

Supplementary Table 2 Details of each connection between 83 genes and CLL and the 10 CLL TFS-related genes, including the relation type, relation direction, source node, and target node.

negative Expression: ATM ---| TNF
 positive Regulation: TNF --+> ATM
 Regulation: ROR1 ---> FOXO1
 ProtModification: ATM ---> FBXW7
 positive Regulation: XIAP --+> chronic lymphocytic leukemia
 positive MolTransport: NOTCH1 --+> IFNG
 positive Regulation: CD40LG --+> chronic lymphocytic leukemia
 positive Regulation: DLL4 --+> chronic lymphocytic leukemia
 Expression: IL4 ---> EGR2
 negative Regulation: GNA13 ---| MAPK1
 Regulation: MIF ---> ATM
 positive Expression: MAPK14 --+> EGR2
 positive Regulation: EGR2 --+> IL4
 Regulation: GNA12 ---> DAPK3
 negative miRNAEffect: MIR223 ---| ATM
 Regulation: MIR195 ---> FOXO1
 positive Expression: EGR2 --+> PTHLH
 positive DirectRegulation: MSI2 --+> KMT2A
 negative Regulation: IRAK4 ---| KMT2A
 negative Expression: NOTCH1 ---| PPARA
 positive Expression: DLL4 --+> NOTCH1
 positive DirectRegulation: DLL4 --+> NOTCH1
 GeneticChange: chronic lymphocytic leukemia ---> EGR2
 positive Expression: STAT3 --+> NOTCH1
 positive Expression: FOXO1 --+> IL2
 Expression: IL2 ---> FOXO1
 positive Expression: NOTCH1 --+> DLL4
 positive Regulation: EDNRA --+> GNA12
 positive Regulation: PTHLH --+> chronic lymphocytic leukemia
 Expression: NOTCH1 ---> FOXO1
 DirectRegulation: NOTCH1 ---> FOXO1
 positive MolTransport: KMT2A --+> GSK3B
 positive Expression: TNFSF13B --+> NOTCH1
 Regulation: FOXO1 ---> DLL4
 negative Regulation: KMT2A ---| PPARA
 Expression: PPARA ---> KMT2A
 Regulation: NOTCH1 ---> CXCL13
 negative miRNAEffect: MIR182 ---| FBXW7
 Regulation: FBXW7 ---> PPARA
 negative Regulation: FOXO1 ---| MAPK1
 positive Regulation: CD44 --+> FOXO1
 Regulation: ATM ---> MAPK1
 Expression: PPARA ---> FOXO1
 Expression: NOTCH1 ---> PPARA
 Expression: NOTCH1 ---> XIAP
 Regulation: NOTCH1 ---> GSK3B
 Expression: FBXW7 ---> TNF
 negative Regulation: NOTCH1 ---| ATM
 negative Expression: VEGFA ---| ATM

Regulation: KMT2A ---> IL4
Regulation: ATM ---> RPS15
positive Regulation: IL2 --> chronic lymphocytic leukemia
Expression: ATM ---> CYCS
positive Regulation: NAMPT --> chronic lymphocytic leukemia
GeneticChange: chronic lymphocytic leukemia ---> NOTCH1
positive Expression: NOTCH1 --> TNFSF13B
Biomarker: chronic lymphocytic leukemia ---> NOTCH1
Regulation: THPO ---> ATM
positive Regulation: IL4 --> FOXO1
positive Expression: EGR2 --> TNFSF10
CellExpression: chronic lymphocytic leukemia ---- NOTCH1
Regulation: EGFR ---> FOXO1
positive Regulation: NOTCH1 --> chronic lymphocytic leukemia
positive Regulation: TNFSF14 --> chronic lymphocytic leukemia
positive Regulation: MIR363 --> chronic lymphocytic leukemia
positive Regulation: OGFOD1 --> chronic lymphocytic leukemia
ProtModification: ATM ---> FOXO1
PromoterBinding: KMT2A ---> TNF
positive Regulation: MIR182 --> chronic lymphocytic leukemia
