

Patients	Infiltrated cells (%)	Recurrence	Follow up (years)	Stage	ER	PR	HER-2
VBR-V12c	20	No	4	NA	-	-	-
VBR-V10	20	No	3	IIA	-	-	-
VBR-13	20	No	7	IA	-	-	+
VBR-52	20	No	4	IIIA	-	-	borderline
VBR-04b	25	No	4	IIIA	-	-	-
VBR-70	25	No	6	IIB	-	-	+
VBR-12	30	No	7	IA	+	+	+
VBR-51	20	No	4	IIIC	+	+	-
VBR-23	25	No	6	IIB	-	-	-
VBR-73	50	Yes	3	IA	+	+	+
VBR-31	15	Yes	3	IIIA	NA	NA	NA
VBR-80	10	Yes	1	IIA	-	-	-
VBR-8	20	Yes	5	IIB	-	-	-
VBR-77	10	Yes	3	IIA	+	-	+
VBR-28	50	Yes	3	IIA	-	-	-
VBR-76	10	Yes	3	IA	-	-	-
VBR-7	20	Yes	1	IIA	+	+	+

Supplementary Table 1. Patient characteristics and their tumor specimens with > 10% infiltrating cells

Gene Name	Fold-change	Gene Name	Fold-change	Gene Name	Fold-change
IGKC	15.50	PVRIG	2.83	SMARCC2	2.15
IGL @	12.31	IFIT3	2.82	IGKV1D-8	2.14
IGKC	11.21	DCC	2.81	Unknown	2.13
LOC440871	9.92	HLA-DRA	2.81	PPP1R9B	2.13
Unknown	9.21	HLA-G	2.81	APOE	2.13
IGKV3-20	8.92	Unknown	2.80	NR1H3	2.12
LOC440871	8.81	CD19	2.79	LILRB2	2.12
Unknown	8.70	KDM2A	2.77	HLA-G	2.11
LOC652493	8.67	TBC1D10C	2.76	DOK2	2.10
CXCL9	8.52	HLA-DRB5	2.76	LILRB4	2.10
IGL	8.43	IRF8	2.75	TNFRSF9	2.09
LIPT1	8.10	Unknown	2.73	SLAMF8	2.09
MS4A1	7.87	GMFG	2.71	AOAH	2.09
LOC96610	7.78	HLA-DQA2	2.71	PAG1	2.08
LOC100290481	7.49	GZMB	2.71	LAIR1	2.07
Unknown	7.48	HLA-DRB1	2.70	Unknown	2.07
LOC100132941	7.32	PLEK	2.68	SAMD3.	2.06
IGKC	7.06	IFI30	2.67	FLJ31306	2.05
IGLC1	7.01	IL4I1	2.67	C1QB	2.05
Unknown	6.86	PARP14	2.67	Unknown	2.05
KIAA1632	6.56	OASL	2.67	MCL1	2.03
CCL23	6.56	IL2RB	2.66	CD53	2.03
Unknown	6.04	IGKC	2.64	CCR7	2.02
IGLC1	5.98	PLAC8	2.62	CD8A	2.01
POU2AF1	5.95	MGC29506	2.62	GPR89B	2.00
STAT1	5.48	HLA-E	2.60	Unknown	2.00
Unknown	5.23	CCL21	2.60	APOL3	2.00
GBP4	5.19	SLC25A11	2.59	PPA1	2.00
GBP1	5.10	CYFIP2	2.58	GIMAP2	2.00
IL7R	5.09	IFI16	2.57	RPS27	1.99
Unknown	5.08	Unknown	2.57	CCDC108	1.99
LOC642838	5.08	GMFG	2.57	Unknown	1.99
LYZ	4.97	PACRG	2.56	STAT2	1.98
CXCL10	4.89	HOXC6	2.55	HTATIP2	1.93
UBD	4.78	IRF1	2.55	PPP1R3F	1.93
GBP5	4.76	HLA-L	2.54	SAMSN1	1.93
IGKC	4.61	NKG7	2.54	NFKBIL2	1.92
Unknown	4.57	Unknown	2.54	Unknown	1.92
PTPRC	4.57	CASP1	2.53	C5orf20	1.92
LOC100293559	4.53	FKBP11	2.52	CTLA4	1.91
IGKV3-20	4.50	FAM173A	2.49	ZAP70	1.91
IGLC1	4.45	VNN2	2.49	EFR3A	1.91
LOC100289290	4.44	ZDHHC2	2.48	DNAH	1.90
LOC100287372	4.39	HLA-H	2.48	IL15RA	1.90
OCLN	4.36	TARP	2.47	OS9	1.90
IL23A	4.10	PSMB8	2.46	PSME1	1.90
GZMA	4.07	TAP1	2.45	SAMHD1	1.90
GBP3	4.06	PIM2	2.44	Unknown	1.90
CXCL11	4.02	AIF1	2.43	C1QA	1.88
BMS1P4	4.00	Unknown	2.42	TAGAP	1.87

