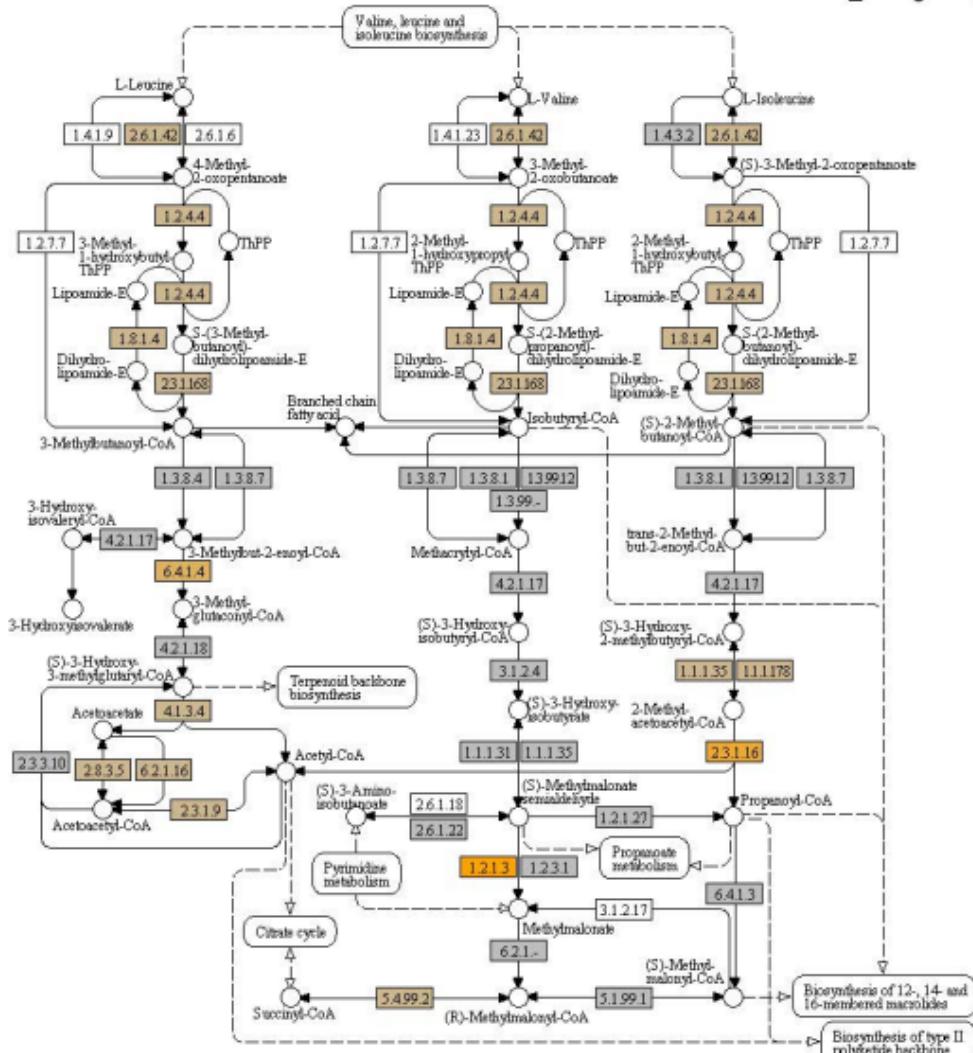
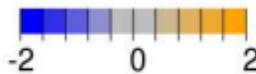


S6A Fig

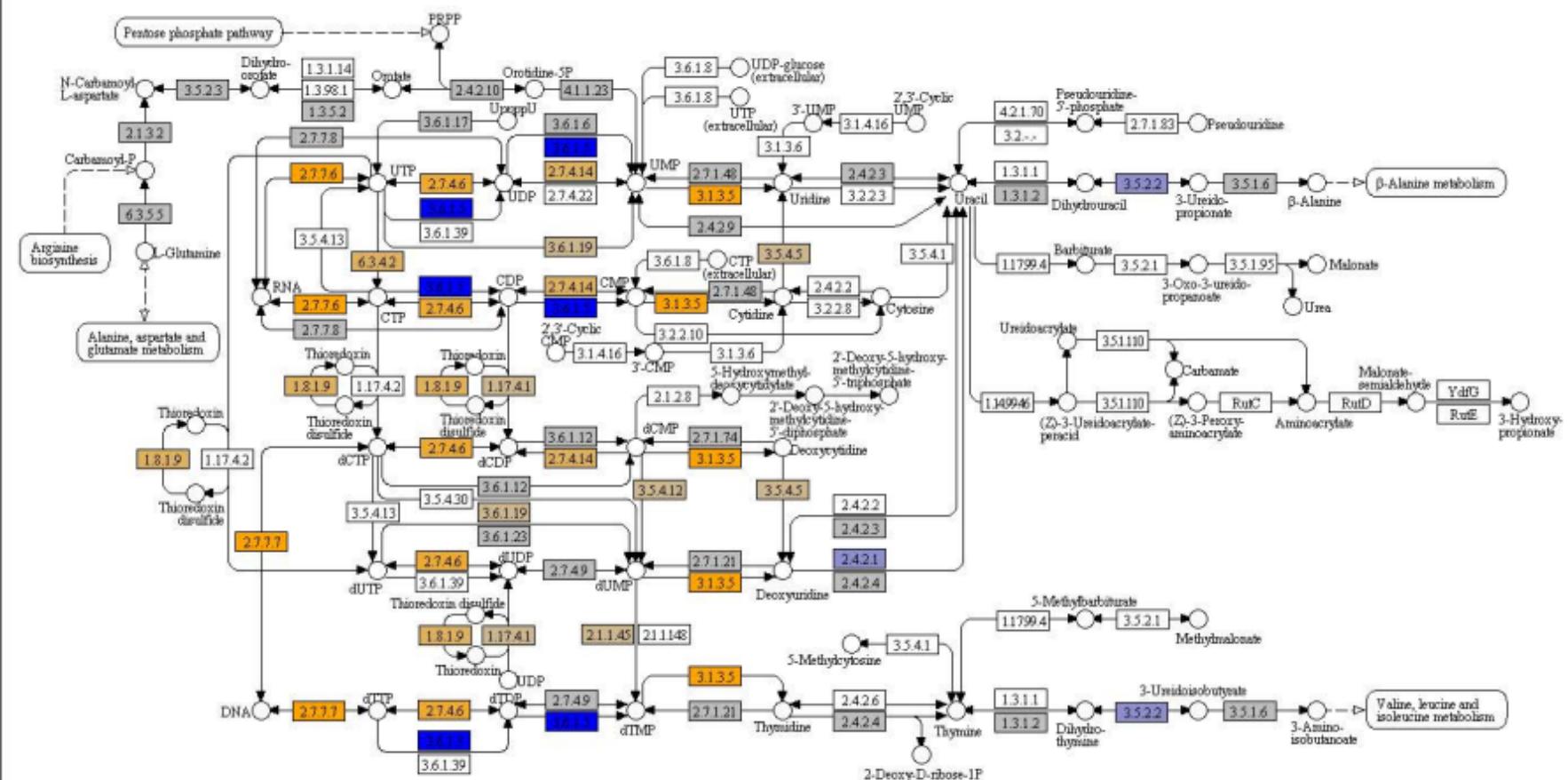
## VALINE, LEUCINE AND ISOLEUCINE DEGRADATION

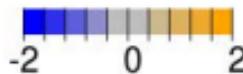
-2 0 2



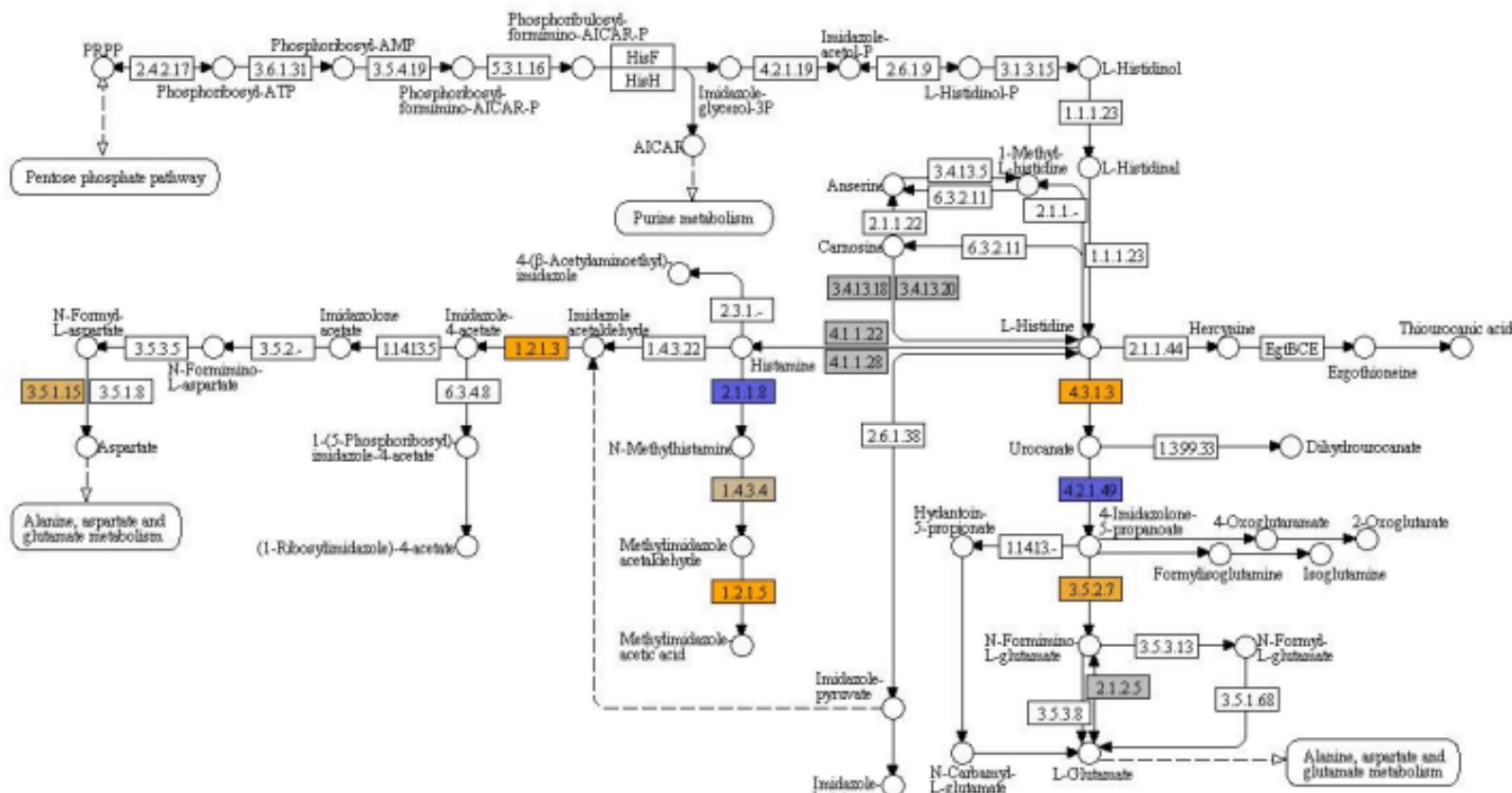


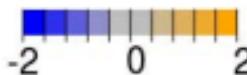
## PYRIMIDINE METABOLISM



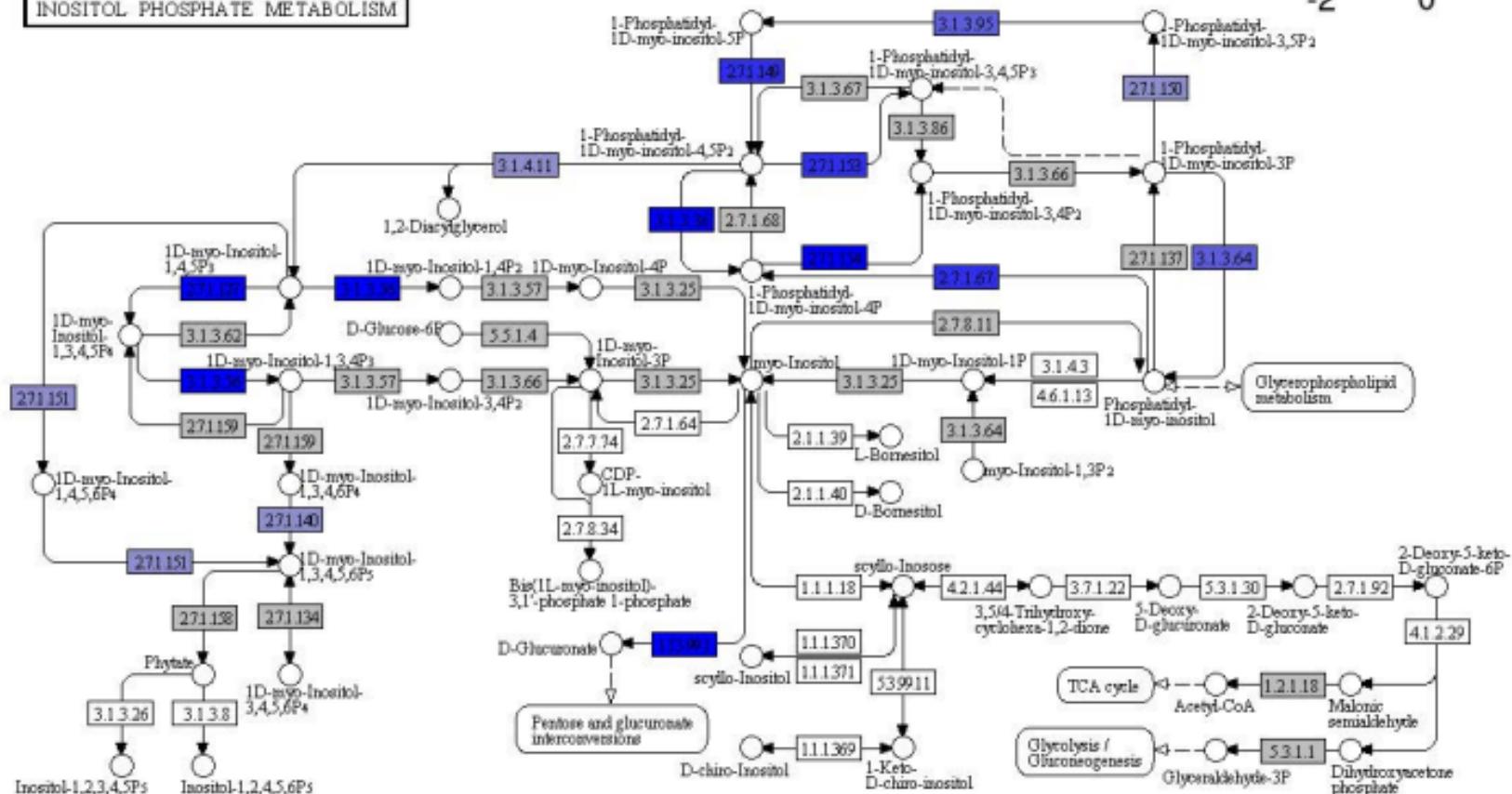


## HISTIDINE METABOLISM





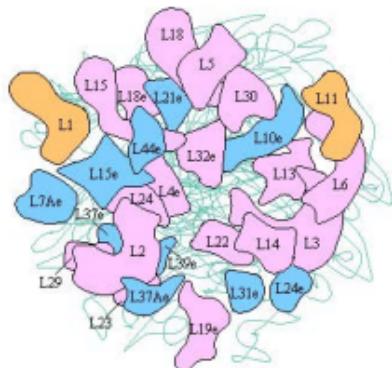
## INOSITOL PHOSPHATE METABOLISM



Data on KEGG graph

Rendered by Pathview

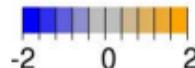
## RIBOSOME



## Ribosomal RNAs

Bacteria / Archaea  
Eukaryotes

23S	5S	16S
25S	5S	5.8S



## Ribosomal proteins

EF-Tu	S10	L3	L4	L23	L2	S19	L22	S3	RP-L16	L29	
	S20e	L3e	L4e	L23Ae	L8e	S15e	L17e	S3e		L35e	

