A

B

Chemokines

immuneconstimolatr

Immunoinhibitor
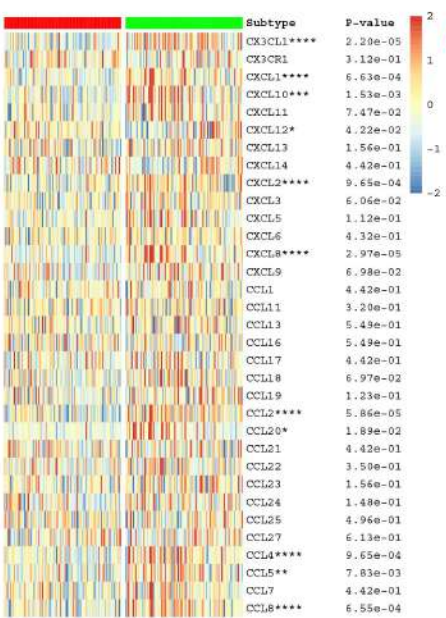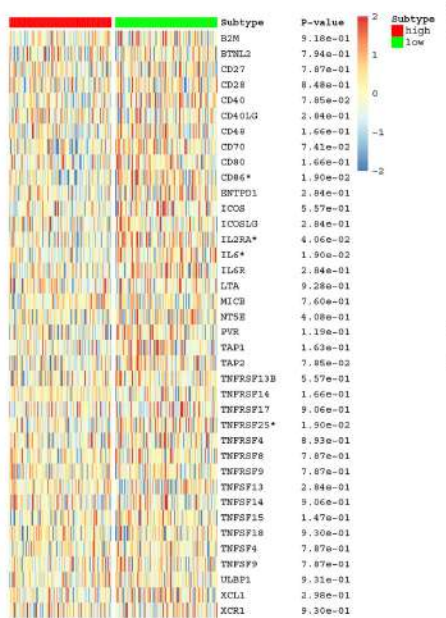
MHCs

Receptors

Immune cells

Supplement Figure 1: The effect of XBP1 on immunological status in pan-cancers. (A) The correlations of XBP1 expression and immune infiltration in pan-cancers using seven independent algorithms; (B) Correlations of XBP1 expression with immunosuppressive features of pan-cancers using TISIDB.
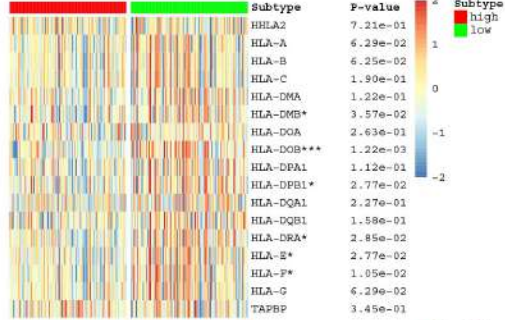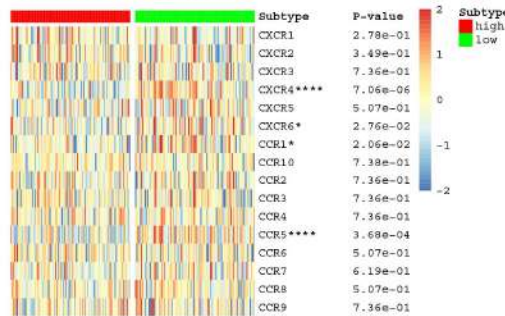
A

Subtype	P-value
CX3CL1****	2.20e-05
CX3CR1	3.12e-01
CXCL1****	6.63e-04
CXCL10***	1.53e-03
CXCL11	7.47e-02
CXCL12*	4.22e-02
CXCL13	1.56e-01
CXCL14	4.42e-01
CXCL2****	9.65e-04
CXCL3	6.06e-02
CXCL5	1.12e-01
CXCL6	4.32e-01
CXCL8****	2.97e-05
CXCL9	6.98e-02
CCL1	4.42e-01
CCL11	3.20e-01
CCL13	5.49e-01
CCL16	5.49e-01
CCL17	4.42e-01
CCL18	6.97e-02
CCL19	1.23e-01
CCL2****	5.86e-05
CCL20*	1.89e-02
CCL21	4.42e-01
CCL22	3.50e-01
CCL23	1.56e-01
CCL24	1.48e-01
CCL25	4.96e-01
CCL27	6.13e-01
CCL4****	9.65e-04
CCL5**	7.83e-03
CCL7	4.42e-01
CCL8****	6.55e-04

