

Table S5. Literature of association between non-cancer genes or complexes in cancer-related marketing centrality motifs and cancers.

| Complex or gene | Cancer | Literature |
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| RPS6KB1 | breast cancer | Transcriptional consequences of genomic structural aberrations in breast cancer |
| | diffuse large B-cell lymphoma | Phospho-p70S6K/p85S6K and cdc2/cdk1 are novel targets for diffuse large B-cell lymphoma combination therapy |
| | endometrial cancers | Genome-wide analysis of deoxyribonucleic acid in endometrial cancer using comparative genomic hybridization microarrays |
| | desmoplastic medulloblastoma | Comprehensive genomic analysis of desmoplastic medulloblastomas: identification of novel amplified genes and separate evaluation of the different histological components |
| ERK1/2 (MAPK1 and MAPK3) | breast cancer | Increased expression of CYP4Z1 promotes tumor angiogenesis and growth in human breast cancer |
| | gastric cancer | ERK inhibition enhances TSA-induced gastric cancer cell apoptosis via NF- κ B-dependent and Notch-independent mechanism |
| | colorectal cancer | Lyn is involved in CD24-induced ERK1/2 activation in colorectal cancer |
| | lung cancer | Caveolin-1 interferes cell growth of lung cancer NCI-H446 cell through the interactions with phospho-ERK1/2, estrogen receptor and progesterin receptor |
| PHLPP1 | tumor suppressor | USP1 regulates AKT phosphorylation by modulating the stability of PHLPP1 in lung cancer cells |
| GRB2 | endometrial carcinoma | Insulin promotes proliferation, survival, and invasion in endometrial carcinoma by activating the MEK/ERK pathway |
| | colorectal cancer | Proteomics identification of ITGB3 as a key regulator in reactive oxygen species-induced migration and invasion of colorectal cancer cells |
| | anaplastic large cell lymphomas | Involvement of Grb2 adaptor protein in nucleophosmin-anaplastic lymphoma kinase (NPM-ALK)-mediated signaling and anaplastic large cell lymphoma growth |
| PDK2 | breast cancer | Genetic variation in genes involved in |

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| | | hormones, inflammation and energetic factors and breast cancer risk in an admixed population |
| INPPL1 | laryngeal squamous cell carcinoma | Prognostic value of elevated SHIP2 expression in laryngeal squamous cell carcinoma |
| | breast cancer | SHIP2 phosphoinositol phosphatase positively regulates EGFR-Akt pathway, CXCR4 expression, and cell migration in MDA-MB-231 breast cancer cells |
| | hepatocellular carcinoma | Significance of glucose intolerance and SHIP2 expression in hepatocellular carcinoma patients with HCV infection |
| PRKCZ | prostate cancer | Splice variant PRKC- ζ (-PrC) is a novel biomarker of human prostate cancer |
| | Oral squamous cell carcinoma | Array-comparative genomic hybridization to detect genomewide changes in microdissected primary and metastatic oral squamous cell carcinomas |
| RHOA | lung cancer | Downregulating PRL-3 inhibit migration and invasion of lung cancer cell via RhoA and mDia1 |
| | breast cancer | Dvl2-dependent activation of Daam1 and RhoA regulates Wnt5a-induced breast cancer cell migration |
| | prostate cancer | RhoA as a mediator of clinically relevant androgen action in prostate cancer cells |
| PDK1 | breast cancer | 3-Phosphoinositide-dependent kinase 1 potentiates upstream lesions on the phosphatidylinositol 3-kinase pathway in breast carcinoma |
| | oral squamous cell carcinoma | Involvement of TSC genes and differential expression of other members of the mTOR signaling pathway in oral squamous cell carcinoma |
| ILK | bladder cancer | Downregulation of integrin-linked kinase inhibits epithelial-to-mesenchymal transition and metastasis in bladder cancer cells |
| | ovarian carcinoma | Silencing of the integrin-linked kinase gene induces the apoptosis in ovarian carcinoma |
| | gastric cancer | Integrin-linked kinase in gastric cancer cell attachment, invasion and tumor growth |
| | colon cancer | MicroRNA-mediated upregulation of integrin-linked kinase promotes Src-induced |

