### Supplementary Table 1 Lymphoma-related 571 gene list

| Gene  | Gene | Gene | Gene | Gene |
|-------|------|------|------|------|
| ABL1  | EPCAM | KMT2C | PTP4A1 | VHL |
| ACVR1 | EPHA3 | KMT2D | PTPN11 | VTCN1 |
| AGO2  | EPHA5 | KNSTRN | PTPRD | WHSC1 |
| AKT1  | EPHA7 | KRAS | PTPRS | WHSC1L1 |
| AKT2  | EPHB1 | LATS1 | PTPRT | WT1 |
| AKT3  | ERBB2 | LATS2 | RAB35 | WWTR1 |
| ALK   | ERBB3 | LMO1 | RAC1 | XIAP |
| ALOX12B | ERBB4 | LYN | RAC2 | XPO1 |
| AMER1 | ERCC2 | MALT1 | RAD21 | XRCC2 |
| ANKRDI1 | ERCC3 | MAP2K1 | RAD50 | YAP1 |
| APC   | ERCC4 | MAP2K2 | RAD51 | YES1 |
| AR    | ERCC5 | MAP2K4 | RAD51B | ZFHX3 |
| ARAF  | ERF | MAP3K1 | RAD51C | ACVR1B |
| ARID1A | ERG | MAP3K13 | RAD51D | ARFRP1 |
| ARID1B | ERRF11 | MAP3K14 | RAD52 | BCL2L2 |
| ARID2  | ESR1 | MAPK1 | RAD54L | BCORL1 |
| ARID3B | ETV1 | MAPK3 | RAF1 | BTG1 |
| ASXL1 | ETV6 | MAPKAP1 | RARA | BTG2 |
| ASXL2  | EZH1 | MAX | RASA1 | C11orf30 |
| ATM   | EZH2 | MCL1 | RB1 | CD22 |
| ATR   | FAM175A | MDC1 | RBM10 | CD70 |
| ATRX  | FAM46C | MDM2 | RECOL | CDKN2A |
| AURKA | FAM58A | MDM4 | RECOL4 | CTNNA1 |
| AURKB | FANCA | MED12 | REL | CUL4A |
| AXIN1 | FANCC | MEF2B | RET | CYP17A1 |
| AXIN2  | FAT1 | MEN1 | RFWD2 | DDR1 |
| AXL   | FBXW7 | MET | RHEB | EPHB4 |
| B2M   | FGFR1 | MGA | RHOA | FANCG |
| BABAM1 | FGFR3 | MITF | RICTOR | FANCL |
| BAP1  | FGFR4 | MLH1 | RIT1 | FAS |
| BARD1 | FGFR1 | MPL | RNF43 | FGF10 |
| BBC3  | FGFR2 | MRE11A | ROS1 | FGF12 |
| BCL10 | FGFR3 | MSH2 | RPS6KA4 | FGF14 |
| BCL2  | FGFR4 | MSH3 | RPS6KB2 | FGF23 |
| BCL2L1 | FH | MSH6 | RPTOR | FGF6 |
| BCL2L11 | FLCN | MSI1 | RRAAGC | GABRA6 |
| BCL6  | FLTI | MSI2 | RRAS | GATA4 |
| BCOR  | FLT3 | MST1 | RRAS2 | GATA6 |
| BIRC3 | FLT4 | MST1R | RTE1 | GID4 |
| BLM   | FOXA1 | MTOR | RUNX1 | GNA13 |
| BMPR1A | FOXL2 | MUTYH | RXRA | GRM3 |
| BRAF  | FOXO1 | MYC | RYBP | HADC1 |
| BRCA1 | FOXP1 | MYCL1 | SDHA | SDSB1 |
| BRCA2 | FUBP1 | MYCN | SDHAF2 | IRF2 |
| BRD4  | FYN | MYD88 | SDHB | KEL |
| BRIP1 | GATA1 | MYOD1 | SDHC | KLHL6 |
| BTK   | GATA2 | NBN | SDHD | LTK |
| CALR  | GATA3 | NCOA3 | SESN1 | MAF |
| CARD11 | GLI1 | NCOI | SESN2 | MERTK |
| CARML | GNA11 | NEGR1 | SESN3 | MKNK1 |
| CASP8 | GN4Q | NF1 | SETD2 | MTAP |
| CBFB  | GN4S | NF2 | SETD8 | MYCL |
| CBL   | GPS2 | NFE2L2 | SF3B1 | NT5C2 |
| Gene1       | Gene2       | Gene3       | Gene4       | Gene5       |
|-------------|-------------|-------------|-------------|-------------|
| CCND1       | GREM1       | NFKBIA      | SH2B3       | P2RY8       |
| CCND2       | GRN2A       | NXX2-1      | SH2D1A      | PARP2       |
| CCND3       | GSK3B       | NXX3-1      | SHOC2       | PARP3       |
| CCNE1       | H3F3A       | NOTCH1      | SHQ1        | PDK1        |
| CD274       | H3F3B       | NOTCH2      | SLX4        | PIK3C2B     |
| CD276       | H3F3C       | NOTCH3      | SMAD2       | PPP2R2A     |
| CD79A       | HGF         | NOTCH4      | SMAD3       | PTPRO       |
| CD79B       | HIST1H1C    | NPM1        | SMAD4       | QKI         |
| CDC42       | HIST1H2BD   | NRAS        | SMARCA4     | SGK1        |
| CDC73       | HIST1H3A    | NSD1        | SMARCB1     | SNC4IP      |
| CDH1        | HIST1H3B    | NTHL1       | SMARC1D1    | TIPARP      |
| CDK12       | HIST1H3C    | NTRK1       | SMO         | TYRO3       |
| CDK4        | HIST1H3D    | NTRK2       | SMYD3       | ZNF217      |
