Supplementary Figure Legends

Supplementary Figure S1. Decline of DN2, DN3, and DP populations in *Ikzf1*$^{\Delta F4/\Delta F4}$ mice worsens with age. (A) Shown are the averages of the absolute cell numbers of each thymocyte subset in WT and *Ikzf1*$^{\Delta F4/\Delta F4}$ mice at 4-, 5-, and 6-weeks (wk) and the ratios of WT over *Ikzf1*$^{\Delta F4/\Delta F4}$ absolute cell numbers. (B) Shown are staining profiles of lin$^-$CD44$^+$c-Kit$^+$ gated thymocytes in WT and *Ikzf1*$^{\Delta F4/\Delta F4}$ mice at 4, 5, and 6 wk. The absolute mean percentages are indicated (n=4-6). (C) Shown are absolute numbers of ETP cells in WT and *Ikzf1*$^{\Delta F4/\Delta F4}$ mice at 4 wk (n=4), 5 wk (n=5-6), and 6 wk (n=5). Each symbol represents an individual mouse and bar shows the mean. (D) Shown are histograms of lin$^-$CD44$^-$CD25$^+$ DN3 thymocytes in gray and lin$^-$CD44$^-$CD25$^-$ DN4 thymocytes in green in 5-wk-old WT and *Ikzf1*$^{\Delta F4/\Delta F4}$ mice. (E) Plotted are ratios of the average cell numbers of the indicated populations in WT over *Ikzf1*$^{\Delta F4/\Delta F4}$ as they relate to age.

Supplementary Figure S2. (A) Pearson correlation coefficient (R) matrix of expressed genes >200 bp and ≥4 RPKM in at least one sample (n=10177 genes) for thymocyte subsets from Fig. 4. (B) Pearson correlation coefficient (R) matrix of expressed genes (n=9798 genes) for Notch time course experiment from Fig. 7.

Supplementary Figure S3. (A-B) For each gene whose expression changes by a factor of 3-fold or more ($P \leq 0.001$) during any stage transition in WT cells, a ratio of the fold change that occurs in WT cells over the fold change that occurs in *Ikzf1*$^{\Delta F4/\Delta F4}$ cells was calculated. Box plots and corresponding values (minimum, maximum, median, and quartiles) are shown to depict the range of these ratios of fold change between WT and *Ikzf1*$^{\Delta F4/\Delta F4}$ cells. The middle line shows the median, the lower and upper boxes show the 25% and 75% quartiles, and the bottom and top whiskers show the minimum and

maximum. (C-D) The genes from (A-B) were divided into two categories based on whether the absolute ratio of the stage-dependent fold change in WT cells over that in *Ikzf1*$^{\Delta F4/\Delta F4}$ cells was greater than or less than 2. (C) The left panel shows the number of genes and the right panel shows the percentage of genes that fall into the corresponding categories at each stage transition.

Supplementary Figure S4. (A) Expressed genes differentially regulated by 3-fold ($P \leq 0.001$) at each stage transition of WT or *Ikzf1*$^{\Delta F4/\Delta F4}$ cells were divided into a variable number of k-means clusters. Colors indicate percentile of relative expression. ETP to DN2 transition, n=796 genes; DN2 to DN3 transition, n=1389 genes; DN3 to DN4 transition, n=345; DN4 to DP transition, n=1568 genes. Shown next to each heat map are graphs of the mean normalized expression values ($\log_2$ RPKM) for WT and *Ikzf1*$^{\Delta F4/\Delta F4}$ cells in each cluster. The number of genes falling into each cluster is also indicated. (B) Clusters are shown with corresponding gene names.

Supplementary Figure S5. Normalized expression values ($\log_2$ RPKM) for genes of interest involved in hematopoiesis are shown. Table has been adapted from Yui et al. 2010 and Zhang et al. 2012. Colors indicate percentile of relative expression. Fold change and *P* values of RPKM values in *Ikzf1*$^{\Delta F4/\Delta F4}$/WT cells are included, with genes differentially expressed by 2-fold ($P \leq 0.001$) highlighted (upregulated in purple and downregulated in green).

Supplementary Figure S6. *Ikzf1*$^{\Delta F4/\Delta F4}$ DN3 cells express IL-7Rα at levels intermediate between WT DN3 cells and WT and *Ikzf1*$^{\Delta F4/\Delta F4}$ DN4 cells. Shown are histograms of surface IL-7Rα protein expression on DN3 and DN4 cells of WT and *Ikzf1*$^{\Delta F4/\Delta F4}$ mice.

Supplementary Figure S7. Loss of finger 4 of Ikaros enhances gene expression changes resulting from activated Notch. (A) Hierarchical clustering of expressed genes (>200 bp, ≥4 RPKM in at least one sample) differentially regulated by 3-fold ($P \leq 0.001$) between ICN-GFP$^+$ and ICN-GFP$^-$ cells and differentially regulated by 5-fold ($P \leq 0.001$) in any time point relative to day 0 (n=294). (B) Genes in (A) were divided into 6 k-means clusters. Shown are graphs of the mean normalized expression values ($\log_2$ RPKM) in WT and *Ikzf1*$^{\Delta F4/\Delta F4}$ cells for each cluster.

Supplementary Figure S8. List of genes upregulated in *Ikzf1*$^{\Delta F4/\Delta F4}$ cells compared to WT cells for thymocytes (ETP, DN2, DN3, DN4, or DP), for Notch-expressing cells (ICN-GFP$^+$ cells at day 2, 4, or 7), and for BCR-ABL-expressing cells (day 14, 21, or 28). Shown are fold changes of *Ikzf1*$^{\Delta F4/\Delta F4}$/WT RPKM values in each dataset. Fold change values are highlighted in purple if the gene is upregulated in the mutant cells by 3-fold or greater (≥4 RPKM, $P \leq 0.001$ for thymocyte or Notch-expressing cells, $P \leq 0.02$ for BCR-ABL-expressing cells) in the indicated dataset.

Supplementary Figure S9. List of genes downregulated in *Ikzf1*$^{\Delta F4/\Delta F4}$ cells compared to WT cells for thymocytes (ETP, DN2, DN3, DN4, or DP), for Notch-expressing cells (ICN-GFP$^+$ cells at day 2, 4, or 7), and for BCR-ABL-expressing cells (day 14, 21, or 28). Shown are fold changes of WT/*Ikzf1*$^{\Delta F4/\Delta F4}$ RPKM values in each dataset. Fold change values are highlighted in green if the gene is downregulated in the mutant cells by 3-fold or greater (≥4 RPKM, $P \leq 0.001$ for thymocyte or Notch-expressing cells, $P \leq 0.02$ for BCR-ABL-expressing cells) in the indicated dataset.

Supplementary Figure S10. Gene ontology analysis of genes upregulated or downregulated by 3-fold in *Ikzf1*$^{\Delta F4/\Delta F4}$ cells compared to WT cells in all datasets (thymocytes, Notch-expressing cells, and BCR-Abl cells).

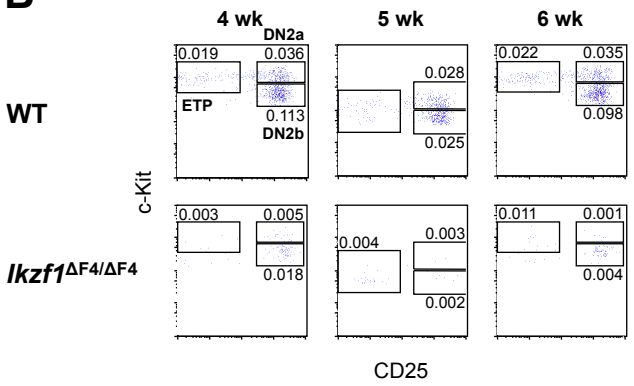
Yui MA, Feng N, Rothenberg E V. 2010. Fine-scale staging of T cell lineage commitment in adult mouse thymus. *J Immunol* **185**: 284–93.

Zhang JA, Mortazavi A, Williams BA, Wold BJ, Rothenberg E V. 2012. Dynamic transformations of genome-wide epigenetic marking and transcriptional control establish T cell identity. *Cell* **149**: 467–482.

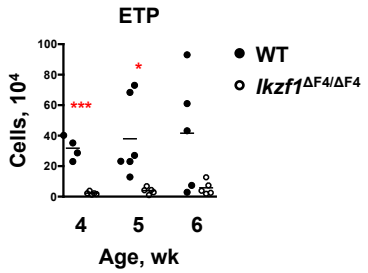
A

	4-wk-old			5-wk-old			6-wk-old		
	WT	*Ikzf1*$^{\Delta F4/\Delta F4}$	Ratio	WT	*Ikzf1*$^{\Delta F4/\Delta F4}$	Ratio	WT	*Ikzf1*$^{\Delta F4/\Delta F4}$	Ratio
ETP	31.8 x 10^3	2.3 x 10^3	**13.8**	38.0 x 10^3	3.9 x 10^3	**9.7**	41.6 x 10^3	5.7 x 10^3	**7.3**
DN2	167.0 x 10^3	14.9 x 10^3	**11.2**	131.5 x 10^3	6.4 x 10^3	**20.6**	104.6 x 10^3	2.4 x 10^3	**43.5**
DN3	216.7 x 10^4	63.5 x 10^4	**3.4**	223.4 x 10^4	27.7 x 10^4	**8.0**	199.1 x 10^4	7.4 x 10^4	**26.9**
DN4	369.3 x 10^4	247.8 x 10^4	**1.5**	343.3 x 10^4	169.6 x 10^4	**2.0**	280.9 x 10^4	99.1 x 10^4	**2.8**
CD8-ISP	11.2 x 10^5	3.0 x 10^5	**3.8**	11.7 x 10^5	5.4 x 10^5	**2.2**	5.7 x 10^5	1.4 x 10^5	**4.2**
CD4-ISP	3.6 x 10^5	9.4 x 10^5	**0.4**	5.6 x 10^5	4.5 x 10^5	**1.2**	5.4 x 10^5	4.5 x 10^5	**1.2**
DP	18.1 x 10^7	7.2 x 10^7	**2.5**	16.6 x 10^7	5.7 x 10^7	**2.9**	14.4 x 10^7	3.0 x 10^7	**4.8**
CD8 SP	2.7 x 10^6	3.3 x 10^6	**0.8**	3.0 x 10^6	3.6 x 10^6	**0.8**	2.7 x 10^6	3.1 x 10^6	**0.8**
CD4 SP	12.0 x 10^6	11.3 x 10^6	**1.1**	12.1 x 10^6	10.8 x 10^6	**1.1**	10.1 x 10^6	5.6 x 10^6	**1.8**

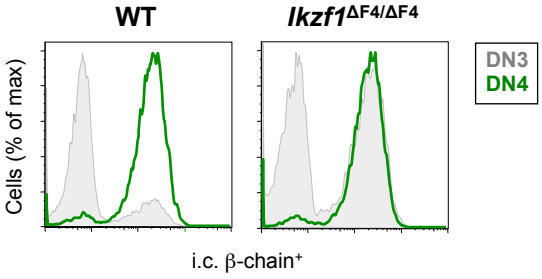
B



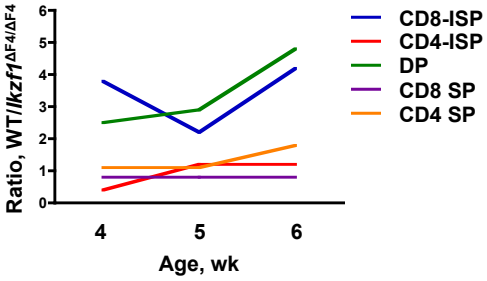
C



D



E



A

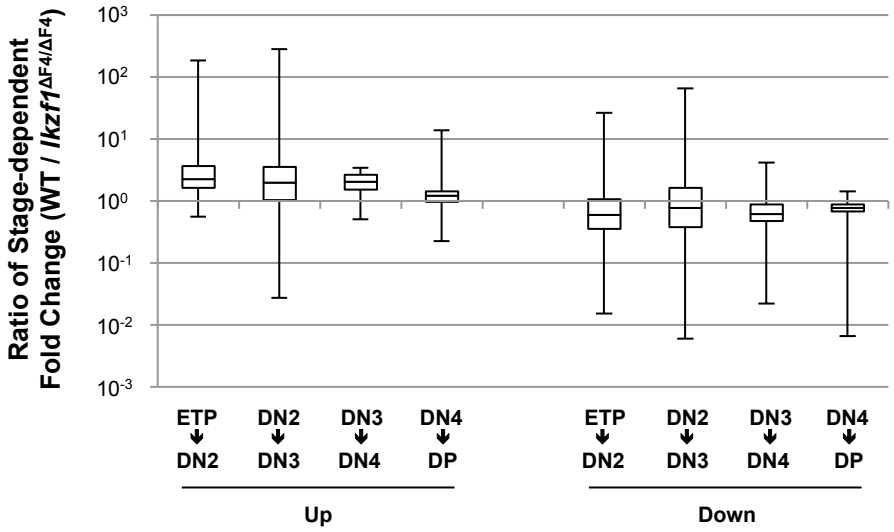
	WT ETP (1)	WT ETP (2)	WT DN2 (1)	WT DN2 (2)	WT DN3 (1)	WT DN3 (2)	WT DN4 (1)	WT DN4 (2)	WT DP (1)	WT DP (2)	ΔF4/ΔF4 ETP (1)	ΔF4/ΔF4 ETP (2)	ΔF4/ΔF4 DN2 (1)	ΔF4/ΔF4 DN2 (2)	ΔF4/ΔF4 DN3 (1)	ΔF4/ΔF4 DN3 (2)	ΔF4/ΔF4 DN4 (1)	ΔF4/ΔF4 DN4 (2)	ΔF4/ΔF4 DP (1)	ΔF4/ΔF4 DP (2)
WT ETP (1)	1.00																			
WT ETP (2)	0.99	1.00																		
WT DN2 (1)	0.86	0.90	1.00																	
WT DN2 (2)	0.87	0.91	0.99	1.00																
WT DN3 (1)	0.70	0.74	0.86	0.85	1.00															
WT DN3 (2)	0.67	0.71	0.83	0.83	0.98	1.00														
WT DN4 (1)	0.68	0.71	0.83	0.82	0.94	0.90	1.00													
WT DN4 (2)	0.69	0.72	0.84	0.82	0.93	0.91	0.98	1.00												
WT DP (1)	0.40	0.41	0.51	0.49	0.67	0.64	0.68	0.66	1.00											
WT DP (2)	0.45	0.47	0.58	0.56	0.74	0.71	0.75	0.74	0.97	1.00										
ΔF4/ΔF4 ETP (1)	0.90	0.92	0.86	0.86	0.69	0.66	0.64	0.66	0.40	0.45	1.00									
ΔF4/ΔF4 ETP (2)	0.92	0.95	0.89	0.90	0.74	0.72	0.68	0.69	0.41	0.47	0.95	1.00								
ΔF4/ΔF4 DN2 (1)	0.83	0.88	0.93	0.92	0.82	0.79	0.74	0.75	0.47	0.54	0.91	0.94	1.00							
ΔF4/ΔF4 DN2 (2)	0.80	0.86	0.91	0.91	0.83	0.81	0.73	0.74	0.48	0.54	0.88	0.94	0.97	1.00						
ΔF4/ΔF4 DN3 (1)	0.65	0.68	0.81	0.78	0.97	0.94	0.92	0.93	0.67	0.73	0.64	0.67	0.76	0.76	1.00					
ΔF4/ΔF4 DN3 (2)	0.64	0.67	0.80	0.77	0.96	0.95	0.91	0.94	0.65	0.72	0.64	0.67	0.75	0.75	0.99	1.00				
ΔF4/ΔF4 DN4 (1)	0.65	0.67	0.80	0.78	0.94	0.90	0.98	0.98	0.70	0.77	0.62	0.65	0.72	0.71	0.96	0.95	1.00			
ΔF4/ΔF4 DN4 (2)	0.65	0.67	0.80	0.78	0.93	0.91	0.96	0.99	0.67	0.74	0.63	0.65	0.72	0.71	0.96	0.96	0.99	1.00		
ΔF4/ΔF4 DP (1)	0.47	0.49	0.59	0.57	0.75	0.72	0.74	0.73	0.98	0.97	0.49	0.50	0.57	0.58	0.75	0.74	0.77	0.74	1.00	
ΔF4/ΔF4 DP (2)	0.46	0.48	0.59	0.56	0.76	0.74	0.75	0.76	0.94	0.98	0.46	0.48	0.55	0.56	0.78	0.77	0.80	0.78	0.97	1.00