Regulation: ICAM1 ---> FOXO1
positive Expression: NOTCH1 --> VEGFA
positive Expression: VEGFA --> NOTCH1
positive PromoterBinding: FOXO1 --> ICAM1
DirectRegulation: MSI2 ---> KMT2A
positive Regulation: CSNK1D --> chronic lymphocytic leukemia
positive Regulation: ZAP70 --> chronic lymphocytic leukemia
positive Expression: KMT2A --> CD44
negative Regulation: HIF1A ---| EGR2
positive Regulation: CD27 --> chronic lymphocytic leukemia
positive Regulation: TNFSF10 --> chronic lymphocytic leukemia
positive Regulation: IL4 --> chronic lymphocytic leukemia
positive Expression: FOXO1 --> CD40
positive Expression: NOTCH1 --> IFNG
MolTransport: NOTCH1 ---> IFNG
Regulation: CD40 ---> FOXO1
Regulation: IL24 ---> FOXO1
QuantitativeChange: chronic lymphocytic leukemia ---> KMT2A
positive Expression: PIK3CG --> NOTCH1
Expression: NOTCH1 ---> PIK3CG
CellExpression: KMT2A ---- chronic lymphocytic leukemia
positive Regulation: FOXO1 --> WNT5A
GeneticChange: chronic lymphocytic leukemia ---> KMT2A
Regulation: GNA13 ---> MAPK1
Expression: FOXO1 ---> BCL2L1
negative Expression: NOTCH1 ---| BCL2L12
negative PromoterBinding: FOXO1 ---| IFNG
negative miRNAEffect: MIR223 ---| FBXW7
negative MolTransport: KMT2A ---| MIF
negative Expression: CD27 ---| FOXO1
positive Regulation: MIF --> KMT2A
positive Expression: KMT2A --> BCL2L1
negative Expression: MAPK1 ---| FOXO1
ProtModification: MAPK1 ---> FOXO1

negative Expression: FOXO1 ---| HIF1A
positive Expression: CD40 --+> EGR2
Expression: CXCR5 ---> FOXO1
negative Expression: KMT2A ---| MIF
positive PromoterBinding: HIF1A --+> FOXO1
Expression: EGR2 ---> IFNG
positive Expression: IFNG --+> EGR2
negative MolTransport: EGR2 ---| IFNG
Regulation: ATM ---> STAT3
Expression: FBXW7 ---> VEGFA
negative Expression: FBXW7 ---| HIF1A
Regulation: KMT2A ---> chronic lymphocytic leukemia
positive Regulation: HAVCR2 --+> chronic lymphocytic leukemia
Regulation: FOXO1 ---> MAPK1
positive Regulation: ZFYVE19 --+> chronic lymphocytic leukemia
positive Regulation: NEDD9 --+> chronic lymphocytic leukemia
positive Expression: CXCL12 --+> FOXO1
Regulation: IFNG ---> FOXO1
positive Expression: NOTCH1 --+> ICAM1
positive Regulation: ICAM1 --+> NOTCH1
positive Regulation: VEGFA --+> chronic lymphocytic leukemia
positive Regulation: EDNRA --+> chronic lymphocytic leukemia
positive Regulation: SYK --+> chronic lymphocytic leukemia
positive Expression: NOTCH1 --+> PDCD1
positive Regulation: HDAC6 --+> chronic lymphocytic leukemia
negative Expression: NOTCH1 ---| TCF3
positive Regulation: CXCL12 --+> chronic lymphocytic leukemia
positive Regulation: ZNF215 --+> chronic lymphocytic leukemia
positive PromoterBinding: TCF3 --+> NOTCH1
Regulation: PTHLH ---> FOXO1
Regulation: NOTCH1 ---> MAPK14
Regulation: KMT2A ---> MAPK1
PromoterBinding: RELA ---> EGR2
Regulation: EDN1 ---> NOTCH1
positive PromoterBinding: FOXO1 --+> CXCR4
positive Regulation: PIK3CG --+> chronic lymphocytic leukemia
Regulation: CXCR4 ---> FOXO1