B

Subtype	P-value
B2M	9.18e-01
BTNL2	7.94e-01
CD27	7.87e-01
CD28	8.48e-01
CD40	7.85e-02
CD40LG	2.84e-01
CD48	1.66e-01
CD70	7.41e-01
CD80	1.66e-01
CD86*	1.90e-02
ENTPD1	2.84e-01
ICOS	5.57e-01
ICOSLG	2.84e-01
IL2RA*	4.06e-02
IL6*	1.90e-02
IL6R	2.84e-01
LTA	9.28e-01
MICB	7.60e-01
NT5E	4.08e-01
PVR	1.19e-01
TAP1	1.63e-01
TAP2	7.85e-02
TNFRSF13B	5.57e-01
TNFRSF14	1.66e-01
TNFRSF17	9.06e-01
TNFRSF25*	1.90e-02
TNFRSF4	8.93e-01
TNFRSF8	7.87e-01
TNFRSF9	7.87e-01
TNFSF13	2.84e-01
TNFSF14	9.06e-01
TNFSF15	1.47e-01
TNFSF18	9.30e-01
TNFSF4	7.87e-01
TNFSF9	7.87e-01
ULBP1	9.31e-01
XCL1	2.98e-01
XCR1	9.30e-01

C

Subtype	P-value
HHLA2	7.21e-01
HLA-A	6.29e-02
HLA-B	6.25e-02
HLA-C	1.90e-01
HLA-DMA	1.22e-01
HLA-DMB*	3.57e-02
HLA-DOA	2.63e-01
HLA-DOB***	1.22e-03
HLA-DPA1	1.12e-01
HLA-DPB1*	2.77e-02
HLA-DQA1	2.27e-01
HLA-DQB1	1.58e-01
HLA-DRA*	2.85e-02
HLA-E*	2.77e-02
HLA-F*	1.05e-02
HLA-G	6.29e-02
TAPBP	3.45e-01

D

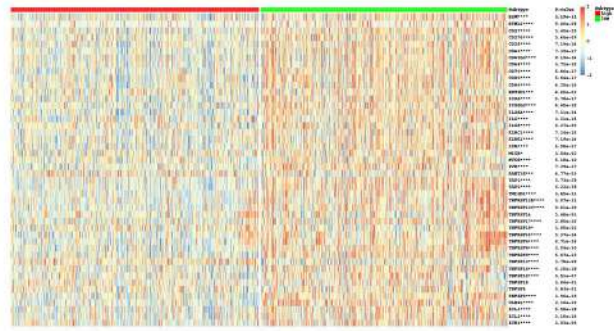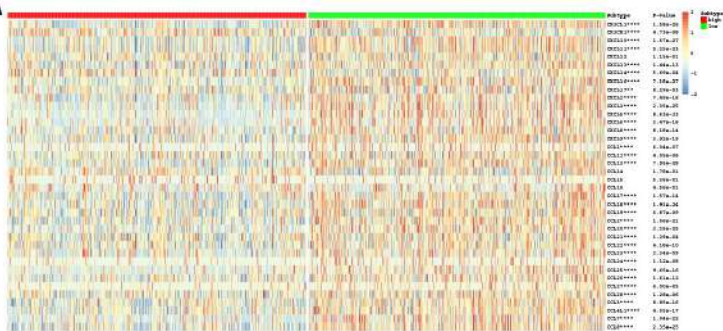| Subtype	P-value
CXCR1	2.78e-01
CXCR2	3.49e-01
CXCR3	7.36e-01
CXCR4****	7.06e-06
CXCR5	5.07e-01
CXCR6*	2.76e-01
CCR1*	2.06e-02
CCR10	7.38e-01
CCR2	7.36e-01
CCR3	7.36e-01
CCR4	7.36e-01
CCR5****	3.68e-04
CCR6	5.07e-01
CCR7	6.19e-01
CCR8	5.07e-01
CCR9	7.36e-01