B

	WT d0 (1)	WT d0 (2)	WT GFP- d2 (1)	WT GFP- d2 (2)	WT GFP- d4 (1)	WT GFP- d4 (2)	WT GFP- d7 (1)	WT GFP- d7 (2)	WT GFP+ d2 (1)	WT GFP+ d2 (2)	WT GFP+ d4 (1)	WT GFP+ d4 (2)	WT GFP+ d7 (1)	WT GFP+ d7 (2)	ΔF4/ΔF4 d0 (1)	ΔF4/ΔF4 d0 (2)	ΔF4/ΔF4 GFP- d2 (1)	ΔF4/ΔF4 GFP- d2 (2)	ΔF4/ΔF4 GFP- d4 (1)	ΔF4/ΔF4 GFP- d4 (2)	ΔF4/ΔF4 GFP- d7 (1)	ΔF4/ΔF4 GFP- d7 (2)	ΔF4/ΔF4 GFP+ d2 (1)	ΔF4/ΔF4 GFP+ d2 (2)	ΔF4/ΔF4 GFP+ d4 (1)	ΔF4/ΔF4 GFP+ d4 (2)	ΔF4/ΔF4 GFP+ d7 (1)	ΔF4/ΔF4 GFP+ d7 (2)
WT d0 (1)	1.00																											
WT d0 (2)	0.93	1.00																										
WT GFP- d2 (1)	0.97	0.86	1.00																									
WT GFP- d2 (2)	0.94	0.97	0.93	1.00																								
WT GFP- d4 (1)	0.95	0.87	0.97	0.92	1.00																							
WT GFP- d4 (2)	0.93	0.93	0.92	0.97	0.95	1.00																						
WT GFP- d7 (1)	0.95	0.85	0.96	0.90	0.98	0.93	1.00																					
WT GFP- d7 (2)	0.87	0.91	0.83	0.91	0.88	0.94	0.89	1.00																				
WT GFP+ d2 (1)	0.96	0.90	0.97	0.94	0.93	0.91	0.91	0.83	1.00																			
WT GFP+ d2 (2)	0.93	0.96	0.91	0.98	0.89	0.94	0.87	0.87	0.97	1.00																		
WT GFP+ d4 (1)	0.92	0.82	0.95	0.88	0.94	0.90	0.92	0.81	0.96	0.90	1.00																	
WT GFP+ d4 (2)	0.91	0.92	0.90	0.95	0.91	0.95	0.88	0.88	0.95	0.97	0.95	1.00																
WT GFP+ d7 (1)	0.94	0.85	0.96	0.90	0.96	0.91	0.95	0.85	0.95	0.91	0.98	0.93	1.00															
WT GFP+ d7 (2)	0.88	0.92	0.84	0.92	0.87	0.92	0.87	0.96	0.89	0.92	0.86	0.93	0.90	1.00														
ΔF4/ΔF4 d0 (1)	0.97	0.86	0.96	0.89	0.93	0.89	0.91	0.79	0.95	0.89	0.93	0.89	0.93	0.82	1.00													
ΔF4/ΔF4 d0 (2)	0.93	0.99	0.87	0.97	0.88	0.94	0.85	0.90	0.91	0.96	0.84	0.93	0.86	0.91	0.89	1.00												
ΔF4/ΔF4 GFP- d2 (1)	0.96	0.84	0.98	0.90	0.95	0.90	0.93	0.80	0.96	0.90	0.95	0.90	0.95	0.82	0.98	0.88	1.00											
ΔF4/ΔF4 GFP- d2 (2)	0.93	0.97	0.90	0.99	0.90	0.96	0.88	0.89	0.93	0.98	0.87	0.95	0.89	0.91	0.90	0.99	0.91	1.00										
ΔF4/ΔF4 GFP- d4 (1)	0.91	0.80	0.93	0.86	0.96	0.91	0.95	0.83	0.88	0.84	0.92	0.87	0.94	0.83	0.93	0.84	0.95	0.87	1.00									
ΔF4/ΔF4 GFP- d4 (2)	0.93	0.94	0.91	0.97	0.93	0.98	0.91	0.93	0.92	0.95	0.89	0.96	0.90	0.93	0.90	0.97	0.91	0.98	0.91	1.00								
ΔF4/ΔF4 GFP- d7 (1)	0.94	0.86	0.94	0.90	0.97	0.93	0.96	0.88	0.90	0.87	0.92	0.89	0.95	0.87	0.94	0.89	0.95	0.91	0.99	0.94	1.00							
ΔF4/ΔF4 GFP- d7 (2)	0.92	0.95	0.89	0.96	0.92	0.98	0.91	0.95	0.90	0.94	0.87	0.94	0.89	0.94	0.88	0.97	0.89	0.97	0.91	0.99	0.94	1.00						
ΔF4/ΔF4 GFP+ d2 (1)	0.93	0.82	0.95	0.87	0.89	0.85	0.87	0.75	0.96	0.90	0.95	0.89	0.94	0.81	0.96	0.85	0.97	0.88	0.90	0.87	0.90	0.85	1.00					
ΔF4/ΔF4 GFP+ d2 (2)	0.92	0.95	0.90	0.97	0.88	0.92	0.85	0.86	0.95	0.98	0.89	0.96	0.90	0.91	0.90	0.96	0.91	0.98	0.85	0.95	0.88	0.95	0.92	1.00				
ΔF4/ΔF4 GFP+ d4 (1)	0.89	0.77	0.92	0.83	0.88	0.83	0.87	0.74	0.92	0.86	0.94	0.87	0.94	0.81	0.92	0.80	0.94	0.83	0.90	0.84	0.89	0.82	0.97	0.88	1.00			
ΔF4/ΔF4 GFP+ d4 (2)	0.92	0.93	0.90	0.96	0.89	0.93	0.86	0.87	0.95	0.97	0.91	0.96	0.91	0.93	0.89	0.94	0.90	0.96	0.86	0.95	0.88	0.94	0.92	0.99	0.91	1.00		
ΔF4/ΔF4 GFP+ d7 (1)	0.89	0.76	0.92	0.82	0.88	0.81	0.88	0.73	0.92	0.84	0.94	0.86	0.94	0.80	0.93	0.78	0.94	0.81	0.89	0.83	0.89	0.81	0.97	0.86	0.99	0.89	1.00	
ΔF4/ΔF4 GFP+ d7 (2)	0.91	0.94	0.89	0.95	0.88	0.93	0.87	0.90	0.94	0.97	0.89	0.96	0.91	0.95	0.88	0.95	0.88	0.96	0.85	0.96	0.89	0.96	0.90	0.98	0.88	0.99	0.87	1.00

Arenzana_FigS2

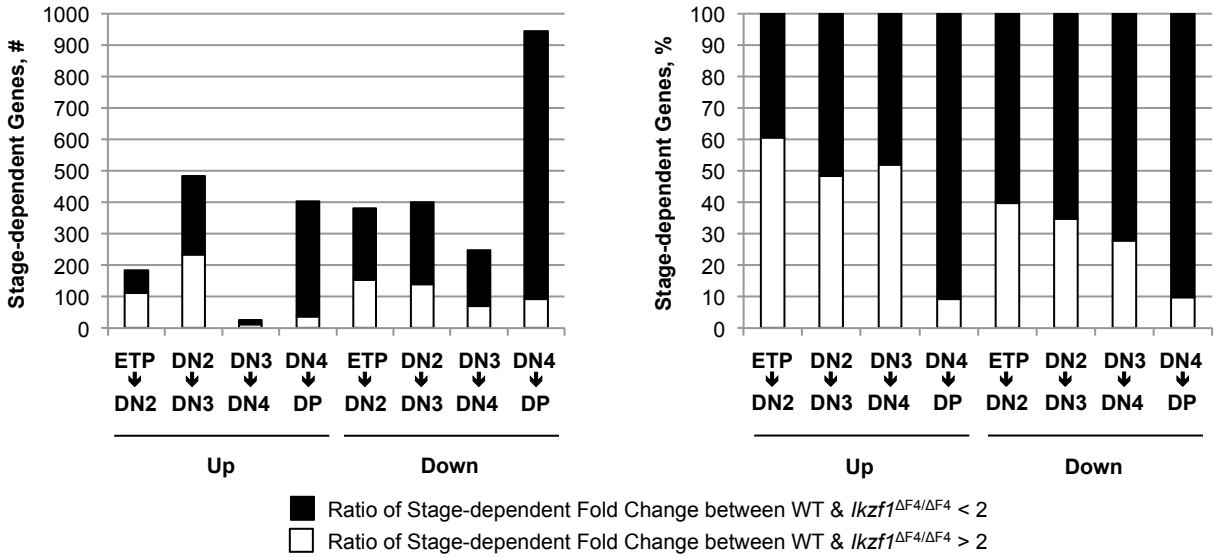
A



B

	Up				Down			
	ETP → DN2	DN2 → DN3	DN3 → DN4	DN4 → DP	ETP → DN2	DN2 → DN3	DN3 → DN4	DN4 → DP
Minimum	0.6	0.0	0.5	0.2	0.0	0.0	0.0	0.0
25% Quartile	1.6	1.0	1.5	1.0	0.4	0.4	0.5	0.7
Median	**2.3**	**1.9**	**2.0**	**1.2**	**0.6**	**0.8**	**0.6**	**0.8**
75% Quartile	3.6	3.5	2.7	1.4	1.1	1.6	0.9	0.9
Maximum	184.8	284.5	3.5	13.6	26.7	65.0	4.2	1.4

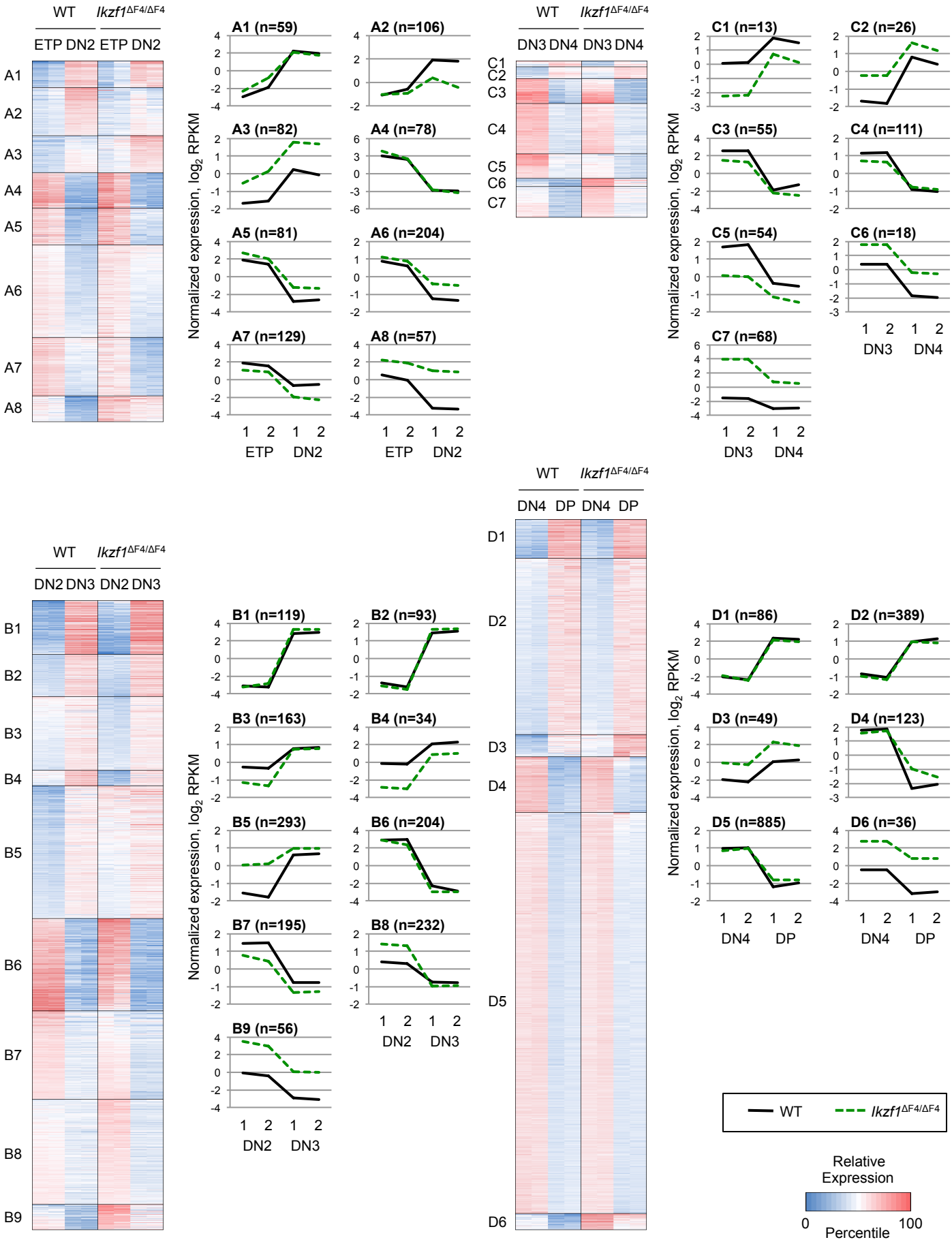
C



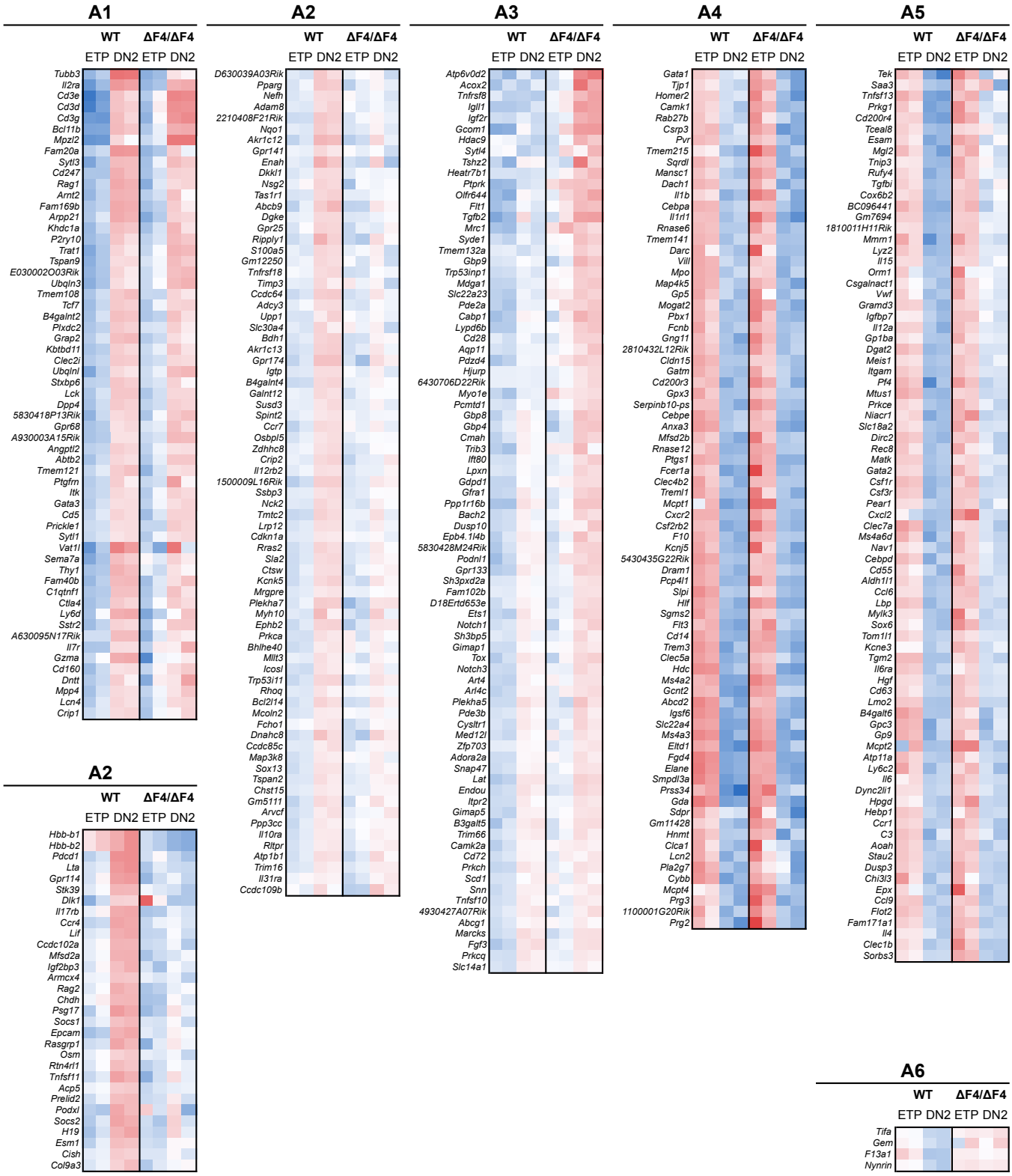
D

		FC ratio >2		FC ratio <2	
		#	%	#	%
UP	**ETP → DN2**	112	**61**	73	**39**
	DN2 → DN3	233	**48**	250	**52**
	DN3 → DN4	13	**52**	12	**48**
	DN4 → DP	37	**9**	366	**91**
DOWN	**ETP → DN2**	152	**40**	230	**60**
	DN2 → DN3	139	**35**	260	**65**
	DN3 → DN4	69	**28**	178	**72**
	DN4 → DP	93	**10**	851	**90**