negative Expression: GNA13 ---| DLL4
Regulation: EDN1 ---> GNA13
positive Regulation: PTHLH --+> NOTCH1
positive Expression: GNA13 --+> EDN1
negative miRNAEffect: MIR195 ---| FBXW7
positive Regulation: MIF --+> chronic lymphocytic leukemia
Regulation: MIR130A ---> ATM
Regulation: PTHLH ---> NOTCH1
positive Regulation: EGFR --+> GNA13
positive Expression: GNA12 --+> IL2
Binding: GNA13 ---- CXCR5
positive Regulation: NAMPT --+> ATM
Expression: IL4 ---> FOXO1
positive Expression: CXCL12 --+> NOTCH1
Regulation: IL21 ---> FOXO1
Regulation: NOTCH1 ---> CXCL12
Expression: TNFSF11 ---> FOXO1

PromoterBinding: FOXO1 ---> TNFSF11
Expression: IL4 ---> ATM
negative Expression: ATM ---| IL4
positive Expression: ATM --+> GSK3B
positive Expression: TNF --+> FOXO1
positive PromoterBinding: FOXO1 --+> TNF
positive Regulation: EGR2 --+> CXCR5
positive Regulation: ATM --+> XIAP
Regulation: TNFSF10 ---> ATM
negative Regulation: ATM ---| TNFSF10
positive Expression: NOTCH1 --+> WNT5A
Binding: NOTCH1 ---- DLL4
Regulation: IFNG ---> NOTCH1
positive Expression: EGR2 --+> TNF
positive Expression: TNF --+> EGR2
Expression: FOXO1 ---> CXCR4
negative Expression: FBXW7 ---| BCL2L1
negative miRNAEffect: MIR15A ---| FOXO1
negative Regulation: NOTCH1 ---| KCNA3
positive Regulation: KCNA3 --+> NOTCH1
positive Regulation: MIR223 --+> NOTCH1
positive PromoterBinding: KMT2A --+> TNF
positive MolTransport: KMT2A --+> TNF
Expression: NOTCH1 ---> MIR223
positive Regulation: TNF --+> KMT2A
positive DirectRegulation: CXCR4 --+> GNA13
PromoterBinding: FOXO1 ---> EDN1
ProtModification: ATM ---> CSNK1D
Expression: ATM ---> IFNG
positive Regulation: IFNG --+> ATM
positive Regulation: KDM6A --+> FBXW7
Expression: FOXO1 ---> NAMPT
Regulation: EDN1 ---> FOXO1
positive Expression: MAPK14 --+> NOTCH1
negative Expression: KMT2A ---| CXCL12
positive Regulation: NOTCH1 --+> MAPK14
Expression: NOTCH1 ---> STAT6
Regulation: EGR2 ---> MAPK1
positive Expression: IL4 --+> NOTCH1
positive Expression: NOTCH1 --+> BCL2L1
negative Regulation: NOTCH1 ---| EDNRA
positive MolTransport: IL24 --+> ATM
Expression: GSK3B ---> FOXO1
ProtModification: FBXW7 ---> PDCD1
positive Regulation: MSI2 --+> NOTCH1
Regulation: TNFSF13B ---> FOXO1
positive Expression: MAPK1 --+> EGR2
positive Expression: FOXO1 --+> TNFSF13B
Expression: KDM6A ---> CD44
Expression: EGR2 ---> VEGFA
Expression: KDM6A ---> ICAM1
positive Expression: IL4 --+> EGR2
negative Regulation: IL7 ---| FOXO1
positive Expression: KMT2A --+> HIF1A

DirectRegulation: EGFR ---> ATM
positive Regulation: CX3CL1 --+> chronic lymphocytic leukemia
negative Expression: ATM ---| IL2
positive Regulation: TNFSF13B --+> chronic lymphocytic leukemia
Expression: NOTCH1 ---> TNFSF10
positive Regulation: CXCR4 --+> chronic lymphocytic leukemia
Regulation: TNFSF10 ---> NOTCH1
positive Expression: MAPK1 --+> NOTCH1
Expression: NAMPT ---> NOTCH1
Expression: MIF ---> FBXW7
positive Regulation: NOTCH1 --+> IL7