Supplement Figure 2: Correlation between XBP1 and immunomodulators based on GSE25065. (A) chemokines; (B) immunostimulators; (C) MHC; (D) receptors.
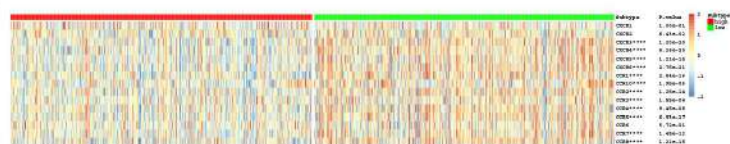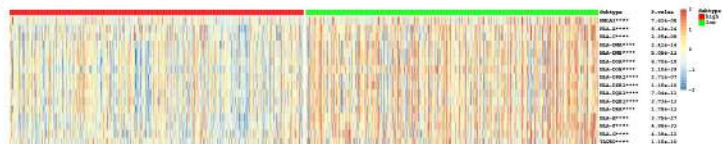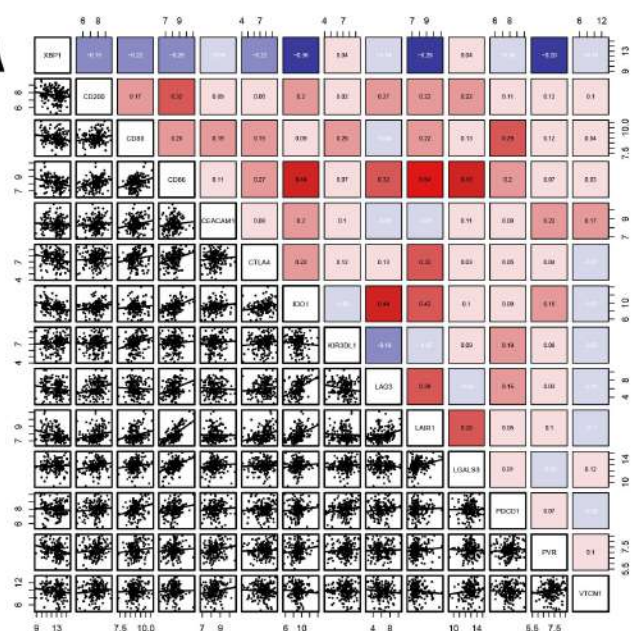
Supplement Figure 3: Correlation between XBP1 and immunomodulators based on TCGA dataset. (A) chemokines; (B) immunostimulators; (C) MHC; (D) receptors.
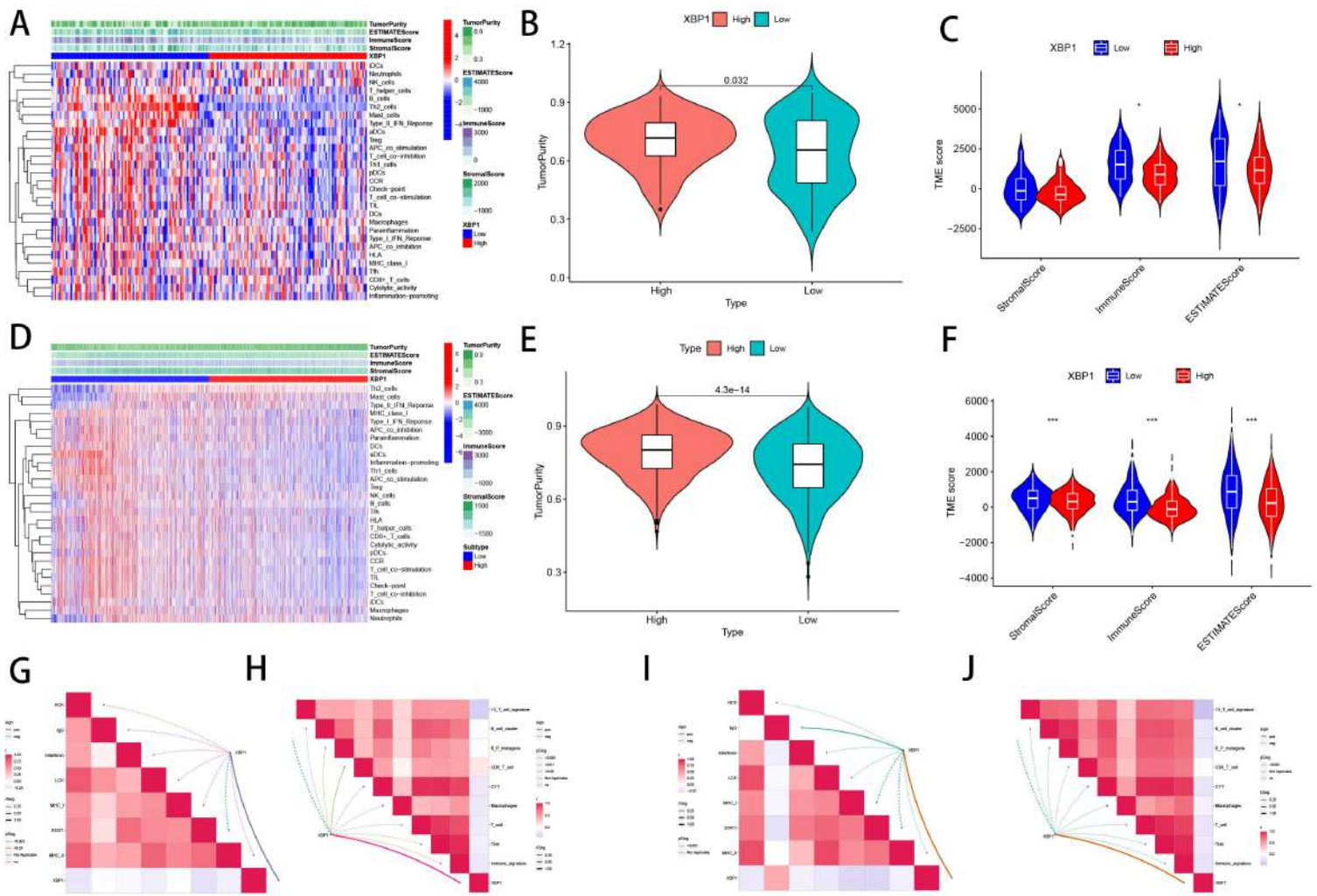
Supplement Figure 4: XBP1 shapes a non-inflamed TME in breast cancer based on GSE25056 and TGCA dataset. Scores of the 29 immune-related