Arenzana_FigS4



B


A1
WT
ΔF4/ΔF4
ETP DN2 ETP DN2
Tubb3
Il2ra
Cd3e
Cd3d
Cd3g
Bcl11b
Mpzl2
Fam20a
Sytl3
Cd247
Rag1
Arnt2
Fam169b
Arpp21
Khdc1a
P2ry10
Trat1
Tspan9
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Ubqln3
Tmem108
Tcf7
B4galnt2
Plxdc2
Grap2
Kbtbd11
Clec2i
Ubqlnl
Stxbp6
Lck
Dpp4
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Gpr68
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Angptl2
Abtb2
Tmem121
Ptgfrn
Itk
Gata3
Cd5
Prickle1
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Vat1l
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Thy1
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C1qtnf1
Ctla4
Ly6d
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Il7r
Gzma
Cd160
Dntt
Mpp4
Lcn4
Crip1
A2
WT
ΔF4/ΔF4
ETP DN2 ETP DN2
D630039A03Rik
Pparg
Nefh
Adam8
2210408F21Rik
Nqo1
Akr1c12
Gpr141
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Dkkl1
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Dgke
Gpr25
Ripply1
S100a5
Gm12250
Tnfrsf18
Timp3
Ccdc64
Adcy3
Upp1
Slc30a4
Bdh1
Akr1c13
Gpr174
Igtp
B4galnt4
Galnt12
Susd3
Spint2
Ccr7
Osbpl5
Zdhhc8
Crip2
Il12rb2
1500009L16Rik
Ssbp3
Nck2
Tmtc2
Lrp12
Cdkn1a
Rras2
Sla2
Ctsw
Kcnk5
Mrgpre
Plekha7
Myh10
Ephb2
Prkca
Bhlhe40
Mllt3
Icosl
Trp53i11
Rhoq
Bcl2l14
Mcoln2
Fcho1
Dnahc8
Ccdc85c
Map3k8
Sox13
Tspan2
Chst15
Gm5111
Arvcf
Ppp3cc
Il10ra
Rltpr
Atp1b1
Trim16
Il31ra
Ccdc109b
A3
WT
ΔF4/ΔF4
ETP DN2 ETP DN2
Atp6v0d2
Acox2
Tnfrsf8
Igll1
Igf2r
Gcom1
Hdac9
Sytl4
Tshz2
Heatr7b1
Ptprk
Olfr644
Flt1
Tgfb2
Mrc1
Syde1
Tmem132a
Gbp9
Trp53inp1
Mdga1
Slc22a23
Pde2a
Cabp1
Lypd6b
Cd28
Aqp11
Pdzd4
Hjurp
6430706D22Rik
Myo1e
Pcmtd1
Gbp8
Gbp4
Cmah
Trib3
Ift80
Lpxn
Gdpd1
Gfra1
Ppp1r16b
Bach2
Dusp10
Epb4.1l4b
5830428M24Rik
Podnl1
Gpr133
Sh3pxd2a
Fam102b
D18Ertd653e
Ets1
Notch1
Sh3bp5
Gimap1
Tox
Notch3
Art4
Arl4c
Plekha5
Pde3b
Cysltr1
Med12l
Zfp703
Adora2a
Snap47
Lat
Endou
Itpr2
Gimap5
B3galt5
Trim66
Camk2a
Cd72
Prkch
Scd1
Snn
Tnfsf10
4930427A07Rik
Abcg1
Marcks
Fgf3
Prkcq
Slc14a1
A4
WT
ΔF4/ΔF4
ETP DN2 ETP DN2
Gata1
Tjp1
Homer2
Camk1
Rab27b
Csrp3
Pvr
Tmem215
Sqrdl
Mansc1
Dach1
Il1b
Cebpa
Il1f1
Rnase6
Tmem141
Darc
Vill
Mpo
Map4k5
Gp5
Mogat2
Pbx1
Fcnb
Gng11
2810432L12Rik
Cldn15
Gatm
Cd200r3
Gpx3
Serpinb10-ps
Cebpe
Anxa3
Mfsd2b
Rnase12
Ptgs1
Fcer1a
Clec4b2
Treml1
Mcpt1
Cxcr2
Csf2rb2
F10
Kcnj5
5430435G22Rik
Dram1
Pcp4l1
Slpi
Hlf
Sgms2
Flt3
Cd14
Trem3
Clec5a
Hdc
Ms4a2
Gcnt2
Abcd2
Igsf6
Slc22a4
Ms4a3
Eltd1
Fgd4
Elane
Smpdl3a
Prss34
Gda
Sdpr
Gm11428
Hnmt
Clca1
Lcn2
Pla2g7
Cybb
Mcpt4
Prg3
1100001G20Rik
Prg2
A5
WT
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ETP DN2 ETP DN2
Tek
Saa3
Tnfsf13
Prkg1
Cd200r4
Tceal8
Esam
Mgl2
Tnip3
Rufy4
Tgfbi
Cox6b2
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Mmrn1
Lyz2
Il15
Orm1
Csgalnact1
Vwf
Gramd3
Igfbp7
Il12a
Gp1ba
Dgat2
Meis1
Itgam
Pf4
Mtus1
Prkce
Niacr1
Slc18a2
Dirc2
Rec8
Matk
Gata2
Csf1r
Csf3r
Pear1
Cxcl2
Clec7a
Ms4a6d
Nav1
Cebpd
Cd55
Aldh1l1
Ccl6
Lbp
Mylk3
Sox6
Tom1l1
Kcne3
Tgm2
Il6ra
Hgf
Cd63
Lmo2
B4galt6
Gpc3
Gp9
Mcpt2
Atp11a
Ly6c2
Il6
Dync2li1
Hpgd
Hebp1
Ccr1
C3
Aoah
Stau2
Dusp3
Chi3l3
Epx
Ccl9
Flot2
Fam171a1
Il4
Clec1b
Sorbs3
A2
WT
ΔF4/ΔF4
ETP DN2 ETP DN2
Hbb-b1
Hbb-b2
Pdcd1
Lta
Gpr114
Stk39
Dlk1
Il17rb
Ccr4
Lif
Ccdc102a
Mfsd2a
Igf2bp3
Armcx4
Rag2
Chdh
Psg17
Socs1
Epcam
Rasgrp1
Osm
Rtn4rl1
Tnfsf11
Acp5
Prelid2
Podxl
Socs2
H19
Esm1
Cish
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A6
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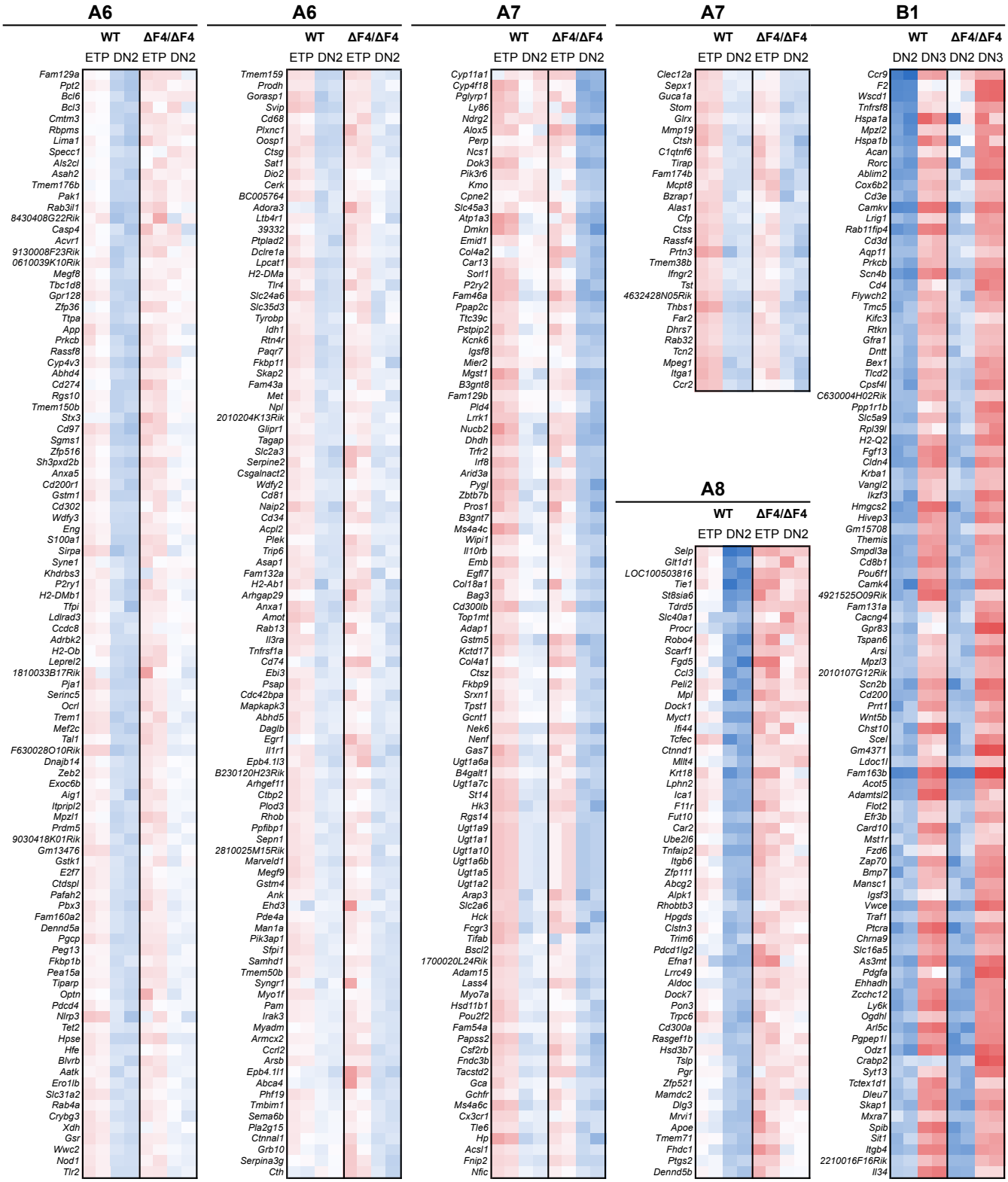
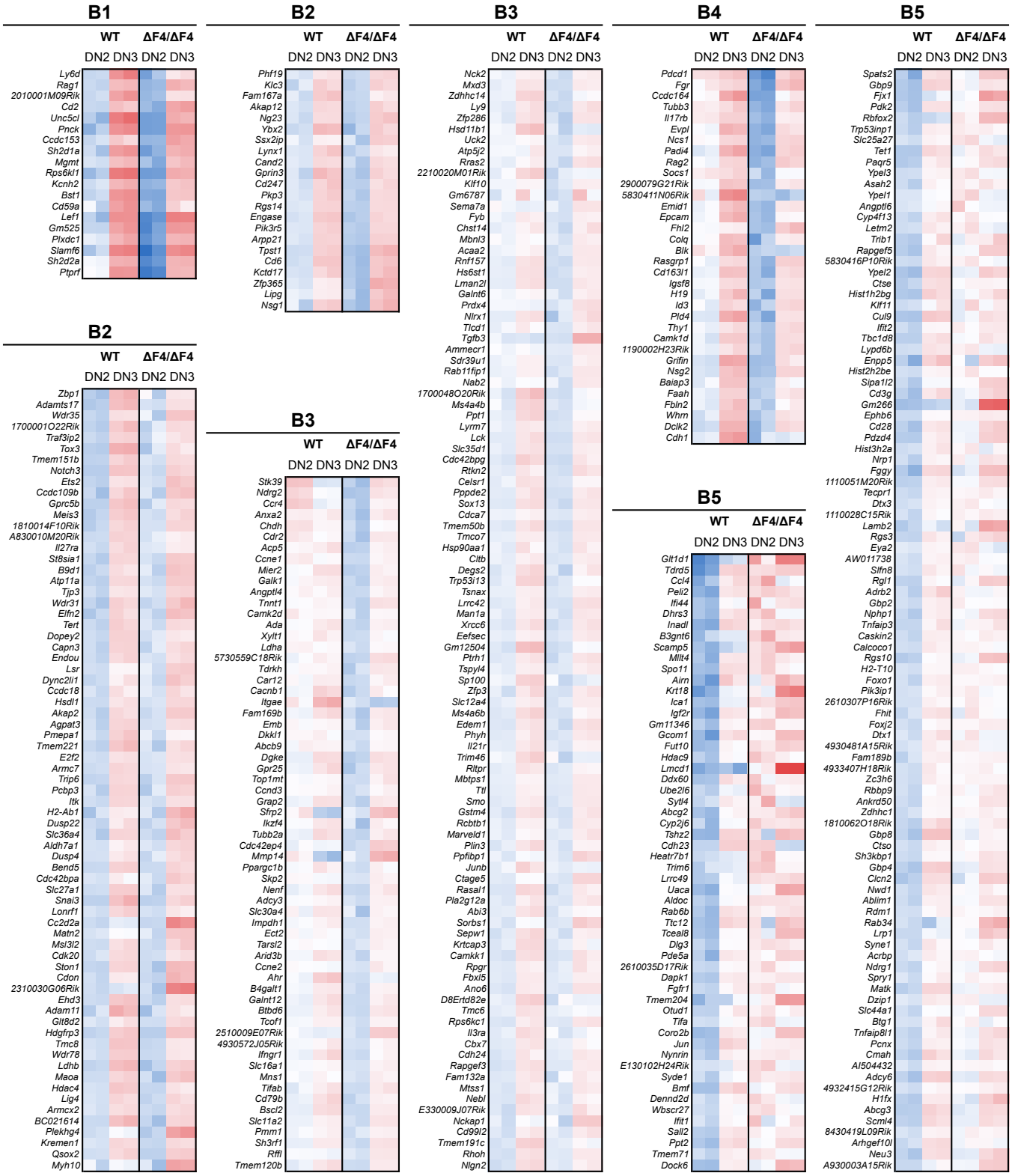
Tifa
Gem
F13a1
Nynrin

Arenzana_FigS4



Arenzana_FigS4



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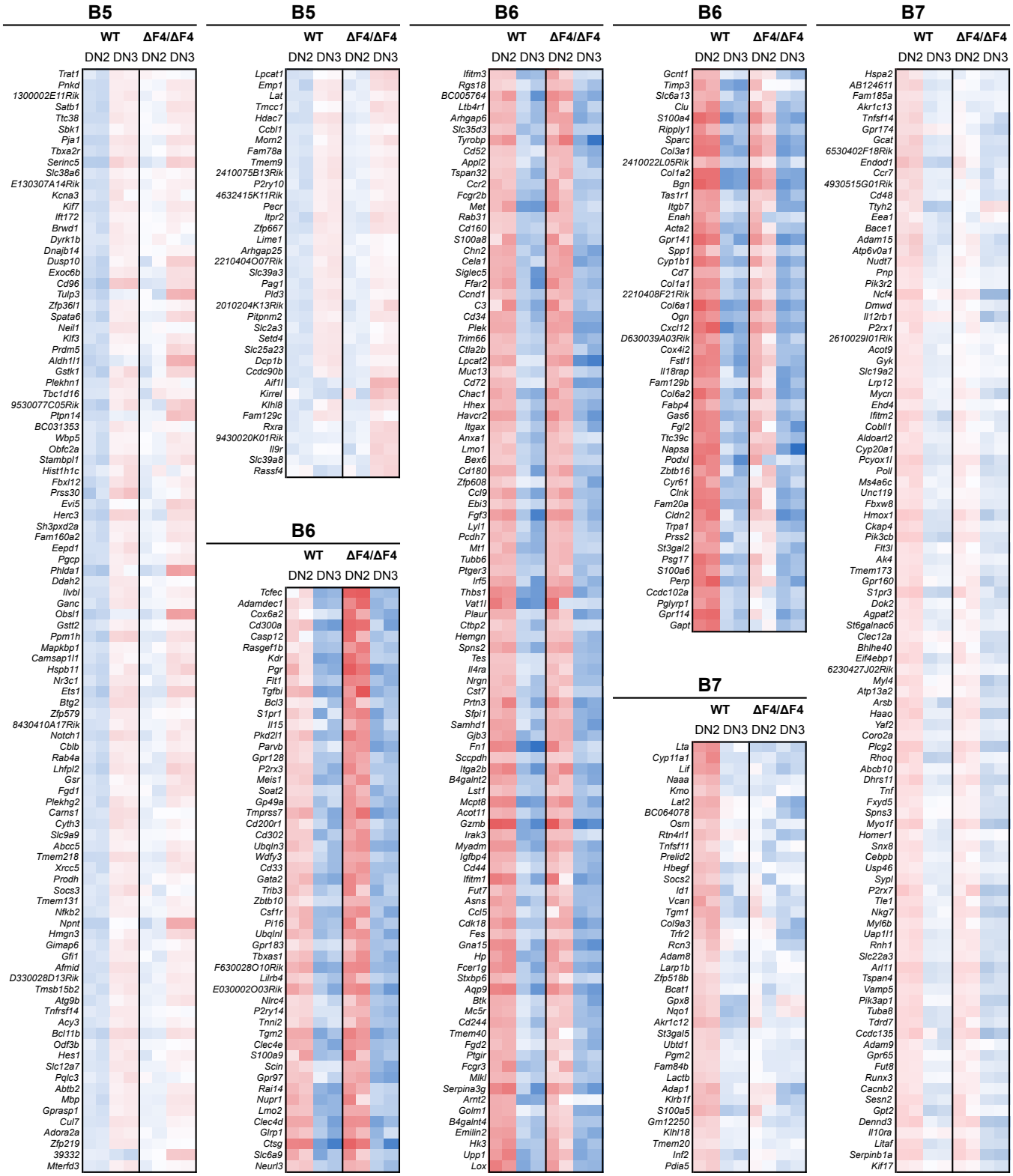

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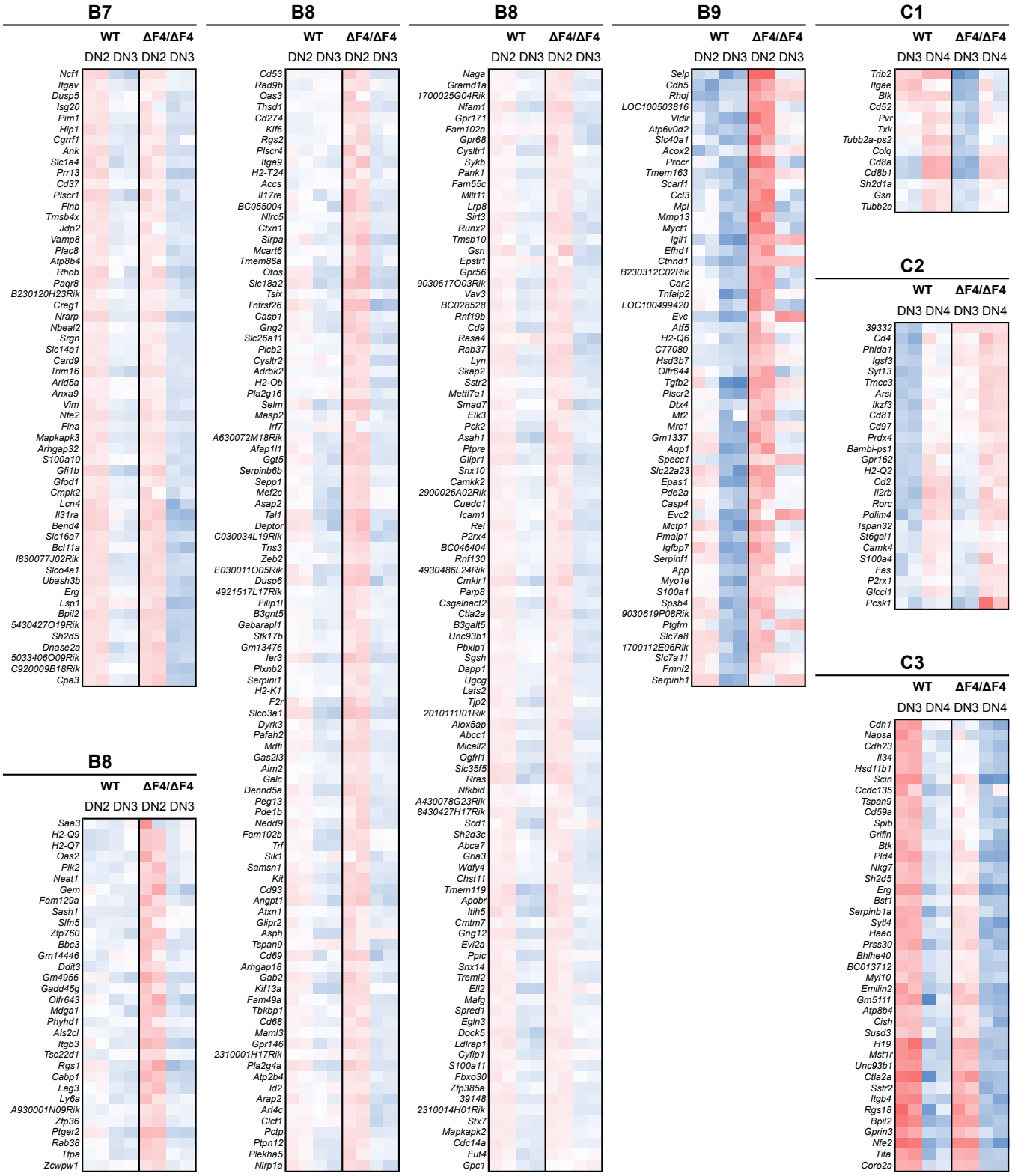