positive Regulation: EDN1 --+> ATM
positive Regulation: PDCD1 --+> chronic lymphocytic leukemia
Expression: GNA12 ---> IFNG
negative miRNAEffect: MIR363 ---| FBXW7
DirectRegulation: WNT5A ---> NOTCH1
positive Regulation: CXCR4 --+> GNA12
negative Expression: STAT6 ---| NOTCH1
Regulation: KMT2A ---> NOTCH1
ProtModification: GSK3B ---> FBXW7
negative Regulation: VEGFA ---| ATM
negative Expression: GSK3B ---| FBXW7
negative Expression: ATM ---| VEGFA
positive Regulation: PTX3 --+> chronic lymphocytic leukemia
Expression: NOTCH1 ---> ITGA4
positive Regulation: r_Mir16 --+> chronic lymphocytic leukemia
Regulation: KMT2A ---> RELA
Regulation: GNA12 ---> MAPK14
Regulation: ATM ---> EGFR
Regulation: NOTCH1 ---> MAPK1
ProtModification: MAPK1 ---> FBXW7
positive Expression: FOXO1 --+> NAMPT
Expression: MAPK1 ---> FBXW7
PromoterBinding: FOXO1 ---> NAMPT
positive Regulation: ROR1 --+> chronic lymphocytic leukemia
positive Expression: NOTCH1 --+> XIAP
DirectRegulation: NOTCH1 ---> XIAP
Regulation: NAMPT ---> FOXO1
Regulation: FBXW7 ---> MAPK1
positive Expression: IL7 --+> NOTCH1
negative Expression: GNA12 ---| TNFSF11
Expression: ATM ---> CD44
Expression: KDM6A ---> TNF
Regulation: FBXW7 ---> EGFR
Regulation: TNF ---> KDM6A
Regulation: GNA13 ---> RELA
positive Regulation: WNT16 --+> chronic lymphocytic leukemia
PromoterBinding: FOXO1 ---> VEGFA
negative ProtModification: GSK3B ---| FOXO1
Regulation: VEGFA ---> FOXO1
Expression: FOXO1 ---> STAT3
ProtModification: FBXW7 ---> NOTCH1
Binding: NOTCH1 ---- XIAP
Regulation: IL2 ---> EGR2

negative miRNAEffect: MIR182 ---| FOXO1
Expression: EGR2 ---> IL2
positive Regulation: GSTP1 --+> chronic lymphocytic leukemia
positive Regulation: TNFSF11 --+> GNA13
Regulation: ATM ---> MIR182
positive Regulation: MIR130A --+> chronic lymphocytic leukemia
negative miRNAEffect: MIR182 ---| ATM
Regulation: GSK3B ---> KMT2A
Expression: IL2 ---> NOTCH1
positive Expression: NOTCH1 --+> RELA
Regulation: KMT2A ---> GSK3B
positive MolTransport: NOTCH1 --+> RELA
ProtModification: RELA ---> NOTCH1
Regulation: TNFSF11 ---> NOTCH1
positive Regulation: IRAK4 --+> chronic lymphocytic leukemia
PromoterBinding: RELA ---> NOTCH1
Expression: FOXO1 ---> IL2
Regulation: FOXO1 ---> RELA
Regulation: EGR2 ---> GSK3B
Expression: TNFSF11 ---> EGR2
Regulation: ATM ---> FOXO1
positive Expression: NOTCH1 --+> IL4
positive PromoterBinding: STAT3 --+> NOTCH1
positive Regulation: WNT3 --+> chronic lymphocytic leukemia
positive Regulation: IL4 --+> NOTCH1
positive Regulation: HIF1A --+> chronic lymphocytic leukemia
positive Regulation: CXCL13 --+> chronic lymphocytic leukemia
Regulation: GNA12 ---> EGFR
positive Expression: GNA12 --+> VEGFA
positive Expression: NAMPT --+> NOTCH1
Expression: CD40LG ---> ATM
negative Expression: GSK3B ---| EGR2
positive Regulation: IL21 --+> chronic lymphocytic leukemia
negative Expression: FOXO1 ---| TNFSF11
Expression: MAPK1 ---> EGR2
Expression: PTPN22 ---> ATM
positive DirectRegulation: TCF3 --+> FOXO1