gene sets between high and low XBP1 group based on (A) GSE25055 and (D) TGCA dataset; Difference in TumorPurity between high and low XBP1 group based on (B) GSE25055 and (E) TGCA dataset; Difference in TME score between high and low XBP1 group based on (C) GSE25055 and (F) TGCA dataset; Correlations between XBP1 and enrichment scores of inflammatory activation functions based on (G) GSE25055 and (I) TGCA dataset; Correlations between XBP1 and enrichment scores of immunocytes based on (H) GSE25055 and (J) TGCA dataset.
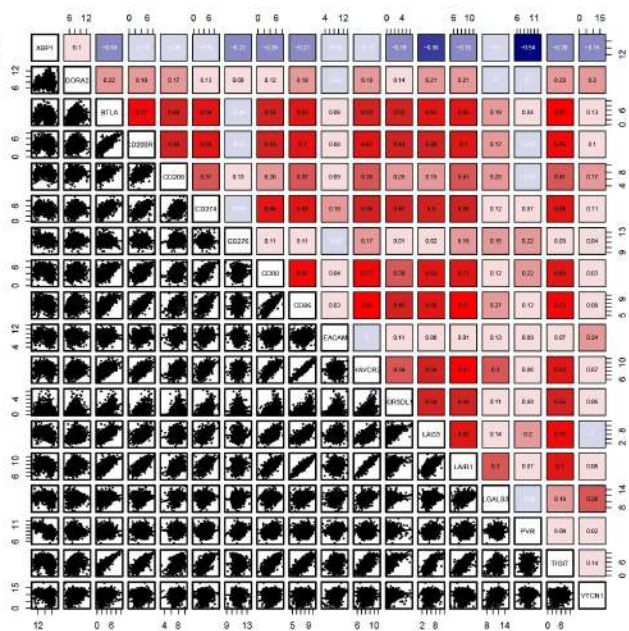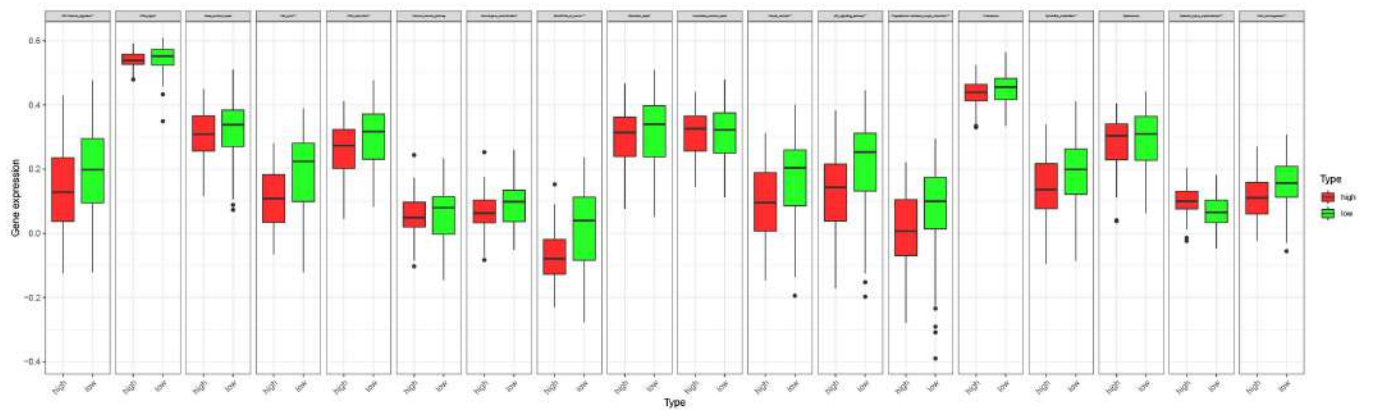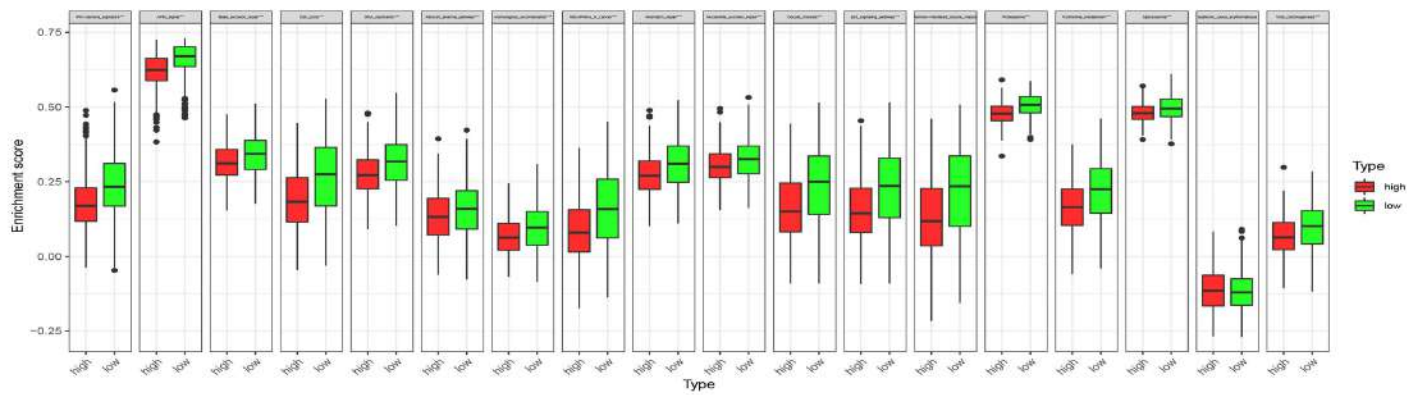