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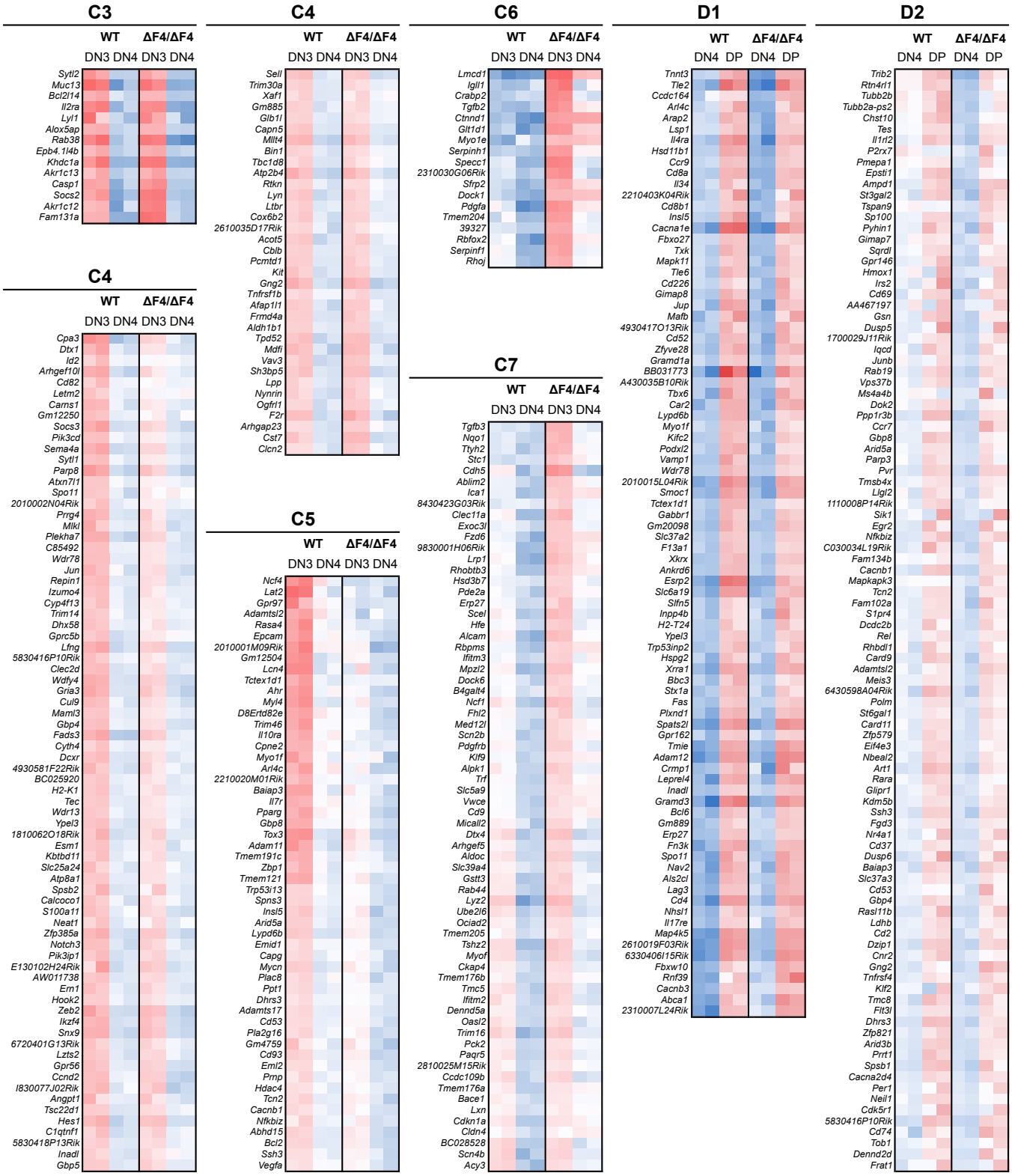

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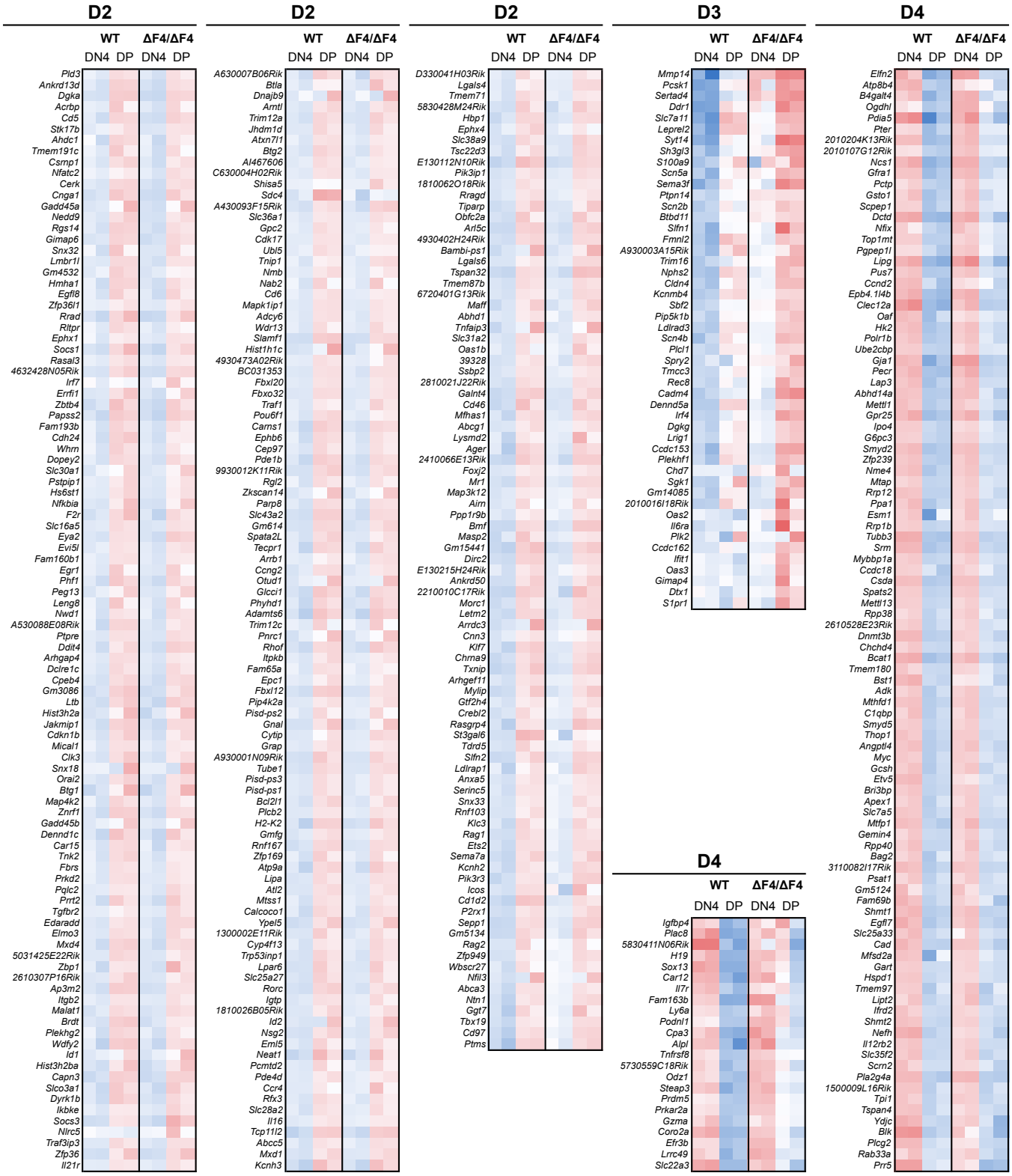

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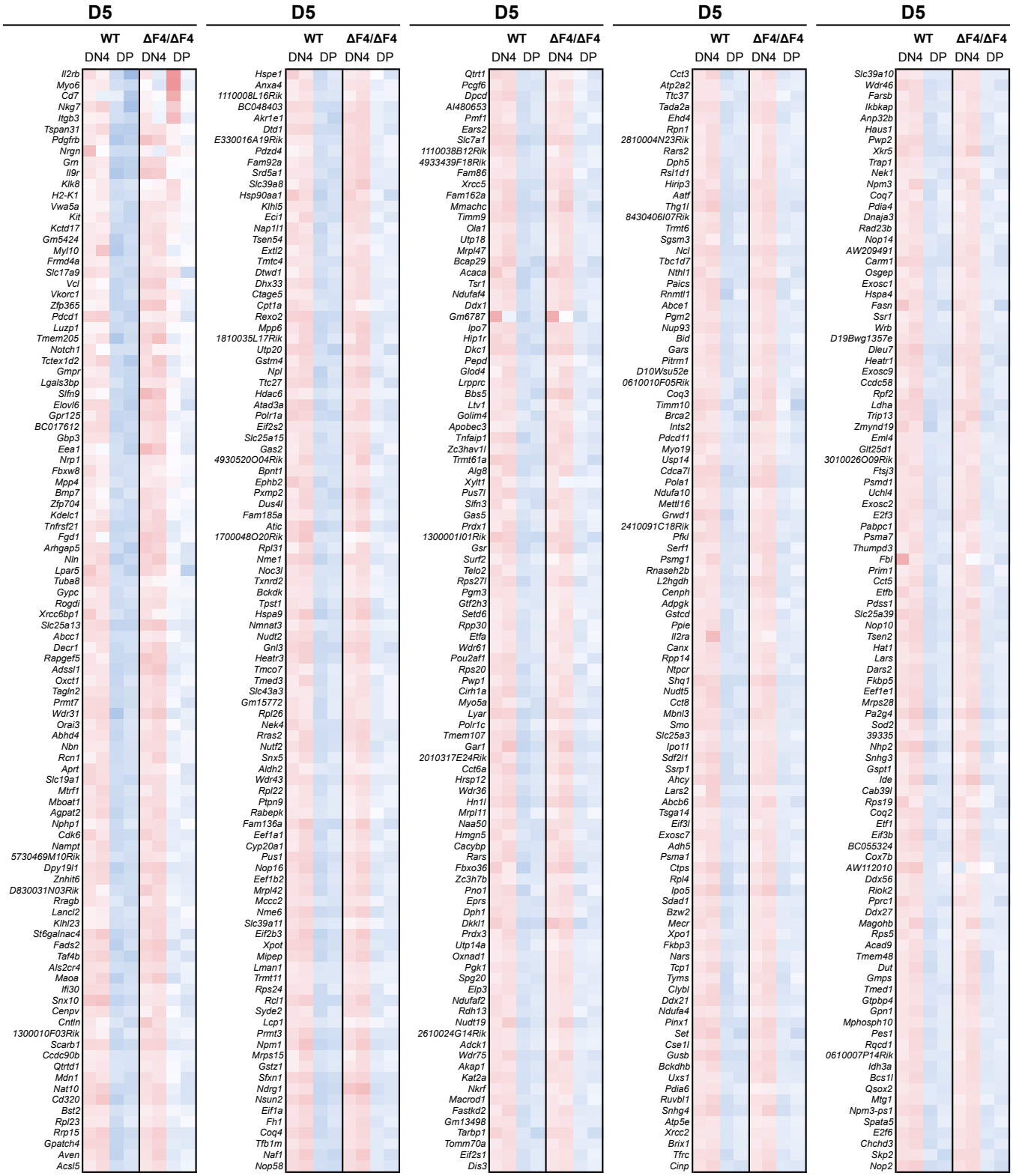

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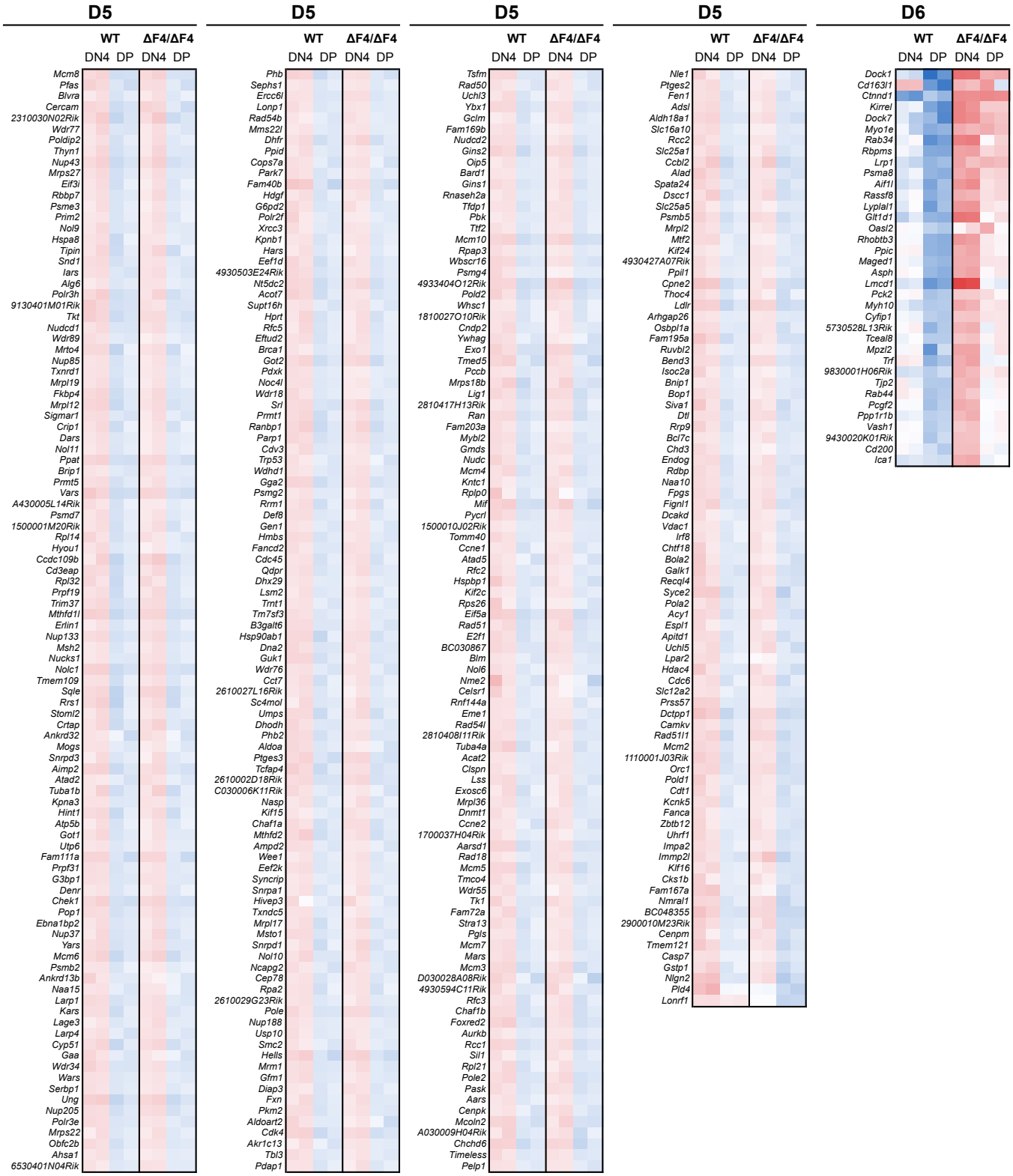

