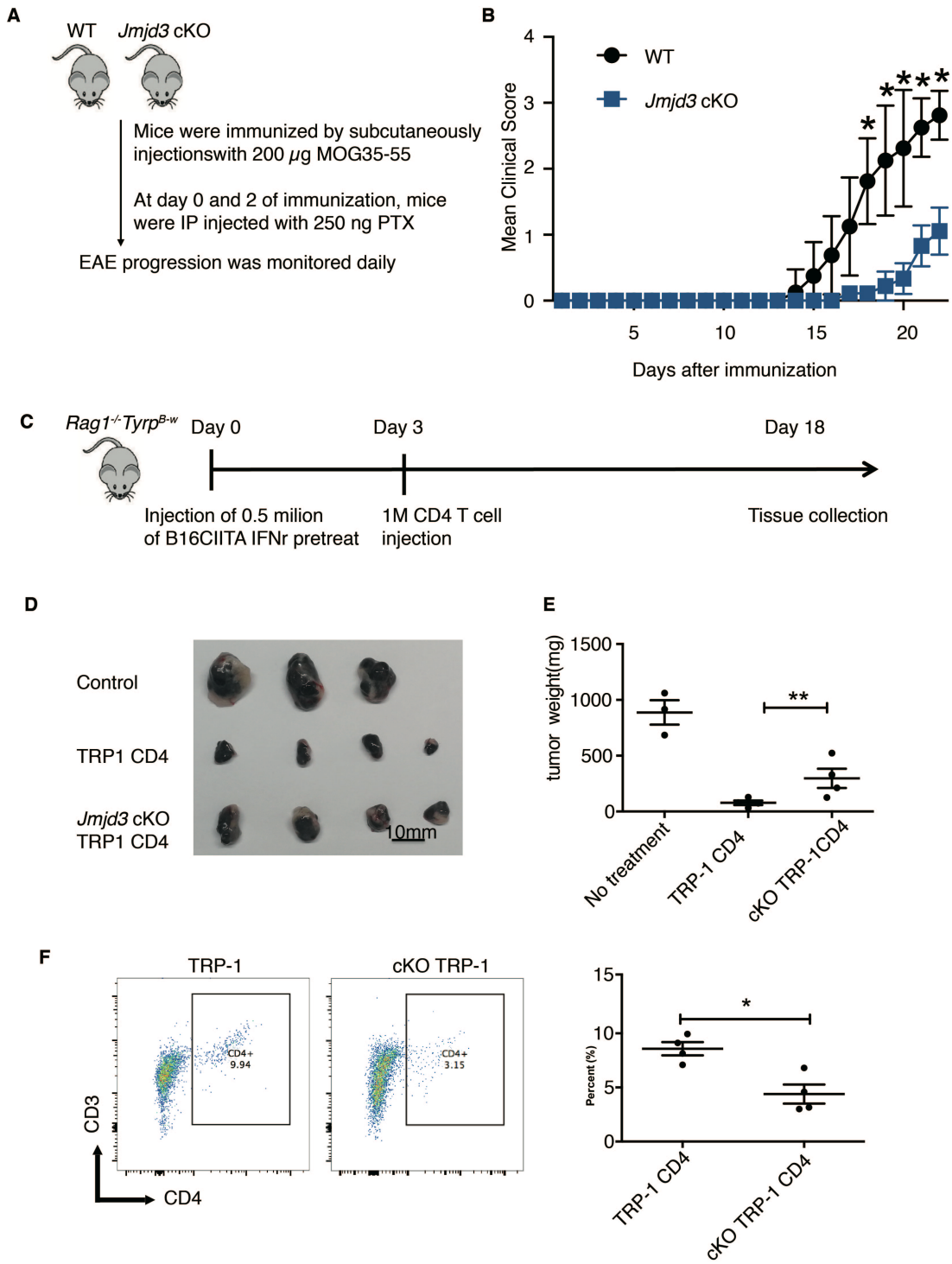


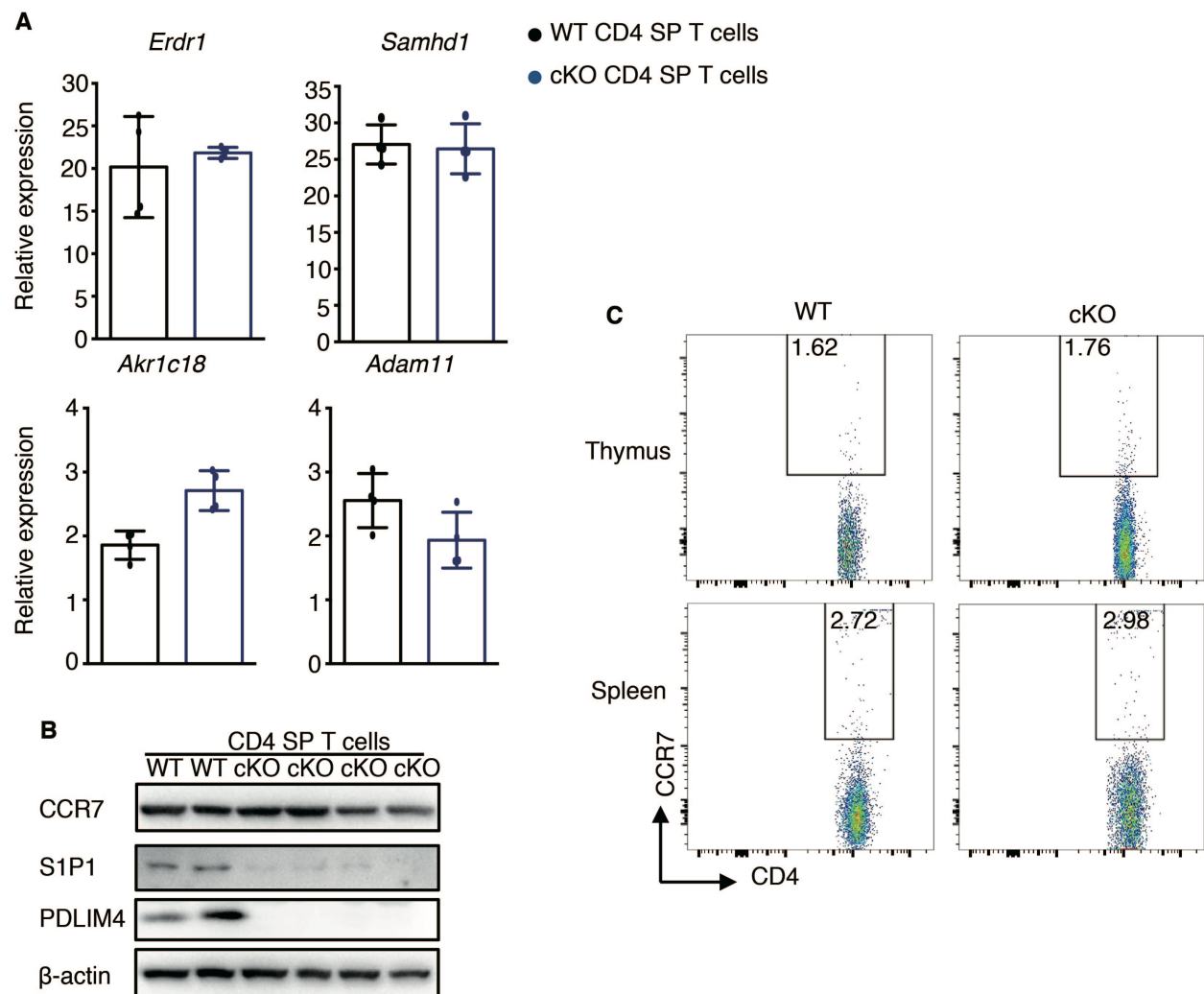
JMJD3 regulates CD4 T cell trafficking by targeting actin cytoskeleton regulatory gene *Pdlim4*