GPR171	3.99	HLA-F	2.42	ICAM2	1.87
Unknown	3.90	PLTP	2.41	RPL26	1.87
TDR @	3.88	FYB	2.40	LOC100128203	1.85
PSMB9	3.86	HLA-DMA	2.40	CNTNAP5	1.84
LOC642424	3.80	CNN2	2.40	BTN3A1	1.84
LOC100130100	3.80	EPSTI1	2.40	SH2D2A	1.83
IL7R	3.74	Unknown	2.40	PSMB9	1.82
IGF2	3.73	TRAF3IP3	2.39	IGHA1	1.82
MAFG	3.72	LOC440839	2.39	CRTAM	1.82
CD48	3.65	WIPF1	2.39	Unknown	1.81
CCR2	3.64	CYBB	2.38	ZNF90	1.81
ISG20	3.63	ARHGAP25	2.38	GCET2	1.80
GIMAP5	3.61	IGKC	2.38	ZBP1	1.80
CD74	3.59	HLA-L	2.38	NR3C1	1.79
LCK-	3.58	TFEC	2.37	LILRB1	1.78
LTB	3.56	RPS27	2.37	HMGNA4	1.78
GIMAP6	3.50	NCF1	2.36	C1QC	1.77
IRF4	3.47	POU2F2	2.35	S1PR4	1.77
GNLY	3.40	EMB	2.35	LOC439949	1.76
IFI44L	3.39	ICAM3	2.34	PUM2	1.76
MMP10	3.38	GIMAP4	2.33	LEPROTL1	1.76
CD247	3.37	HLA-G	2.33	ACAP1	1.75
LGALS2	3.33	Unknown	2.32	RASSF2	1.75
Unknown	3.31	SLAMF1	2.31	RPL38	1.75
ZNF341	3.27	EVI2B	2.30	C2orf60	1.74
GIMAP7	3.27	SP110	2.30	NR1H3	1.71
B2M	3.23	DNAJC5G	2.30	CYP2S1	1.71
FGF19	3.21	NYNRIN	2.29	GCH1	1.71
STAT1	3.18	MBP	2.28	FNBP1	1.70
ITGAL	3.18	SIT1	2.28	TRIM25	1.70
CARD16	3.12	ROBO4	2.28	CD97	1.70
CD2	3.12	SP140	2.28	TBCC	1.69
ABCC6	3.10	APOBEC3G	2.27	LAP3	1.69
ITM2A	3.07	PRKCB	2.27	Unknown	1.69
IGJ	3.07	BTG1	2.27	Unknown	1.68
IGLV6	3.05	TMEM149	2.26	AQP12A	1.64
HLA-B	3.05	MIR155HG	2.26	IL2RA	1.63
B2M	3.03	AIM2	2.26	PFN1	1.63
FLJ40330	3.00	WARS	2.26	NBPF15	1.62
ASB16	2.98	IGKC	2.23	XCL2	1.61
P2RX5	2.97	LILRB2	2.22	CR1	1.61
CTSC	2.97	PSME2	2.22	LAX1	1.61
FLJ40330	2.95	HLA-C	2.20	FGD2	1.58
CD79A	2.95	ARHGAP9	2.20	C19orf35	1.58
CST7	2.95	TNFSF13B	2.20	NCRNA00183	1.51
HLA-DPA1	2.94	PPP1R16B	2.19	CD28	1.49
LCP1	2.92	Unknown	2.19	IL18RAP	1.48
ERICH1	2.91	RPS27	2.17	EDEM1	1.48
HLA-DRA	2.90	IFIT5	2.16	FPR3	1.45
ARL8A	2.90	IL21R	2.16		