L7/L12 stalk

S17	L14	L24		L5	S14	S8	L6		L18	S5	L30	L15	SecY
S11e	L23e	L26e	S4e	L11e	S29e	S15Ae	L9e	L33e	L19e	L5e	S2e	L7e	L27Ae

## IF1 RpoA

IF1	L36	S13	S11	S4	RpoA							
	L34e	L14e		S18e	S14e	S9e	L18e	L17	L13	S9		

EF-Tu,G	S7	S12		L7A	RpoC,B							
	S5e	S23e	L30e	L7Ae		L7/L12	L12	L10	L1	L11		

L7/L12

L12

L10

L1

L11

## EF-Ts

## IF2

## IF3

## RF1

## FtsY,Ffh

## S1

## S20

## S21

## L25

## L10e

## L13e

## L15e

## L21e

## L24e

## L31e

## L35Ae

## L37e

## L37Ae

## L39e

## L40e

## L41e

## L44e

## S3Ae

## S6e

## S8e

## S17e

## S19e

## S24e

## S25e

## S26e

## S27e

## S27Ae

## S28e

## S30e

## LX

## L6e

## L18Ae

## L22e

## L27e

## L28e

## L29e

## L36e

## L38e

## S7e

## S10e

## S12e

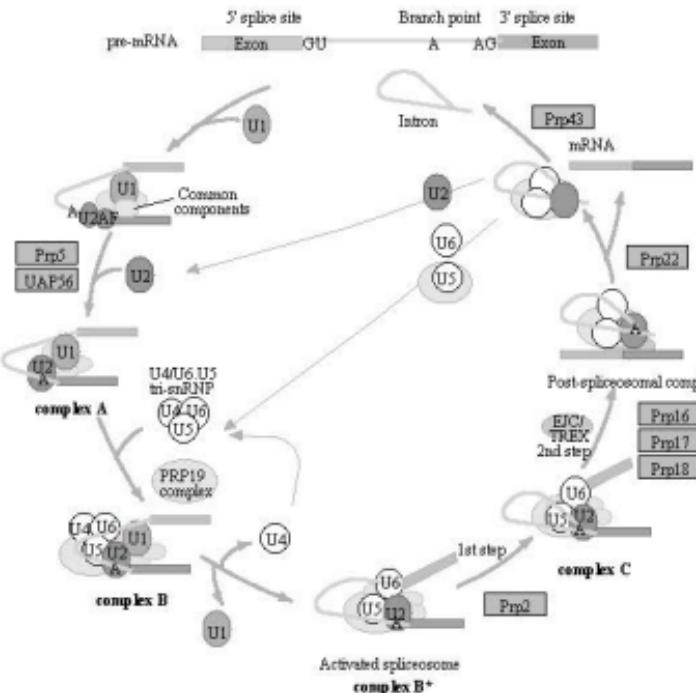
## S21e

Small subunit (*Thermus aquaticus*)

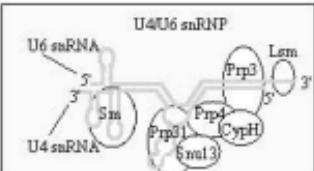
Data on KEGG graph

Rendered by Pathview

## SPLICEOSOME



Spliceosome components			
-2	0	1	2
U1	U2	U4/U6	U5
U1aRNA	U2aRNA	U4aRNA	U5aRNA
Sm	Sm	Sm	Sm
U1-70K	U2A'	U6aRNA	Lsm
U1A	U2B"	Sm114	Sm114
U1C	SF3a	Btr2	Btr2
	SF3b	Prp6	Prp6
U1 related	Prp4	Prp8	Prp8BP
FBP11	CypH	Prp31	Prp28
		Sm13	DIB1
U2 related	U2AF	U2AF	
S164	PUF60	SPF30	
p68	SPF45	CHERP	
CA150		SR140	
		Prp43	
U4/U6 US tri-SmRNP associated			
		SmNPZ	
		Sm140	
		Sm66	
		Sm23	
		Prp38	
Prp19 complex	Prp19 related	EJC/TREX	Common components
Prp19	SKIP	ACINUS	CBP80/01
	CDC5	eIF4A3	InRNP
	SPF27	Y14	magoh
	PRL1	PPIL1	UAP56
	AD002	CypE	THOC
	CINN13	HSP70	
		CCDC12	
		RBM22	
		G10	
		AQR	
Complex B specific	[NPW38 NPW39R]		

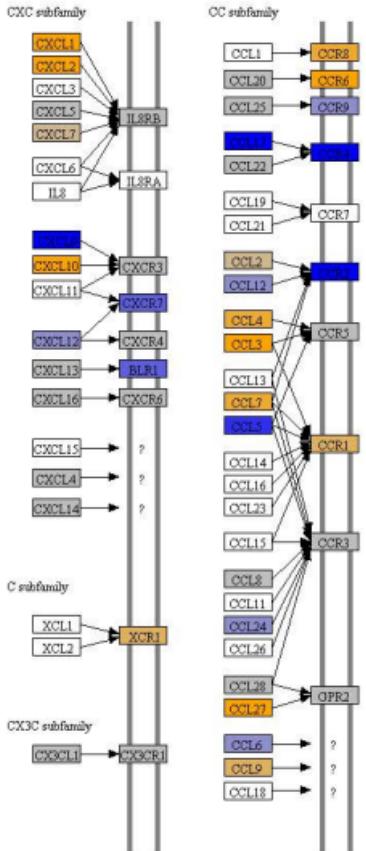


Data on KEGG graph

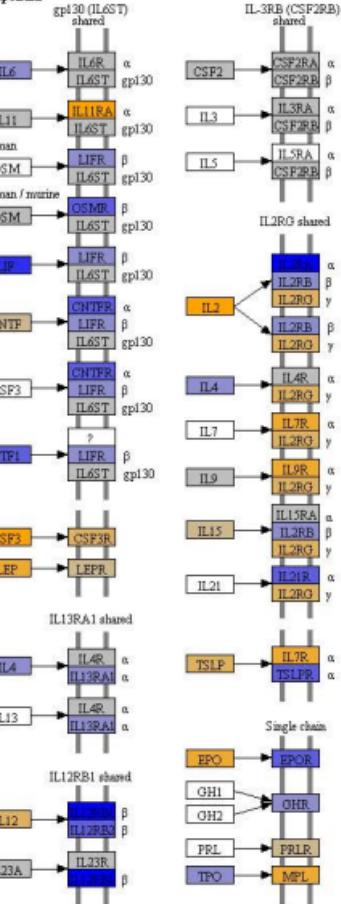
Rendered by Pathview

# CYTOKINE-CYTOKINE RECEPTOR INTERACTION

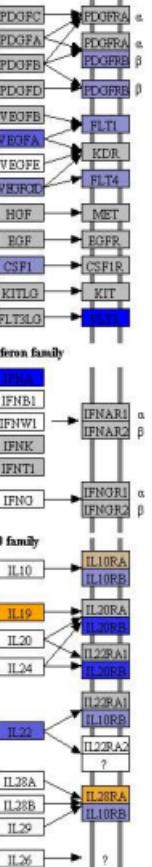
## Chemokines



## Hematopoietins



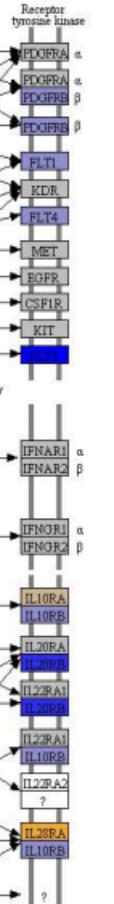
## PDGF Family



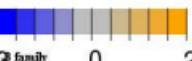
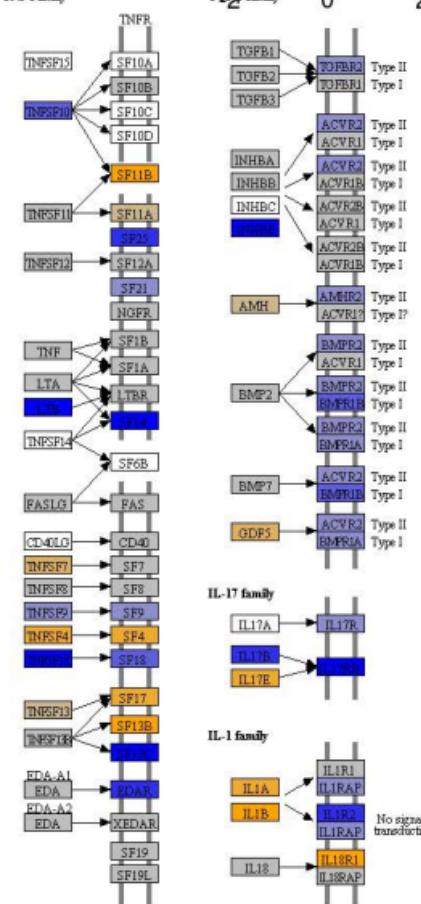
## Interferon family



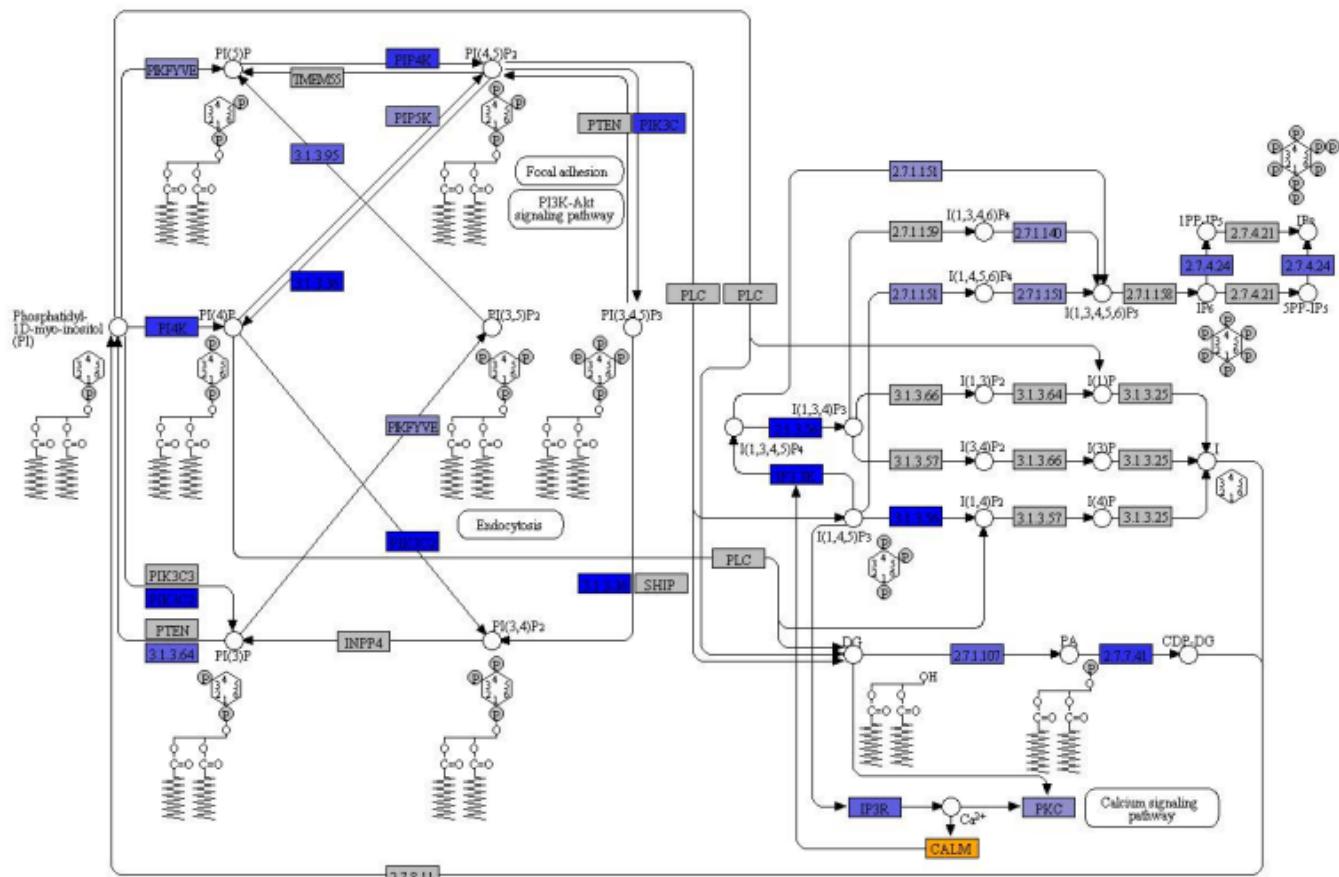
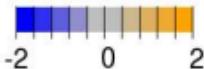
## IL-10 family



## TNF Family



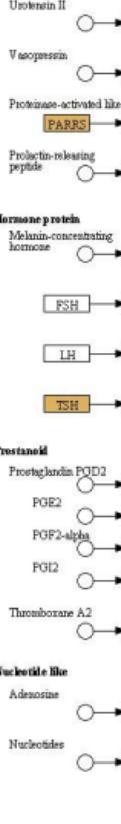
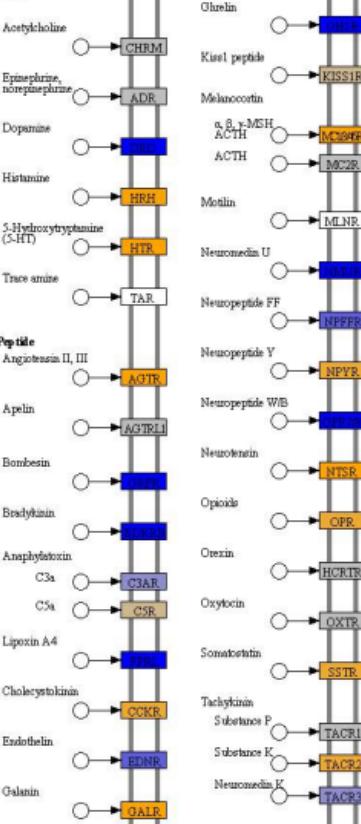
## PHOSPHATIDYLINOSITOL SIGNALING SYSTEM



