

### Analysis of Pathway and Gene interaction networks

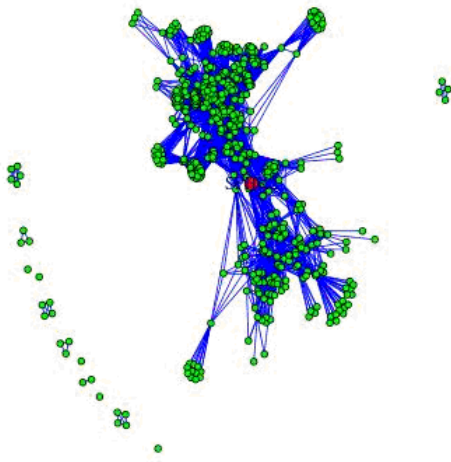
Results of graph theory based analysis of 11 non-BRCA1/BRCA2 breast cancer patients are presented here. It has included all the genes in KEGG cancer pathways that have been mutated in various samples. The central pathways and genes (betweenness) measured through graph theory are also represented for each breast cancer sample. It also shows the pathway-pathway and the gene-gene graphs that have been constructed for 11 cancer patients. It is observed that the purine metabolism (BC2, BC6, BC11) and propanoate metabolism (BC5, BC10) pathways are most commonly affected and RAF1 (BC2, BC6, BC11) and PRKCA (BC5, BC10) are affected central genes.

#### **ERR166303 (BC1)**

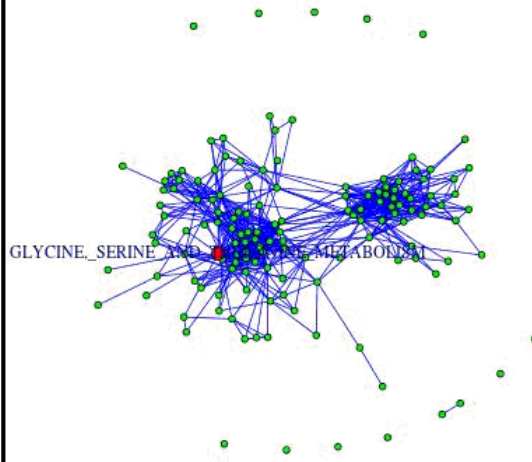
Central Pathway = GLYCINE,\_SERINE\_AND\_THREONINE\_METABOLISM