positive PromoterBinding: TCF3 --+> FOXO1
Regulation: WNT3 ---> NOTCH1
positive Regulation: EGFR --+> chronic lymphocytic leukemia
Regulation: GNA13 ---> GSK3B
Regulation: EGR2 ---> CD44
positive Regulation: STAT6 --+> chronic lymphocytic leukemia
negative Regulation: PIK3CD ---| FOXO1
positive Regulation: BCL2L1 --+> chronic lymphocytic leukemia
positive Regulation: GNA12 --+> GSK3B
positive Regulation: NOTCH1 --+> CXCL12
positive Regulation: CYCS --+> chronic lymphocytic leukemia
positive Regulation: THPO --+> EGR2
positive Regulation: PIK3CD --+> chronic lymphocytic leukemia
positive Regulation: RELA --+> chronic lymphocytic leukemia
Expression: NOTCH1 ---> TNF
positive Regulation: GNA12 --+> STAT3
positive Regulation: KCNA3 --+> chronic lymphocytic leukemia

positive Regulation: CD70 --> chronic lymphocytic leukemia
Expression: CD40LG ---> KMT2A
Expression: IL4 ---> NOTCH1
negative Expression: NOTCH1 ---| ZAP70
positive Expression: GNA13 --> VEGFA
positive PromoterBinding: STAT3 --> FOXO1
negative Regulation: FBXW7 ---| DLL4
positive Expression: FOXO1 --> CYCS
Regulation: IL4 ---> KDM6A
Binding: HDAC6 ---- FOXO1
positive Regulation: EGFR --> FOXO1
positive Regulation: NOTCH1 --> CXCL13
PromoterBinding: HIF1A ---> FOXO1
ProtModification: ATM ---> TCF3
Regulation: CD40 ---> ATM
positive Expression: KDM6A --> HAVCR2
positive Expression: NOTCH1 --> IL2
positive Regulation: WNT16 --> GNA12
negative Expression: EGFR ---| NOTCH1
positive Regulation: CD44 --> chronic lymphocytic leukemia
positive Expression: NOTCH1 --> EGFR
Expression: NOTCH1 ---> WNT3
positive Regulation: GSTM1 --> chronic lymphocytic leukemia
QuantitativeChange: chronic lymphocytic leukemia ---> FBXW7
GeneticChange: chronic lymphocytic leukemia ---> FBXW7
positive Regulation: FBXW7 --> CD40LG
negative miRNAEffect: MIR363 ---| NOTCH1
negative miRNAEffect: MIR182 ---| GNA13
PromoterBinding: FOXO1 ---> PPARA
positive Expression: KDM6A --> TNFSF10
positive Regulation: STAT6 --> EGR2
positive Regulation: NME2 --> chronic lymphocytic leukemia
Regulation: FBXW7 ---> STAT3
positive Expression: KDM6A --> PDCD1
positive Expression: NOTCH1 --> CD44
MolTransport: PIK3CG ---> FOXO1
positive Expression: KDM6A --> WNT3
positive Regulation: MAPK1 --> chronic lymphocytic leukemia
positive Regulation: ATM --> BCL2L1
Expression: NOTCH1 ---> IFNG
positive Expression: KDM6A --> IFNG
positive Expression: NOTCH1 --> MAPK1
Expression: NOTCH1 ---> CXCL12
positive PromoterBinding: FOXO1 --> PDCD1
Expression: NOTCH1 ---> CXCR4
positive Expression: NOTCH1 --> HIF1A
positive PromoterBinding: HIF1A --> NOTCH1
positive Expression: FOXO1 --> IL4
PromoterBinding: KMT2A ---> WNT5A
negative Regulation: NOTCH1 ---| GSK3B
positive Expression: GNA12 --> HIF1A
Expression: GSK3B ---> NOTCH1
ProtModification: GSK3B ---> NOTCH1
negative Regulation: FOXO1 ---| STAT6

positive Regulation: CXCL12 --> GNA13
positive Regulation: PPARA --> chronic lymphocytic leukemia
