210527101	0.992449816
GSE22886_NAIVE_CD8_TCELL_VS_NKCELL_DN	0.213687281	0.992449816
GSE22886_IGG_IGA_MEMORY_BCELL_VS_BLOOD_PLASMA_CELL_DN	0.215485743	0.992449816
GSE22886_NAIVE_CD4_TCELL_VS_48H_ACT_TH2_UP	0.236004937	0.992449816
GSE22886_NAIVE_CD8_TCELL_VS_NKCELL_UP	0.242888831	0.992449816
GSE22886_IGM_MEMORY_BCELL_VS_BLOOD_PLASMA_CELL_UP	0.258253176	0.992449816
GSE22886_TH1_VS_TH2_48H_ACT	0.261509237	0.992449816
GSE22886_NAIVE_BCELL_VS_BLOOD_PLASMA_CELL_DN	0.266970882	0.992449816
GSE22886_IGM_MEMORY_BCELL_VS_BLOOD_PLASMA_CELL_DN	0.269544809	0.992449816
GSE22886_NAIVE_CD8_TCELL_VS_MEMORY_TCELL_DN	0.270795456	0.992449816
GSE22886_DAY1_VS_DAY7_MONOCYTE_IN_CULTURE_UP	0.27225891	0.992449816
GSE22886_IGG_IGA_MEMORY_BCELL_VS_BM_PLASMA_CELL	0.276167255	0.992449816
GSE22886_NAIVE_CD8_TCELL_VS_DC_DN	0.278824442	0.992449816
GSE22886_NAIVE_TCELL_VS_NKCELL	0.290298865	0.992449816
GSE22886_NAIVE_BCELL_VS_NEUTROPHIL_DN	0.300482633	0.992449816
GSE22886_NAIVE_TCELL_VS_NKCELL_DN	0.301222491	0.992449816
GSE22886_CD8_VS_CD4_NAIVE_TCELL	0.305766133	0.992449816
GSE22886_IGM_MEMORY_BCELL_VS_BM_PLASMA_CELL	0.307041001	0.992449816
GSE22886_CD8_VS_CD4_NAIVE_TCELL_DN	0.307268086	0.992449816
GSE22886_NAIVE_BCELL_VS_DC_DN	0.309211881	0.992449816
GSE22886_TH1_VS_TH2_48H_ACT_DN	0.315130595	0.992449816
GSE22886_DAY0_VS_DAY7_MONOCYTE_IN_CULTURE_DN	0.321778593	0.992449816
GSE22886_NAIVE_BCELL_VS_NEUTROPHIL	0.330739403	0.992449816
GSE22886_IGG_IGA_MEMORY_BCELL_VS_BLOOD_PLASMA_CELL_UP	0.331489827	0.992449816
GSE22886_NAIVE_TCELL_VS_DC_DN	0.348013355	0.992449816
GSE22886_TH1_VS_TH2_48H_ACT_UP	0.351564905	0.992449816
GSE22886_NEUTROPHIL_VS_MONOCYTE_DN	0.365753413	0.992449816
GSE22886_IL2_VS_IL15_STIM_NKCELL_DN	0.37124705	0.992449816
GSE22886_NAIVE_VS_IGG_IGA_MEMORY_BCELL_DN	0.371404648	0.992449816
GSE22886_NAIVE_VS_MEMORY_TCELL_DN	0.371950576	0.992449816
GSE22886_DAY0_VS_DAY1_MONOCYTE_IN_CULTURE_UP	0.374706168	0.992449816
GSE22886_UNSTIM_VS_IL2_STIM_NKCELL_UP	0.376114361	0.992449816
GSE22886_UNSTIM_VS_STIM_MEMORY_TCELL_UP	0.385321281	0.992449816
GSE22886_DAY0_VS_DAY7_MONOCYTE_IN_CULTURE	0.392327887	0.992449816
GSE22886_NAIVE_CD8_TCELL_VS_MONOCYTE_UP	0.393498184	0.992449816
GSE22886_IL2_VS_IL15_STIM_NKCELL	0.45367746	0.992449816
GSE22886_DAY1_VS_DAY7_MONOCYTE_IN_CULTURE	0.481577593	0.992449816
GSE22886_CD8_VS_CD4_NAIVE_TCELL_UP	0.482146879	0.992449816
GSE22886_NAIVE_TCELL_VS_NKCELL_UP	0.485796745	0.992449816
GSE22886_TH1_VS_TH2_12H_ACT_DN	0.494942278	0.992449816
GSE22886_IGA_VS_IGM_MEMORY_BCELL_UP	0.498654962	0.992449816
GSE22886_TH1_VS_TH2_12H_ACT_UP	0.525123151	0.992449816