Central Gene = SPHK2

Breast Cancer BC1\_ERR166303 Gene Interaction Network



Breast Cancer BC1\_ERR166303 Pathway Interaction Network

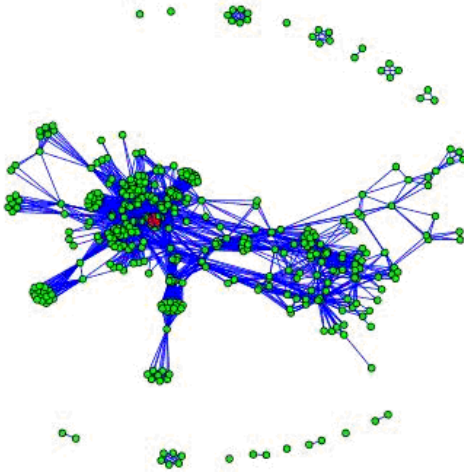


**ERR166304 (BC2)**

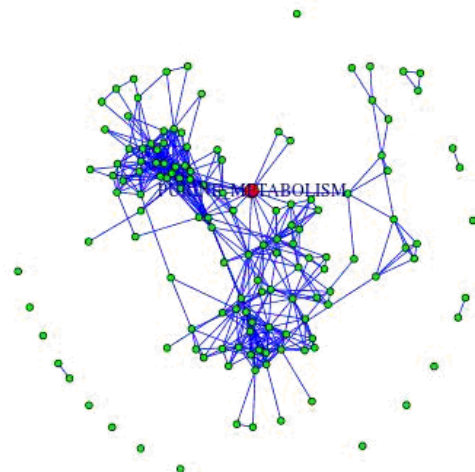
Central Pathway = PURINE\_METABOLISM

Central Gene = RAF1

Breast Cancer BC2\_ERR166304 Gene Interaction Network



Breast Cancer BC2\_ERR166304 Pathway Interaction Network

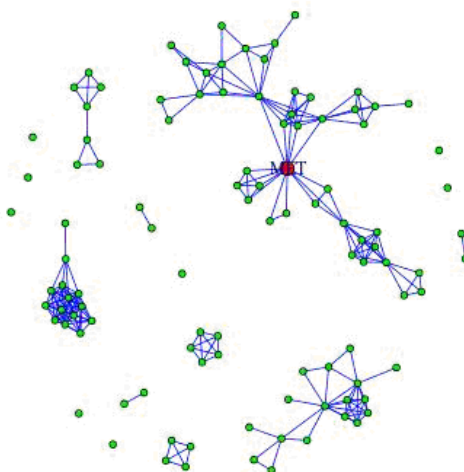


**ERR166307 (BC3)**

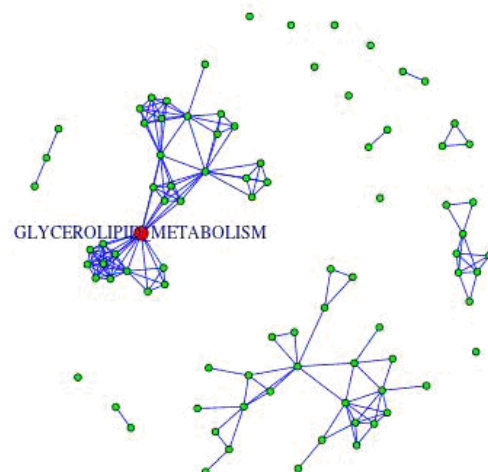
Central Pathway = GLYCEROLIPID\_METABOLISM

Central Gene = MET

Breast Cancer BC3\_ERR166307 Gene Interaction Network



Breast Cancer BC3\_ERR166307 Pathway Interaction Network

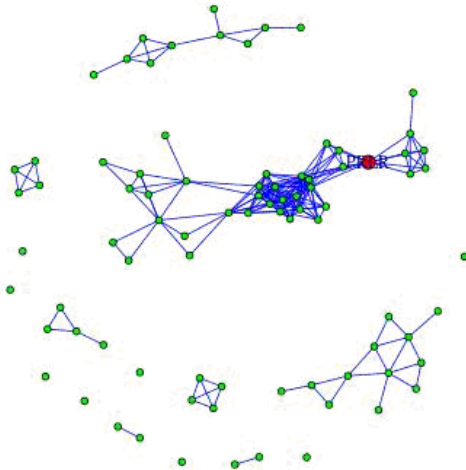


**ERR166308 (BC4)**

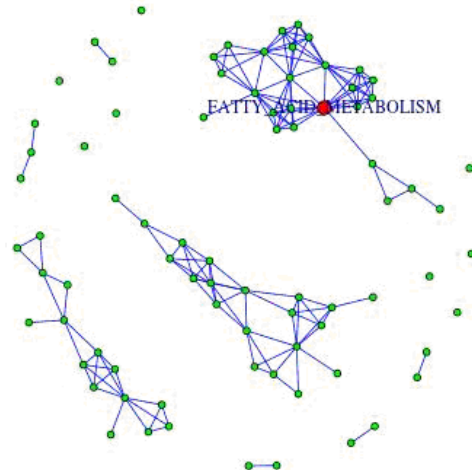
Central Pathway = FATTY\_ACID\_METABOLISM

Central Gene = PRLR

Breast Cancer BC4\_ERR166308 Gene Interaction Network



Breast Cancer BC4\_ERR166308 Pathway Interaction Network

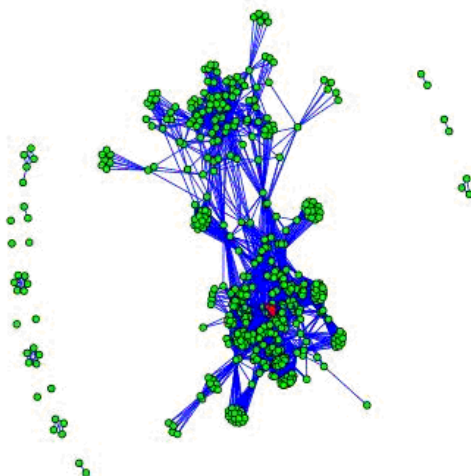


**ERR166310 (BC5)**

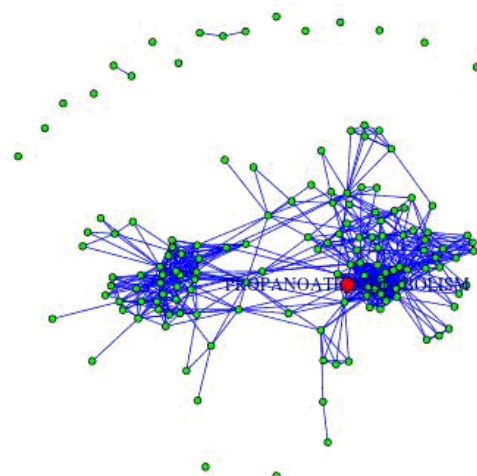
Central Pathway = PROPANOATE\_METABOLISM