Regulation: VEGFA ---> EGR2
negative DirectRegulation: NOTCH1 ---| ATM
positive Regulation: GNA13 --> EGFR
ProtModification: ATM ---> HIF1A
positive Regulation: MAPK1 --> ATM
positive Regulation: ATM --> MAPK1
positive Regulation: WNT5A --> chronic lymphocytic leukemia
positive Regulation: ITGA4 --> chronic lymphocytic leukemia
Expression: FBXW7 ---> EGFR
PromoterBinding: STAT3 ---> NOTCH1
positive Regulation: NOTCH1 --> STAT3
positive Regulation: EDN1 --> chronic lymphocytic leukemia
positive Regulation: GNA13 --> MAPK14
positive Regulation: GNA12 --> MAPK14
Expression: CD44 ---> FOXO1
ProtModification: KDM6A ---> NOTCH1
PromoterBinding: STAT3 ---> FOXO1
ProtModification: MAPK14 ---> FOXO1
negative Expression: CD40 ---| KMT2A
positive Expression: MAPK14 --> FOXO1
positive Regulation: SEMA4D --> chronic lymphocytic leukemia
ProtModification: FOXO1 ---> GSK3B
Expression: TNF ---> NOTCH1
Expression: ATM ---> RELA
DirectRegulation: TNF ---> NOTCH1
ProtModification: GSK3B ---> FOXO1
Expression: FOXO1 ---> SYK
positive Expression: TCF3 --> FOXO1
negative Expression: FBXW7 ---| RELA
PromoterBinding: RELA ---> FBXW7
positive Expression: NOTCH1 --> STAT3
positive Regulation: STAT3 --> EGR2
Regulation: EGR2 ---> STAT3
Regulation: EGR2 ---> NOTCH1
negative Expression: NOTCH1 ---| EGR2
negative Expression: ATM ---| IFNG
positive Regulation: CD40 --> chronic lymphocytic leukemia
Regulation: ATM ---> RELA
positive Expression: NOTCH1 --> TNF
positive MolTransport: KDM6A --> RELA
positive Regulation: TNF --> chronic lymphocytic leukemia
Expression: NOTCH1 ---> MAPK1
GeneticChange: chronic lymphocytic leukemia ---> RPS15
ProtModification: HDAC6 ---> FOXO1
positive Regulation: TNFSF11 --> chronic lymphocytic leukemia
positive Regulation: MIR223 --> chronic lymphocytic leukemia
Regulation: ATM ---> GSK3B
Regulation: CSNK1D ---> FOXO1
Regulation: HDAC6 ---> EGR2
positive Regulation: KMT2A --> MAPK1
negative miRNAEffect: MIR223 ---| FOXO1
Regulation: SYK ---> FOXO1

positive Regulation: DAPK3 --> chronic lymphocytic leukemia
negative miRNAEffect: MIR223 ---| KMT2A
positive Expression: EGFR --> EGR2
Expression: KMT2A ---> VEGFA
Expression: EGFR ---> KDM6A
positive MolTransport: NOTCH1 --> CXCL12
Regulation: GNA12 ---> MAPK1
positive Expression: NOTCH1 --> PPARA
positive Regulation: MIR663B --> chronic lymphocytic leukemia
Regulation: SDF-1alpha ---> FOXO1
Expression: FOXO1 ---> SDF-1alpha
negative Regulation: WNT5A ---| EGR2
positive Regulation: ATM --> CXCR4
negative Expression: EGR2 ---| IL21
Regulation: KMT2A ---> MAPK14
Regulation: CD40LG ---> FOXO1
Expression: MAPK14 ---> EGR2
Regulation: ATM ---> KMT2A
positive Regulation: MSI2 --> chronic lymphocytic leukemia
positive Regulation: ATM --> MAPK14
positive Regulation: CD40LG --> ATM
negative Expression: ATM ---| CD27
ProtModification: MAPK1 ---> RPS15
positive Regulation: GNA13 --> STAT3
negative Regulation: KMT2A ---| MAPK14
positive Regulation: MAPK14 --> KMT2A