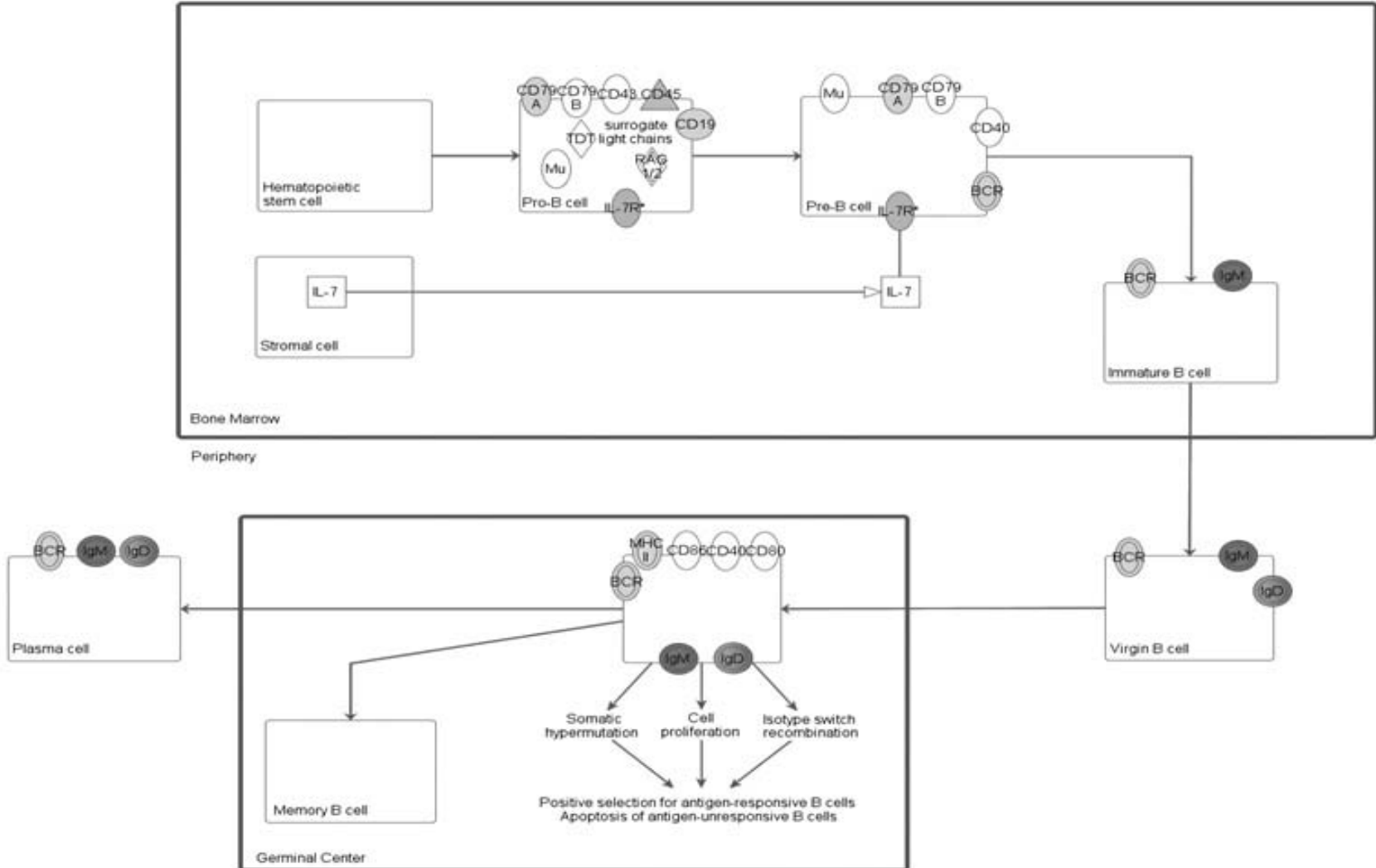
Supplementary Table 2. List of up-regulated genes in tumor lesions of patients with relapse-free survival

Supplementary Table 3. List of down-regulated genes in tumor lesions of patients with relapse-free survival