# NEUROACTIVE LIGAND-RECEPTOR INTERACTION

GPCRs

## Class A Rhodopsin like Amine



## Cannabinoid

Anandamide



## Class B Secretin like

Calcitonin



## Class B Secretin like

Corticotropin releasing hormone



Gastric inhibitory peptide



Glucagon



Glycogen-like peptide



Growth hormone-releasing hormone



Pitressin



Parathyroid hormone



PACAP



Secretin



## Lyso-phingolipid and LPA

Lyso-phosphatidic acid



S1P, dihydro-S1P



Leukotriene B4



Metabotropic glutamate



Metabotropic glutamate



GABA



Cysteinyl-leukotriene



Chann. other receptors

-2 0 2

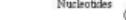
N-Acetylaspartate-glutamate



GABA



Acetylcholine



Nucleotides



Glutamate



L-Aspartate



L-Cyclic acid



L-Homocysteic acid



Glycine



$\beta$ -Alanine



Taurine



N-Arachidonoyl-dopamine



N-Coleoyldopamine



Anandamide



Palmitoylethanolamide



Porphyryins



Cortisol



Growth hormone



Triiodothyronine



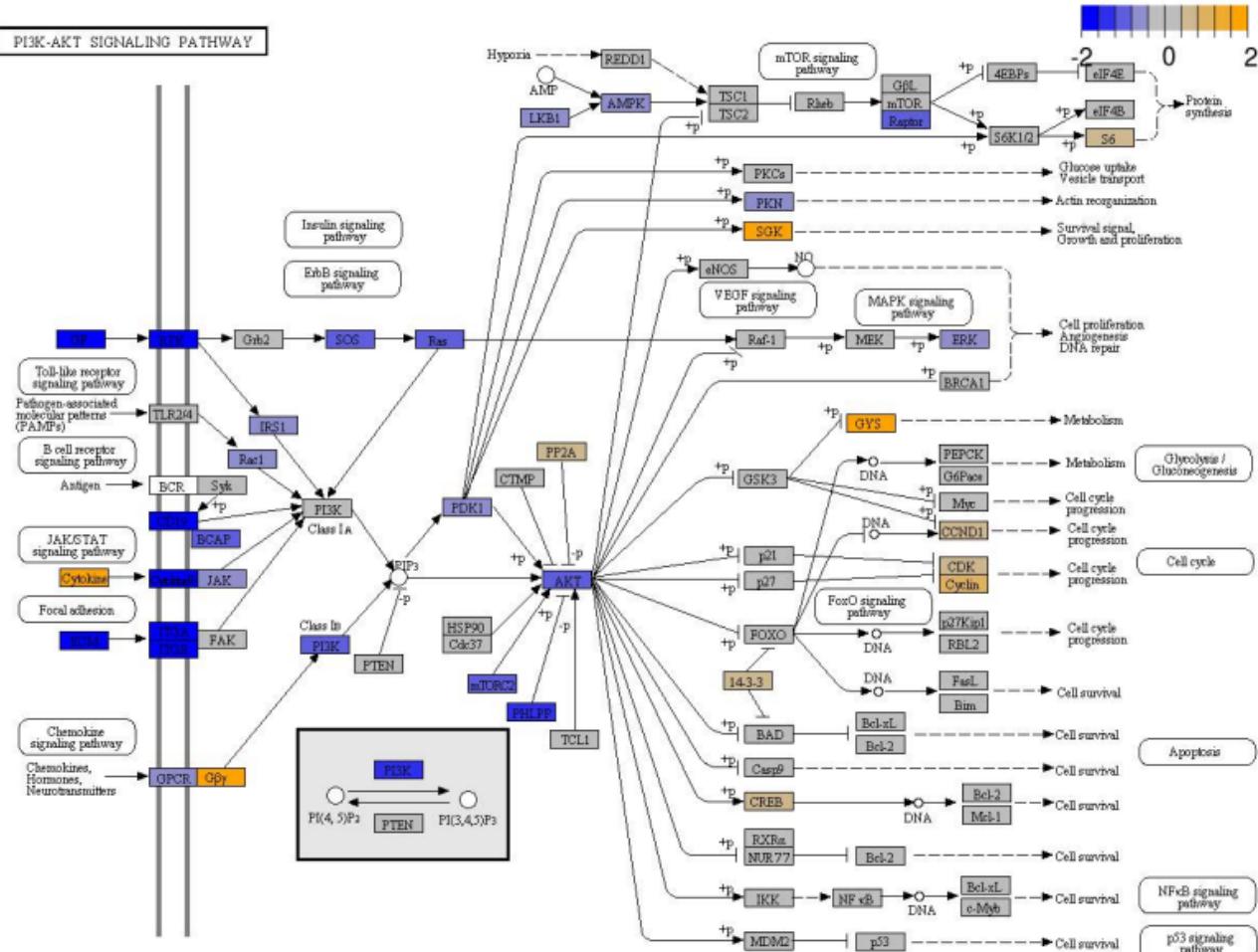
Leptin



Prolactin

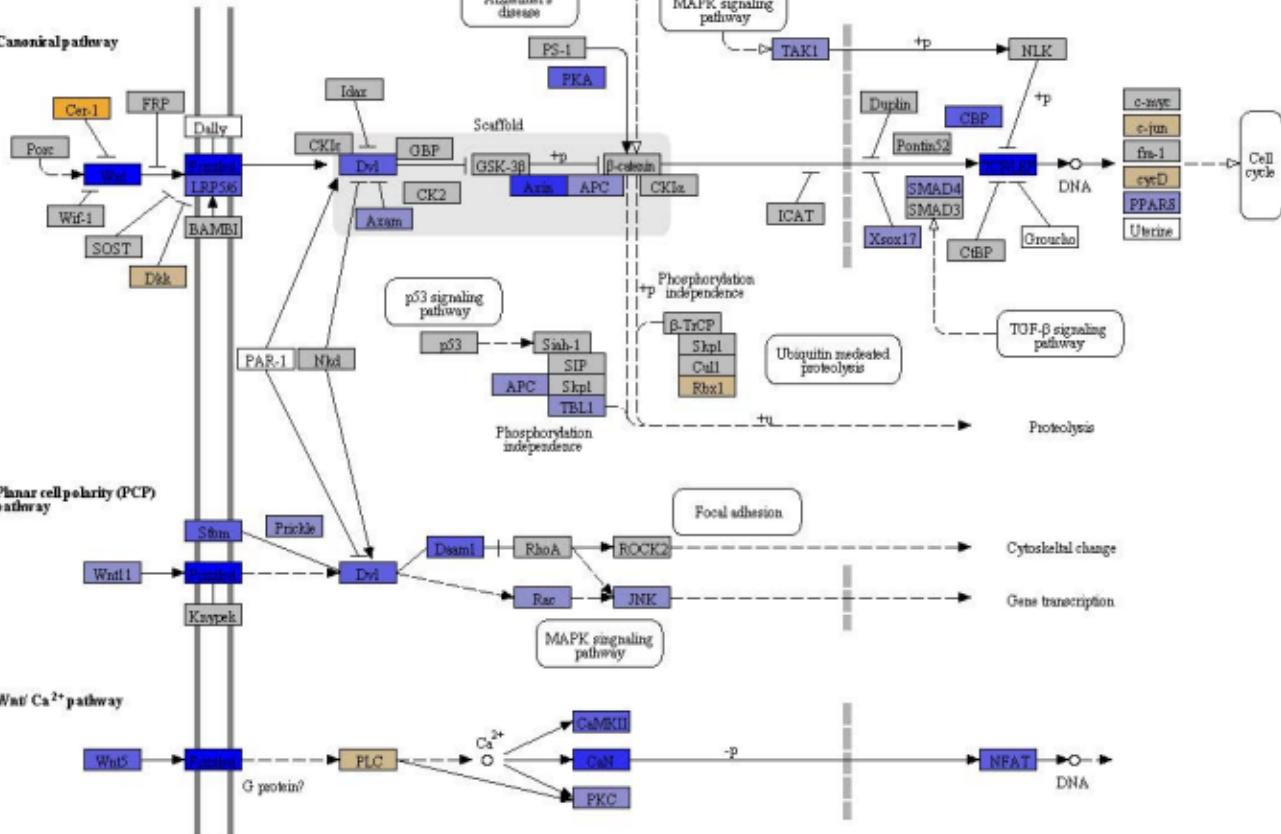


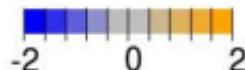
## PI3K-AKT SIGNALING PATHWAY



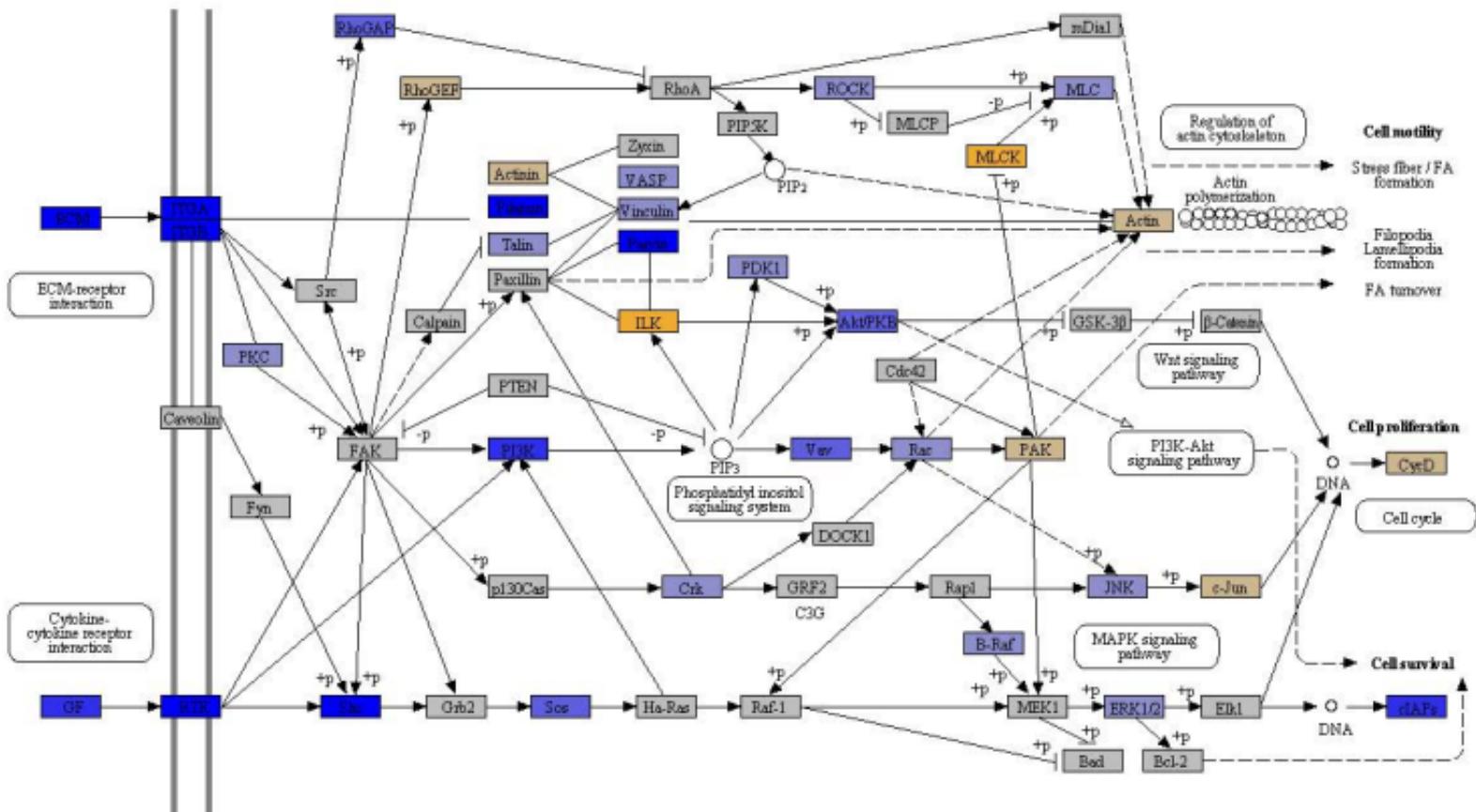
## WNT SIGNALING PATHWAY

### Canonical pathway

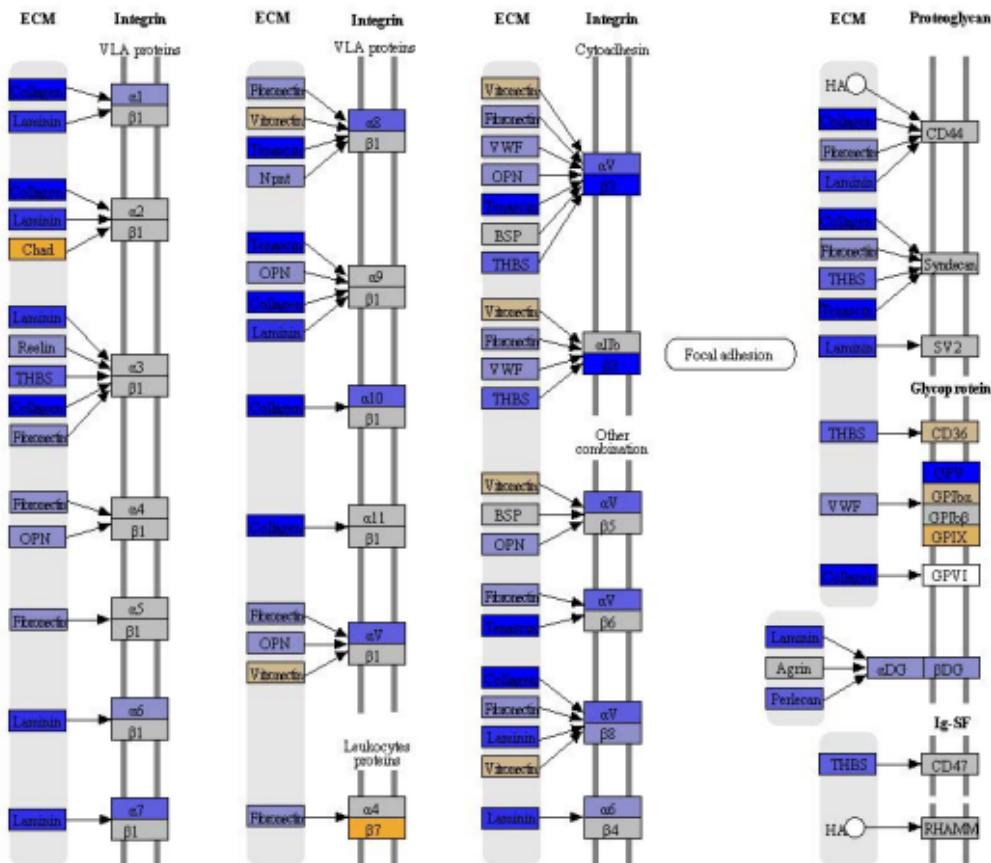
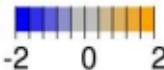