Supplemental Figure 1-7



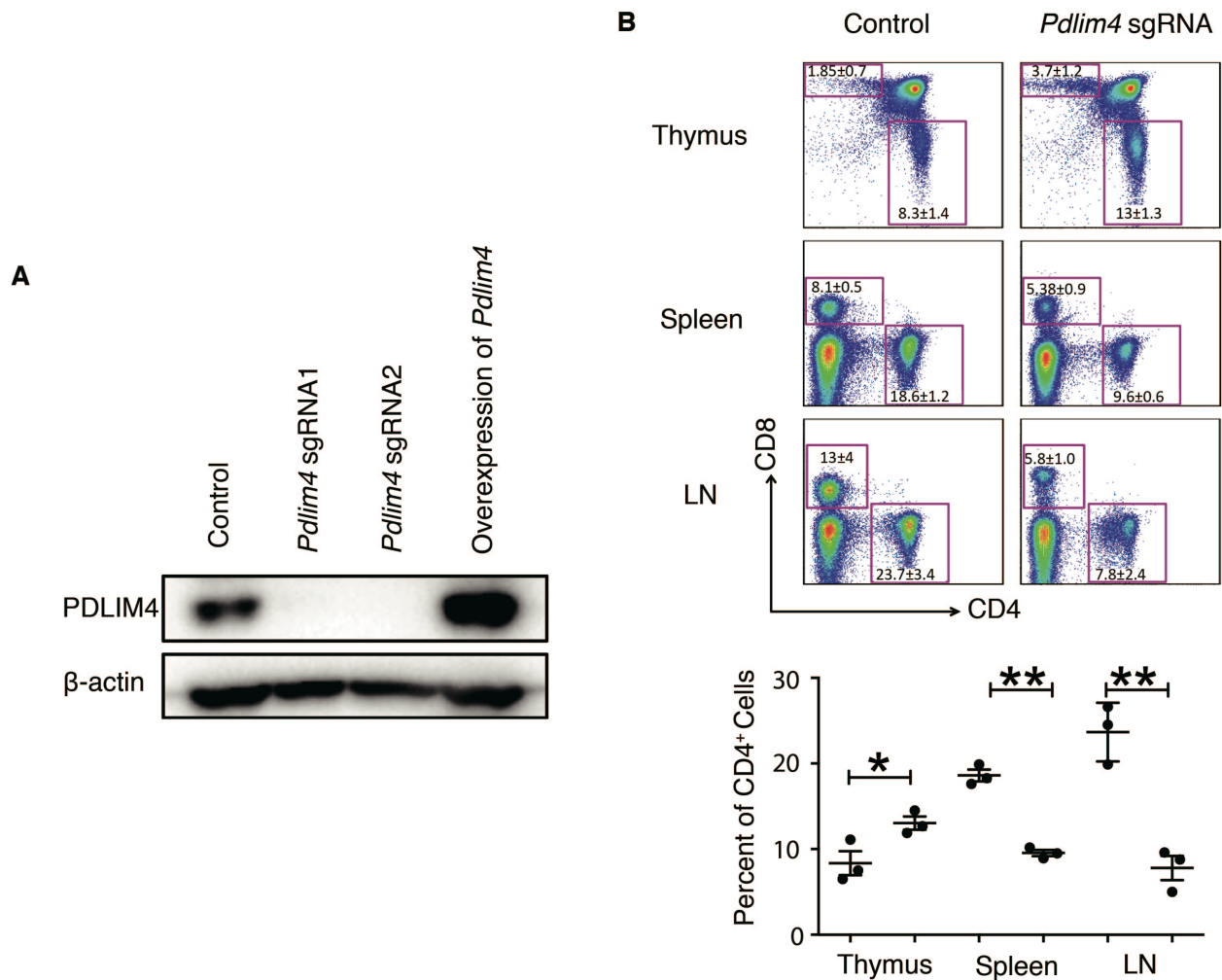
Supplemental Figure 1. (A) Schematic presentation of experimental design for the induction of EAE with MOG35-55 peptide in WT and *Jmjd3*-deficiency mice. (B) The progression of EAE in *Jmjd3*-

deficiency mice was delayed (as measured by mean clinical scores). (C) A schematic diagram of tumor inoculation and treatment. IFN- γ (10ng/ml) pretreated CTIIA overexpression B16 cells were injected to *Rag1*^{-/-}*Tyrb*^{B-W} mice, then adoptive transfer WT and *Jmjd3* KO TRP-1 CD4 T cells. (D) Digital photograph of tumors at the end of the study (E) Tumor weight was measured from sacrificed mice (n=4, paired t test). (F) Frequency of adoptive transferred TRP-1 CD4 T cells in the tumor infiltrating lymphocytes. (n=4, paired t test). * $P < 0.05$, ** $P < 0.01$



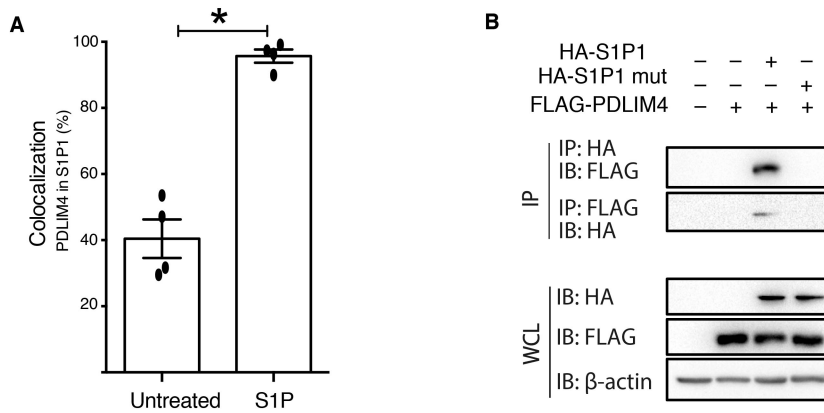
Supplemental Figure 2. (A) Real-time PCR analysis of genes analyzed in WT and *Jmjd3* cKO thymic CD4 SP T cells. Expression levels are given as the ratio of the target gene to the control gene to correct

