Identification of a Topological Characteristic Responsible for the Biological Robustness of Regulatory Networks

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Table S5: The survival signaling network in T cell large granular lymphocyte leukemia (T-LGL)

(Based on Refs. [1, 2])

Source	Sign	Target	Source	Sign	Target
BclxL	−	BID	BID	−	BclxL
BID	+	Ceramide	Ceramide	−	Flip
Ceramide	+	Fas	Caspase	+	BID
Caspase	+	Apoptosis	CD45	+	LCK
CD45	−	JAK	LCK	+	GRB2
JAK	+	JAK	JAK	+	IFNT
JAK	+	SOCS	JAK	+	STAT3
Flip	−	Caspase	Flip	+	NFKB
Fas	+	Caspase	Fas	−	Mcl1
C-Myc	+	Proliferation	C-Myc	+	IL2
C-Myc	+	FasL	IL2	−	BclxL
IL2	−	Flip	IL2	+	IL2RL
IL2	−	Mcl1	IL2	−	GAP
IL2	+	IFN	IL2	−	SOCS
IL2	+	IL2R	FasL	+	Ceramide
FasL	+	Fas	CREB	+	Flip
CREB	+	GZMB	GZMB	+	BID
GZMB	+	GZMB	GZMB	−	TGF
CSK	−	LCK	CTLA4	−	TCR
TCR	+	LCK	TCR	+	CSK
TCR	+	CTLA4	Erk	+	FasL
Erk	+	CREB	Erk	+	IL2RL
Erk	+	TGF	Erk	+	Mcl1
IL2RL	+	LCK	IL2RL	+	JAK
IL2RL	+	Fyn	TGF	+	SMAD
Mcl1	−	BID	FasT	+	Fas
FasT	+	FasT	NFKB	+	BclxL
NFKB	+	Flip	NFKB	+	IL2
NFKB	+	FasL	NFKB	+	Mcl1
NFKB	+	FasT	NFKB	+	IAP
NFKB	+	TNF	NFKB	+	RANTES
Fyn	+	Migration	GAP	−	RAS
RAS	−	BclxL	RAS	+	GAP
RAS	+	MEK	RAS	+	PI3K
GRB2	+	RAS	GRB2	+	PLC

(Continued on the next page.)

(Table S5 continued)

Source		Target	Source		Target
PLC	$\xrightarrow{+}$	RAS	PLC	$\xrightarrow{+}$	NFAT
IAP	$\xrightarrow{-}$	Caspase	IAP	$\xrightarrow{+}$	NFKB
IAP	$\xrightarrow{-}$	TRADD	TRADD	$\xrightarrow{+}$	NFKB
IFN	$\xrightarrow{+}$	Flip	IFN	$\xrightarrow{+}$	CREB
IFN	$\xrightarrow{-}$	Erk	IFNT	$\xrightarrow{-}$	BclxL
IFNT	$\xrightarrow{+}$	IFN	IFNT	$\xrightarrow{+}$	TBET
TBET	$\xrightarrow{-}$	IL2	TBET	$\xrightarrow{+}$	GZMB
IL15	$\xrightarrow{-}$	GAP	IL15	$\xrightarrow{-}$	SOCS
SOCS	$\xrightarrow{-}$	JAK	IL2R	$\xrightarrow{-}$	IL2R
STAT3	$\xrightarrow{+}$	BclxL	STAT3	$\xrightarrow{+}$	C-Myc
STAT3	$\xrightarrow{+}$	Mcl1	STAT3	$\xrightarrow{+}$	IL2R
STAT3	$\xrightarrow{-}$	PIAS	MEK	$\xrightarrow{+}$	Erk
NFAT	$\xrightarrow{+}$	IL2	NFAT	$\xrightarrow{+}$	FasL
TNF	$\xrightarrow{-}$	TGF	TNF	$\xrightarrow{+}$	TRADD
TNF	$\xrightarrow{+}$	TPL2	PI3K	$\xrightarrow{+}$	NFKB
PI3K	$\xrightarrow{+}$	TNF	PIAS	$\xrightarrow{-}$	NFKB
sFas	$\xrightarrow{-}$	Fas	sFas	$\xrightarrow{+}$	sFas
SMAD	$\xrightarrow{-}$	C-Myc	SMAD	$\xrightarrow{-}$	IL2
SMAD	$\xrightarrow{+}$	TGF	SMAD	$\xrightarrow{-}$	IFN
SMAD	$\xrightarrow{+}$	SMAD7	SMAD7	$\xrightarrow{-}$	SMAD
Stimuli	$\xrightarrow{+}$	TCR	Stimuli	$\xrightarrow{+}$	IFN
Stimuli	$\xrightarrow{+}$	Stimuli	TPL2	$\xrightarrow{+}$	NFKB
TPL2	$\xrightarrow{+}$	MEK			

1. Zhang R, Shah MV, Yang J, Nyland SB, Liu X, et al. (2008) Network model of survival signaling in large granular lymphocyte leukemia. Proc Natl Acad Sci U S A 105:16308–16313.
2. Albert I, Thakar J, Li S, Zhang R, Albert R (2008) Boolean network simulations for life scientists. Source Code Biol Med 3:16.