

Table S4: The PRDRMs of Breast cancer in HSSNs.

Module	Genes of module	Localization	JT test P-values
BM1	VPS37A VPS28 VPS37C TSG101 VPS37B	Cytoplasm	0.0307
BM2	RAD50 CDKN2D MRE11A ATM BARD1 RBBP8 BRCA1 TP53BP1 UBE2N MDC1	Cytoplasm	0.0339
BM3	LZTS1 CRT2 SIK2 SIK3 NEIL2 HDLBP ACACA MAP2 MAPT MBP CAB39 MST4 PFDN5 PRKAG3 STRADB MARK4 SMARCD3 SSB STK11 TSNAX BRSK1 PPFIA1 BRSK2 STRADA TRIP4 TRIM14	Cytoplasm	0.0085
BM4	ADA UBE4B DCP1B AIF1 FBXO45 HAGH WVOX RNF43 BRCA2 TP73 PEA15 DEDD	Cytoplasm	0.0407
BM5	FBLN5 LEFTY1 CLU COL15A1 CTGF DCN ADAMTS16 AGT MMRN1 ALPP IGFBP2 IL13 INHBB INHBC LOX NELL2 NODAL OMD TNFRSF11B PDGFA PDK1 ASPN SFTPB BMP3 SPARC TDGF1 TGFB1 TGFB3 LEFTY2 TGFB1 THPO TIMP3 INHBE	Extracellular space	0.00001
BM6	TNIP1 HOXB13 DACH1 DAPK3 ETV5 FKBP4 DAAM1 NCOA6 RAD54L2 PATZ1 SPDEF PELP1 FOXP1 SLC25A4 PSMC3IP DNAJA1 AR PA2G4 PRDX1 ZMIZ1 KIAA1967 NSD1 SUMO2 SVIL TMF1 NCOA4 EPPK1 RNF14 KDM4A CDK11B	Nucleus	0.0287
BM7	FOXO6 POP7 RALBP1 C19orf21 TCEAL6 DNMT1 AKT1 AKT2 NOC2L ERAL1 DNAJB2 PDE3A PIK3CG BCL11A PPP2CA CHFR NUP133 AVEN RARB RARG BRD2 RPS6KB2 TEAD1 THRA TIAM1 IRS2 TBC1D4	Nucleus	0.0008
BM8	RAD50 TREX1 H2AFX MRE11A NBN ATM POLH ATR PPP4C BARD1 RBBP8 BRCA1 TERF1 TP53BP1 UBE2N NABP2 BAP1 RNF8 MDC1	Nucleus	0.0012
BM9	DSCAM ESR1 ABCA3 PDZK1 STRN CCDC62 EBAG9 GREB1	Plasma membrane	0.00001