GSE22886_NEUTROPHIL_VS_MONOCYTE	0.533564006	0.992449816
GSE22886_UNSTIM_VS_IL2_STIM_NKCELL	0.545351067	0.992449816
GSE22886_NAIVE_CD4_TCELL_VS_MEMORY_TCELL_DN	0.556298937	0.992449816
GSE22886_NAIVE_CD4_TCELL_VS_12H_ACT_TH1_UP	0.569691311	0.992449816
GSE22886_NAIVE_TCELL_VS_MONOCYTE_UP	0.570420024	0.992449816
GSE22886_NAIVE_CD4_TCELL_VS_DC_DN	0.571127765	0.992449816
GSE22886_NAIVE_TCELL_VS_DC	0.584264304	0.992449816
GSE22886_TCELL_VS_BCELL_NAIVE_UP	0.58536891	0.992449816
GSE22886_NAIVE_BCELL_VS_BLOOD_PLASMA_CELL_UP	0.593875382	0.992449816
GSE22886_NAIVE_CD8_TCELL_VS_DC	0.598457546	0.992449816
GSE22886_NAIVE_TCELL_VS_MONOCYTE	0.607512536	0.992449816
GSE22886_NAIVE_CD4_TCELL_VS_NKCELL_DN	0.610157911	0.992449816
GSE22886_NAIVE_CD4_TCELL_VS_NKCELL_UP	0.617108649	0.992449816
GSE22886_DAY0_VS_DAY1_MONOCYTE_IN_CULTURE	0.620046659	0.992449816

Supplementary Table 4. (cont)

GSE22886 DAY1 VS DAY7 MONOCYTE IN CULTURE DN	0.627523773	0.992449816
GSE22886 NAIVE VS MEMORY TCELL	0.631563883	0.992449816
GSE22886 NAIVE CD8 TCELL VS MEMORY TCELL UP	0.63579439	0.992449816
GSE22886 NAIVE CD4 TCELL VS 12H ACT TH2 UP	0.643180147	0.992449816
GSE22886 NAIVE VS IGG IGA MEMORY BCELL	0.646914836	0.992449816
GSE22886 IL2 VS IL15 STIM NKCELL UP	0.669628092	0.992449816
GSE22886 NAIVE CD8 TCELL VS MONOCYTE	0.673784239	0.992449816
GSE22886 CD8 TCELL VS BCELL NAIVE UP	0.680313357	0.992449816
GSE22886 TH1 VS TH2 12H ACT	0.681063091	0.992449816
GSE22886 NEUTROPHIL VS DC DN	0.683949548	0.992449816
GSE22886 NAIVE CD4 TCELL VS MEMORY TCELL	0.693579173	0.992449816
GSE22886 CD8 TCELL VS BCELL NAIVE DN	0.699570967	0.992449816
GSE22886 NEUTROPHIL VS MONOCYTE UP	0.714083125	0.992449816
GSE22886 NAIVE BCELL VS BM PLASMA CELL UP	0.715192421	0.992449816
GSE22886 NAIVE CD4 TCELL VS 12H ACT TH1 DN	0.721106028	0.992449816
GSE22886 NAIVE CD4 TCELL VS 48H ACT TH2 DN	0.727423558	0.992449816
GSE22886 NAIVE BCELL VS BLOOD PLASMA CELL	0.731413105	0.992449816
GSE22886 NAIVE BCELL VS MONOCYTE	0.731770105	0.992449816
GSE22886 NAIVE CD4 TCELL VS NEUTROPHIL DN	0.740628765	0.992449816
GSE22886 UNSTIM VS IL15 STIM NKCELL UP	0.757275457	0.992449816
GSE22886 NAIVE CD4 TCELL VS 12H ACT TH2 DN	0.765163601	0.992449816
GSE22886 CD4 TCELL VS BCELL NAIVE DN	0.771227266	0.992449816
GSE22886 UNSTIM VS STIM MEMORY TCELL DN	0.774770783	0.992449816
GSE22886 CD4 TCELL VS BCELL NAIVE UP	0.777955657	0.992449816
GSE22886 NAIVE CD8 TCELL VS DC UP	0.785145413	0.992449816
GSE22886 NAIVE CD4 TCELL VS DC UP	0.79313471	0.992449816
GSE22886 UNSTIM VS IL15 STIM NKCELL	0.79621323	0.992449816