positive Expression: KDM6A --> CXCR4
positive PromoterBinding: STAT3 --> KDM6A
negative Expression: GNA12 ---| DLL4
negative Expression: GNA12 ---| IL4
positive Expression: KMT2A --> CXCR4
positive Regulation: BCL2L12 --> chronic lymphocytic leukemia
positive Regulation: IL7 --> chronic lymphocytic leukemia
positive Regulation: CD47 --> chronic lymphocytic leukemia
negative Regulation: IFNG ---| NOTCH1
negative Expression: FOXO1 ---| IFNG
positive Regulation: STAT3 --> chronic lymphocytic leukemia
negative Regulation: PPARA ---| FOXO1
positive Regulation: EGR2 --> TNFSF11
positive Regulation: BCL2A1 --> chronic lymphocytic leukemia
positive MolTransport: NOTCH1 --> VEGFA
negative Expression: FOXO1 ---| VEGFA
positive Expression: IL2 --> FOXO1
positive Regulation: IFNG --> chronic lymphocytic leukemia
positive Expression: EGR2 --> PDCD1
Expression: IL24 ---> NOTCH1
negative miRNAEffect: MIR182 ---| EGR2
positive Regulation: SDF-1alpha --> chronic lymphocytic leukemia
positive Expression: FOXO1 --> RELA
Expression: KMT2A ---> TNFSF11
positive Regulation: NOTCH1 --> THPO
ProtModification: MAPK14 ---> FBXW7
Binding: NOTCH1 ---- FOXO1
negative Expression: MAPK14 ---| FBXW7

positive Regulation: TCF3 --> chronic lymphocytic leukemia
negative Regulation: ATM ---| HDAC6
PromoterBinding: KMT2A ---> IFNG
positive Regulation: CXCR5 --> chronic lymphocytic leukemia
positive Regulation: FOXO1 --> NOTCH1
Expression: HDAC6 ---> NOTCH1
positive Regulation: IL24 --> chronic lymphocytic leukemia
positive Regulation: MAPK14 --> chronic lymphocytic leukemia
positive Regulation: MIR195 --> chronic lymphocytic leukemia
positive Regulation: GSK3B --> chronic lymphocytic leukemia
negative Expression: FBXW7 ---| NOTCH1
positive Regulation: MIR15A --> chronic lymphocytic leukemia
Expression: MAPK1 ---> KMT2A
negative ProtModification: FBXW7 ---| NOTCH1
positive Regulation: ICAM1 --> chronic lymphocytic leukemia
Expression: FOXO1 ---> VEGFA
Regulation: PPARA ---> chronic lymphocytic leukemia
positive Expression: FOXO1 --> TNF
Expression: NOTCH1 ---> TNFSF11
positive Regulation: WNT5A --> FOXO1
Expression: FOXO1 ---> WNT5A
Expression: NOTCH1 ---> STAT3
positive Expression: TNFSF11 --> NOTCH1
Binding: KDM6A ---- KMT2A
positive Regulation: WNT16 --> GNA13
positive Regulation: PTPN22 --> chronic lymphocytic leukemia
positive Regulation: ATM --> BCL2A1
positive Regulation: GNA13 --> WNT16
ProtModification: CYCS ---> NOTCH1
positive Expression: NOTCH1 --> CYCS
positive Regulation: EDN1 --> GNA12
negative QuantitativeChange: chronic lymphocytic leukemia ---| ATM
Regulation: ATM ---> chronic lymphocytic leukemia
GeneticChange: chronic lymphocytic leukemia ---> ATM
Biomarker: chronic lymphocytic leukemia ---> ATM
positive Regulation: THPO --> chronic lymphocytic leukemia
positive Expression: NOTCH1 --> CXCR4
positive Regulation: GSTP1 --> ATM
positive DirectRegulation: NOTCH1 --> XIAP
positive PromoterBinding: FOXO1 --> TNFSF10