

Test2

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The expression of all TRAs associated with a tissue cannot be used to infer organ development

In this research, we attempt to draw conclusions about the developmental state of a tissue based on the expression of genes associated with it alone. Therefore, we analyzed the share of differentially expressed transcripts above a certain expression level over time, as shown in Fig. ???A. Furthermore, we observed trends within the median expression of all differentially expressed transcripts associated with a tissue (Fig. ???B). Since both metrics only showed in miniscule changes, we hypothesized that distinct, counteracting trends in expression existed within one tissue. Thus, k-means clustering was used to determine groups of TRAs with similar expression patterns. For each of these clusters, the median expression was plotted as shown in Fig. ???C.

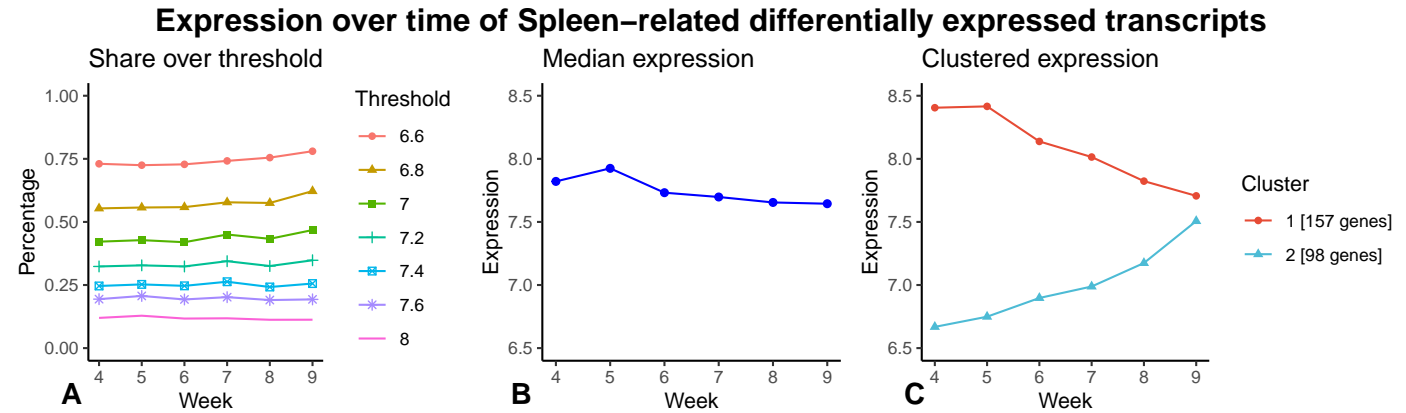


Figure 1: A. For different expression thresholds the share of differentially expressed transcripts with higher expressions than the threshold is depicted. B. The median

##Now the spleen stuff

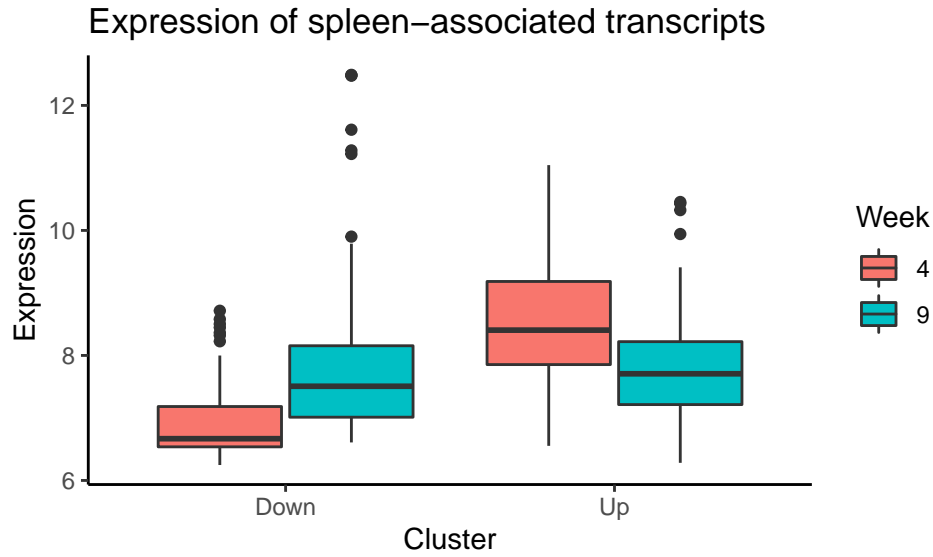


Figure 2: A further look on the expression of transcripts in the up- and downregulated clusters shows that the upregulated transcripts are close to the minimum expression level between 6 and 7 in week 4 and showing expressions between 7 and 8.5 by week 9. In contrast, the downregulated genes have very high expression levels (8-9) by week 4 and decrease to a more moderate expression between 7 and 8.5 analogous to the upregulated transcripts.