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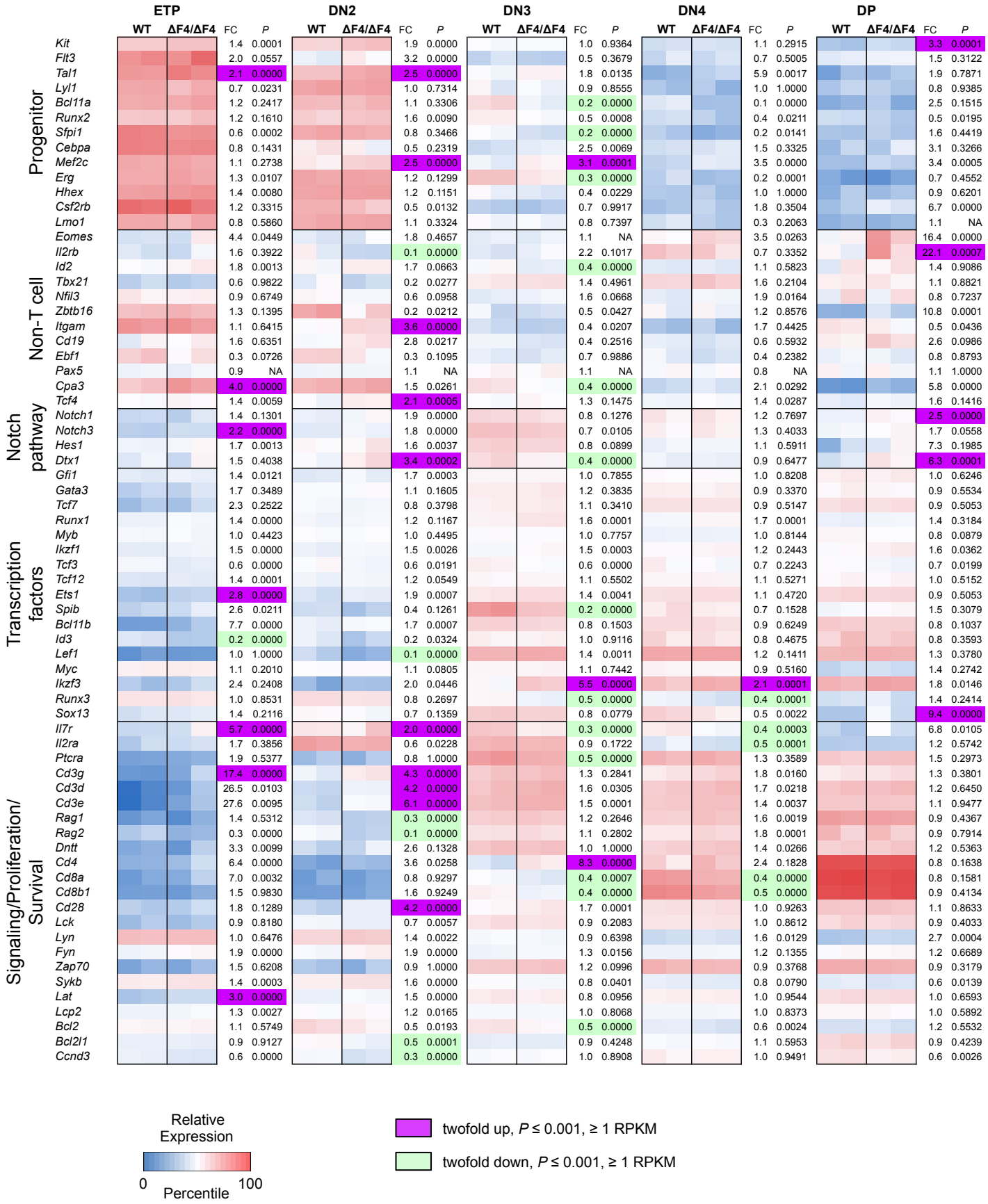

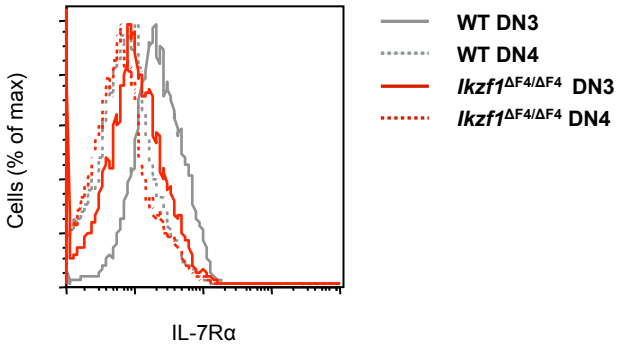
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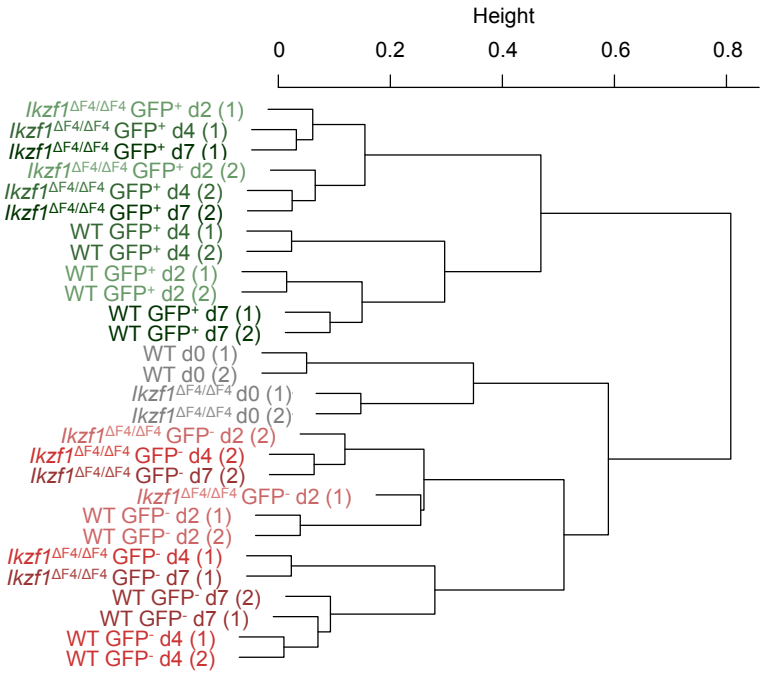
WT DN4
Ikzf1ΔF4/ΔF4 DN3
Ikzf1ΔF4/ΔF4 DN4

A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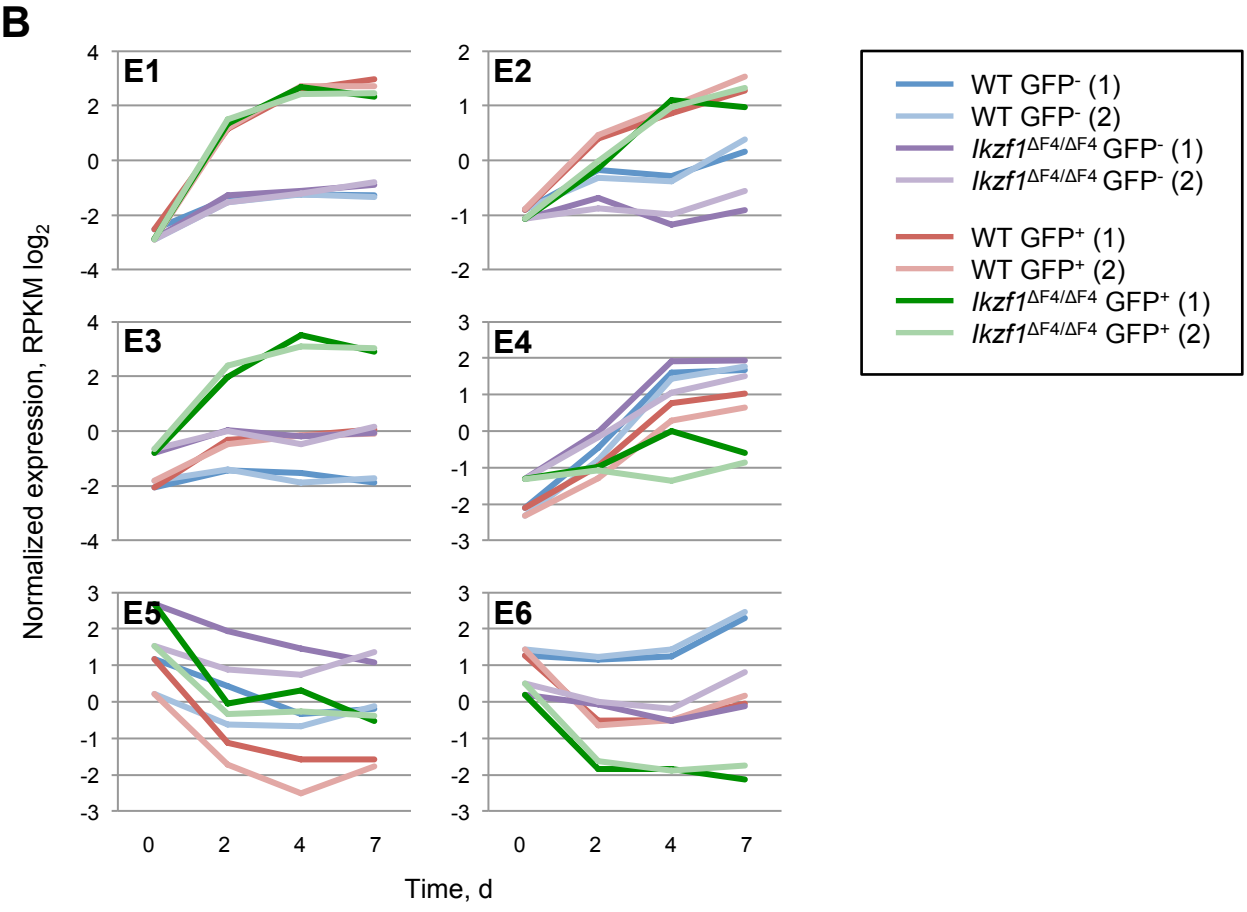
Ikzf1ΔF4/ΔF4 GFP+ d4 (1)
Ikzf1ΔF4/ΔF4 GFP+ d7 (1)
Ikzf1ΔF4/ΔF4 GFP+ d2 (2)
Ikzf1ΔF4/ΔF4 GFP+ d4 (2)
Ikzf1ΔF4/ΔF4 GFP+ d7 (2)
WT GFP+ d4 (1)
WT GFP+ d4 (2)
WT GFP+ d2 (1)
WT GFP+ d2 (2)
WT GFP+ d7 (1)
WT GFP+ d7 (2)
WT d0 (1)
WT d0 (2)
Ikzf1ΔF4/ΔF4 d0 (1)
Ikzf1ΔF4/ΔF4 d0 (2)
Ikzf1ΔF4/ΔF4 GFP- d2 (2)
Ikzf1ΔF4/ΔF4 GFP- d4 (2)
Ikzf1ΔF4/ΔF4 GFP- d7 (2)
Ikzf1ΔF4/ΔF4 GFP- d2 (1)
WT GFP- d2 (1)
WT GFP- d2 (2)
Ikzf1ΔF4/ΔF4 GFP- d4 (1)
Ikzf1ΔF4/ΔF4 GFP- d7 (1)
WT GFP- d7 (2)
WT GFP- d7 (1)
WT GFP- d4 (1)
WT GFP- d4 (2)

B


E1
E2
E3
E4
E5
E6
Normalized expression, RPKM log2
Time, d
WT GFP- (1)
WT GFP- (2)
Ikzf1ΔF4/ΔF4 GFP- (1)
Ikzf1ΔF4/ΔF4 GFP- (2)
WT GFP+ (1)
WT GFP+ (2)
Ikzf1ΔF4/ΔF4 GFP+ (1)
Ikzf1ΔF4/ΔF4 GFP+ (2)

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy, Notch, and BCR-ABL

Gene Name	Thy	Notch	BCR-ABL
Lyplal1	16.6	48.3	15.4
Dock1	245.5	45.9	35.3
Ctnnd1	260.8	43.4	3.8
Uaca	11.0	38.3	4.3
Lamb2	21.9	32.0	10.2
Rbpms	38.9	26.7	6.6
Dock7	59.6	25.3	11.7
Tmem132a	9.0	22.7	34.1
Gria2	35.2	18.6	5.5
Tmem176b	10.5	15.9	7.2
S1pr1	6.0	14.8	4.1
Tmem176a	10.5	13.3	4.9
Rxra	3.8	6.6	3.8
Sbf2	5.2	5.7	4.9
Sh3gl3	16.2	5.3	56.3
Ppic	15.7	5.0	12.6
9830001H06Rik	12.2	4.3	6.4
Myh10	12.1	3.7	3.5
Tfpi	4.1	3.6	38.0

> 10-fold up

3- to 10-fold up

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy and BCR-ABL

Gene Name	Thy	Notch	BCR-ABL
H19	10.9	1.0	1529.4
Gzmb	28.8	0.4	193.9
Aqp1	11.6	3.7	61.5
Spats2	6.8	1.0	36.5
Serpinh1	70.3	1.4	29.1
Smpdl3b	17.9	2.5	24.1
Rhoj	129.2	5.0	21.3
Stk39	6.2	2.0	19.7
Ccl2	4.0	1.4	16.8
Gem	6.9	1.1	12.2
Fam129a	6.7	0.9	11.9
Exoc3l	7.8	4.0	11.0
Kctd17	3.2	2.6	9.7
Hdac9	16.8	2.1	8.8
Ptms	3.9	1.5	8.8
Slc6a9	3.3	1.0	8.0
H2-Aa	9.2	2.5	7.7
Ifitm3	7.5	3.5	7.4
Pdzd4	8.1	2.1	7.1
Pak1	5.0	2.0	6.8
Cth	6.1	0.1	6.6
Mt2	8.5	2.0	6.6
Igfbp4	31.6	1.2	6.3
Khk	4.9	2.9	6.2
Aldoc	10.6	2.4	5.9
Dtx4	7.4	2.5	5.7
Maged1	14.7	2.1	5.3
App	9.6	2.4	5.1
Lrrc49	11.1	2.8	4.8
Wdfy3	3.3	1.4	4.6
Trib3	9.3	0.9	4.5
Ptpn14	6.7	2.8	4.2
Bhlhe40	3.2	0.8	3.7
Mt1	4.7	4.3	3.7
Dst	4.3	2.6	3.7

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy and Notch

Gene Name	Thy	Notch	BCR-ABL
Lmcd1	933.0	186.0	1.4
Gm266	172.6	107.7	1.0
2310030G06Rik	40.0	76.1	43.9
Pdgfa	47.8	74.1	0.8
Ttyh2	11.9	54.5	2.2
Fzd6	41.3	53.6	0.0
5730528L13Rik	8.0	46.1	40.2
Krt18	27.6	43.0	3.7
Ica1	19.2	38.5	2.3
Clec11a	9.3	38.1	1.4
Gm4371	41.5	36.7	1.1
Stc1	25.3	35.2	81.6
Trf	5.7	32.1	2.1
Fam163b	6.7	31.2	4.3
Psma8	26.6	29.9	92.2
Wscd1	37.8	27.7	47.9
Aif1l	23.6	25.0	0.8
Kctd12	3.7	24.7	2.3
Rhobtb3	15.8	24.2	11.8
B3gnt6	26.8	22.8	2.1
Tgfb2	116.3	20.2	15.7
Rbfox2	44.6	19.1	3.3
Dcbld1	69.7	18.8	2.8
Obsl1	60.3	18.1	1.4
Scn4b	3.7	17.8	0.1
Tceal8	9.2	17.4	3.1
Acvr1	5.6	16.6	1.1
Lima1	37.3	16.2	2.1
Npnt	23.9	16.0	0.9
Podnl1	6.2	15.8	0.8
Fam110b	15.3	15.2	1.1
Gpr83	40.3	14.7	1.1
Syt14	14.8	14.1	2.4
Alcam	8.3	13.3	1.6
Hfe	4.0	12.2	2.6
Pdgfrb	4.5	12.0	2.3
Laptm4b	6.0	11.8	9.8
Scamp5	27.3	11.3	1.0
F2	141.7	10.8	1.1
Rab34	46.1	10.6	1.2
Cyfip1	8.0	10.4	1.2
Kif13a	4.8	10.4	1.5
Jub	18.9	10.0	21.4
Abcg2	13.4	9.9	1.3
Lrp1	38.8	9.9	0.9
Cyp4f16	5.1	9.8	2.3
Eng	3.3	9.8	0.9
Rassf8	19.8	9.8	2.4
Car2	16.6	9.7	1.7
Pcgf2	6.0	9.6	2.3
Asph	14.2	9.5	3.1
Gja1	3.1	9.2	0.3
Pon3	10.1	9.1	1.4
Igll1	206.6	8.9	1.5
Ppfibp1	3.1	8.9	3.1
Adam19	77.6	8.8	5.0
Spry2	6.2	8.8	0.9
Rgl1	4.8	8.8	2.2
Scn2b	5.4	8.7	0.5
Aldh1l1	19.2	8.7	14.5
Arhgef5	5.1	8.7	2.5
Fjx1	28.8	8.7	47.2
Ablim2	6.7	8.6	0.7
Lphn2	19.9	8.4	1.7
Mrc1	36.8	8.3	2.4
Tgfb3	16.0	8.3	0.7
Vwce	5.8	7.9	1.8
Dock5	3.4	7.8	2.5
Bex1	6.0	7.5	4.9
Rasgef1b	9.7	7.4	0.8

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy and Notch (cont.)