Central Gene = PRKCA

Breast Cancer BC5\_ERR166310 Gene Interaction Network



Breast Cancer BC5\_ERR166310 Pathway Interaction Network

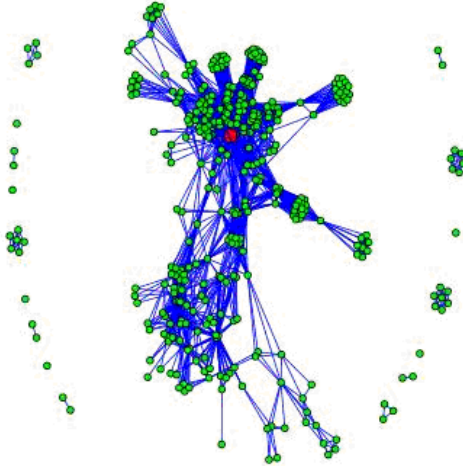


**ERR166312 (BC6)**

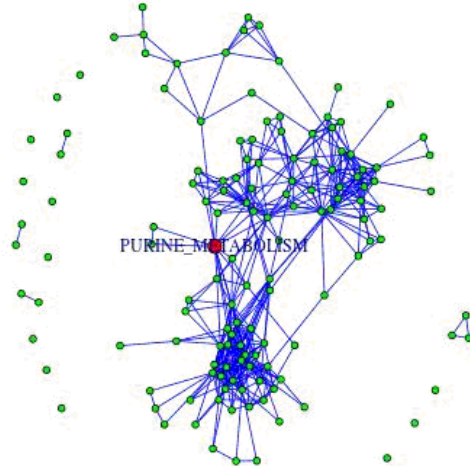
Central Pathway = PURINE\_METABOLISM

Central Gene = RAF1

Breast Cancer BC6\_ERR166312 Gene Interaction Network



Breast Cancer BC6\_ERR166312 Pathway Interaction Network

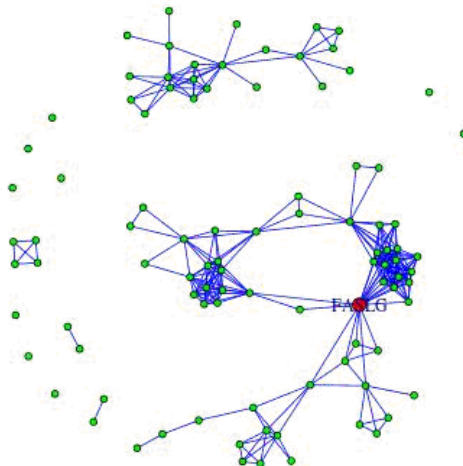


**ERR166315 (BC7)**

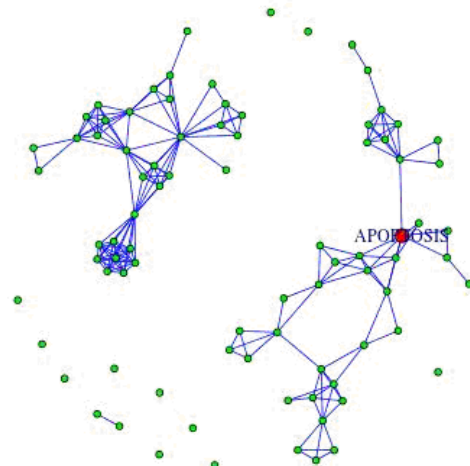
Central Pathway = APOPTOSIS

Central Gene = FASLG

Breast Cancer BC7\_ERR166315 Gene Interaction Network



Breast Cancer BC7\_ERR166315 Pathway Interaction Network

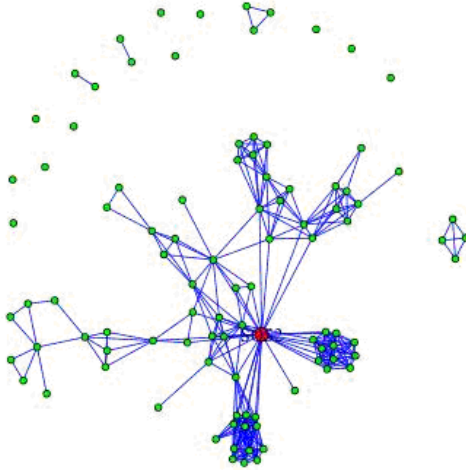


**ERR166330 (BC8)**

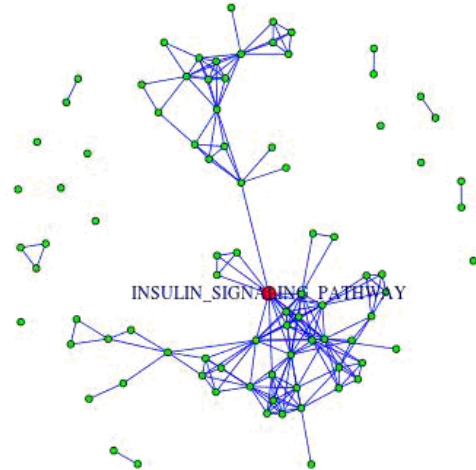
Central Pathway = INSULIN\_SIGNALING\_PATHWAY