Supplement Figure 5: Correlation between XBP1 and inhibitory immune checkpoints based on GSE25055 and TGCA dataset. Correlation between XBP1 and inhibitory immune checkpoints based on (A) GSE25055 and (B) TGCA dataset; Differences in the enrichment scores of immunotherapy-predicted pathways between high and low XBP1 groups based on (C) GSE25055 and (D) TGCA dataset.
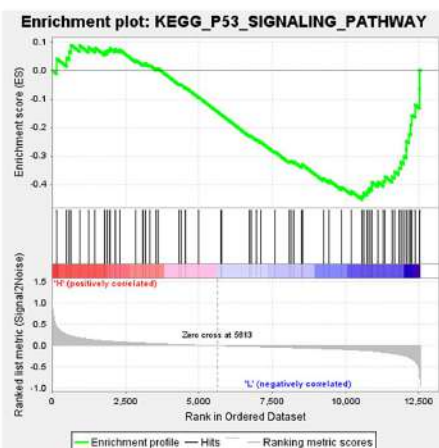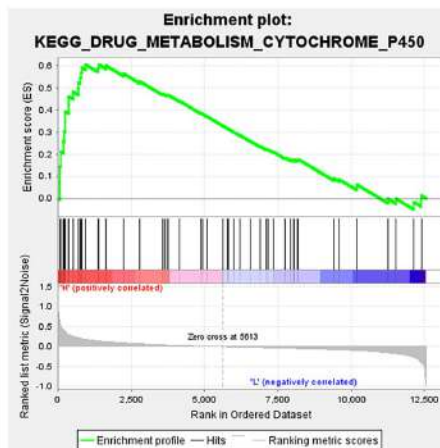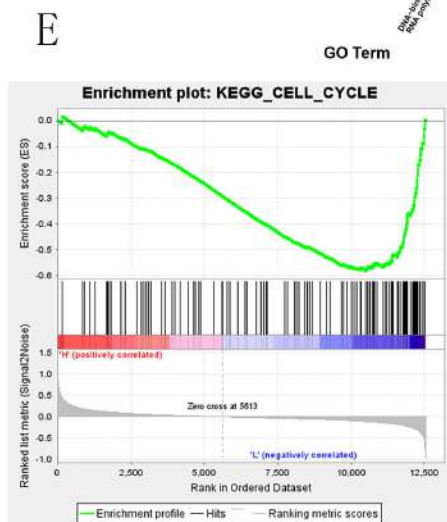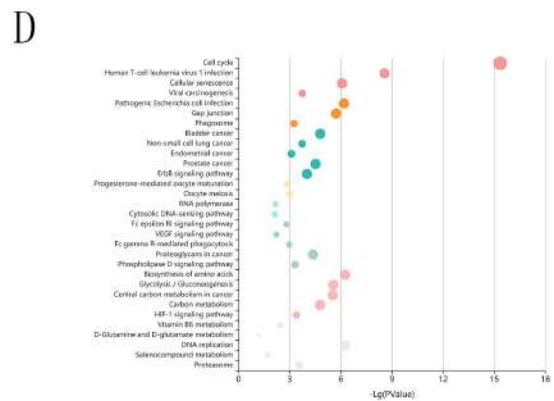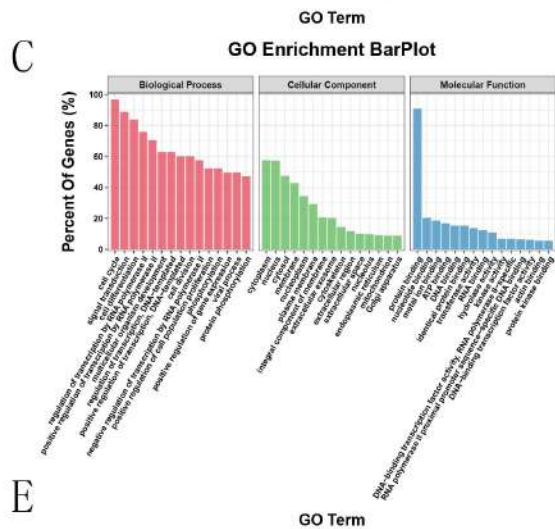