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| | | tumor progression |
| | breast cancer | Angiopoietin-2, an angiogenic regulator, promotes initial growth and survival of breast cancer metastases to the lung through the integrin-linked kinase (ILK)-AKT-B cell lymphoma 2 (Bcl-2) pathway |
| | breast cancer | Cancer stem cell markers in breast cancer: pathological, clinical and prognostic significance |
| | prostate cancer | Prostate cancer susceptibility variants confer increased risk of disease progression |
| ITGA6 | renal cell carcinoma | Alterations of the gene expression profile in renal cell carcinoma after treatment with the histone deacetylase-inhibitor valproic acid and interferon-alpha |
| | cervical squamous cell carcinoma | Gene profiling in Pap-cell smears of high-risk human papillomavirus-positive squamous cervical carcinoma |
| | hepatocellular carcinoma | Different molecular pathways determining extrahepatic and intrahepatic recurrences of hepatocellular carcinoma |
| ITGB4 | breast cancer | Vimentin regulates EMT induction by Slug and oncogenic H-Ras and migration by governing Axl expression in breast cancer |
| | ovarian cancer | Gene expression profiling in response to estradiol and genistein in ovarian cancer cells |
| LAMA5 | cervical cancer | Identification of copy number gain and overexpressed genes on chromosome arm 20q by an integrative genomic approach in cervical cancer: potential role in progression |
| LAMC1 | breast cancer | Genetic expression profiles and chromosomal alterations in sporadic breast cancer in Mexican women |
| | hepatocellular carcinomas | Sp1-mediated transactivation of LamC1 promoter and coordinated expression of laminin-gamma1 and Sp1 in human hepatocellular carcinomas |
| | colon cancer | Recurrent R-spondin fusions in colon cancer |
| ERBB3 | breast cancer | Gene expression changes as markers of early lapatinib response in a panel of breast cancer cell lines |
| | lung cancer | Tumor suppressor miR-22 suppresses lung cancer cell progression through post-transcriptional regulation of ErbB3 |

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| mTORC2 (MTOR, RICTOR, MLST8, MAPKAP1) | prostate cancer | Dual targeting of the Akt/mTOR signaling pathway inhibits castration-resistant prostate cancer in a genetically engineered mouse model |
| | breast cancer | Targeting of mTORC2 prevents cell migration and promotes apoptosis in breast cancer |
| | glioblastoma | Oncogenic EGFR signaling activates an mTORC2-NF- κ B pathway that promotes chemotherapy resistance |
| | intravascular large B-cell lymphoma | Intravascular large B-cell lymphoma: report of three cases and analysis of the mTOR pathway |
| AURKA | prostate cancer | Understanding the lethal variant of prostate cancer: power of examining extremes |
| | neuroblastoma | Protein tyrosine phosphatase receptor delta acts as a neuroblastoma tumor suppressor by destabilizing the aurora kinase A oncogene |
| | colorectal cancer | Relationship of increased aurora kinase A gene copy number, prognosis and response to chemotherapy in patients with metastatic colorectal cancer |
| | gastrointestinal stromal tumor | Mitotic checkpoints and chromosome instability are strong predictors of clinical outcome in gastrointestinal stromal tumors |
| GRB10 | mammary carcinogenesis | Critical involvement of RQCD1 in the EGFR-Akt pathway in mammary carcinogenesis |
| | breast cancer | Involvement of RQCD1 overexpression, a novel cancer-testis antigen, in the Akt pathway in breast cancer cells |
| | glioblastoma | Characterization of novel and complex genomic aberrations in glioblastoma using a 32K BAC array |
| | osteosarcoma | Changes in genomic imprinting and gene expression associated with transformation in a model of human osteosarcoma |
| PRKDC | cervical squamous cell carcinoma | Up-regulation of growth factor receptor-bound protein 10 in cervical squamous cell carcinoma |
| | breast cancer | Genetic variation in DNA repair gene XRCC7 (G6721T) and susceptibility to breast cancer |
| | melanoma | Genetic variants in DNA repair genes and the risk of cutaneous malignant melanoma in melanoma-prone families with/without |

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| | | CDKN2A mutations |
| EDNRA | nasopharyngeal carcinoma | Polymorphisms in the endothelin-1 and endothelin a receptor genes and survival in patients with locoregionally advanced nasopharyngeal carcinoma |
| | Wilms tumors | Target genes of the WNT/beta-catenin pathway in Wilms tumors |
| EDN1 | breast cancer | Mechanisms of indomethacin-induced alterations in the choline phospholipid metabolism of breast cancer cells |
| | colon cancer | beta-Catenin activates the growth factor endothelin-1 in colon cancer cells |
| ESR1 | breast cancer | TWIST represses estrogen receptor-alpha expression by recruiting the NuRD protein complex in breast cancer cell |
| | endometrial cancer | Genetic polymorphisms in the estrogen receptor- α gene and the risk of endometrial cancer: a meta-analysis |
| | testicular germ cell cancer | Association of polymorphisms in genes encoding hormone receptors ESR1, ESR2 and LHCGR with the risk and clinical features of testicular germ cell cancer |
| STRN | bladder and lung cancer | Transcription activating property of autoantigen SG2NA and modulating effect of WD-40 repeats |
| INSR | endometrial cancer | Mitogenic and anti-apoptotic effects of insulin in endometrial cancer are phosphatidylinositol 3-kinase/Akt dependent |
| | breast cancer | A kinome-wide screen identifies the insulin/IGF-I receptor pathway as a mechanism of escape from hormone dependence in breast cancer |
| | colorectal neoplasia | Genes in the insulin and insulin-like growth factor pathway and odds of metachronous colorectal neoplasia |
| | multiple myeloma | Insulin is a potent myeloma cell growth factor through insulin/IGF-1 hybrid receptor activation |
| | thyroid cancer | The insulin resistance Grb14 adaptor protein promotes thyroid cancer ret signaling and progression |
| GRB14 | breast cancer | Solution structure of the human Grb14-SH2 domain and comparison with the structures of the human Grb7-SH2/erbB2 peptide complex |