Central Gene = SOS2

Breast Cancer BC8\_ERR166330 Gene Interaction Network



Breast Cancer BC8\_ERR166330 Pathway Interaction Network

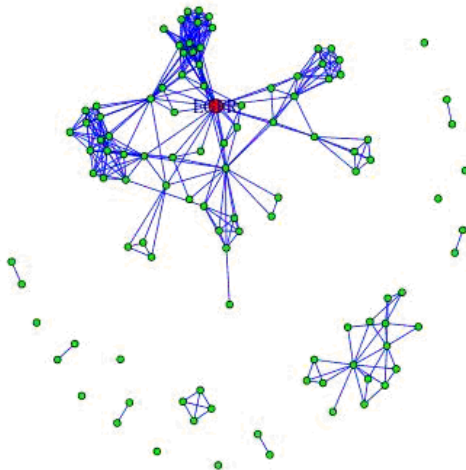


**ERR166333 (BC9)**

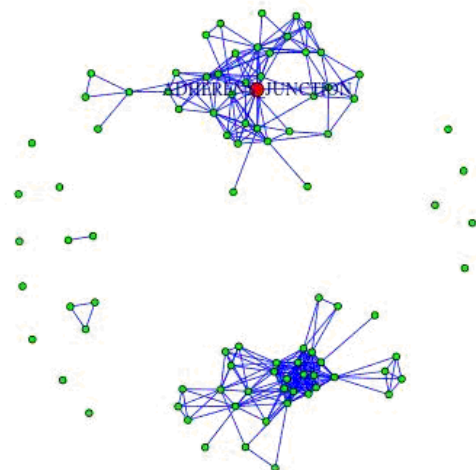
Central Pathway = ADHERENS\_JUNCTION

Central Gene = EGFR

Breast Cancer BC9\_ERR166333 Gene Interaction Network



Breast Cancer BC9\_ERR166333 Pathway Interaction Network

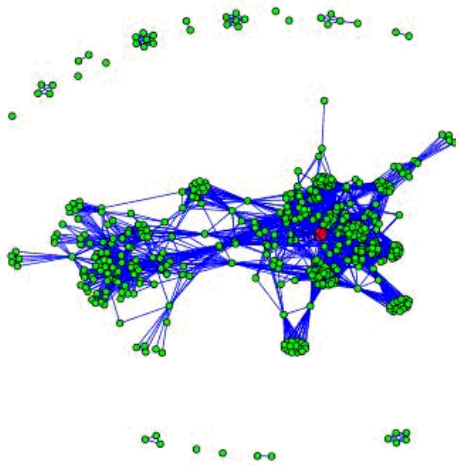


**ERR166335 (BC10)**

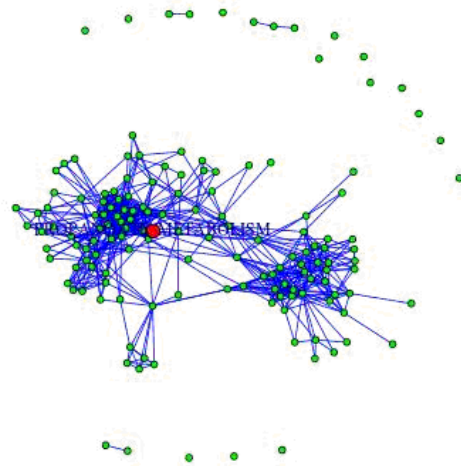
Central Pathway = PROPANOATE\_METABOLISM

Central Gene = PRKCA

Breast Cancer BC10\_ERR166335 Gene Interaction Network



Breast Cancer BC10\_ERR166335 Pathway Interaction Network

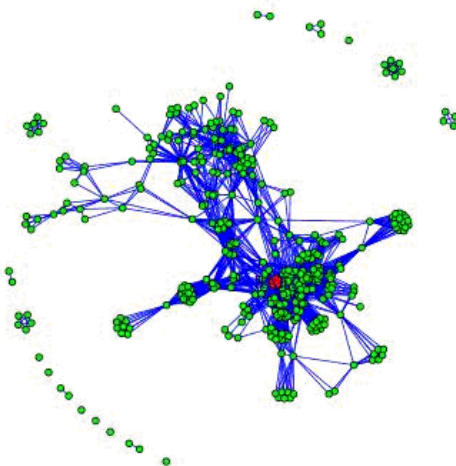


**ERR166336 (BC11)**

Central Pathway = PURINE\_METABOLISM

Central Gene = RAF1

Breast Cancer BC11\_ERR166336 Gene Interaction Network



Breast Cancer BC11\_ERR166336 Pathway Interaction Network