| CDK6        | HIST1H3E    | NTRK3       | SOCS1       | ZNF703      |
| CDK8        | HIST1H3F    | NUF2        | SOS1        | ACTB        |
| CDKN1A      | HIST1H3G    | NUP93       | SOX17       | BCLAF1      |
| CDKN1B      | HIST1H3H    | PAK1        | SOX2        | CD36        |
| CDKN2Aجن14 | HIST1H3J    | PAK7        | SOX9        | CD58        |
| CDKN2Aجن16 | HIST1H3J    | PALB2       | SPEN        | CHD2        |
| CDKN2B      | HIST2H3C    | PARK2       | SPOP        | CIITA       |
| CDKN2C      | HIST2H3D    | PARP1       | SPRED1      | DDX3X       |
| CEBPA       | HIST3H3     | PAX5        | SRC         | DTX1        |
| CENPA       | HLA-A       | PBRM1       | SRSF2       | DUSP2       |
| CHEK1       | HLA-B       | PDCD1       | STAG2       | EBF1        |
| CHEK2       | HNF1A       | PDCD1LG2    | STAT3       | EGR2        |
| CIC         | HOXB13      | PDGFR1      | STAT5A      | HIST1H1E    |
| CREBBP      | HRAS        | PDGFRB      | STAT5B      | HIST2H2AB   |
| CRKL        | ICOSLG      | PDPK1       | STK11       | IGLL5       |
| CRLF2       | ID3         | PGR         | STK19       | JKBK        |
| CSDE1       | IDH1        | PHOX2B      | STK40       | JRF8        |
| CSF1R       | IDH2        | PIK3C2G     | SUFU        | JTPKB       |
| CSF3R       | IFNGR1      | PIK3C3      | SUZ12       | KIR2DL1     |
| CTCF        | IGF1        | PIK3CA      | SYK         | KRT20       |
| CTLA4       | IGF1R       | PIK3CB      | TAP1        | LRRN3       |
| CTNNB1       | IGF2        | PIK3CD      | TAP2        | MAPK7       |
| CUL3        | IKBKE       | PIK3CG      | TXB3        | MPEG1       |
| CXC4R4      | IKZF1       | PIK3R1      | TCEB1       | MYOM2       |
| CYLD         | IL10        | PIK3R2      | TCF3        | NCO2        |
| CYSLT2      | IL7R        | PIK3R3      | TCF7L2      | NFKBIE      |
| DAXX        | INHA        | PIM1        | TEK         | NRXN3       |
| DCUN1D1      | INHBA       | PLCG2       | TERT        | NSD2        |
| DDR2        | INPP4A      | PLK2        | TET1        | PCLO        |
| DICER1      | INPP4B      | PMAIP1      | TET2        | POSTN       |
| DIS3        | INPPL1      | PMS1        | TGFBR1      | POT1        |
| DNAJB1       | INSR        | PMS2        | TGFBR2      | PTPN6       |
| DNMT1       | IRF4        | PNRC1       | TMEM127     | RAG1        |
| DNMT3A      | IRS1        | POLD1       | TMPRSS2     | RAG2        |
| DNMT3B      | IRS2        | POLE        | TNFAIP3     | RIKP1       |
| DOT1L       | JAK1        | PPARG       | TNFRSF14    | ROBO2       |
| DROSHA      | JAK2        | PPM1D       | TOP1        | SAMHD1      |
| DUSP4       | JAK3        | PPP2R1A     | TP53        | SIN3A       |
| E2F3        | JUN         | PPP4R2      | TP53BP1     | SLTRK3      |
| EED         | KDM5A       | PPP6C       | TP63        | STAT6       |
| EGFL7       | KDM5C       | PRDM1       | TRAF2       | TBL1XR1     |
| Gene1 | Gene2 | Gene3 | Gene4 | Gene5 |
|-------|-------|-------|-------|-------|
| EGFR  | KDM6A | PRDM14| TRAF7 | TGM7  |
| EIF1AX| KDR   | PREX2 | TSC1  | TLDC2 |
| EIF4A2| KEAP1 | PRKAR1A| TSC2  | TMSB4X|
| EIF4E | KIT   | PRKCI | TSHR  | TYK2  |
| ELF3  | KLF4  | PRKCI | U2AF1 | UBE2A |
| EP300 | KMT2A | PTCH1 | UPF1  | ZFP36L1|
| EPAS1 | KMT2B | PTEN  | VEGFA | ZMYM3 |
| ZNF608|       |       |       |       |