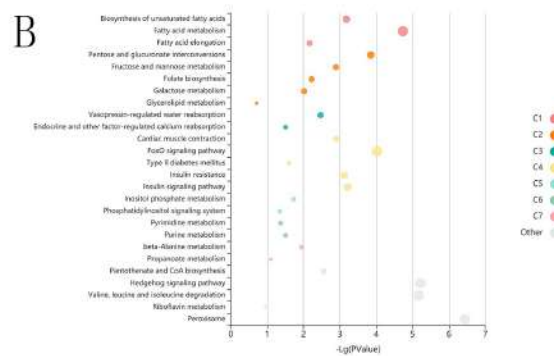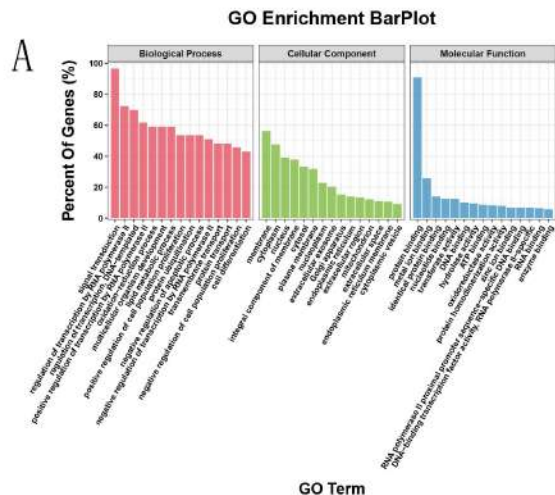
Supplement Figure 6: Functional enrichment analysis based on breast cancer patients received neoadjuvant chemotherapy. (A) Go enrichment of positively correlated significant genes of XBP1 using OmicStudio tool; (B) KEGG enrichment of positively correlated significant genes of XBP1 using KOBAS tool; (C) Go enrichment of negatively correlated significant genes of XBP1; (D) KEGG enrichment of negatively correlated significant genes of XBP1; (E) Gene set enrichment analysis revealed KEGG signaling pathways.