Supplementary Table 8: Networks and canonical pathways enriched for genes significantly upregulated when gained (Mann-Whitney U test adjusted p<0.05).

Networks				
ID	**Molecules in Network**	**Score**	**Focus Molecules**	**Top Functions**
1	Akt,CASP6,COPB1,DDX54,ERC1,ESR1,GAB1,hCG,HSPE1,IKBKB,IL6,MAPK9,MAPKAPK2,MBD2,MEF2A (includes EG:4205),MMS19,PMS1,PMS2,PSD2,PTH,RAD51AP1,RANBP9,RFC2,RFC4,SBF2,TFF2,TGFB1,TM4SF1,TNF,TNFSF10,UBA52,UBR5,UNG,USP5,ZNF330	18	16	Cell Death, Connective Tissue Disorders, Skeletal and Muscular Disorders
2	CD9,CDH1,CREBL2,CREM,CSDA,DHCR7,DUSP14,E2f,EHMT1,FANCD2,FSH,GNAS,GPR56,GPRC5A,HDAC5,Histone h3,IgG,LDLR,Mi2,NCAPD2,PAWR,PGRMC1,PSMD3,PTPRF,RAD21,RNASEN,SF3B3,SMARCA5,SMC4,STAR,STK24,TNFAIP3,TOB1,VCL,ZEB1	13	13	Lipid Metabolism, Molecular Transport, Small Molecule Biochemistry
3	ARPC1B,ATM,BIRC2,BIRC5,CASP1,CASP9,CLTC,CORO1C,DNMT1,E2F1,EIF2B1,H2AFX,IFNB1,IL1RN,IRF1,JAK2,KIN,LGALS1,LTF,MBNL2,PAK1,PHB2,PHB (includes EG:5245),POLG,PTK2,RPL19 (includes EG:6143),STRAP,TNFRSF1B,TOP2A,TOP2B,TP53,TP63,TP73,XPA,XPC	13	13	Cancer, Cell Death, Hematological Disease
4	ACTB,ANXA5,APP,CAT,CCL20,CCNB2,CDKN1A,CSF1R,FOXO1,HDAC1,ICOS,IFNG,IL5,IL33,IPO5,IPO8,JAK1,JAK2,LGALS3,MGST1,MHC Class I (complex),MS4A2,MUC1,OGG1,RAD9A,RAF1,Ras,RPL23A (includes EG:6147),SOCS1,SRP19,STOML2,SUMO2,TCF7L2 (includes EG:6934),TOPBP1,USP6NL	12	12	Cellular Growth and Proliferation, Skeletal and Muscular Disorders, Lymphoid Tissue Structure and Development
5	PEX5,PEX12	3	2	Genetic Disorder, Metabolic Disease, Cellular Assembly and Organization

Canonical Pathways				
Canonical Pathways	**Ingenuity Canonical Pathways**	**p**	**Ratio**	**Molecules**
1	Angiopoietin Signaling	0.0030	7.35E-02	PTK2,PAK1,FOXO1,PIK3C3,BIRC5
2	HGF Signaling	0.0047	5.94E-02	PTK2,RAF1,PAK1,GAB1,PIK3C3,MAPK9
3	NRF2-mediated Oxidative Stress Response	0.0059	4.42E-02	RAF1,MGST1,PIK3C3,DNAJB11,DNAJC19,CAT,MAPK9,MAFG
4	Molecular Mechanisms of Cancer	0.0065	3.37E-02	PTK2,CASP6,RAF1,CDH1,PAK1,CAMK2D,FANCD2,FOXO1,GAB1,PIK3C3,MAPK9,BIRC2
5	Estrogen Receptor Signaling	0.0068	5.04E-02	RAF1,TAF15,TAF5L,PHB2,H3F3B,POLR2H
6	G12/13±ž Signaling	0.0081	5.04E-02	PTK2,RAF1,CDH1,PIK3C3,MEF2A (includes EG:4205),MAPK9
7	FAK Signaling	0.0102	5.32E-02	PTK2,RAF1,PAK1,PIK3C3,CAPN10
8	Amyotrophic Lateral Sclerosis Signaling	0.0123	5.38E-02	PAK1,PIK3C3,CAT,CAPN10,BIRC2
9	D-arginine and D-ornithine Metabolism	0.0158	1.00E+00	DAO
10	Fc Epsilon RI Signaling	0.0182	5.05E-02	RAF1,GAB1,PIK3C3,MS4A2,MAPK9
11	Pyrimidine Metabolism	0.0186	3.95E-02	NUDT5,POLR1E,POLG,POLR2H,UMPS,UNG
12	Mechanisms of Viral Exit from Host Cells	0.0219	7.69E-02	CHMP4C,SH3GLB1,VPS4A
13	Renal Cell Carcinoma Signaling	0.0240	5.63E-02	RAF1,PAK1,GAB1,PIK3C3
14	IL-3 Signaling	0.0251	5.56E-02	RAF1,PAK1,FOXO1,PIK3C3
15	Renin-Angiotensin Signaling	0.0257	4.59E-02	PTK2,RAF1,PAK1,PIK3C3,MAPK9
16	LPS-stimulated MAPK Signaling	0.0263	5.19E-02	RAF1,PAK1,PIK3C3,MAPK9
17	Purine Metabolism	0.0324	2.96E-02	NUDT5,DLG1,ATP5C1,DDX39,POLR1E,POLG,SMARCA5,POLR2H,VPS4B
18	Role of Oct4 in Mammalian Embryonic Stem Cell Pluripotency	0.0339	6.67E-02	CASP6,MEF2A (includes EG:4205),SH3GLB1
19	Protein Ubiquitination Pathway	0.0363	3.55E-02	PSMB3,USP53,USP5,USP38,PSMA4,PSMD3,BIRC2
20	FGF Signaling	0.0380	4.76E-02	RAF1,GAB1,PIK3C3,MAPKAPK2
21	Polyamine Regulation in Colon Cancer	0.0407	5.77E-02	PSMB3,PSMA4,PSMD3
22	Apoptosis Signaling	0.0427	4.44E-02	CASP6,RAF1,CAPN10,BIRC2
23	VEGF Signaling	0.0427	4.49E-02	PTK2,RAF1,FOXO1,PIK3C3
24	GNRH Signaling	0.0457	3.85E-02	PTK2,RAF1,PAK1,CAMK2D,MAPK9
25	Endometrial Cancer Signaling	0.0490	5.45E-02	RAF1,CDH1,PIK3C3
26	p53 Signaling	0.0490	4.49E-02	CASP6,PIK3C3,C12ORF5,BIRC5
27	IGF-1 Signaling	0.0490	4.26E-02	PTK2,RAF1,FOXO1,PIK3C3