## FOCAL ADHESION



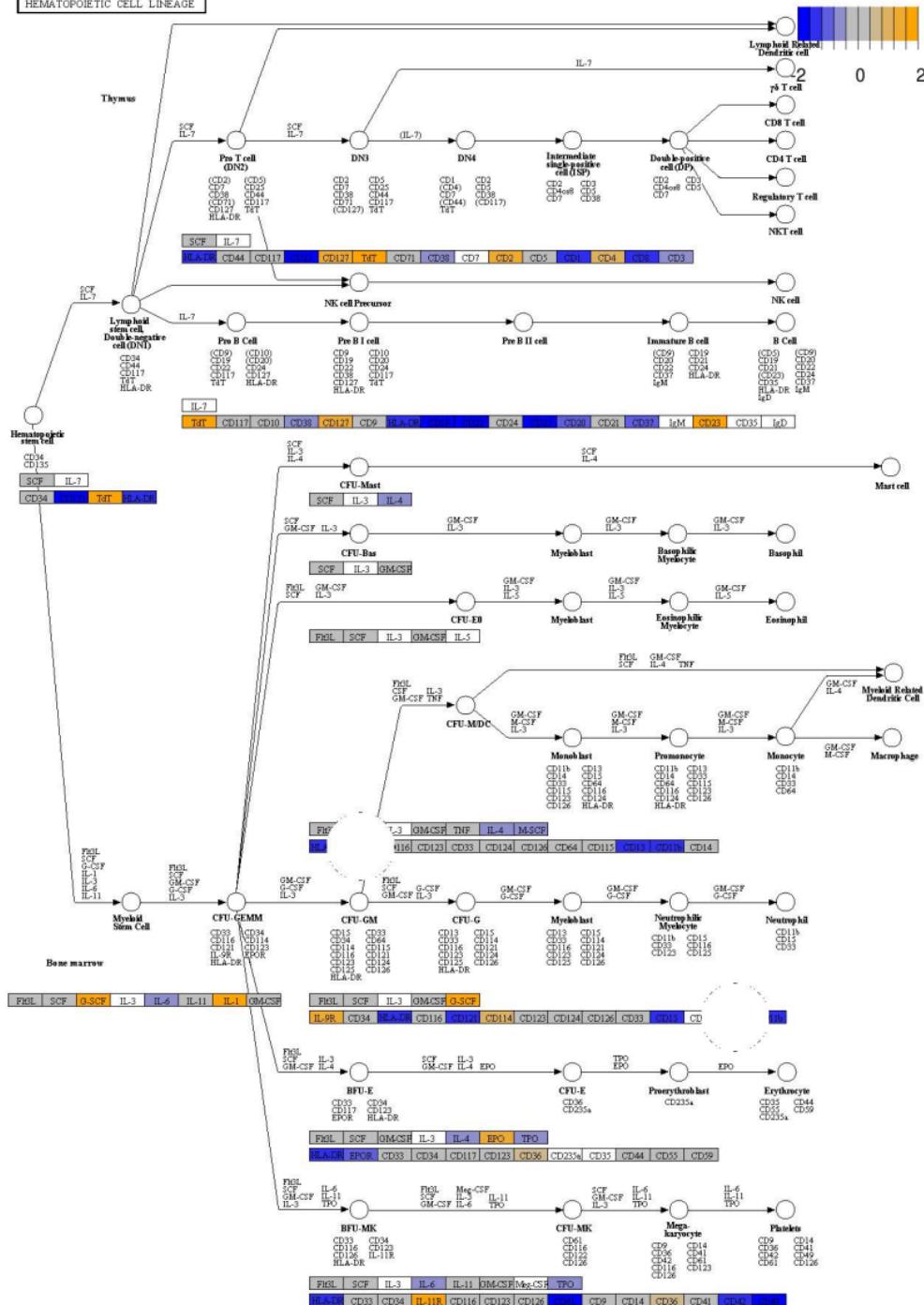
## ECM-RECEPTOR INTERACTION



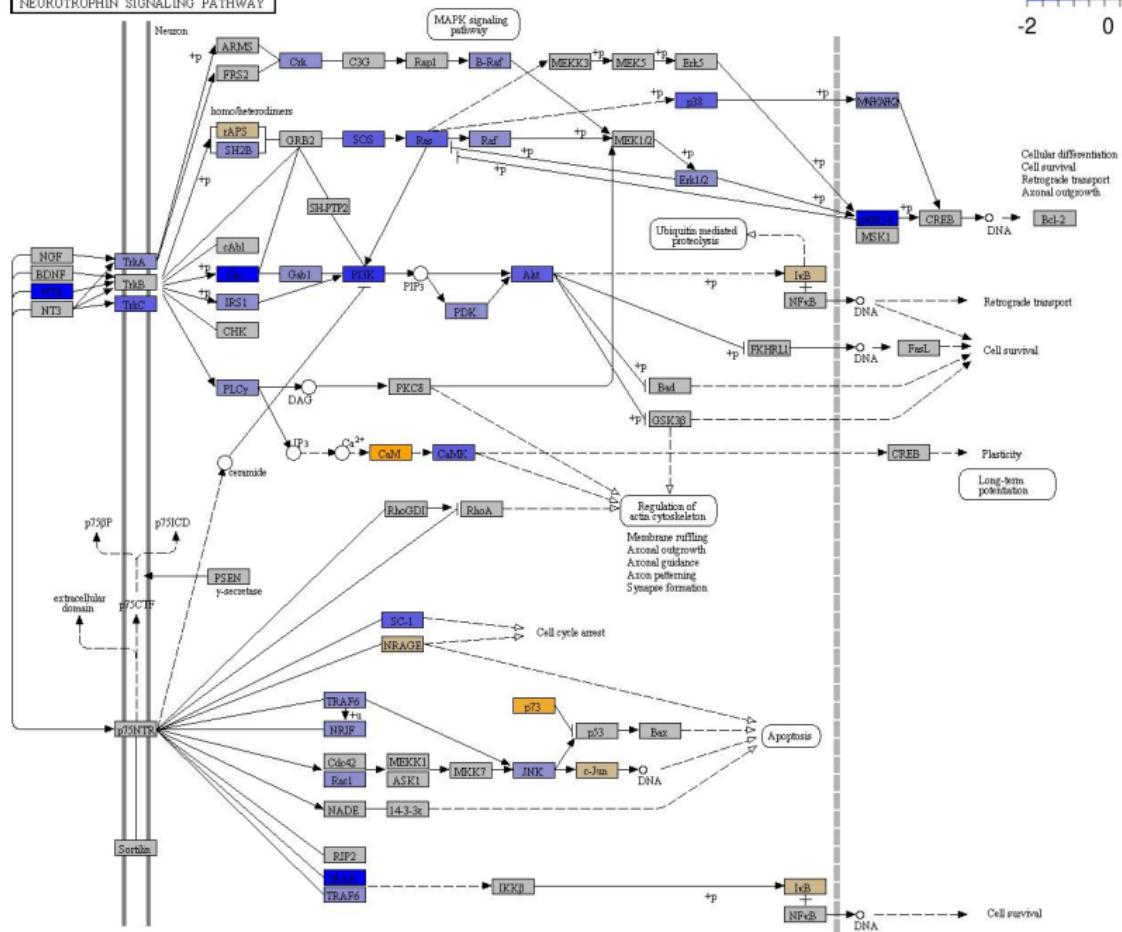
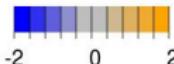
Data on KEGG graph

Rendered by Pathview

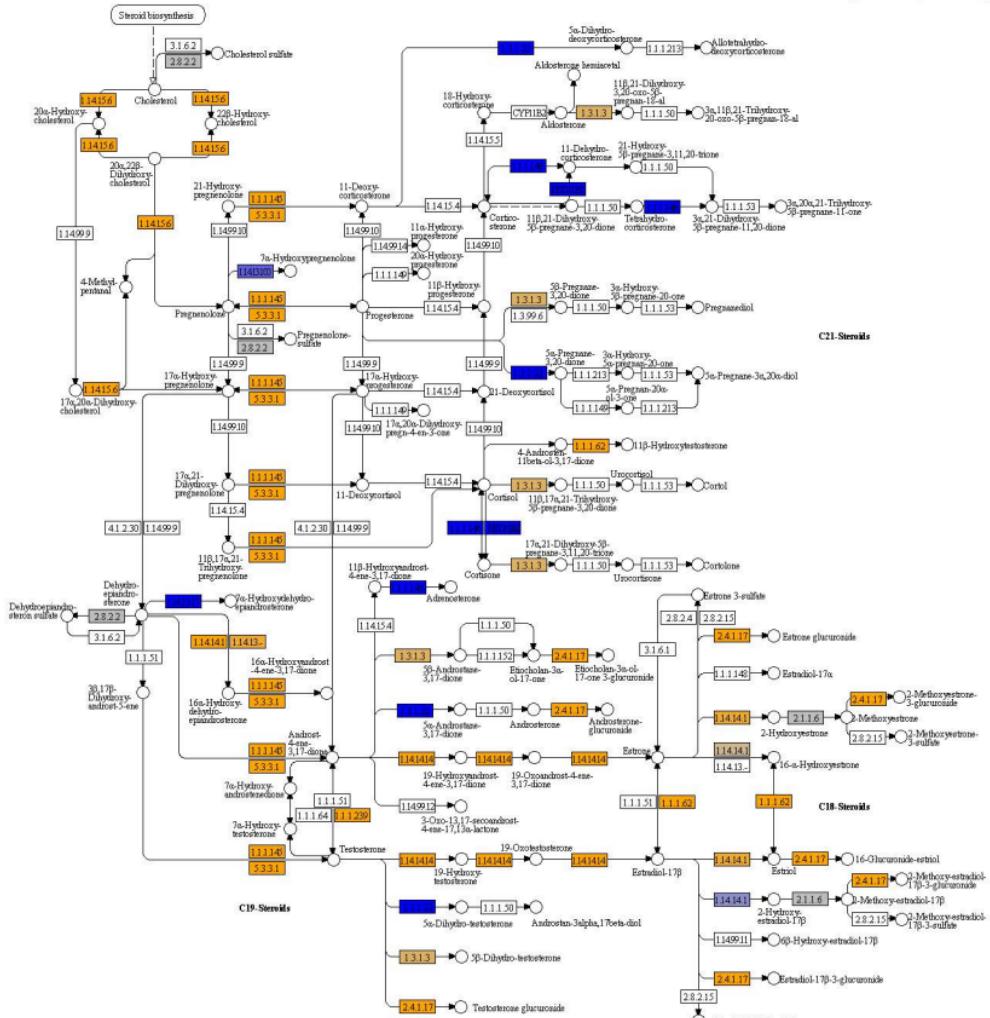
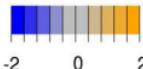
## HEMATOPOIETIC CELL LINEAGE