Gene Name	Fold-change	Gene Name	Fold-change
C1QTNF3	0.21	SLC35E1	0.53
BHMT2	0.36	FAM108C1	0.54
JDP2	0.38	CERCAM	0.55
GJB2	0.39	RIC8A	0.55
PYGL	0.41	PTDSS2	0.56
PER3	0.42	LOC650226	0.57
COMP	0.42	MAN1B1	0.59
LOC100132800	0.43	TK2	0.59
ULK1	0.43	VPS37C	0.60
C14orf45	0.45	LOC116437	0.60
TCEAL3	0.45	NP_001013662.1	0.60
BBS2	0.46	PHF13	0.60
TMC4	0.47	CTSF	0.60
TNFAIP8L1	0.49	SLC16A5	0.61
COPS7A	0.49	GPR107	0.61
IER2	0.50	IFT20	0.62
ITGB5	0.50	SLC12A4	0.62
C1QTNF6	0.51	CREB5	0.62
VKORC1	0.52	PHF2	0.63
ADAM20	0.52	ZFP14	0.63
C22orf39	0.53	MYOM1	0.64
SIRPB1	0.53	SNUPN	0.64
VPS24	0.53	ICMT	0.64
PYROXD2	0.53	ANXA4	0.67
GFPT1	0.53	GATSL3	0.67