Gene Name	Thy	Notch	BCR-ABL
Tbc1d4	5.0	7.1	2.0
Matn2	4.7	7.1	5.7
Cd200	4.2	6.9	1.3
Myo1e	64.2	6.7	1.4
Epas1	21.0	6.6	3.5
Eya2	3.7	6.6	1.0
Tifa	7.0	6.5	0.3
Pkn3	8.4	6.4	3.8
Mmp14	66.7	6.4	2.1
Cyp2j6	13.3	6.2	2.2
H1f0	4.5	6.1	3.3
Ptgfrn	43.1	6.0	3.5
Pmaip1	9.1	5.9	1.1
Cd9	8.0	5.8	1.8
Tns3	5.4	5.8	1.0
Ell2	6.5	5.6	2.0
Wls	3.1	5.6	1.4
Ppp1r1b	10.3	5.6	0.9
Cpsf4l	20.1	5.6	2.1
Ptprk	32.1	5.4	0.6
Ccdc88a	6.2	5.4	2.1
Scd1	11.0	5.4	1.4
Jun	7.0	5.3	1.8
Sertad4	39.4	5.3	0.4
Als2cl	5.3	5.2	0.5
Scamp1	3.0	5.1	1.9
Slc39a8	3.5	5.0	2.5
Sfrp2	24.8	5.0	6.6
2510009E07Rik	5.3	4.6	1.6
Mpzl2	17.5	4.3	0.1
Dock6	6.2	4.3	4.1
Vash1	4.4	4.2	0.7
Myo10	3.6	4.2	1.9
Tjp2	5.5	4.1	1.6
Oas3	6.9	4.0	1.6
Cadm4	15.6	3.9	1.2
Cdc42ep4	3.9	3.9	2.4
Spsb4	9.3	3.8	3.2
B4galt4	3.4	3.8	1.3
Cdon	3.2	3.8	1.1
Efr3b	4.0	3.7	0.7
Sorbs1	3.3	3.6	1.2
Slfn9	5.4	3.5	2.5
Cdr2l	6.8	3.5	6.2
Pcdhgc3	5.9	3.3	2.7
Cacng4	16.0	3.2	1.1
Capn5	3.6	3.2	0.8
Igf2r	18.4	3.2	0.5
Ctnna1	3.0	3.2	2.4
Kbtbd11	3.5	3.2	0.5
Apoe	13.2	3.2	0.6
Slc5a9	10.7	3.1	4.1
Pcdhgb6	5.1	3.0	2.5
Pcdhgb2	5.3	3.0	2.6
Pcdhgb7	5.1	3.0	2.6
Pcdhga10	5.1	3.0	2.6

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ Notch and BCR-ABL

Gene Name	Thy	Notch	BCR-ABL
2810025M15Rik	11.0	9.0	7.6
Kit	3.3	6.9	534.8
Igf1r	2.9	5.4	18.6
Apbb2	3.9	4.2	4.9
Gpr125	2.4	4.2	34.0
Fzd7	3.2	4.1	5.1
Emp1	3.0	3.9	9.4
Bmpr2	2.6	3.4	4.3
Coro2b	7.0	3.1	12.9

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy only

Gene Name	Thy	Notch	BCR-ABL
Evc	442.9	47.7	47.5
Cdh5	407.0	3.2	37.3
Evc2	282.9	24.9	17.2
Selp	274.6	1.8	20.2
Ccr9	222.3	0.4	3.1
Glt1d1	210.8	37.1	290.9
Tie1	171.7	5.5	5.5
Cd163l1	165.2	3.9	1.1
Crabp2	116.7	9.5	1.0
LOC100503816	112.5	1.6	2.1
Vldlr	107.7	0.7	35.5
Kirrel	69.4	2.8	0.8
St8sia6	67.9	1.6	3.0
Atp6v0d2	67.6	4.8	1.8
Tdrd5	59.8	1.9	1.1
Slc40a1	57.7	2.9	1.5
Acox2	55.4	6.4	1.1
Pcsk1	55.3	3.2	1.6
Ccl4	55.2	0.8	1.4
Procr	51.8	1.0	1.1
Kdr	51.5	1.2	8.1
Pde2a	49.6	4.2	1.0
Specc1	48.4	3.9	0.8
Tmem163	47.7	3.2	5.2
Scarf1	44.1	1.0	9.6
Fgd5	43.5	4.6	14.8
Ccl3	43.0	1.9	1.7
Peli2	40.5	2.1	8.0
Mpl	39.3	1.8	1.1
Tnfrsf8	37.4	1.9	40.0
Mmp13	36.9	2.7	3.0
Myct1	35.0	1.1	4.2
Ifi44	34.8	2.0	6.3
Tcfec	30.1	1.1	1.9
Stfa2l1	28.7	1.1	8.4
Cc2d2a	28.5	20.2	20.0
Plscr2	28.4	1.5	0.8
Cd3e	27.6	2.1	1.1
Dhrs3	27.1	0.5	1.2
Gcom1	26.7	2.7	69.0
Cd3d	26.5	1.7	0.8
Tmem215	26.2	1.1	1.1
Efhd1	25.6	4.2	1.0
Homer2	25.4	2.2	3.1
Gm14047	25.3	0.9	2.1
39327	24.9	2.8	3.9
Ltf	24.1	0.8	14.8
B230312C02Rik	23.8	1.1	0.5
Hspa1b	23.1	0.7	1.4
Iigp1	23.0	7.5	1.9
Tnfaip2	22.4	14.1	1.1
Il6ra	22.3	1.3	2.1
Il2rb	22.1	1.7	18.1
Mllt4	21.4	2.7	0.6
Spo11	21.2	1.9	0.6
Gzmc	20.9	1.5	333.2
Gm5483	20.8	1.2	18.8
Bcl3	20.5	0.5	0.5
Tmem204	20.3	8.3	2.6
Arhgap29	18.7	2.6	8.8
Gm11346	18.1	2.8	0.9
Saa3	17.5	2.1	8.4
Olfr644	17.4	0.9	1.1
Liph	17.4	10.5	1.7
Cd3g	17.4	1.6	1.1
Fut10	16.9	2.1	3.5
Ddx60	16.6	1.6	0.6
Gm19434	16.5	1.6	1.1
Ube2l6	16.2	3.1	2.0
Khdrbs3	15.8	4.8	4.1

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Oasl2	15.8	3.8	1.6
Fcer1a	15.6	1.1	3.2
Sash1	15.4	1.7	2.8
Fhdc1	15.3	1.0	0.9
LOC100499420	15.2	0.9	0.4
Oas2	15.1	2.5	0.6
Mcpt4	15.0	1.4	7.5
Sorbs3	14.8	1.1	0.8
Ehd3	14.7	1.2	1.6
Myo6	14.5	0.6	1.3
Tshz2	14.3	2.1	110.8
Sytl4	14.1	0.5	0.1
P2rx3	13.8	2.6	1.1
Gnb4	13.6	2.8	2.1
Gp49a	13.6	2.5	1.2
Atf5	13.5	1.2	2.7
Plac8	13.3	1.3	1.4
Slfn1	12.8	1.6	0.3
Adamdec1	12.8	1.1	3.3
Itgae	12.6	0.3	0.9
H2-Q9	12.4	1.7	1.8
H2-Q7	12.4	1.7	1.8
Cox6a2	12.3	0.1	5.8
Nqo1	12.2	3.7	0.8
H2-Q6	11.9	2.3	0.7
Hpgds	11.9	2.2	0.8
Plekhg4	11.7	3.1	8.8
Cdh23	11.7	0.6	1.1
Clstn3	11.5	7.4	2.7
Pdcd1lg2	11.5	2.7	1.1
Atf3	11.5	1.3	1.8
Heatr7b1	11.4	1.4	1.9
Serpinf1	11.4	3.4	2.2
Trim6	11.3	5.3	101.6
C77080	11.2	4.6	7.2
39332	10.6	1.5	3.1
Podxl	10.5	6.0	27.1
Zfp948	10.3	6.4	2.9
Prg3	10.2	1.4	2.8
Rab6b	10.2	2.2	0.9
Abca4	10.1	2.7	4.2
Abca1	9.9	3.0	1.8
Cd300a	9.9	2.1	1.5
Hsd3b7	9.6	1.8	1.6
Mctp1	9.5	4.8	0.8
Tslp	9.4	5.2	3.7
Cd200r4	9.2	1.6	2.0
Pck2	9.2	1.7	1.4
S100a1	9.2	1.7	1.2
Il1b	9.2	6.0	11.1
Acan	9.0	2.9	1.1
Tulp3	8.9	2.7	1.2
Esam	8.9	1.8	8.9
Epb4.1l1	8.8	1.0	1.0
Dlg3	8.7	1.7	2.5
Sema3f	8.7	1.7	2.2
Olfr643	8.6	1.1	1.1
Flt1	8.6	2.0	154.6
Cd4	8.3	1.3	0.2
Pde5a	8.1	2.3	0.9
Slfn5	8.0	4.8	0.2
Phlda1	8.0	3.0	2.5
Slc22a23	7.9	2.1	2.1
Ifit1	7.9	2.0	0.6
Mylk3	7.9	1.6	3.1
Gimap4	7.8	1.1	2.1
Tnip3	7.8	0.7	1.6
Gm1337	7.7	15.0	2.6
2610035D17Rik	7.7	2.8	2.0
Adora3	7.7	2.2	1.4

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Dapk1	7.7	2.4	1.0
Sox6	7.6	1.9	0.0
Igsf3	7.5	2.0	3.8
Scn5a	7.5	0.8	4.7
Irf4	7.5	2.2	0.9
Prnp	7.4	0.9	2.1
Fgfr1	7.4	0.8	1.7
Plk2	7.4	2.4	1.4
Hpgd	7.2	1.1	0.8
Ly6a	7.2	0.7	1.4
Gm4956	7.2	3.2	1.1
Otud1	7.1	1.5	1.2
Itgb3	7.0	2.5	2.1
Rassf4	7.0	5.6	1.9
Rnf43	7.0	0.9	2.1
Col4a2	7.0	1.8	0.7
Lag3	7.0	1.8	11.5
Neat1	6.9	1.9	1.1
F13a1	6.9	1.7	5.6
Nynrin	6.9	9.5	1.3
E130102H24Rik	6.8	1.8	1.6
Il7r	6.8	0.9	1.0
Syt13	6.8	1.7	0.8
Syde1	6.8	2.2	1.9
Dab2ip	6.8	2.6	1.4
Itga9	6.7	2.0	1.0
Bmf	6.7	1.1	0.8
Ldhd	6.6	4.3	1.8
Dennd2d	6.6	0.7	0.9
Wbscr27	6.6	3.0	3.1
Tgfbi	6.5	3.3	1.3
Sall2	6.5	1.7	3.0
Ppt2	6.4	1.2	1.0
Bcl6	6.4	1.8	1.1
Zfp760	6.3	3.9	1.6
Lilrb4	6.3	1.2	1.0
Dtx1	6.3	1.2	0.7
Tmem71	6.2	1.3	0.5
Srgap3	6.2	2.0	2.7
Arsi	6.2	2.0	4.3
Bbc3	6.2	0.6	0.7
Gbp9	6.1	0.8	0.4
H2-Gs10	6.1	1.4	1.0
Lyz2	6.1	1.0	0.9
Lypd6b	6.1	1.6	1.1
Trim16	6.0	1.2	2.5
Gm14446	6.0	1.0	0.5
Cabp1	6.0	2.7	6.4
Ddit3	6.0	0.7	1.4
Clec1b	5.9	1.5	3.3
Cd74	5.9	3.9	0.4
Gadd45g	5.9	3.1	1.9
8430423G03Rik	5.9	2.7	8.5
Ubqln3	5.9	1.8	1.1
Cpa3	5.8	1.1	27.2
Pdk2	5.8	1.0	0.9
Il1rl1	5.7	1.3	6.0
Trp53inp1	5.7	1.0	0.5
Mdga1	5.7	1.0	0.6
Cmtm3	5.7	2.6	2.2
Ifi27l2a	5.7	0.7	1.4
Pkd2l1	5.6	1.6	1.1
Slc25a27	5.6	1.7	4.7
Lfng	5.6	1.1	1.0
Cdkn1a	5.6	0.7	0.4
Dennd5b	5.5	4.1	1.6
Ikzf3	5.5	1.3	0.9
AA388235	5.5	1.3	1.6
Ypel3	5.4	1.6	1.1
Cd81	5.4	1.6	0.9

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Tnfaip3	5.4	1.2	0.7
Phyhd1	5.4	0.8	0.8
Pcdhgc4	5.4	2.9	2.6
Eps8	5.3	10.7	0.5
Gimap6	5.3	1.1	1.5
Fnbp1l	5.3	2.2	0.5
Rgs1	5.2	2.9	1.2
Asah2	5.2	1.9	1.3
Ppp1r16b	5.2	1.1	1.5
Tsc22d1	5.1	2.2	4.4
Ypel1	5.1	1.7	2.3
Rab4a	5.1	3.9	2.0
Angptl6	5.1	0.9	2.2
Cyp4f13	5.0	1.4	0.9
Pcdhga12	5.0	3.0	2.6
Letm2	5.0	1.2	1.2
Trib1	5.0	1.8	2.1
Kcne3	5.0	1.1	1.0
2310028H24Rik	5.0	1.2	2.1
5830416P10Rik	4.9	1.2	0.9
Usp18	4.9	1.8	0.7
C230035I16Rik	4.9	4.7	1.3
Tjp1	4.9	1.2	20.8
Maff	4.9	1.2	1.4
Ptgs2	4.9	1.6	0.6
Ypel2	4.9	1.8	0.4
Ctse	4.9	1.2	0.5
Trim30d	4.9	1.4	1.0
Tspan31	4.8	1.5	1.1
2210020M01Rik	4.8	0.4	12.1
Stx3	4.8	2.2	2.3
Cd97	4.8	1.3	0.7
Gdpd1	4.8	1.0	1.1
Il15	4.8	1.8	0.9
Klf11	4.8	1.2	1.6
Parvb	4.7	0.7	0.9
P2rx7	4.7	1.1	2.6
Niacr1	4.7	1.1	2.1
Zfp945	4.7	3.1	1.4
Rsad2	4.7	1.1	1.4
Lrig1	4.7	2.6	1.2
Wnt5b	4.7	2.4	3.4
Samd14	4.7	2.5	1.0
Soat2	4.7	1.3	4.4
Egr1	4.7	3.3	1.9
Syngr1	4.6	0.3	1.9
Gzma	4.6	2.5	71.0
Ift81	4.5	1.5	7.2
Klhl24	4.5	1.8	1.5
0610039K10Rik	4.5	1.0	1.0
Csf2rb2	4.4	1.1	0.6
Megf8	4.4	4.9	2.2
Ifit2	4.4	1.1	1.3
A930003A15Rik	4.4	2.1	1.1
Zcwpw1	4.3	0.7	1.4
Cd274	4.3	1.1	1.2
Ccdc153	4.3	1.6	1.1
Hist2h2be	4.3	1.1	1.3
Sipa1l2	4.3	1.5	1.0
Camk2a	4.3	0.6	1.0
Col4a1	4.2	2.2	0.8
Il9r	4.2	1.8	42.8
Rtp4	4.2	1.9	0.6
Pde4b	4.2	1.7	1.1
Erp27	4.2	0.8	0.9
Zfp365	4.2	3.1	2.1
Gpr128	4.2	1.4	0.3
Art4	4.2	0.9	0.4
Scel	4.2	2.6	0.1
A930001N09Rik	4.2	1.7	0.9

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Ephb6	4.2	1.4	2.6
Cd28	4.2	1.5	1.3
Ier3	4.2	2.0	1.9
Gm11428	4.2	1.1	1.9
Ldlrad3	4.2	2.8	2.2
Hs6st2	4.1	2.4	0.5
Grn	4.1	2.9	1.0
Usp54	4.1	3.1	1.8
Zfp36	4.1	1.2	0.9
Aqp11	4.1	0.8	1.7
Ptger2	4.1	0.9	0.6
Tsc22d3	4.1	2.8	1.9
Xaf1	4.1	1.5	0.7
Arhgap31	4.1	1.9	1.7
Optn	4.0	3.4	0.5
Rab38	4.0	1.7	1.7
Dusp1	4.0	2.8	1.0
Med12l	4.0	2.8	0.6
Hist3h2a	4.0	1.0	1.0
H2-Ab1	4.0	3.0	1.1
Nrp1	4.0	0.9	1.4
Ttpa	4.0	2.1	0.9
Cldn4	4.0	2.4	2.2
Ier5	4.0	1.4	1.3
Nckap1	4.0	2.0	1.2
9430020K01Rik	3.9	2.6	2.6
Klk8	3.9	1.2	13.0
Acad10	3.9	1.5	1.4
1110051M20Rik	3.9	1.2	1.6
Fosb	3.9	3.0	1.5
Adck3	3.9	3.5	1.3
Tecpr1	3.9	1.8	1.1
Gabbr1	3.9	1.4	1.3
Socs3	3.9	1.2	0.8
Dtx3	3.9	1.1	1.2
1110028C15Rik	3.9	1.4	1.6
Nlrc5	3.9	2.4	0.6
Tmem140	3.9	1.3	1.0
Rgs10	3.8	1.6	0.9
Gpc1	3.8	2.7	0.9
H2-K1	3.8	1.6	0.9
Samd9l	3.8	0.8	1.0
Klf6	3.8	1.3	0.9
Cd53	3.8	3.0	1.6
Zhx2	3.8	2.2	1.4
Vopp1	3.8	1.6	1.3
Rad9b	3.8	1.3	1.3
F2r	3.8	1.9	1.6
Selm	3.7	0.7	2.1
St6galnac3	3.7	10.9	2.2
Gm14085	3.7	1.2	2.4
Il17re	3.7	1.1	16.0
Otos	3.7	3.0	1.0
AW011738	3.7	1.5	5.8
Abhd4	3.7	1.7	1.6
Slfn8	3.7	1.0	1.0
Thsd1	3.7	1.9	0.7
Gbp2	3.7	1.7	0.4
Arl4c	3.7	1.3	2.5
Nphp1	3.7	1.2	2.9
Gng2	3.7	1.5	0.9
Gimap9	3.6	1.1	0.8
Calcoco1	3.6	0.9	1.4
H2-T10	3.6	0.4	0.8
Arhgef40	3.6	1.0	3.5
Meis1	3.6	2.2	2.0
Rgs2	3.6	1.9	1.0
Nfkbiz	3.6	1.4	1.2
Pik3ip1	3.6	1.8	0.9
2610307P16Rik	3.6	1.5	2.0

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Adcy6	3.5	1.1	1.3
Slc2a9	3.5	2.7	1.1
Hjurp	3.5	1.3	1.4
Pip5k1b	3.5	1.9	0.8
6430706D22Rik	3.5	1.3	1.5
Nudt4	3.4	1.3	2.6
H2-T24	3.4	1.1	0.5
Foxj2	3.4	1.4	1.7
Oas1b	3.4	1.3	0.8
4930481A15Rik	3.4	1.7	0.8
Fam189b	3.4	2.2	1.1
4933407H18Rik	3.4	1.3	1.3
Tmprss7	3.4	1.8	0.8
Tanc1	3.4	2.3	2.3
Lpar6	3.4	2.0	1.0
Anxa5	3.4	1.8	2.5
Accs	3.4	1.9	1.5
Herc6	3.4	1.4	1.2
Kank3	3.4	1.7	1.6
Rbbp9	3.4	1.8	1.2
Ogdhl	3.4	1.5	0.7
Pcyt1b	3.4	1.0	2.8
Wdr19	3.3	2.2	2.1
Glrp1	3.3	0.9	1.0
Ppp1r15a	3.3	1.3	1.3
Pisd-ps1	3.3	1.4	1.3
Pisd-ps3	3.3	1.4	1.3
Gm5918	3.3	1.0	1.7
Cd302	3.3	1.1	2.9
Gpr183	3.3	3.3	1.3
Zdhhc1	3.3	2.7	2.5
A730008H23Rik	3.3	1.3	1.4
Pcmtd1	3.3	1.5	1.2
Malat1	3.3	2.0	0.8
Gbp8	3.3	0.6	0.7
Ccdc28a	3.3	1.2	1.4
Ctso	3.3	1.8	0.8
Sh3kbp1	3.3	1.8	1.0
Ctxn1	3.2	1.0	1.5
Cntd1	3.2	1.1	3.5
Armcx1	3.2	0.6	2.9
Zfp623	3.2	1.6	2.6
Itga2b	3.2	1.4	3.1
Gm5424	3.2	1.3	1.9
Fam102b	3.2	1.2	1.9
1500015A07Rik	3.2	1.0	1.5
Plk3	3.2	2.7	1.8
Gbp4	3.2	0.9	0.3
Fos	3.2	2.6	0.6
Clcn2	3.2	2.3	2.1
Cd33	3.2	0.2	0.9
Fgf3	3.2	1.5	1.1
Eea1	3.2	2.4	0.9
Nwd1	3.1	0.5	14.9
Mcart6	3.1	1.4	0.2
Ptk7	3.1	2.3	1.3
Hist1h2bc	3.1	1.3	0.8
Ablim1	3.1	1.2	1.1
Tmem86a	3.1	1.2	0.5
6720401G13Rik	3.1	2.2	1.0
Plk1s1	3.1	1.4	1.6
Vcl	3.1	3.0	1.8
Vps13d	3.1	1.7	1.0
Rdm1	3.1	0.9	1.4
Thy1	3.1	1.1	9.9
B130034C11Rik	3.1	1.6	1.1
Slc18a2	3.1	2.4	13.6
Ikzf2	3.1	1.9	1.5
Arhgap21	3.1	2.3	1.2
Tcea2	3.0	1.7	1.5