## NEUROTROPHIN SIGNALING PATHWAY

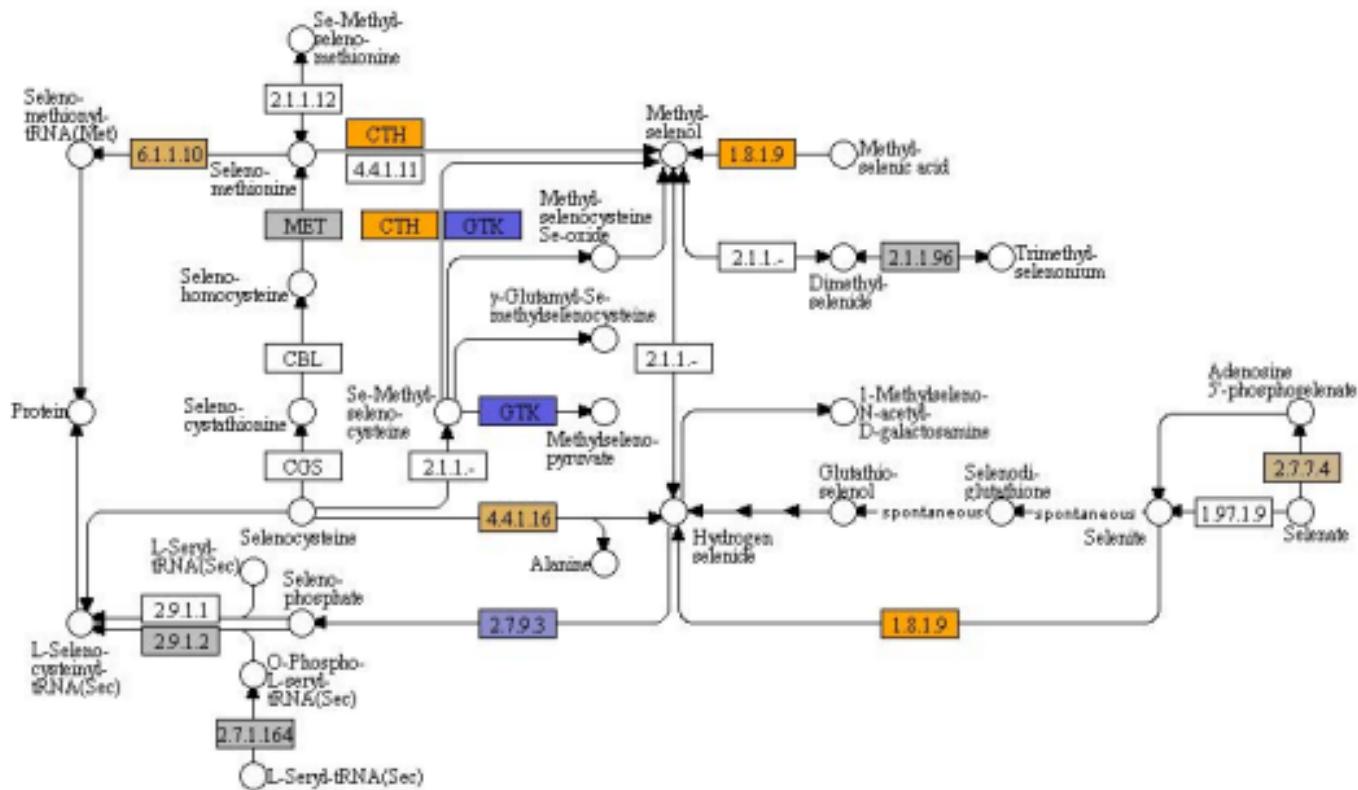


S6B Fig





## SELENOCOMPOUND METABOLISM

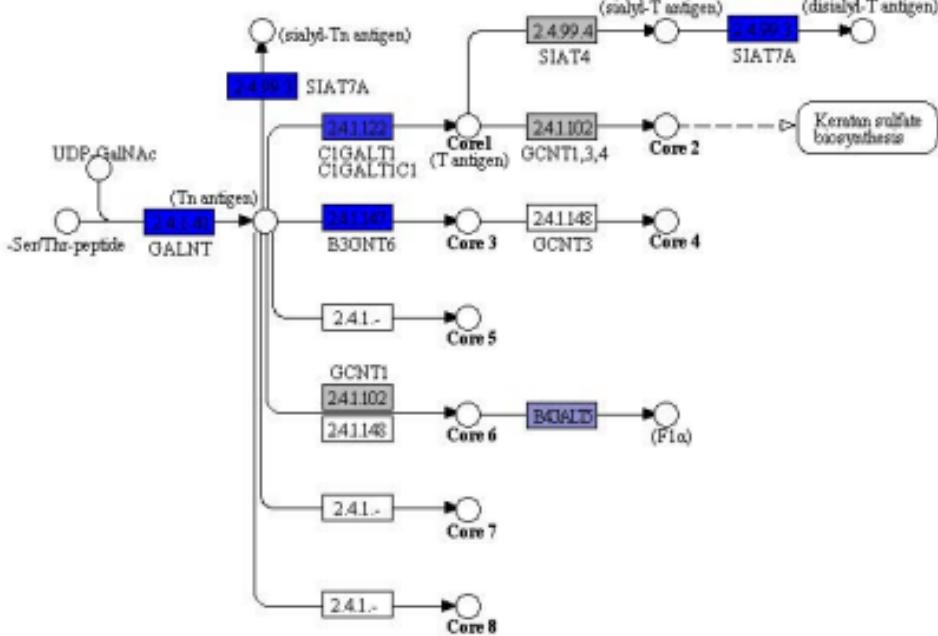


Data on KEGG graph

Rendered by Pathview

## MUCIN TYPE O-GLYCAN BIOSYNTHESIS

-2 0 2



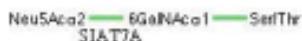
### Tn antigen



### Core 1, 2



### Sialyl-Tn antigen



### Core 3, 4



### Disialyl-T antigen



### Core 5



### Core 6 & Fla

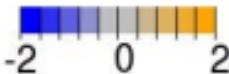


### Core 7

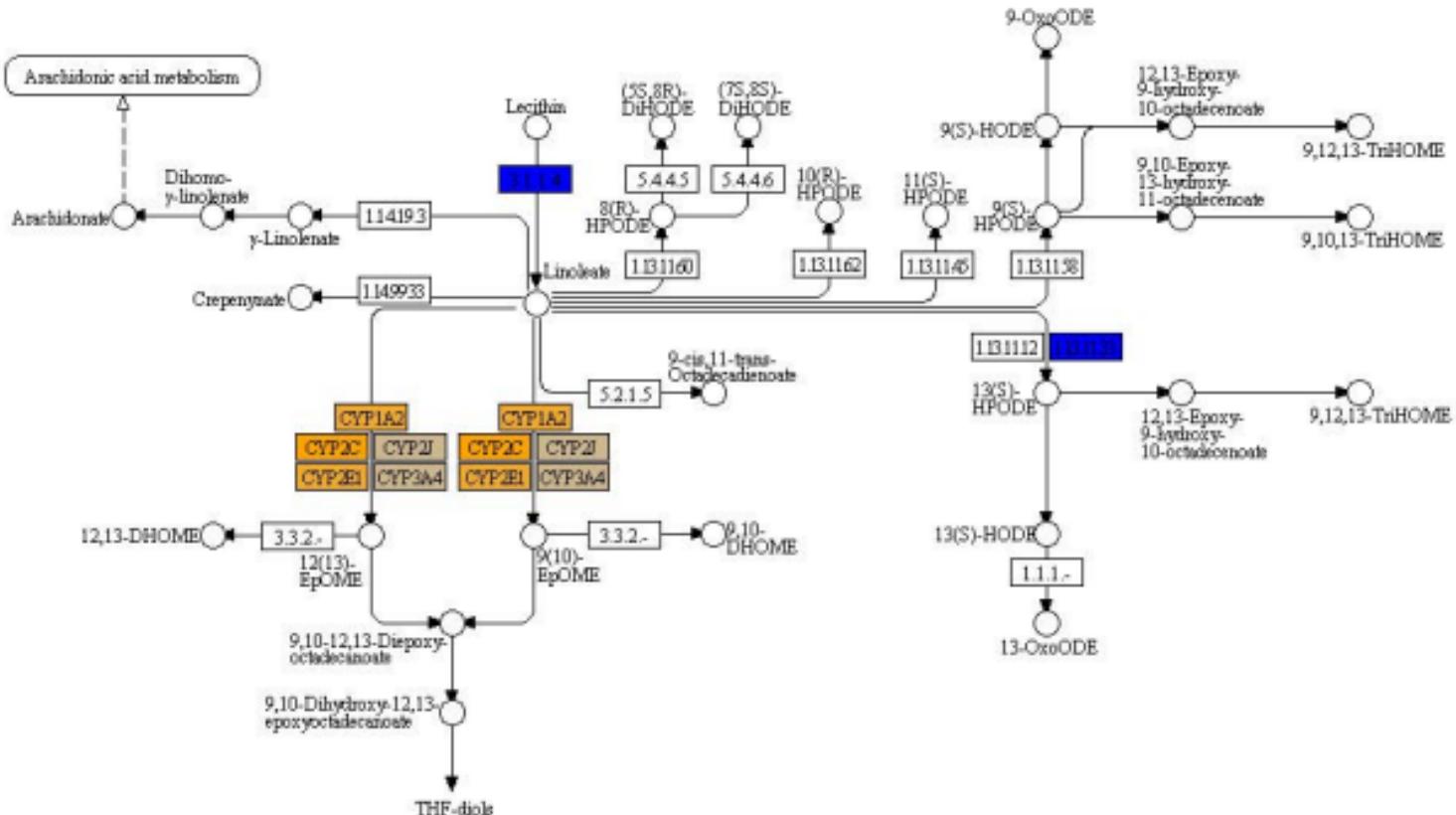


### Core 8

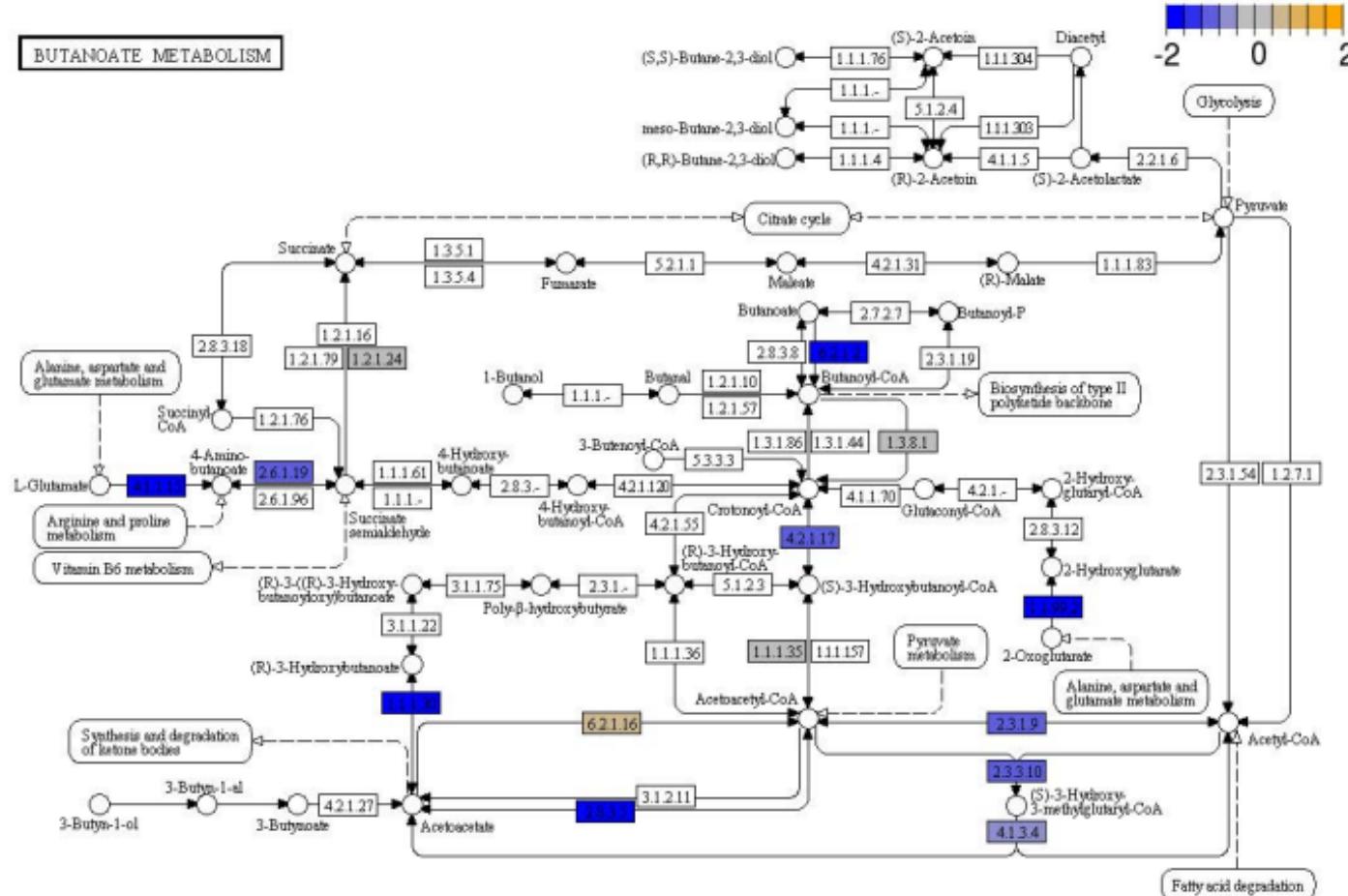


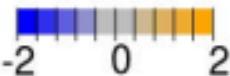


## LINOLEIC ACID METABOLISM

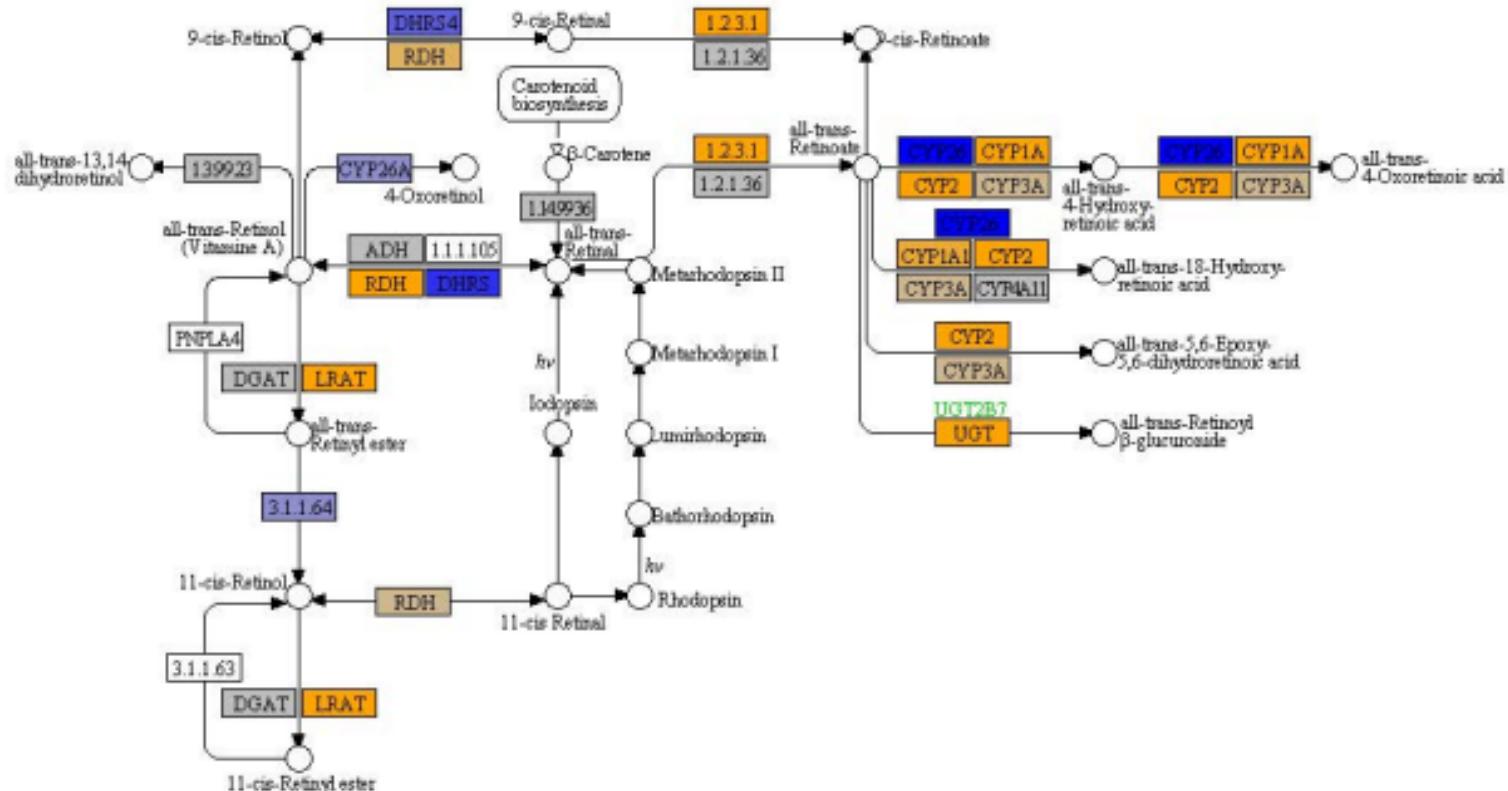


## BUTANOATE METABOLISM

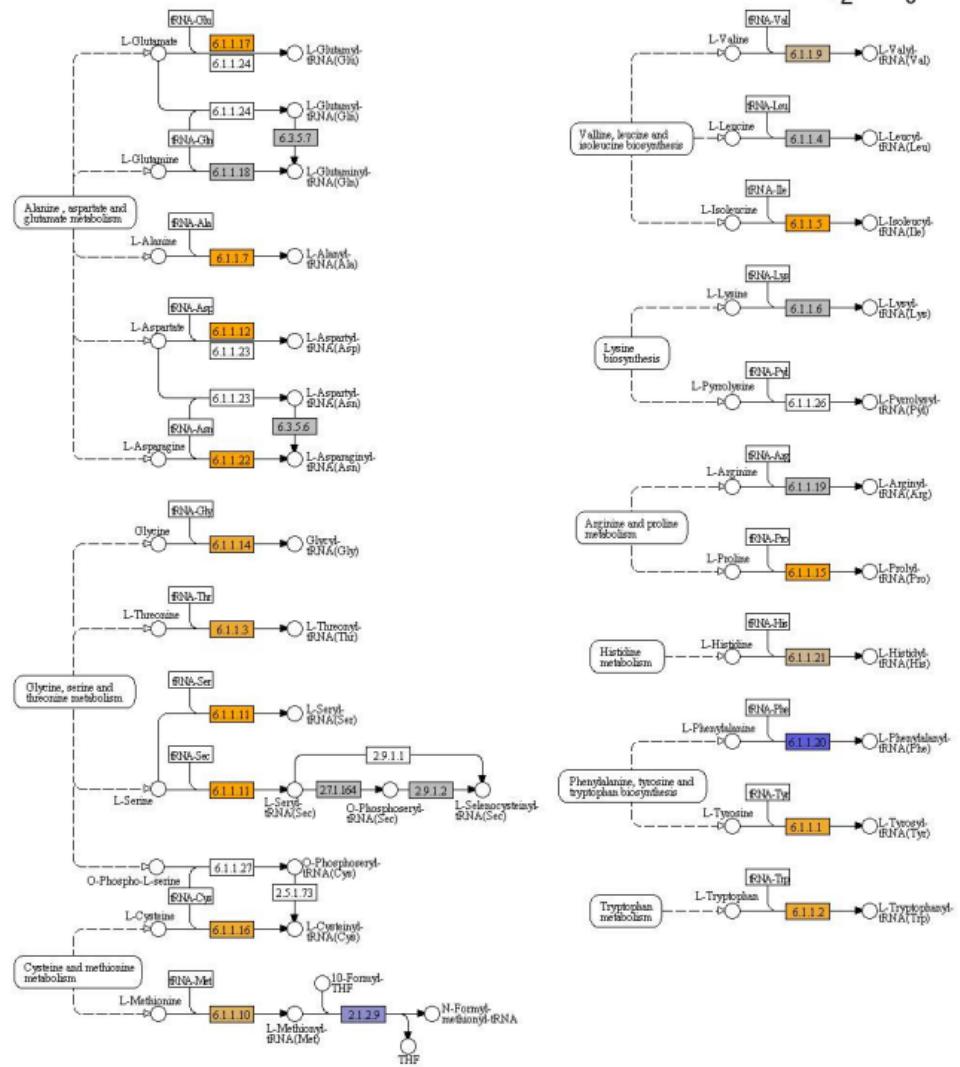
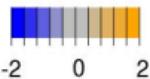




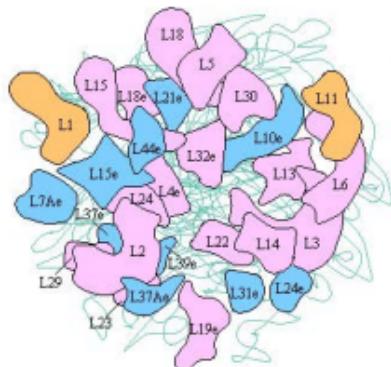
## RETINOL METABOLISM IN ANIMALS



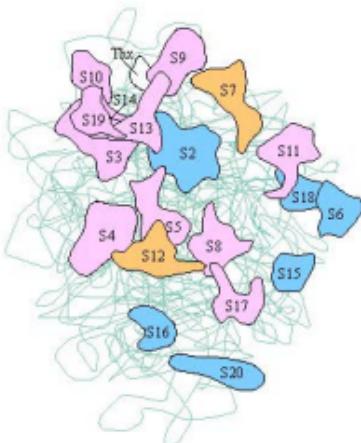
## AMINOACYL-tRNA BIOSYNTHESIS



RIBOSOME



Large subunit (*Halococcus marismortui*)

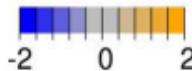


Small subunit (*Thermus eques*)

### Ribosomal RNAs

Bacteria / Archaea  
Eukaryotes

23S	5S	16S
25S	5S	5.8S



### Ribosomal proteins

EF-Tu	S10	L3	L4	L1	L2	S19	L22	S3	RP-L16	L29	
	S20e		L4e	L23Ae	L8e	S15e	L17e	S3e		L35e	

L7/L12  
stalk

S17	L14	L24		L5	S14	S8	L6		L18	S5	L30	L15
S11e	L25e	L26e	S4e	L11e	S29e	S15Ae	L9e	L32e	L19e	S2e	L7e	L27Ae

SecY

IF1	L36	S13	S11	S4		RpoA		L17	L13	S9	
	L34e	L14e		S18e	S14e	S9e		L18e		L13Ae	S16e

EF-Tu,G	S7	S12		L7A		RpoC,B		L7/L12	L12	L10	L1	L11
	S5e	S23e	L30e	L7Ae				LP1,LP2	LP0	L10Ae	L12e	

