## **Description of Additional Supplementary Files**

File Name: Supplementary Data 1

Description: Results of gene set-based analysis of GWAS summary statistics.

File Name: Supplementary Data 2

Description: Cancer keyword analysis of risk-associated genet sets.

File Name: Supplementary Data 3

Description: BRCA1 and risk-associated gene set correlations.

File Name: Supplementary Data 4

Description: Risk-linked gene sets including BRCA1 and/or HMMR.

File Name: Supplementary Data 5

Description: Risk-linked gene sets coexpressed with HMMR.

File Name: Supplementary Data 6

Description: Histopathological and marker features of mouse mammary tumors.