Spleen - Upregulated

List of differentially expressed genes

TRANSCRIPT	GENE	PROTEIN	SUMMARY	EXPRESSION_OVER_TIME
ENST00000233505	CENPA	centromere protein A	Member of the immunoglobulin superfamily	
ENST00000247191	DLGAP5	DLG associated protein 5	Mediates polarization of T cells and neutrophils	
ENST00000247291	AIF1L	allograft inflammatory factor 1 like	Secreted by cytotpic lymphocytes	
ENST00000260359	NUSAP1	nucleolar and spindle associated protein 1	Can upregulate blood pressure	
ENST00000263201	CDC45	cell division cycle 45	B lymphocyte chemoattractant	
ENST00000296289	NA	NA	IL-11 receptor	
ENST00000300093	PLK1	polo like kinase 1		
ENST00000313093	ARHGAP45	Rho GTPase activating protein 45	Contains von Willebrand factor domains	
ENST00000327331	CDCA8	cell division cycle associated 8	May function as a cytokine	
ENST00000338631	ACIN1	apoptotic chromatin condensation inducer 1	Plays a role in immune surveillance	
ENST00000349718	CMTM7	CKLF like MARVEL transmembrane domain containing 7	Regulating the complement cascade	
ENST00000352331	KIF23	kinesin family member 23	HLA class II	
ENST00000357481	ACIN1	apoptotic chromatin condensation inducer 1	Endocytosis of pathogen	
ENST00000357886	CDK5RAP1	CDK5 regulatory subunit associated protein 1	Receptors for interferons alpha and beta	
ENST00000371485	CEP55	centrosomal protein 55	Fibroblast growth factor	
ENST00000411486	HJURP	Holliday junction recognition protein	Regulating the complement cascade	
ENST00000475379	NA	NA	Protect the antibody from degradation	

Figure 3: This is just a test. . .

Spleen - Downregulated

List of differentially expressed genes

TRANSCRIPT	GENE	PROTEIN	SUMMARY	EXPRESSION_OVER_TIME
ENST00000251296	IGSF21	immunoglobulin superfamily member 21	Component of the centromere	
ENST00000253109	ANGPTL6	angiopoietin like 6	Interphase chromosome condensation	
ENST00000261024	SLC40A1	solute carrier family 40 member 1	Chromosome condensation and stabilization	
ENST00000265162	ENPEP	glutamyl aminopeptidase	Spindle microtubule organization	
ENST00000267484	RTN1	reticulon 1	Spindle dynamics	
ENST00000301908	PNOC	prepronociceptin	Spindle checkpoint function	
ENST00000335295	HBB	hemoglobin subunit beta	Highly expressed during mitosis	
ENST00000337908	MS4A4A	membrane spanning 4-domains A4A	Central role in mitosis	
ENST00000338087	SLA	Src like adaptor		
ENST00000357195	BCL11B	BAF chromatin remodeling complex subunit BCL11B	Nuclear movement in the cell cycle	
ENST00000367938	NA	NA	Stabilization of the mitotic spindle	
ENST00000368732	S100A8	S100 calcium binding protein A8	Regulator of mitosis	
ENST00000370031	HENMT1	HEN methyltransferase 1	Stem cell pluripotency	
ENST00000379780	CETP	cholesteryl ester transfer protein	Involved with cellular proliferation	
ENST00000381905	TNNI2	troponin I2, fast skeletal type	Mismatch repair	
ENST00000394635	CFI	complement factor I	Regulates G1/S transition	
ENST00000395388	HLA-DRA	major histocompatibility complex, class II, DR alpha	Moves chromosomes	
ENST00000395794	CXCL12	C-X-C motif chemokine ligand 12	Anaphase-promoting complex substrate	
ENST00000399916	RUNX3	RUNX family transcription factor 3	Unwinds Holliday junction	
ENST00000400131	CHODL	chondrolectin	Induces apoptotic chromatin condensation	
ENST00000409605	XIRP2	xin actin binding repeat containing 2	Promotes cell growth	
ENST00000432103	NA	NA	Transcriptional activator in proliferation	
ENST00000435365	NA	NA	Associates with centromer-kinetochore complex	
ENST00000446486	NA	NA	Initiation of DNA replication	
ENST00000464145	NA	NA	Regulatory in the cell cycle	
ENST00000474911	RTN1	reticulon 1	Maintaining chromosome integrity in mitosis	
ENST00000475226	NA	NA	Stable spindle microtubule capture	
ENST00000476911	NA	NA	CpG methylation	
ENST00000477801	NA	NA	Initiation of DNA replication	
ENST00000481799	GGTA1	glycoprotein alpha-galactosyltransferase 1 (inactive)	Subunit of M-phase promoting factor	
ENST00000485743	NA	NA	Involved in kinetochore function	
ENST00000493434	NA	NA	Cell cycle progression	
ENST00000504853	NA	NA	Cell cycle checkpoint regulator	
ENST00000517638	RALYL	RALY RNA binding protein like	Spindle checkpoint function	
ENST00000518566	RALYL	RALY RNA binding protein like	Spindle microtubule organisation	
ENST00000524381	OPCML	opioid binding protein/cell adhesion molecule like	Inducing cell cycle arrest	
ENST00000527056	NA	NA	Subunit of condensin complex	
ENST00000529371	NA	NA	Cell division cycle protein	
ENST00000540870	SP110	SP110 nuclear body protein	DNA polymerase accessory	
NA	NA	NA	Centromere-microtubule complex	
NA	NA	NA	Mismatch repair	
NA	NA	NA	Anaphase-promoting complex substrate	
NA	NA	NA	Segregation of chromosomes	
NA	NA	NA	Central role in mitosis	
NA	NA	NA	Contributor to developmental programs	

Figure 4: This is just a test. . .