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Gimap1	3.0	1.5	1.0
Mylip	3.0	2.2	1.1
Acrbp	3.0	1.3	0.9
Havcr2	3.0	1.3	0.9
Pim2	3.0	1.0	0.6

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ Notch only

Gene Name	Thy	Notch	BCR-ABL
Ccbe1	9.5	229.6	2.3
Mmp9	16.8	205.1	2.4
Ednrb	1.6	166.8	5.5
Prom1	38.1	78.9	2.6
Tmem27	24.4	74.4	1.1
Odf3l1	4.1	69.5	0.5
Trim2	17.1	58.8	0.8
Lhfp	21.8	58.1	1.7
Ablim3	18.1	50.0	1.0
Serpinb8	8.8	46.1	0.8
Agtr1a	1.1	42.8	2.2
Sec14l2	4.3	40.8	1.6
Vegfc	1.1	38.7	3.1
Pvrl1	7.3	38.5	3.4
Mafb	11.5	36.3	1.6
Hspb2	2.1	35.5	3.1
2300002M23Rik	4.5	35.3	1.1
Prdm5	4.7	34.5	3.5
1200009I06Rik	73.1	31.5	3.3
Susd4	38.7	29.1	1.6
Amotl1	4.2	28.8	1.5
Arnt2	13.5	28.6	2.3
Stra6	8.8	27.4	1.1
Trnp1	8.3	26.6	0.8
Fstl4	20.7	26.2	0.5
Hopx	5.4	24.4	0.5
Rhod	3.0	24.2	1.3
Clip4	16.4	23.9	39.2
Egfr	11.7	21.8	2.3
Lamb1	38.4	21.3	5.6
Lmo2	2.7	21.0	2.2
Tceal1	2.3	18.5	3.3
Fap	3.9	18.3	6.6
Fam101b	24.4	16.8	0.3
Icos	2.3	16.2	0.7
Shank1	5.1	16.2	3.0
Tirap	4.3	16.0	0.9
Chst2	7.9	16.0	2.0
Dixdc1	5.0	14.9	3.0
Pyroxd2	8.2	14.9	1.8
Il22	15.1	14.8	1.1
Gjc1	1.7	14.4	2.5
Pde9a	12.4	14.2	0.0
Cthrc1	9.1	14.0	0.5
Myo1b	13.6	12.6	2.6
Hbegf	2.2	12.4	0.8
Gjb2	8.0	12.2	1.1
Hspb8	2.1	12.0	0.5
Tspan32	1.8	11.5	1.0
Fabp4	6.7	11.4	2.3
Gli1	15.4	11.2	1.1
Sgip1	1.6	11.0	0.7
Chit1	1.1	10.9	1.1
Hey1	14.3	10.2	1.3
Fosl2	1.7	9.6	0.8
Bace1	2.4	9.3	2.3
Cryab	3.3	9.1	0.9
Acvrl1	7.4	9.0	1.4
C030034L19Rik	2.5	9.0	1.2
Amica1	3.7	9.0	1.5
Spats2l	2.1	8.9	1.0

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ Notch only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Olfml3	2.7	8.8	1.3
Cox4i2	1.4	8.8	2.4
Abat	3.1	8.6	1.6
Tmtc2	2.2	8.5	48.3
Rpl39l	5.8	8.3	0.6
Btbd11	5.3	8.3	1.8
5730416F02Rik	2.4	8.1	0.8
Slc35d3	1.5	8.0	3.7
Aldh3b1	1.1	7.4	3.0
Slc9a2	3.4	7.3	11.1
Tspan7	6.0	7.2	1.7
Svep1	1.2	7.1	0.7
Igf2bp2	1.6	6.4	1.1
Cxcl10	5.5	6.4	1.2
Ldlrap1	1.6	6.4	0.9
Trim36	2.9	6.3	1.8
Slc25a13	2.0	6.3	4.1
D630039A03Rik	6.3	6.3	0.4
Lgals3	10.3	6.3	1.7
Rras	5.1	6.3	2.4
Sepp1	2.5	6.2	0.7
Dlg1	1.2	6.1	1.0
Bpil2	1.4	6.1	1.0
Il1rl2	1.2	6.0	2.5
Frmd4b	3.1	6.0	2.9
Fhl2	3.0	5.8	0.9
Fgd1	2.2	5.6	36.6
Igfbp7	10.0	5.5	0.7
Sh3pxd2a	2.1	5.4	2.0
Ahnak	3.1	5.4	1.7
Capg	2.4	5.3	0.9
Cd160	4.9	5.3	0.3
Esm1	1.6	5.3	3.2
Inppl1	22.7	5.3	1.1
Fam26f	1.9	5.3	1.2
2310007L24Rik	8.8	5.1	1.1
Lpar4	4.1	5.0	6.2
Nrarp	1.0	5.0	0.8
Bmp7	11.8	5.0	2.1
Nfil3	1.9	4.9	2.0
Appl2	9.7	4.9	1.1
Axl	2.6	4.9	2.3
Snrk	1.4	4.9	1.0
Abcb1a	9.8	4.8	2.1
St6gal1	2.4	4.8	3.3
Ppap2a	2.3	4.8	2.4
Tnfsf11	5.4	4.7	0.9
Ccdc125	2.7	4.7	1.1
Tnfrsf21	2.2	4.7	1.0
Steap3	4.9	4.6	0.8
Dstyk	2.4	4.6	1.3
Casp1	2.9	4.6	1.3
Epb4.1l5	4.0	4.6	1.1
Fggy	4.0	4.5	1.3
Slc9a9	2.0	4.5	0.5
Elk3	1.4	4.5	1.8
Id2	1.8	4.5	1.1
Airn	20.1	4.4	1.3
Ifi204	18.6	4.3	1.1
Atp2b4	1.9	4.3	3.8
Sox13	9.4	4.3	0.6
Tmem2	2.4	4.2	1.3
Rffl	2.2	4.1	0.8
Nrip1	1.4	4.1	1.1
Dock9	2.8	4.1	1.4
Chd7	8.1	4.1	3.1
Tmem55a	2.8	4.1	1.5
Mtap	1.9	4.0	1.2
Msrb3	2.2	4.0	0.6
Upb1	2.4	3.9	3.1

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ Notch only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Dio2	2.7	3.9	0.7
Ptpn13	62.8	3.8	1.6
Cobll1	2.6	3.7	1.2
Sh3bp5	2.3	3.7	0.9
Ntn1	2.2	3.6	9.1
Slc44a1	3.5	3.6	1.9
Arrdc3	2.4	3.6	0.9
Ccr7	3.0	3.5	0.9
Morf4l2	1.2	3.5	1.3
Gkap1	3.7	3.5	2.2
Prmt7	1.9	3.4	1.4
Plcl1	5.1	3.4	7.9
Fam20a	21.2	3.4	1.2
Cntln	1.9	3.4	0.9
Atp8b4	3.3	3.3	2.6
Rell1	2.8	3.3	1.1
Gm2a	1.5	3.3	0.9
Rapgef2	1.1	3.3	1.5
Enc1	2.3	3.3	1.0
Arhgap5	2.2	3.2	3.1
Fbp1	1.1	3.2	1.2
Bin1	1.6	3.2	0.9
Cnksr3	1.8	3.2	2.9
Nhsl1	7.3	3.1	3.7
Fmnl2	6.1	3.1	12.4
4632428N05Rik	0.9	3.1	0.4
Cdh1	3.2	3.1	0.4
Sell	1.4	3.1	0.5

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ BCR-ABL only

Gene Name	Thy	Notch	BCR-ABL
Igf2as	4.6	2.3	2710.9
Kcnma1	15.6	94.7	1757.2
Hoxb8	1.2	1.1	1247.8
Hoxb7	2.2	0.9	999.1
Igf2	6.6	1.6	930.3
Ngp	6.6	0.5	717.5
Prdm8	1.9	1.1	605.2
Lmo1	1.1	0.8	473.7
Chi3l3	3.8	0.7	355.4
S100a9	7.6	0.7	270.8
Afap1l1	2.6	10.3	262.4
Retnla	1.1	1.1	139.7
Efna1	17.5	4.8	128.1
Pkdcc	6.3	1.0	102.0
S100a8	5.4	0.6	93.0
Smpd3	13.0	1.8	60.9
Lhx2	5.9	1.0	58.8
Sh2b2	1.4	1.6	49.5
Mdfi	2.3	5.4	45.3
Nxph4	6.8	0.8	43.5
Celf4	3.2	2.3	41.2
Tbx19	6.3	1.3	31.8
Hs3st2	1.3	1.1	31.8
Prg2	19.4	0.7	31.0
Cyp27a1	9.2	2.3	25.7
Ndrg1	3.0	1.3	25.4
Arg1	11.5	1.3	23.5
Mgl2	8.8	1.4	22.7
B3gnt5	2.3	2.6	20.9
Prss12	2.2	1.1	20.5
Tgfbr3	1.5	0.8	20.4
Hip1	1.3	0.6	18.1
Rps4y2	2.1	2.0	17.7
Ifitm1	4.4	2.0	16.8
Galnt3	3.7	3.8	16.1
Klhl23	1.8	3.7	15.2
Olfm1	4.0	1.1	14.5
Col6a6	1.1	1.1	13.5

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ BCR-ABL only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Epb4.1l3	1.9	2.7	13.2
Fxyd6	10.6	1.4	13.2
Ptk2	3.5	0.7	12.4
Ly86	23.1	26.3	11.7
Cdc42bpa	2.9	2.1	11.5
Angptl2	2.0	1.8	11.3
Sulf2	3.4	0.7	11.1
Fhl1	8.8	1.4	11.0
Grb10	4.3	3.6	10.9
Cask	2.7	1.1	10.8
Luzp1	2.8	3.0	10.8
Tac4	4.1	1.2	10.6
39334	1.0	1.2	10.5
Lysmd2	2.2	2.3	10.1
Tnni2	2.2	1.5	10.0
Ccl8	10.5	1.1	9.6
Clcf1	5.3	1.1	9.5
S1pr3	1.9	1.0	9.4
Ccdc19	3.4	1.6	9.1
C1qtnf6	13.0	5.0	9.1
Aes	0.8	0.7	8.9
Pard6g	1.2	1.4	8.3
Ccnd1	4.9	1.3	8.3
Depdc7	3.9	1.6	8.2
Ppap2b	6.6	3.7	8.2
Nfix	2.3	1.5	7.7
Dusp4	1.5	0.9	7.7
Epdr1	13.8	5.5	7.7
Fgf13	3.5	0.4	7.6
Fkbp11	1.5	0.9	7.5
Ston1	2.4	1.3	7.5
B230118H07Rik	2.7	1.9	7.4
Tom1l1	4.3	1.4	7.4
Chac1	2.0	1.4	7.4
Gpt2	3.0	1.0	7.1
Asb2	6.3	1.6	7.0
Cdc42bpb	3.2	1.2	6.9
Clec2i	1.4	1.5	6.8
Tst	1.0	2.4	6.5
Echdc2	5.0	3.2	6.4
Filip1	9.5	10.8	6.3
Ctsk	1.8	1.3	6.1
Cd248	2.5	1.0	6.1
Iqgap2	1.3	1.2	6.0
Nfia	2.6	2.3	6.0
Plxnb2	4.9	1.0	5.9
Slamf9	4.9	3.2	5.9
Tcf7l1	1.1	2.0	5.9
Tubb3	1.5	0.4	5.8
Emb	1.3	1.8	5.7
Asap2	3.4	1.8	5.6
St3gal5	1.8	1.7	5.6
Syde2	1.8	1.0	5.5
Rpp25	1.4	0.7	5.4
Nupr1	3.3	2.0	5.4
Cst7	7.1	3.2	5.4
Spire1	4.7	1.4	5.4
Spry4	1.4	2.1	5.3
Nsg2	1.1	0.7	5.3
Itga5	1.3	1.9	5.2
Itgax	2.1	0.9	5.2
Smad1	1.6	1.2	5.1
P4ha2	2.6	0.7	5.0
Slc16a3	1.5	0.3	5.0
Stac2	5.5	1.1	4.9
Erf	1.0	1.1	4.9
Fetub	1.1	1.6	4.9
1700025G04Rik	1.6	1.4	4.9
Rag1	1.6	1.4	4.8
Naca	1.3	1.1	4.4

Up in *Ikzf1*$^{\Delta F4/\Delta F4}$ BCR-ABL only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Prickle3	1.4	0.9	4.4
Decr2	2.5	1.4	4.4
Atp5k	1.1	1.1	4.4
Rdh10	2.9	2.1	4.3
Ptgir	8.8	4.7	4.3
Gas6	1.1	1.8	4.2
Eya1	3.0	0.9	4.2
Rasa4	1.9	0.3	4.2
St3gal6	2.0	0.3	4.1
Dennd3	1.4	0.8	4.1
Zfp385a	1.3	1.3	4.0
Ncf1	3.0	2.4	4.0
Ccdc90b	1.7	2.9	3.9
Zbtb8os	1.4	0.9	3.9
Clec7a	3.3	1.8	3.8
Fam43a	1.4	1.1	3.7
Gng4	10.0	16.8	3.7
Fes	1.2	1.6	3.6
Sema7a	8.3	1.9	3.6
Uchl1	1.1	0.8	3.6
Asns	2.6	0.8	3.5
Arhgef11	1.7	1.3	3.5
Plxnd1	1.5	2.1	3.5

Down in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy, Notch, and BCR-ABL

Gene Name	Thy	Notch	BCR-ABL
Ly6d	8.4	45.8	50.5
2010001M09Rik	6.3	36.9	4.7
Napsa	11.0	25.0	3.5
Bst1	5.9	21.1	4.4
Blk	21.7	11.8	19.7
AA467197	4.6	11.8	4.7
Epcam	7.1	7.8	14.3
Lif	13.0	3.6	4.1
Armcx4	8.8	3.5	9.7

> 10-fold down

3- to 10-fold down

Down in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy and Notch

Gene Name	Thy	Notch	BCR-ABL
Il34	8.1	54.3	2.9
Tox3	3.4	45.8	1.0
Erg	4.3	35.9	1.9
5830411N06Rik	94.4	32.7	1.0
Serpinb1a	3.4	31.0	0.7
Rasa4	7.5	18.6	0.3
Ncf4	14.2	16.7	2.1
Cpne2	7.7	16.4	0.9
Card10	6.0	14.4	0.9
4921525O09Rik	9.2	14.0	2.2
Gpr174	7.7	13.4	47.2
Ccdc164	22.8	12.3	7.7
Itgae	35.8	11.8	1.8
Tubb2a-ps2	5.2	10.6	3.9
Grasp	3.7	9.5	1.0
Lsp1	12.5	9.4	0.4
Spib	4.5	9.3	3.0
Tctex1d1	26.8	8.7	1.0
Unc5cl	6.4	8.0	30.5
Nkg7	3.9	6.6	0.4
Tubb3	21.6	6.2	0.7
Itgb7	7.1	6.1	1.0
Trim46	5.7	6.0	1.5
Rtn4rl1	8.9	6.0	1.4
Chst10	5.7	5.9	3.1
AW112010	3.3	5.4	2.8
Fbln2	3.1	5.2	3.5
Epsti1	4.9	5.0	3.3
Cdh23	10.5	4.6	2.5
Nsg2	3.2	4.5	0.7
Anxa2	8.1	4.3	1.3
Fgf13	3.6	4.1	0.6
Nefh	3.9	4.0	2.3
Prelid2	5.6	3.9	1.4
Clec12a	3.9	3.9	2.3
Lamc1	4.7	3.7	1.0
Igf2bp3	8.9	3.6	0.8
Pld4	5.3	3.4	1.0
1700048O20Rik	4.3	3.3	1.7
Il7r	3.5	3.3	1.2

Down in *Ikzf1*$^{\Delta F4/\Delta F4}$ Notch and BCR-ABL

Gene Name	Thy	Notch	BCR-ABL
Gm5111	2.7	9.0	7.5
Arl5c	5.2	7.0	21.3
Lynx1	2.0	6.8	11.2
Cxcr5	7.0	6.7	27.6
Cd2	3.5	5.8	10.1

Down in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy and BCR-ABL

Gene Name	Thy	Notch	BCR-ABL
BC064078	8.1	5.2	749.8
Zbp1	3.1	2.4	36.0
Akr1c12	3.5	1.4	34.2
Tnfrsf26	4.6	1.4	16.9
Acp5	5.6	2.0	10.6
Hsd11b1	7.2	2.2	9.4
Ltb	3.0	2.4	8.7
Tes	3.3	2.3	8.1
Socs1	7.5	2.2	5.9
Rasgrp1	6.3	1.3	5.4
Plod2	3.2	2.5	5.2
Sp100	4.9	2.5	4.9
Lta	49.7	3.8	4.7
Tmem121	3.0	1.5	4.5
Emid1	7.3	2.6	4.1