EF-Ts	S2		IF2	S15		IF3	L35	L20	L34		RF1	L31		L32		L9	S18	S6
	S2e			S13e														

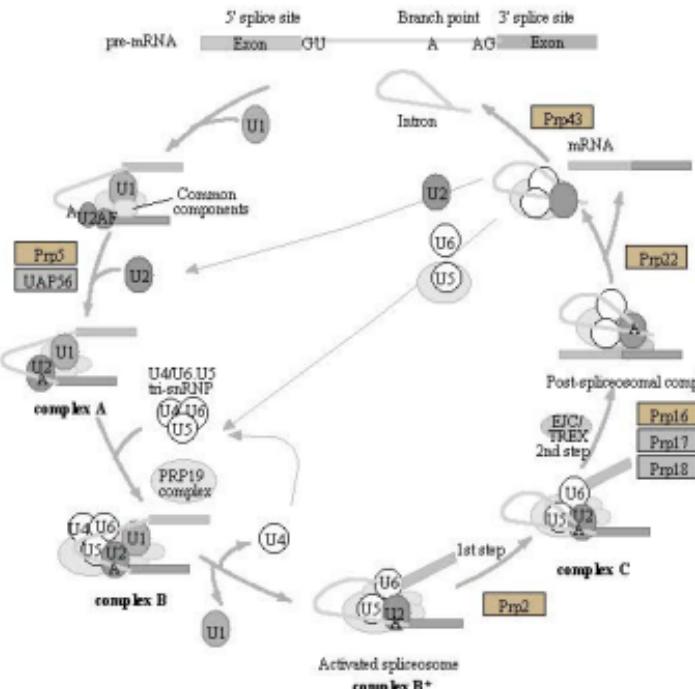
			L33		L21	L27	FtsY,Ffh	S16	L19		S1	S20	S21	L25			
			L10e	L13e	L15e	L21e	L24e	L31e	L35Ae	L37e	L37Ae	L39e	L40e	L41e	L44e		

S3Ae	S6e	S8e	S17e	S19e	S24e	S25e	S26e	S27e	S27Ae	S28e	S30e		LX
L6e	L18Ae	L22e	L27e	L28e	L29e	L36e	L38e						

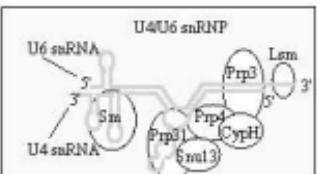

Data on KEGG graph

Rendered by Pathview

## SPLICEOSOME



	-2	0	2	
Spliceosome components				
U1	U1snRNA	U2snRNA	U4 <sub>a</sub> snRNA	U5snRNA
	Sm	Sm	Lsm	Sm
	U1-70K	U2A'	U6snRNA	Sau114
	U1A	U2B"	Sm	Btr2
	U1C	SF3a	Prp3	Prp6
U1 related	FBP11	SF3b	Prp4	Prp8
		Prp32	CypH	Prp8BP
U2 related	S164	U2AF	Prp31	Prp28
	p68	PUF60	Sm13	DIB1
	CA150	SPF30	U4/U6 US	tri-SmRNP associated
		SPF45	SnNPZ1	
		CHERP	Sad1	
		SR140	Sm66	
		Prp43	Sm23	
			Prp38	
U4/U6 US	Prp19	EJC/TREX	Common	components
tri-SmRNP associated	Prp19	2nd step	CBP8003	
	Prp19	Prp22	ACINUS	
	Prp17	Slu7	eIF4A3	
	Prp18		Y14	
Prp19 complex	Prp19		magoh	
Prp19 related	SKIP		UAP56	
	CDC5		THOC	
	Syf			
	SPF27			
	PRL1			
	AD002			
	CINNBJ			
	HSP73			
	CCDC12			
	RBM22			
	G10			
	AQR			
Complex B specific	[NPW38]			
	[NPW38B]			

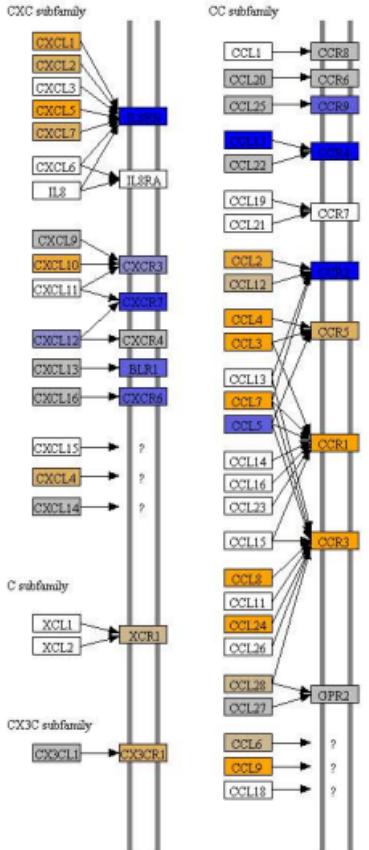


Data on KEGG graph

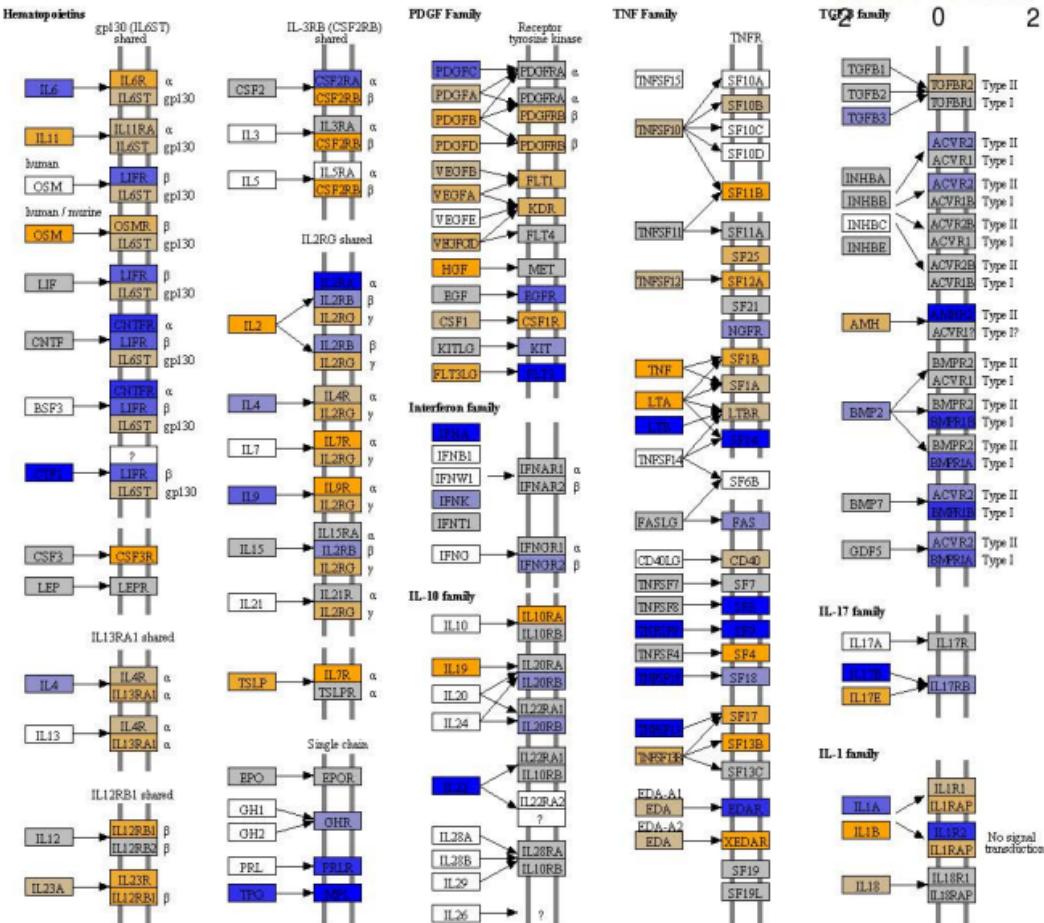
Rendered by Pathview

## CYTOKINE-CYTOKINE RECEPTOR INTERACTION

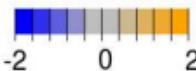
### Chemokines



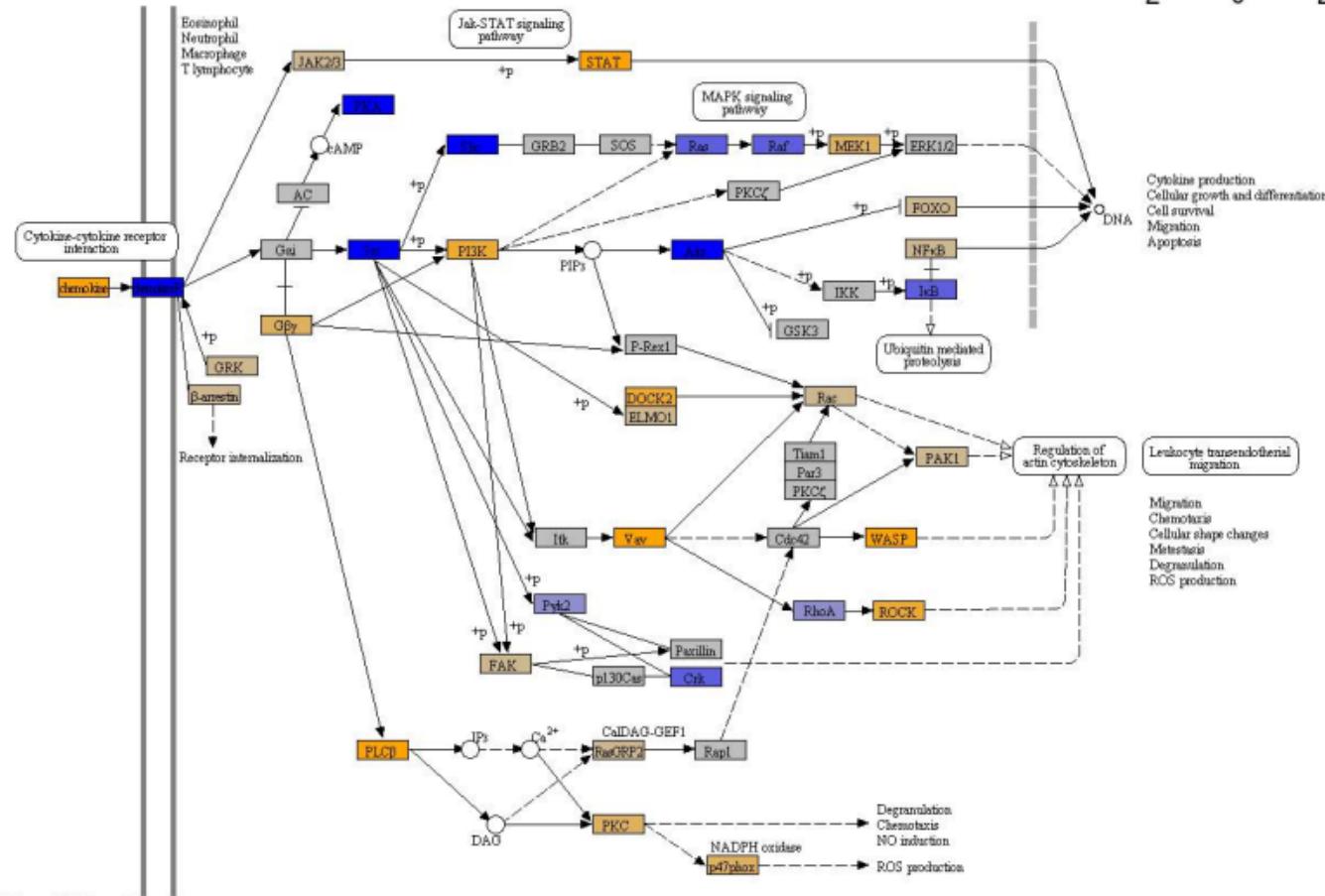
Data on KEGG graph  
Rendered by Pathview



