

Supplementary Table 7. Networks suggested by IPA for significantly mutated genes from B-cell lymphomas from cocker spaniel and golden retriever

Cocker spaniel

Network ID	Molecules in Network	Score	Focus Molecules	Top Diseases and Functions
1	Akt,APP,CAPRIN1,caspase,DDX3X,EDA,EIF1AX,FAM90A1,FFAR2,GAPDHS,GNPTAB,GPM6B,GYG2,Igm,INPP4B,MITF,MYC,P38 MAPK,PABPN1,PLBD1,POT1,PPFIBP2,PSMA1,RAD51C,SLC19A2,ST3GAL6,TBKBP1,TMCC2,TNFRSF13C,TRAF3,TRAF4,TRAF1-TRAF2-TRAF3,UBL3,USP48,Vegf	20	7	Cell Morphology, Cancer, Cell Death and Survival

Golden retriever

Network ID	Molecules in Network	Score	Focus Molecules	Top Diseases and Functions
1	26s Proteasome,Actin,Ap1,DDX3X,EEF1A1,EEF1A2,ERG,ERK1/2,GLUD1,HBA1/HBA2,Hsp70,IFN Beta,IgG2a,Igm,Ikb,Immunoglobulin,Insulin,KLRC4-KLRK1/KLRK1,MAP3K14,MDH2,NTRK1,p70 S6k,p85 (pik3r),PDIA6,PKD1,PI3K (complex),PKD1,PNRC1,Ras,RPL22,RPL23A,Sos,thyroid hormone receptor,TRAF3,XRN2	43	18	Cellular Development, Tissue Development, Protein Synthesis
2	ANKMY2,APP,ATP5H,BAI3,C12orf5,CFAP58,CPED1,CWC15,CYP4F11,DUS2,EMR2,ETS1,FAM90A1,GPR52,HOMEZ,IL6,ISYNA1,KIAA1191,KNOP1,LINS,MAPRE1,PHC3,PHYHD1,PLBD1,POT1,PROSER2,SUMO2,SYAP1,UBC,UBL3,USP17L2 (includes others),WDR17,ZBED2,ZDHHC2,ZNF486	30	14	Cell-To-Cell Signaling and Interaction, Tissue Development, Cellular Compromise

3	Akt, BRK1, caspase, CD3, Ck2, Creb, DR4/5, ERK, FBXW7, FKBP3, Histone h3, HNRNPA1L2, Hsp90, Jnk, Jnk dimer, KPNA2, miR-17-3p (and other miRNAs w/seed CUGCAGU), miR-191-5p (and other miRNAs w/seed AACGGAA), MIR155HG, NFkB (complex), P38 MAPK, Pkc(s), PRELID1, PSMA1, RNA polymerase II, SETD2, SOCS2, SOX17, ST13, TAF1C, TP53, TRAF1-TRAF2-TRAF3, TRIAP1, Vegf, ZNF385A AICAR, APH1A, APLP2, BUB3, CD47, DOK2, DOK6, DYRK1A, E2F2, EGFR, ELAVL1, EPHA2, FKBP1A, HCFC1, HTATIP2, IGF2BP3,	24	12	Cancer, Cell Cycle, Cell Morphology
4	ISCA1, mir-15, MYBL2, PDCD6IP, PEX19, PHLDA1, PPP2R2A, PPP6C, RALA, RHOB, RNF41, RPN1, SCAMP1, SERPINE2, SGPL1, SH2D1A, TUBB3, UBE2L3, YES1	5	3	Cancer, Cell Cycle, Infectious Disease

Combined dataset (cocker spaniel + golden retriever)

Network ID	Molecules in Network	Score	Focus Molecules	Top Diseases and Functions
1	26s Proteasome, 60S ribosomal subunit, Akt, caspase, Cg, Ck2, DDX3X, ERG, FBXW7, Hdac, HISTONE, Histone h3, HNRNPA1L2, HRG, Hsp70, Hsp90, Immunoglobulin, KPNA2, MAP3K14, MYC, NFkB (complex), POT1, PPP6C, PSMA1, RNA polymerase II, RPL22, RPL23A, SETD2, ST13, TAF1C, TAF1L, TP53, Ubiquitin, USP17L2 (includes others), XRN2	45	20	Cancer, Hematological Disease, Immunological Disease
2	Ap1, BRK1, Cbp/p300, CD3, Creb, Cyclin E, EEF1A2, ERK1/2, FKBP3, Growth hormone, HBA1/HBA2, IFN Beta, Ige, IgG, IgG2a, Igm, Ikb, IL1, IL12 (complex), Interferon alpha, KLRC4-KLRK1/KLRK1, Mek, MITF, NTRK1, OGT, p85 (pik3r), PDK1, PNRC1, Ras, SOCS2, Sos, SOX17, TCR, thyroid hormone receptor, TRAF3	28	13	Cellular Movement, Cellular Development, Tissue Development

3	<p>APBB2,APOBEC3C,APP,ARID1B,ATL3,ATP5H,BAI3,C12orf5, CWC15,DOK6,DUS2,EGFR,ELAVL1,EMR2,FAM90A1,GPD1L, ISCA1,LETMD1,LINGO1,LINS,MAPRE1,MBNL2,MIS18BP1, MPI,MPV17L,MRPL24,PHC3,PLBD1,SLC38A5,SUMF2, TMED7,TMEM127,UBC,UBL3,ZDHHC2</p>	27	13	Developmental Disorder, Hereditary Disorder, Neurological Disease
4	<p>ARHGAP1,Cg,DHCR24,ELK3,ELK4,ERK,FGFBP1,GAS6,GPR34, Gsk3,indican,iodine,Jnk,K Channel,KNOP1,LRRN3,MAP3K4, Mapk,MAPK4,mir-101,miR-199a-3p (and other miRNAs w/seed CAGUAGU),MKK3/6,NCF4,P38 MAPK,PADI2,PI3K (complex),Pkc(s),PKD1,PODXL,Rac,TLR6,TRAF1-TRAF2- TRAF3,TRIO,Vegf,VRK2</p>	5	3	Cellular Development, Cellular Growth and Proliferation, Renal Proliferation