GSE22886 NAIVE CD4 TCELL VS 48H ACT TH2	0.800036298	0.992449816
GSE22886 IGG IGA MEMORY BCELL VS BM PLASMA CELL DN	0.801434496	0.992449816
GSE22886 NAIVE CD8 TCELL VS MEMORY TCELL	0.813146865	0.992449816
GSE22886 NAIVE BCELL VS DC	0.815379961	0.992449816
GSE22886 UNSTIM VS IL2 STIM NKCELL DN	0.815887739	0.992449816
GSE22886 NAIVE CD4 TCELL VS NEUTROPHIL	0.819524958	0.992449816
GSE22886 DC VS MONOCYTE UP	0.824702796	0.992449816
GSE22886 CTRL VS LPS 24H DC DN	0.826549419	0.992449816
GSE22886 NAIVE CD4 TCELL VS NEUTROPHIL UP	0.828791945	0.992449816
GSE22886 TCELL VS BCELL NAIVE DN	0.828868233	0.992449816
GSE22886 TCELL VS BCELL NAIVE	0.830486634	0.992449816
GSE22886 NAIVE CD8 TCELL VS NEUTROPHIL UP	0.83478815	0.992449816
GSE22886 NAIVE CD8 TCELL VS NEUTROPHIL	0.841330774	0.992449816
GSE22886 NAIVE VS IGG IGA MEMORY BCELL UP	0.841825266	0.992449816
GSE22886 UNSTIM VS IL15 STIM NKCELL DN	0.845942673	0.992449816
GSE22886 NAIVE BCELL VS DC UP	0.854049994	0.992449816
GSE22886 CTRL VS LPS 24H DC	0.856014845	0.992449816
GSE22886 NAIVE BCELL VS BM PLASMA CELL	0.857654173	0.992449816
GSE22886 NAIVE CD4 TCELL VS MEMORY TCELL UP	0.867467039	0.992449816
GSE22886 NAIVE TCELL VS NEUTROPHIL	0.872201142	0.992449816
GSE22886 NAIVE CD4 TCELL VS DC	0.887160376	0.992449816
GSE22886 CTRL VS LPS 24H DC UP	0.887367677	0.992449816
GSE22886 IGM MEMORY BCELL VS BM PLASMA CELL DN	0.899821898	0.992449816
GSE22886 NAIVE TCELL VS DC UP	0.901902106	0.992449816
GSE22886 IGM MEMORY BCELL VS BLOOD PLASMA CELL	0.902617	0.992449816
GSE22886 NAIVE TCELL VS NEUTROPHIL DN	0.902995724	0.992449816
GSE22886 IGG IGA MEMORY BCELL VS BLOOD PLASMA CELL	0.906117199	0.992449816
GSE22886 NAIVE TCELL VS NEUTROPHIL UP	0.910470695	0.992449816
GSE22886 NAIVE CD4 TCELL VS NKCELL	0.912287352	0.992449816
GSE22886 NAIVE CD8 TCELL VS NEUTROPHIL DN	0.912333886	0.992449816
GSE22886 UNSTIM VS STIM MEMORY TCELL	0.917427863	0.992449816
GSE22886 NAIVE BCELL VS NEUTROPHIL UP	0.931295021	0.992449816
GSE22886 NAIVE CD4 TCELL VS 48H ACT TH1 UP	0.944653849	0.992449816
GSE22886 NAIVE CD4 TCELL VS 12H ACT TH1	0.96506936	0.992449816
GSE22886 NAIVE CD4 TCELL VS MONOCYTE	0.970876549	0.992449816
GSE22886 NAIVE CD4 TCELL VS 48H ACT TH1	0.976378034	0.992449816
GSE22886 NAIVE CD4 TCELL VS 12H ACT TH2	0.976935003	0.992449816
GSE22886 NAIVE VS MEMORY TCELL UP	0.981892419	0.992449816
GSE22886 NAIVE BCELL VS BM PLASMA CELL DN	0.982458439	0.992449816
GSE22886 CD8 TCELL VS BCELL NAIVE	0.989432627	0.992449816
GSE22886 CD4 TCELL VS BCELL NAIVE	0.991033676	0.992449816
GSE22886 NAIVE CD4 TCELL VS 48H ACT TH1 DN	0.992449816	0.992449816