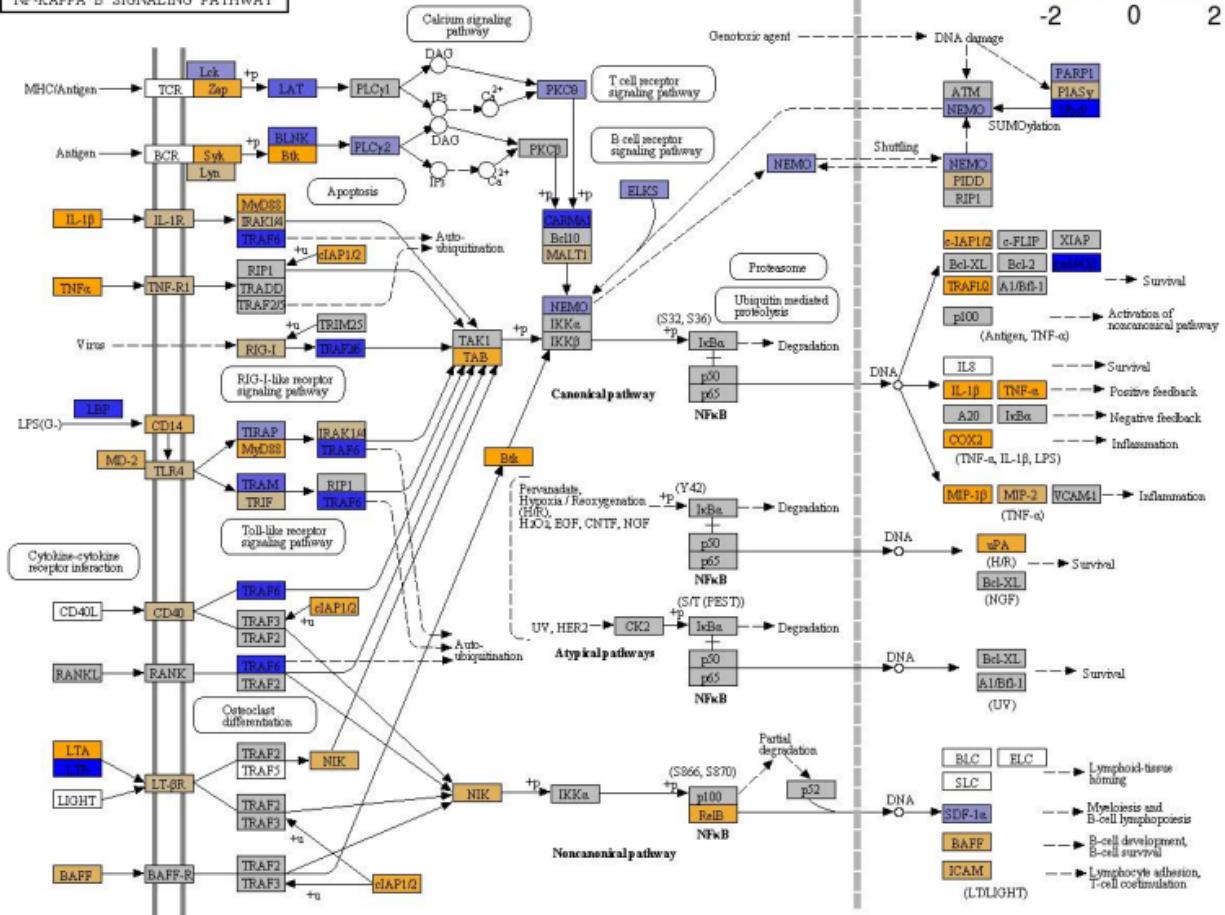
TGF $\beta$  family 0 1 2

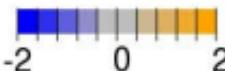


### CHEMOKINE SIGNALING PATHWAY

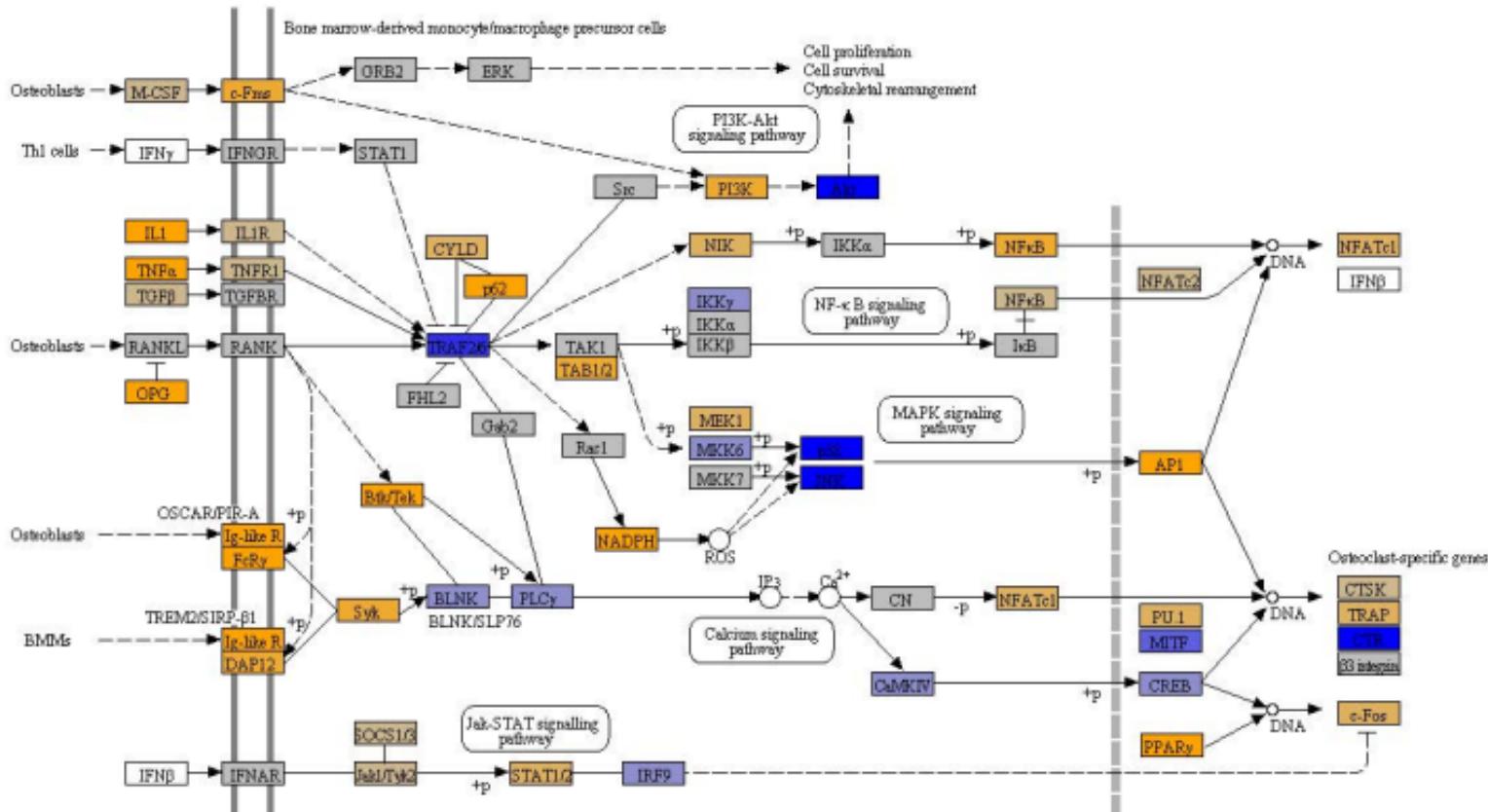


## NF-KAPPA B SIGNALING PATHWAY



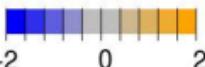


## OSTEOCLAST DIFFERENTIATION

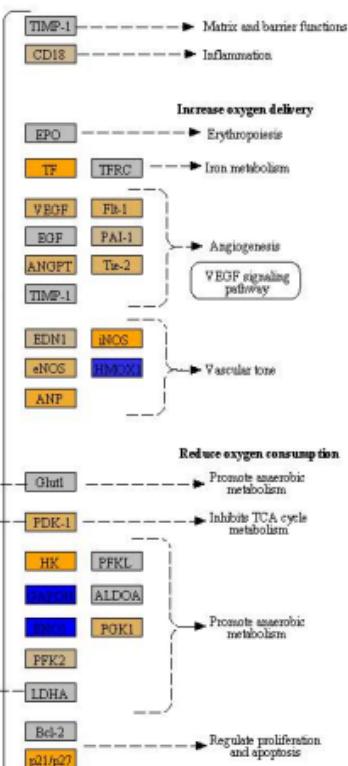
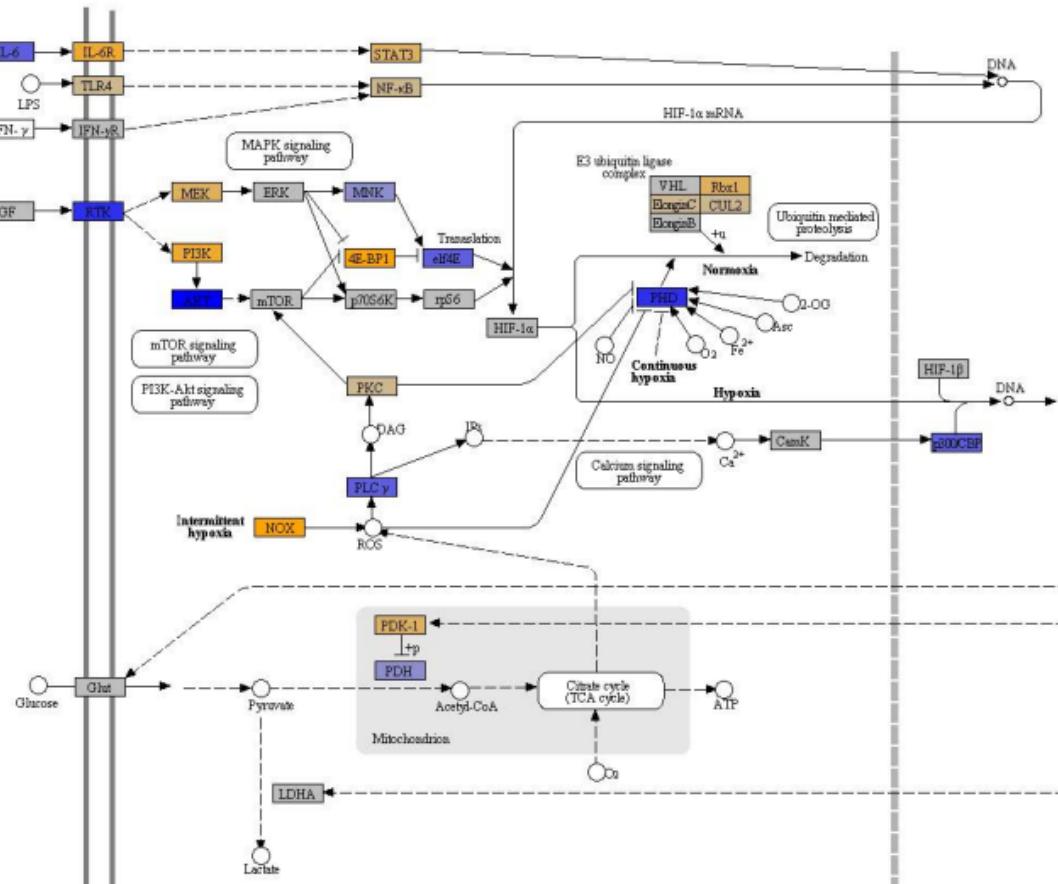


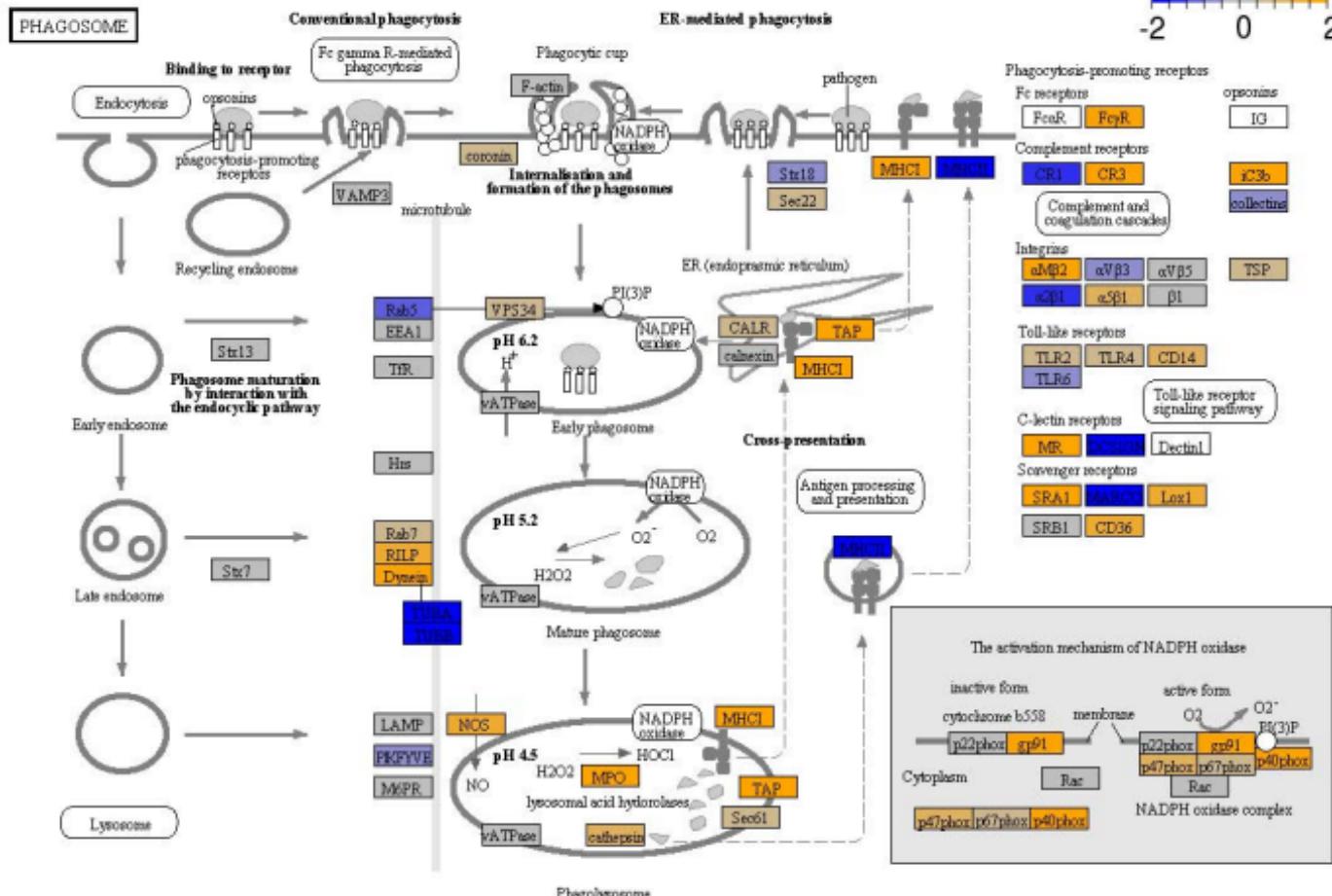
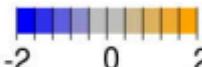
Data on KEGG graph