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| | | and human Grb10-SH2 domain |
| | prostate cancer | Cloning and characterization of GRB14, a novel member of the GRB7 gene family |
| | melanoma | Exome sequencing identifies recurrent somatic RAC1 mutations in melanoma |
| RAC1 | pancreatic cancer | BART inhibits pancreatic cancer cell invasion by Rac1 inactivation through direct binding to active Rac1 |
| | medulloblastoma tumors | Rho GTPases in primary brain tumor malignancy and invasion |
| | breast cancer | Comprehensive molecular portraits of human breast tumours |
| MAP3K1 | colorectal cancer | MAP3K1 functionally interacts with Axin1 in the canonical Wnt signalling pathway |
| | pancreatic cancer | Association of breast cancer susceptibility variants with risk of pancreatic cancer |
| | lung cancer | A functional copy-number variation in MAPKAPK2 predicts risk and prognosis of lung cancer |
| MAPKAPK2 | gastrointestinal stromal tumor | MAPKAP kinase 2 overexpression influences prognosis in gastrointestinal stromal tumors and associates with copy number variations on chromosome 1 and expression of p38 MAP kinase and ETV1 |
| | bladder cancer | p38 mitogen-activated protein kinase-driven MAPKAPK2 regulates invasion of bladder cancer by modulation of MMP-2 and MMP-9 activity |
| | transformed follicular lymphoma | Comparison of gene expression profiles of lymphoma cell lines from transformed follicular lymphoma, Burkitt's lymphoma and de novo diffuse large B-cell lymphoma |
| CAMK1 | aldosterone producing adenomas | Aldosterone producing adrenal adenomas are characterized by activation of calcium/calmodulin-dependent protein kinase (CaMK) dependent pathways |
| | endometrial carcinomas | Targeting calcium/calmodulin-dependence kinase I and II as a potential anti-proliferation remedy for endometrial carcinomas |
| | cerebral cavernous malformation | CCM2 gene polymorphisms in Italian sporadic patients with cerebral cavernous malformation: a case-control study |
| KRIT1 | retinal cavernous hemangioma | Novel KRIT1/CCM1 mutation in a patient with retinal cavernous hemangioma and |

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| | | cerebral cavernous malformation |
| MAPK8 | breast cancer | Estrogen regulates JNK1 genomic localization to control gene expression and cell growth in breast cancer cells |
| | prostate cancer | JunD-mediated repression of GADD45 α and γ regulates escape from cell death in prostate cancer |
| p38 (MAPK11, MAPK12, MAPK13, MAPK14) | renal cancer | Comparison of tumor grade and stage with nuclear factor kappa b and p38 mitogene activated protein kinase expressions in renal cell cancer |
| | medulloblastoma | Voltage-gated potassium channel EAG2 controls mitotic entry and tumor growth in medulloblastoma via regulating cell volume dynamics |
| | squamous cell carcinomas | Combined inhibition of p38 and Akt signaling pathways abrogates cyclosporine A-mediated pathogenesis of aggressive skin SCCs |
| RPS6KA1 | colon cancer | Genetic variation in RPS6KA1, RPS6KA2, RPS6KB1, RPS6KB2, and PDK1 and risk of colon or rectal cancer |
| | breast cancer | Y-box binding protein-1 serine 102 is a downstream target of p90 ribosomal S6 kinase in basal-like breast cancer cells |
| | melanoma | Mitogen-activated protein kinase pathway-dependent tumor-specific survival signaling in melanoma cells through inactivation of the proapoptotic protein bad |
| PAK1 | hepatocellular carcinoma | Hepatitis B virus X protein confers resistance of hepatoma cells to anoikis by up-regulating and activating p21-activated kinase 1 |
| | colon cancer | Phosphorylation of β -catenin at serine 663 regulates its transcriptional activity |
| | gastric cancer | P21-activated protein kinase 1 is overexpressed in gastric cancer and induces cancer metastasis |
| | breast cancer | PAK1 is a breast cancer oncogene that coordinately activates MAPK and MET signaling |