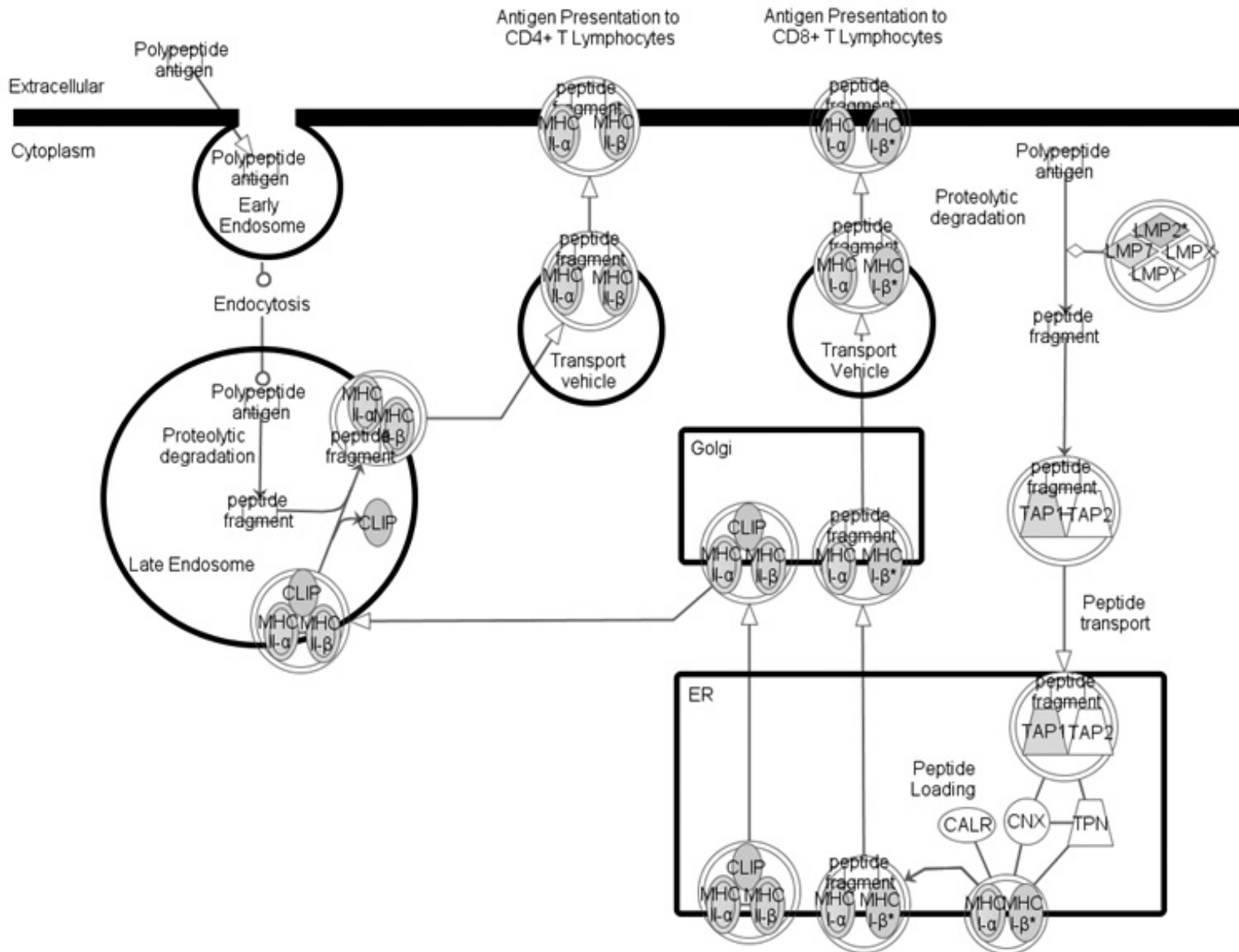
A

IV pathway: B cell development



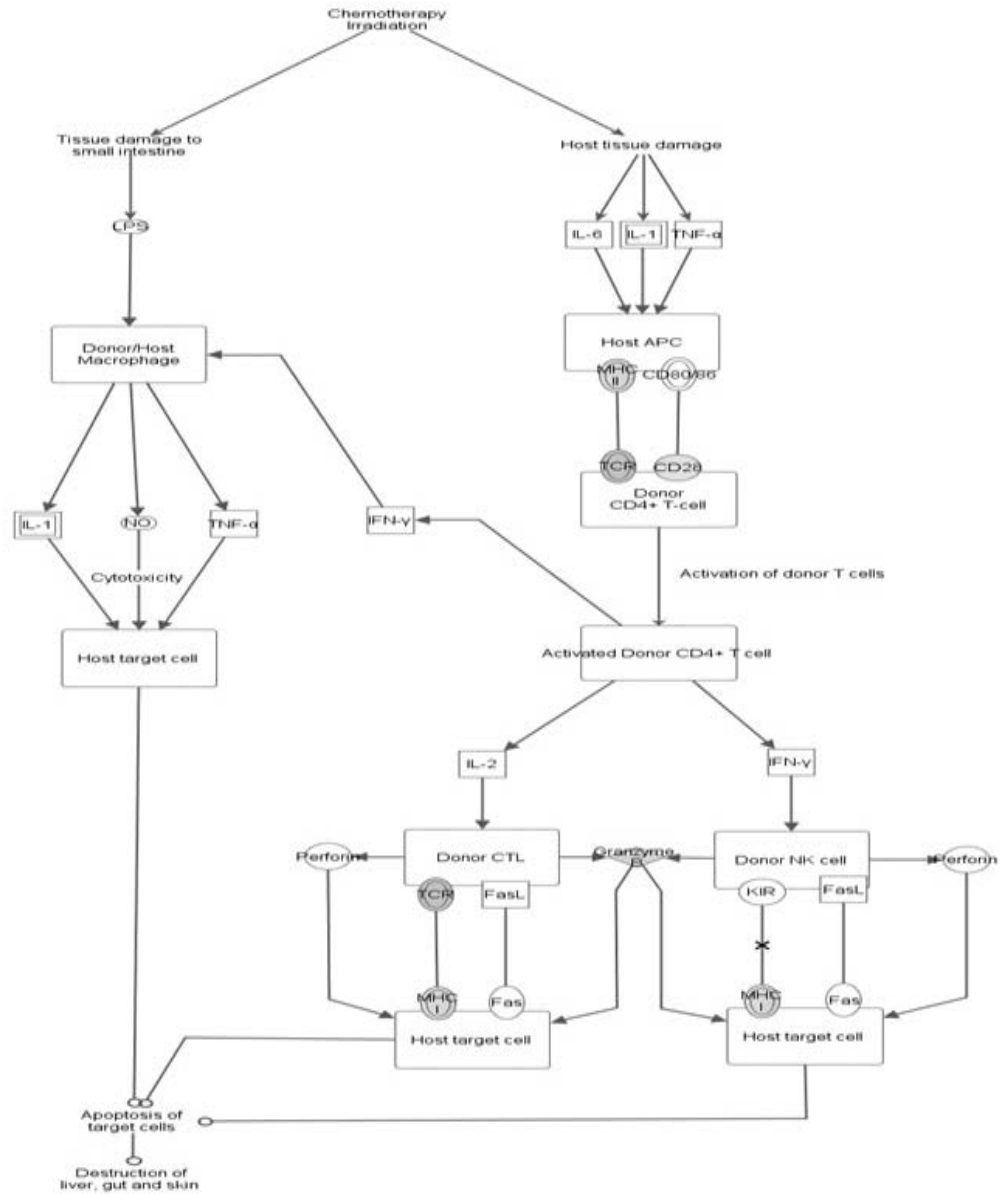
B

I pathway: Antigen presentation Pathway



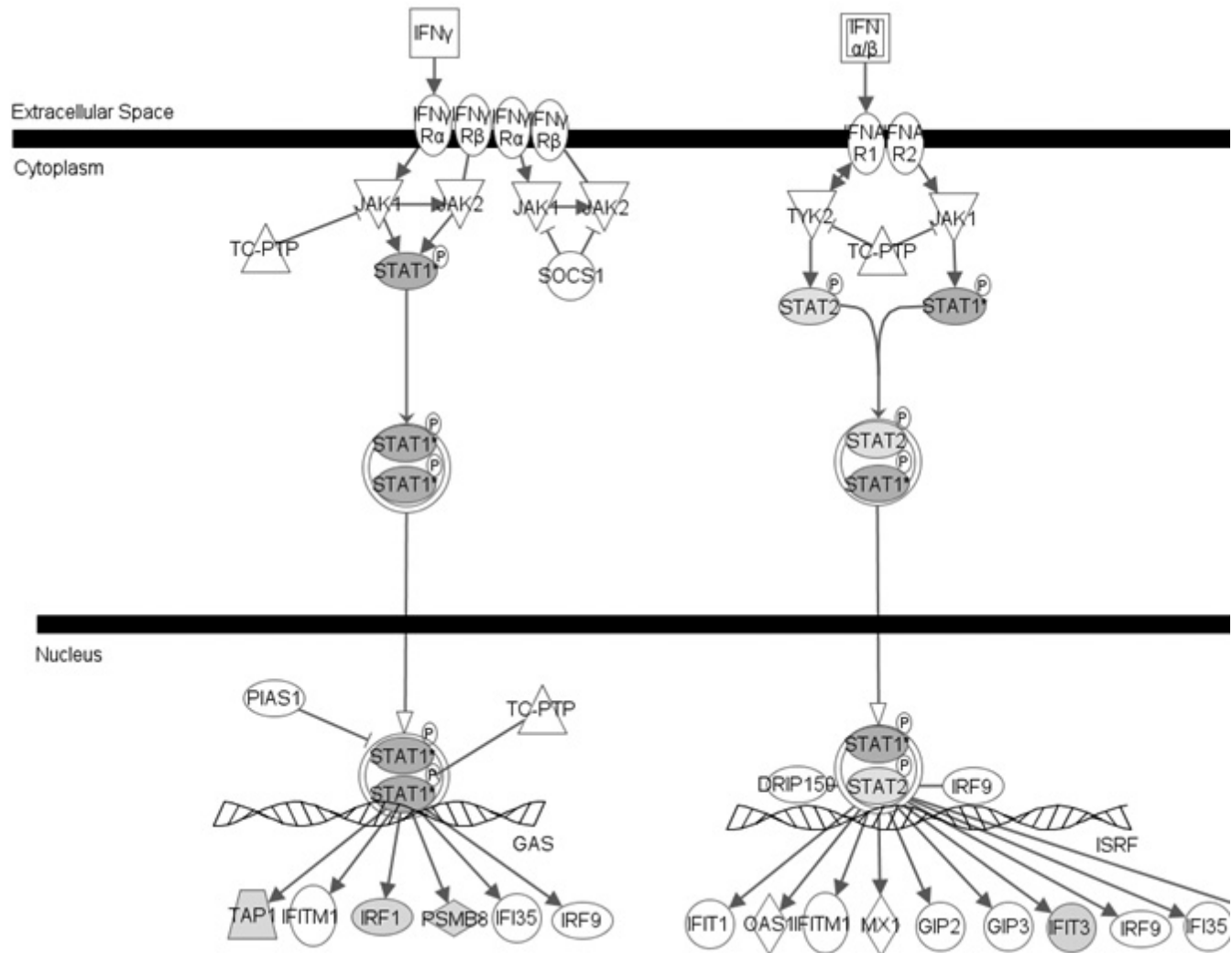
III pathway: Graft vs host disease signaling

C



XVIII pathway: interferon signaling

D



E

VII pathway: Primary immunodeficiency signaling

Primary Immunodeficiency Signaling