Rendered by Pathview

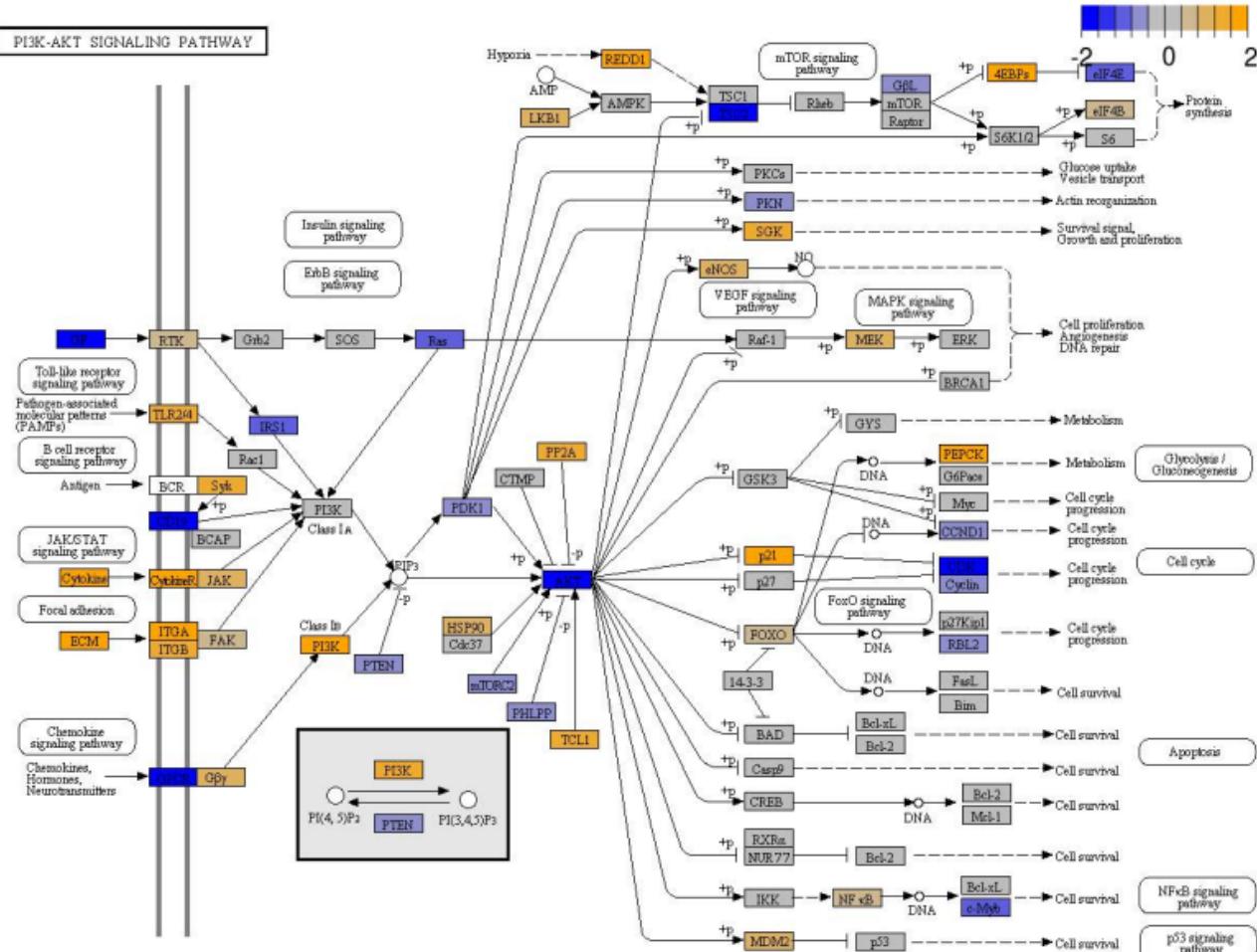


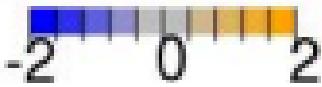
### HIF-1 SIGNALING PATHWAY



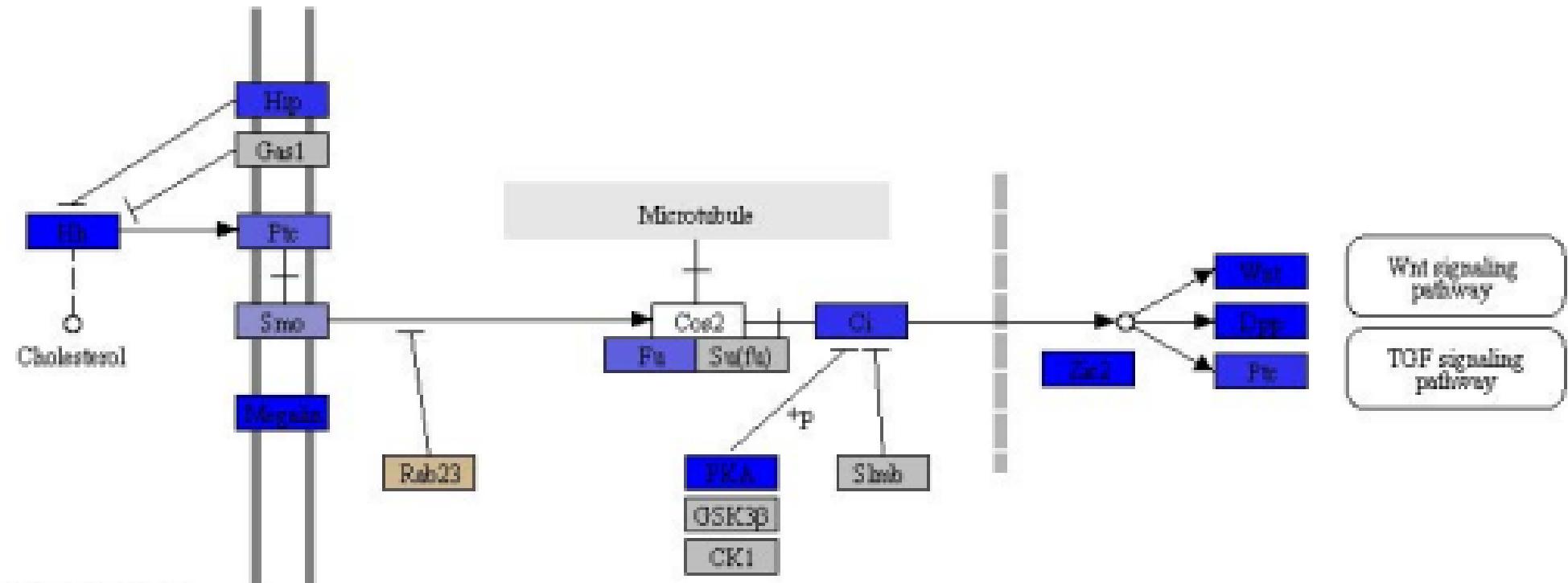


## PI3K-AKT SIGNALING PATHWAY

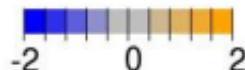




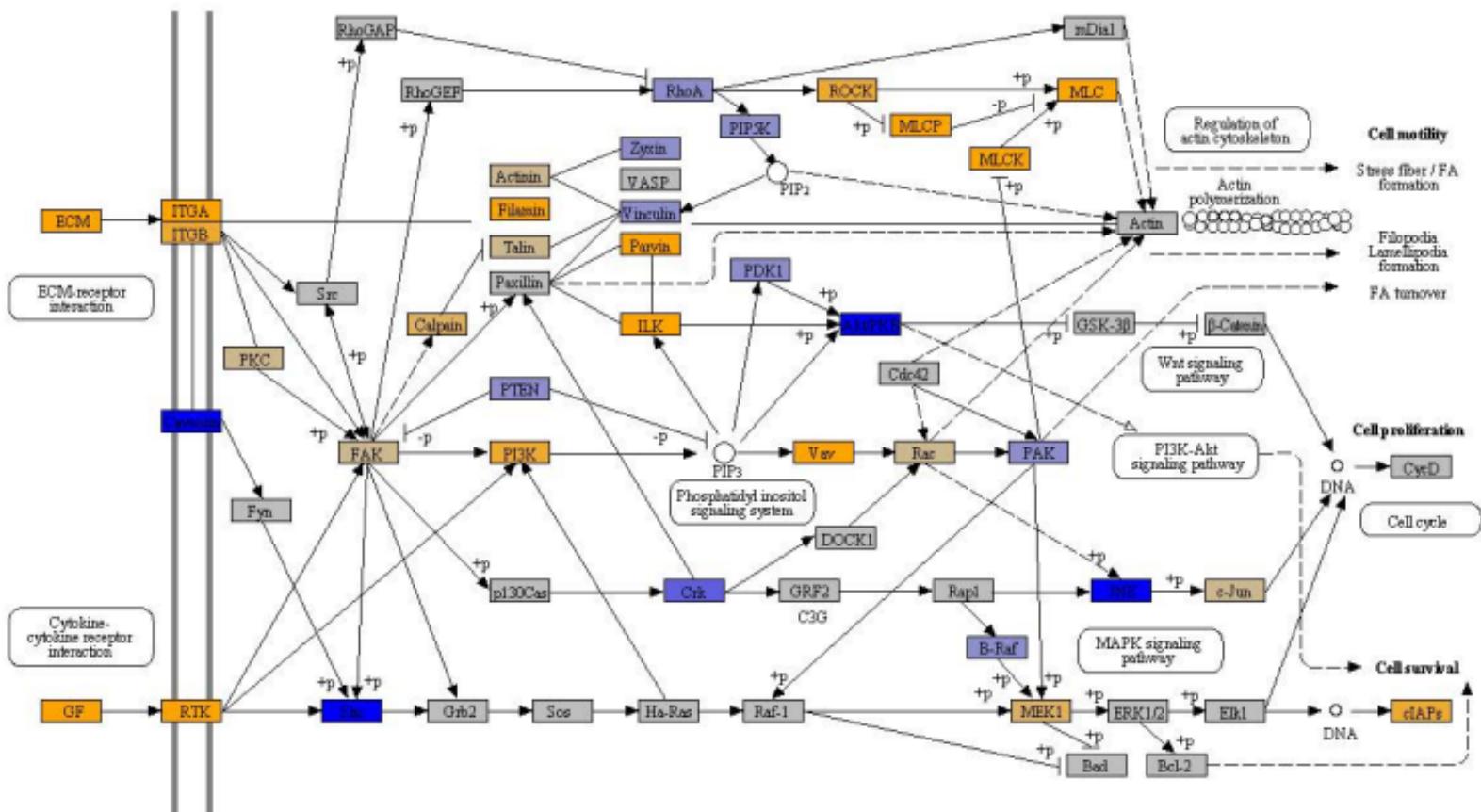
## HEDGEHOG SIGNALING PATHWAY

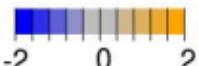


Data on KEGG graph  
Rendered by Pathview



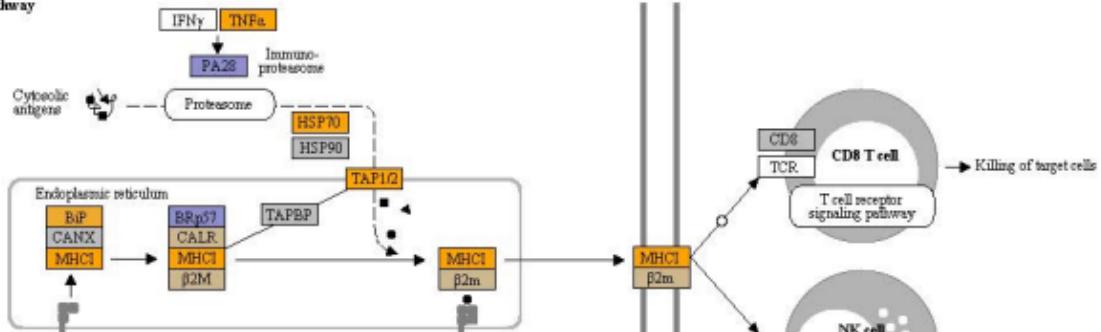
## FOCAL ADHESION



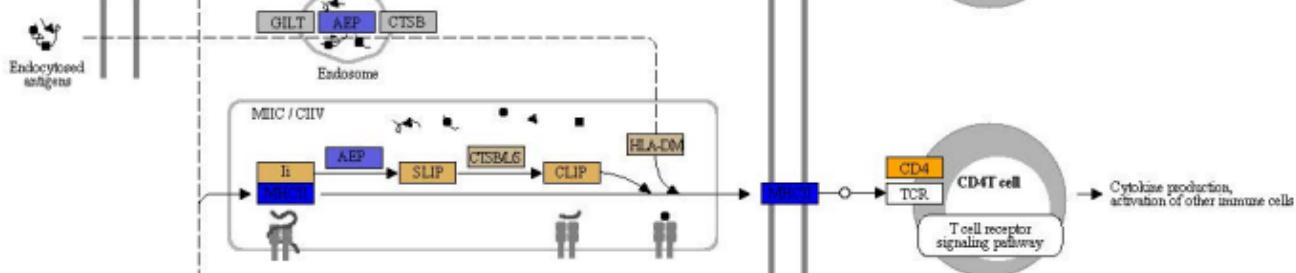


## ANTIGEN PROCESSING AND PRESENTATION

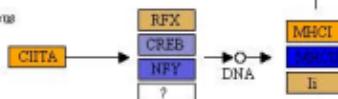
### MHC I pathway

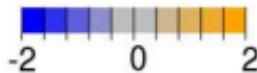


### MHC II pathway

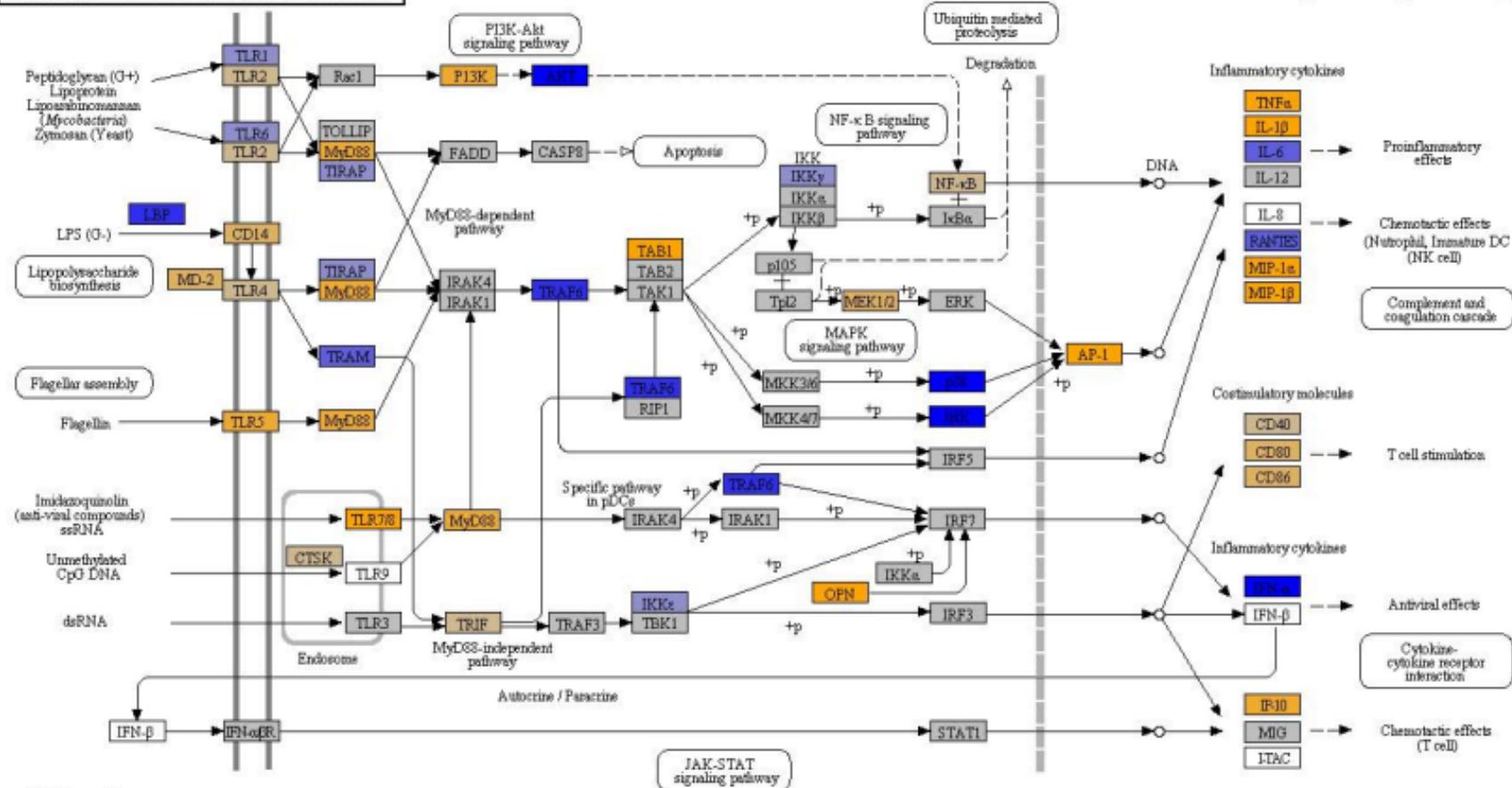


Nucleus

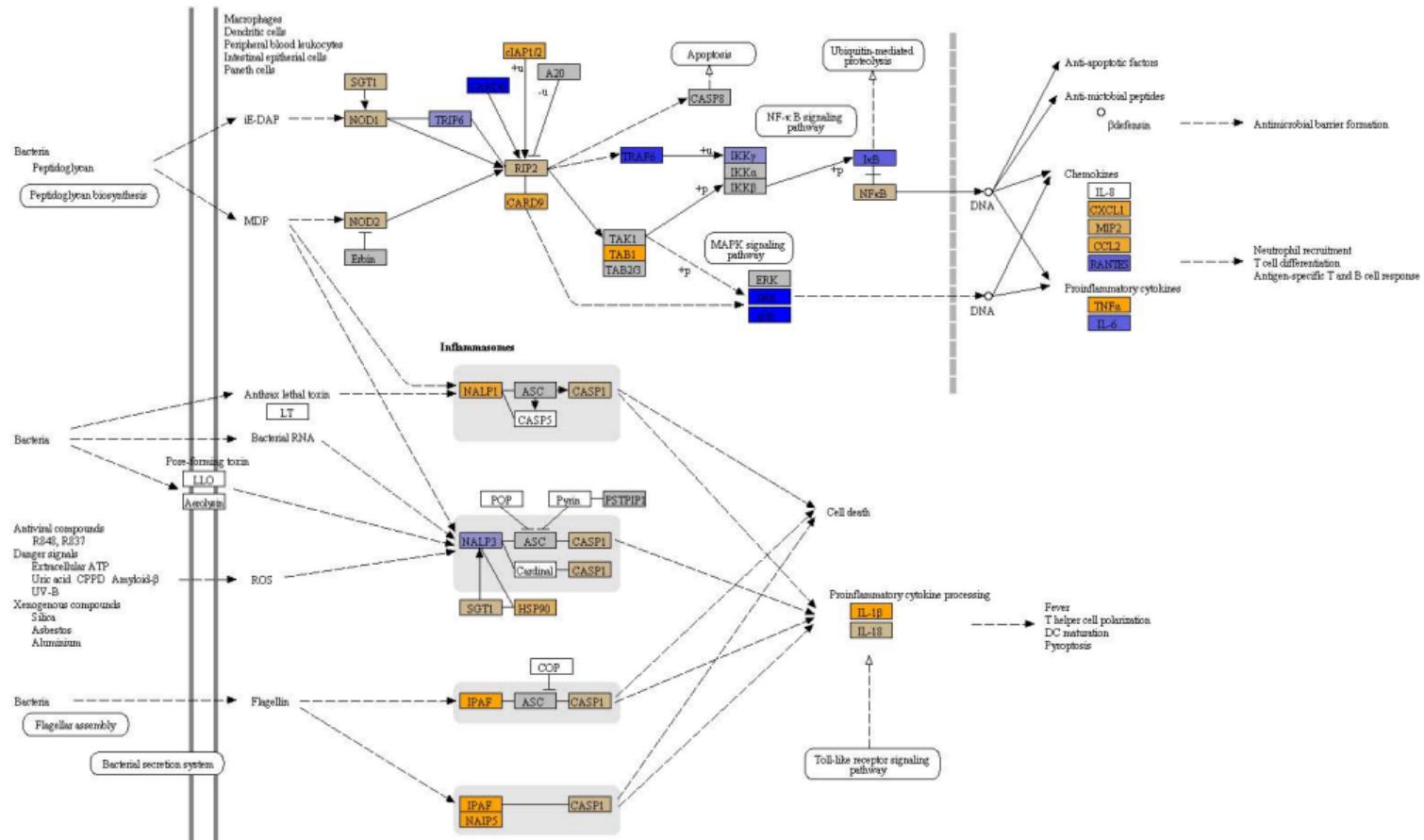
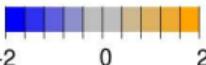




### TOLL-LIKE RECEPTOR SIGNALING PATHWAY



## NOD-LIKE RECEPTOR SIGNALING PATHWAY



## TNF SIGNALING PATHWAY