Down in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy only

Gene Name	Thy	Notch	BCR-ABL
Hbb-b1	170.2	3.7	1.1
Hbb-b2	170.2	3.7	1.1
Pdcd1	79.3	2.3	0.6
Trib2	60.6	2.4	0.5
Gapt	28.5	1.7	16.4
Cyp11a1	25.3	1.5	0.9
Gpr114	23.6	1.4	0.9
Stk39	22.5	1.1	0.4
Cdh1	19.1	0.6	10.9
Pglyrp1	17.5	1.5	0.9
Ndrg2	16.8	2.4	1.0
Il17rb	16.3	0.8	1.8
Ccr4	14.7	0.7	13.9
Lat2	13.0	3.5	2.1
Ccdc102a	12.8	1.7	1.6
Perp	12.7	0.6	11.6
Cldn2	12.0	2.9	1.0
Mfsd2a	11.4	1.5	2.7
Scin	10.4	4.6	2.5
Itgb5	10.0	1.1	2.8
Naaa	9.8	1.5	1.7
Trfr2	9.5	4.8	4.4
Il12rb1	9.0	1.6	11.3
Gpr97	8.8	2.5	2.1
Kmo	8.7	6.0	2.3
Rag2	8.6	1.0	0.5
Chdh	7.9	1.2	1.0
Rpl35	7.9	1.1	1.0
Adamtsl2	7.9	5.0	0.2
Trpa1	7.8	4.7	0.2
Cdr2	7.7	1.3	1.0
Psg17	7.7	3.0	2.9
Sdc4	7.7	1.9	1.3
Cd59a	7.4	8.8	3.3
Sytl4	7.3	4.6	53.5
Hmga1-rs1	7.1	2.1	1.7
St3gal2	7.0	2.2	1.2
Ms4a4c	6.9	2.9	7.5
Hmga1	6.9	2.0	1.6
Prr5	6.9	3.4	1.0
Gzma	6.5	1.3	0.5
Fam20a	6.4	1.0	1.9
Osm	6.2	1.8	1.1
Sorl1	6.1	4.7	2.5
Clnk	6.1	2.2	0.9
Slpi	5.7	2.2	3.9
Ccdc135	5.7	5.0	1.7
Pgam2	5.6	1.5	2.7
Hbegf	5.5	0.5	4.3

Down in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Il18rap	5.5	1.9	4.0
Tspan9	5.4	2.8	1.1
Cd52	5.4	1.7	1.1
Ccne1	5.3	1.7	0.9
Lonrf1	5.3	2.1	0.7
Ttc39c	5.3	1.0	0.6
Gm12504	5.2	1.3	1.4
Lcn4	5.1	3.7	6.3
Socs2	5.0	1.1	0.8
Id1	5.0	0.4	1.1
Ahr	4.9	2.6	19.1
Thbs1	4.9	1.3	1.8
Cndp2	4.9	2.4	1.8
Fgl2	4.8	7.8	2.4
Fam129b	4.8	1.6	1.7
Igsf8	4.8	1.6	0.8
Slc25a12	4.7	2.6	1.2
Mier2	4.7	1.4	1.1
Rftn1	4.7	2.0	1.5
Gas6	4.7	1.2	0.6
Myl4	4.6	2.0	2.6
Hp	4.6	1.3	1.8
Mgst1	4.6	4.8	2.0
D8Ertd82e	4.5	1.3	1.2
Galk1	4.5	1.5	0.8
Angptl4	4.5	1.2	1.7
Grifin	4.5	5.1	4.4
1110008P14Rik	4.4	1.7	1.9
Cyba	4.4	3.3	1.6
Fam195a	4.4	1.8	1.2
Rps6kl1	4.3	1.3	2.9
Esm1	4.3	0.5	0.8
Il10ra	4.2	1.7	2.1
Prkar2a	4.2	0.8	2.5
Cish	4.2	1.8	1.4
Fstl1	4.2	1.1	2.0
Tpm4	4.2	2.2	1.2
Tnnt1	4.2	2.1	3.3
Gale	4.0	1.7	1.2
Pparg	4.0	1.2	1.2
Irf8	4.0	1.7	1.0
Atp13a2	4.0	2.8	1.5
Myo1f	4.0	2.3	2.5
Ada	3.9	1.8	1.9
Sema4a	3.9	1.4	2.4
Haao	3.8	4.4	1.2
Thy1	3.8	1.2	1.0
Ogn	3.8	1.1	0.7
Adam8	3.8	1.3	2.1
Rplp1	3.8	1.3	1.3
Ccr2	3.8	4.4	0.5
Dclk2	3.8	3.1	0.6
Arl4c	3.8	2.0	0.9
Fam102a	3.8	2.5	0.9
Padi2	3.7	2.6	1.9
Larp1b	3.7	1.2	1.3
Xylt1	3.7	0.9	1.5
Uqcrq	3.7	1.6	1.2
Prss57	3.7	2.5	4.4
2210020M01Rik	3.7	4.2	0.2
Sh2d5	3.7	2.3	3.1
Pdlim1	3.7	1.6	1.2
Prr13	3.7	2.0	2.0
Col1a1	3.7	1.1	2.1
Rps6ka4	3.7	1.2	1.0
Cd7	3.7	1.6	0.9
Zfp518b	3.6	1.0	1.0
Bcat1	3.6	2.2	1.0
Dpm3	3.6	1.5	1.1

Down in *Ikzf1*$^{\Delta F4/\Delta F4}$ Thy only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Ldha	3.6	1.7	0.9
Prtn3	3.6	2.2	0.6
Baiap3	3.6	9.9	1.5
Mospd3	3.6	1.3	1.1
Ydjc	3.6	1.3	1.0
Junb	3.5	1.2	1.8
Tdrkh	3.5	2.8	2.5
St3gal5	3.5	1.2	0.8
Nme2	3.5	1.6	1.2
Car12	3.4	1.1	1.5
Pgp	3.4	1.4	1.0
Relt	3.4	1.3	1.4
Gbp8	3.4	3.3	3.4
Ubtd1	3.4	1.7	1.4
1190002H23Rik	3.4	0.9	2.8
Pgm2	3.4	2.2	1.3
Palm	3.3	1.7	2.5
Rnaseh2c	3.3	1.1	1.2
Ms4a4b	3.3	2.2	13.1
Fam169b	3.3	1.3	9.3
Tpi1	3.2	2.3	1.0
Il10rb	3.2	2.6	1.8
Emb	3.2	0.8	0.2
Ccbl2	3.2	1.4	1.7
Dkkl1	3.2	0.6	2.3
Adam11	3.2	0.4	0.4
Cenpv	3.2	1.5	1.1
Tmem191c	3.2	2.2	1.8
Gcsh	3.2	1.4	1.1
Kifc3	3.2	6.3	1.6
Tas1r1	3.2	1.6	2.9
Ppa1	3.2	1.3	1.1
Fam84b	3.2	1.0	1.6
Ptgr1	3.1	0.9	2.9
Egfl7	3.1	1.4	1.0
Alas1	3.1	1.1	0.9
Itga4	3.1	2.1	1.6
Prss30	3.1	3.4	1.4
Dgke	3.1	1.7	1.7
Lactb	3.1	1.4	1.2
Bgn	3.1	1.1	1.9
Gpr25	3.1	1.2	1.0
Ccdc124	3.1	1.2	1.3
Bhlhe40	3.1	2.9	0.7
Rag1	3.1	2.5	0.3
Col1a2	3.1	1.2	2.4
Fam174b	3.0	2.6	6.5
Top1mt	3.0	1.2	0.7
Ccnd3	3.0	2.2	1.4
Edf1	3.0	1.4	1.1

Down in *Ikzf1*$^{\Delta F4/\Delta F4}$ Notch only

Gene Name	Thy	Notch	BCR-ABL
Tm4sf5	2.6	923.7	3.6
Cox6a2	5.3	153.6	0.8
Cd8a	2.5	64.5	1.0
Zfp641	2.2	51.0	3.8
Grhl3	2.9	47.9	0.9
Tle6	1.8	38.5	0.3
Hmgcs2	2.8	36.3	1.0
Idi2	4.2	36.1	1.0
Cdkl1	2.4	32.9	2.1
BC018473	4.4	31.5	2.8
Rgl3	8.8	30.7	1.7
Crhbp	6.4	27.6	2.2
Ly6k	2.3	20.2	12.4
Epor	4.6	20.1	4.2
Cd4	1.2	20.0	7.3

Down in *Ikzf1*$^{\Delta F4/\Delta F4}$ Notch only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Ampd1	4.5	19.4	1.7
Chrna9	1.6	18.7	0.7
Nwd1	1.2	18.5	0.1
Rgs11	2.5	18.4	1.4
Il4ra	4.6	17.8	1.2
Cd8b1	2.5	17.2	1.0
2310007L24Rik	1.2	15.7	1.0
Camk1g	1.0	15.6	0.8
Tox2	7.8	15.1	2.8
Cth	2.8	15.1	0.3
Pygl	4.0	14.9	1.5
Plcg2	2.8	14.8	1.1
Stc2	0.3	14.2	1.6
Dhrs3	2.4	14.1	2.2
Muc13	1.2	13.8	5.2
Rap1gap2	22.3	13.8	0.7
Hoxa7	46.1	13.7	1.8
Atp1b1	1.4	13.6	1.7
Gbp11	5.6	13.6	17.2
Pvr	4.4	13.1	1.3
Btk	5.1	12.0	1.5
H2-T3	1.6	11.9	0.5
Elovl3	1.9	11.2	0.5
Insl5	4.2	10.8	1.0
Tmem221	1.8	10.5	4.3
Timp3	2.7	10.0	2.7
Gm12253	4.2	9.9	1.0
1700001O22Rik	1.8	9.8	0.5
Rorc	1.3	9.3	1.8
Cd44	3.9	9.2	1.8
Tmem45a	1.7	9.1	2.5
Tubb2b	12.1	8.7	4.2
Zfyve28	5.3	8.6	2.2
39328	1.0	8.3	1.3
Zdhhc14	2.8	7.8	2.9
Gpr162	1.1	7.8	4.4
Slc37a2	1.4	7.8	1.5
Dpf1	4.4	7.8	1.6
Gab2	1.0	7.8	1.1
Srgap3	0.5	7.7	1.7
Cxadr	2.1	7.6	1.9
Sidt1	2.0	7.5	1.1
Erbb3	5.6	7.4	4.0
Patl2	1.3	7.1	2.4
Tmem90a	2.8	7.0	2.6
Gm8909	1.5	7.0	3.8
Card9	1.7	6.7	0.5
Col15a1	3.7	6.5	4.8
Ppp3cc	2.5	6.3	2.3
Cd72	12.2	6.2	2.4
B4galnt2	2.1	6.2	3.2
Fam129a	1.3	6.2	0.2
Degs2	1.5	6.2	1.0
Il21r	2.0	6.2	2.1
Dsp	4.7	6.1	0.9
Ccr9	2.5	6.0	0.9
H2-T10	1.3	5.9	1.6
Fam183b	1.2	5.8	7.7
Gramd3	1.6	5.7	1.1
Nucb2	4.2	5.6	0.9
Parvb	7.1	5.5	2.8
P2rx1	2.0	5.5	2.1
Icam1	2.3	5.4	2.7
Gm14085	1.1	5.4	5.7
P4ha2	1.2	5.4	0.6
Bambi-ps1	2.2	5.3	2.0
Tubb2a	2.8	5.2	1.3
Ankrd6	1.7	5.1	1.3
Scara3	3.1	5.1	2.6

Down in *Ikzf1*$^{\Delta F4/\Delta F4}$ Notch only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Wdr78	1.8	5.1	0.9
Vegfa	2.3	5.1	0.9
Tmprss4	4.9	5.0	11.3
Pdlim4	1.0	5.0	1.5
Tns1	2.8	4.9	2.3
Slc15a1	9.9	4.9	3.4
Slc30a4	2.6	4.6	1.4
Gsn	2.2	4.3	1.7
Il2rb	8.5	4.2	0.1
Akap12	1.7	4.2	1.4
Gzmb	2.2	4.1	0.5
Bcl6	1.2	4.0	1.4
Meis3	1.6	3.9	2.0
Tnfrsf9	2.4	3.9	2.2
Dennd5a	0.8	3.9	0.9
Bcl2l11	1.4	3.8	1.3
Capn3	1.2	3.8	6.5
Spint2	2.3	3.6	8.6
Pou6f1	1.6	3.6	1.1
Colq	6.8	3.4	1.9
Slc43a2	1.6	3.4	1.5
Ptcra	2.1	3.3	1.0
Cerk	1.4	3.3	1.4
Spns3	2.8	3.3	2.9
Cd6	9.2	3.3	0.6
Ets2	0.9	3.2	0.9
Thrb	1.0	3.2	0.8
Xbp1	2.5	3.1	3.0
Camkk1	1.3	3.0	0.8
Eif1b	1.2	3.0	1.4

Down in *Ikzf1*$^{\Delta F4/\Delta F4}$ BCR-ABL only

Gene Name	Thy	Notch	BCR-ABL
Fcrl6	1.2	1.5	198.3
Camk2b	42.3	15.1	167.8
Rps6ka6	3.2	2.1	142.4
Pdzd2	19.1	0.4	130.0
Pde9a	3.3	0.3	122.0
Crlf1	6.0	1.5	120.1
Ubash3a	1.9	1.7	117.2
Tmem59l	6.7	1.9	82.9
Fzd6	1.1	0.0	77.3
Cdhr2	1.4	1.5	71.4
Dlx1	4.3	2.5	71.0
Tnfsf8	3.4	1.9	58.1
Gldc	1.4	3.7	58.0
Il2ra	2.1	1.0	55.2
Btla	17.7	0.7	47.9
Vill	4.2	2.4	46.0
Prkcq	1.1	1.5	42.4
Magi1	1.7	2.3	34.3
Il33	4.3	1.7	34.0
Enpep	4.7	1.6	26.3
Sytl2	1.3	4.7	20.6
Mpzl2	0.3	0.4	19.3
Gja1	1.1	0.3	17.0
Gpr171	1.8	0.9	15.4
P2ry10	1.0	1.1	14.0
Arpp21	2.7	1.5	13.6
2310033E01Rik	2.4	1.5	13.1
Pla2g2f	1.1	1.5	13.1
Nov	8.2	2.3	12.2
Gpr65	2.5	2.2	12.0
Dpp4	1.4	0.7	11.1
Als2cl	1.2	0.3	11.1
2210404O07Rik	1.8	2.1	10.7
Ell3	1.7	0.9	10.3
Gbp2	1.4	1.3	10.1

Down in *Ikzf1*$^{\Delta F4/\Delta F4}$ BCR-ABL only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Akr1c13	2.5	1.6	10.0
Scn4b	1.0	0.3	9.3
Sell	1.4	0.6	9.0
Rinl	1.7	1.5	7.9
Lax1	1.3	1.0	7.8
Pcdh9	1.5	0.5	7.7
Sertad4	3.4	1.4	7.7
Igf1	3.4	1.3	7.5
Dok3	11.3	1.6	6.9
Pyhin1	4.9	2.1	6.6
Ly6a	0.7	1.9	6.5
Zfp507	0.9	0.9	6.4
Hmgcll1	2.7	1.5	6.4
Atxn7l1	1.9	1.5	6.4
Gpr18	4.2	1.4	6.2
BC049715	1.8	1.9	6.1
Cd74	1.3	1.1	6.1
Folr4	7.1	1.8	6.0
Endou	1.2	2.2	6.0
Pdcd4	1.2	1.0	6.0
Dntt	1.0	1.6	5.8
3110052M02Rik	1.2	1.2	5.6
Cav2	1.7	1.6	5.6
Gbp4	1.6	2.1	5.5
Rgs8	2.2	0.9	5.4
Cpm	4.6	0.9	5.4
Clic6	1.9	1.5	5.4
Cybb	1.9	1.7	5.3
Sytl1	2.0	2.0	5.3
Ms4a7	1.2	1.0	5.3
Zbtb8os	1.7	1.8	5.2
Serpine2	1.6	2.7	5.2
Gpr132	1.3	1.0	5.2
Eci1	1.0	1.3	5.2
Traf5	2.4	0.7	5.2
Lat	1.2	1.5	5.1
Tmem86a	1.3	1.3	5.0
Arntl	1.7	2.1	5.0
Mycn	2.5	1.8	4.9
Dock8	1.1	1.3	4.8
Ntng2	2.1	0.5	4.7
Cnrip1	11.3	4.8	4.7
Otub2	0.6	0.9	4.7
Mcart6	1.7	1.3	4.7
Serpinb2	2.4	1.5	4.6
Slc14a1	2.0	2.3	4.6
Nlrp3	3.5	3.8	4.6
Crisp1	1.2	1.5	4.6
Cacnb1	3.4	1.6	4.6
Dio2	2.1	0.4	4.5
Mxd4	1.8	2.1	4.5
Sned1	6.3	1.2	4.4
Slfn2	0.9	0.9	4.4
4632428N05Rik	1.9	1.4	4.3
Glipr1	1.6	2.2	4.2
Gbp7	1.1	1.2	4.2
Atp5k	2.9	1.6	4.2
Gbp5	1.2	1.6	4.2
Rnf157	1.7	1.3	4.1
Hspb8	1.7	0.2	4.1
Fam129c	1.6	1.3	4.0
Gbp3	1.2	1.5	4.0
Gm12250	2.9	2.3	4.0
Apoe	0.5	1.6	4.0
Tifa	1.3	0.3	3.9
Hnf1b	1.5	1.5	3.9
Ypel2	0.9	0.9	3.9
Sla2	1.9	1.8	3.8
Cd38	0.9	0.4	3.8

Down in *Ikzf1*$^{\Delta F4/\Delta F4}$ BCR-ABL only (cont.)

Gene Name	Thy	Notch	BCR-ABL
Cacnb2	1.3	1.7	3.8
Rpph1	5.5	1.3	3.8
Mpeg1	2.1	2.1	3.8
Spnb2	1.1	1.1	3.7
Myl10	2.8	2.8	3.7
Pltp	1.8	1.9	3.7
Timp1	2.8	1.5	3.6
Unc13d	2.4	1.6	3.6
Clgn	3.2	2.6	3.6
5830405N20Rik	1.4	0.9	3.5
Bcl2	1.9	1.8	3.5
Tgfb3	1.6	0.3	3.4

Arenzana_FigS10