for variations in the starting amount of mRNA (gene/Gapdh x1000). The data are presented as means \pm SD from three independent experiments. (B) CD4 SP T cells were isolated from WT and *Jmjd3* cKO mice thymuses. CCR7 and PDLIM4 protein levels were detected by immunoblotting using indicated antibodies. (C) Analysis of CCR7 in thymus and spleen CD4 SP T cells from WT and *Jmjd3* cKO mice by flow cytometry.

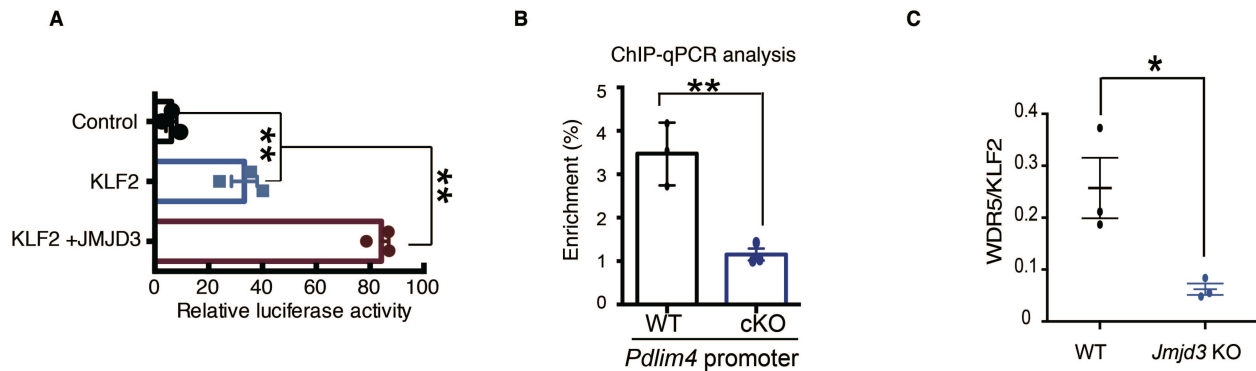


Supplemental Figure 3. (A) Knockout efficiency of *Pdlim4* sgRNA1 and sgRNA2 CD4⁺ T cells was evaluated by immunoblotting using anti-Pdlim4 antibody. α -actin was used as a loading control. (B) Flow

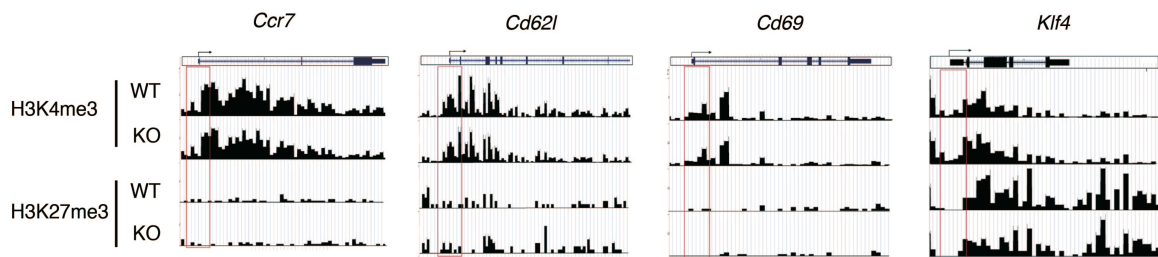
cytometric analysis of CD4⁺ and CD8⁺ T cells isolated from thymus, spleens, and LNs of C57BL/6 chimeric mice transplanted with WT and *Pdlim4* sgRNA knockout bone marrow cells. The data are presented as means ± SD from three independent experiments. Asterisks indicate significant differences between groups (**P* < 0.05, ***P* < 0.01, determined by Student's t test).



Supplemental Figure 4. (A) Confocal microscopy analysis of colocalization of S1P1 with PDLIM4 in untreated and S1P treated CD4⁺ T cells (**P* < 0.05, determined by Student's t test). (B) 293T cells were co-transfected with HA-*S1p1* or HA-C-terminal mutated *S1p1* along with FLAG-*Pdlim4*. Whole cell lysates (WCLs) were immunoprecipitated with anti-HA or anti-FLAG beads and immunoblotted with anti-FLAG-HRP or anti-HA-HRP antibody.

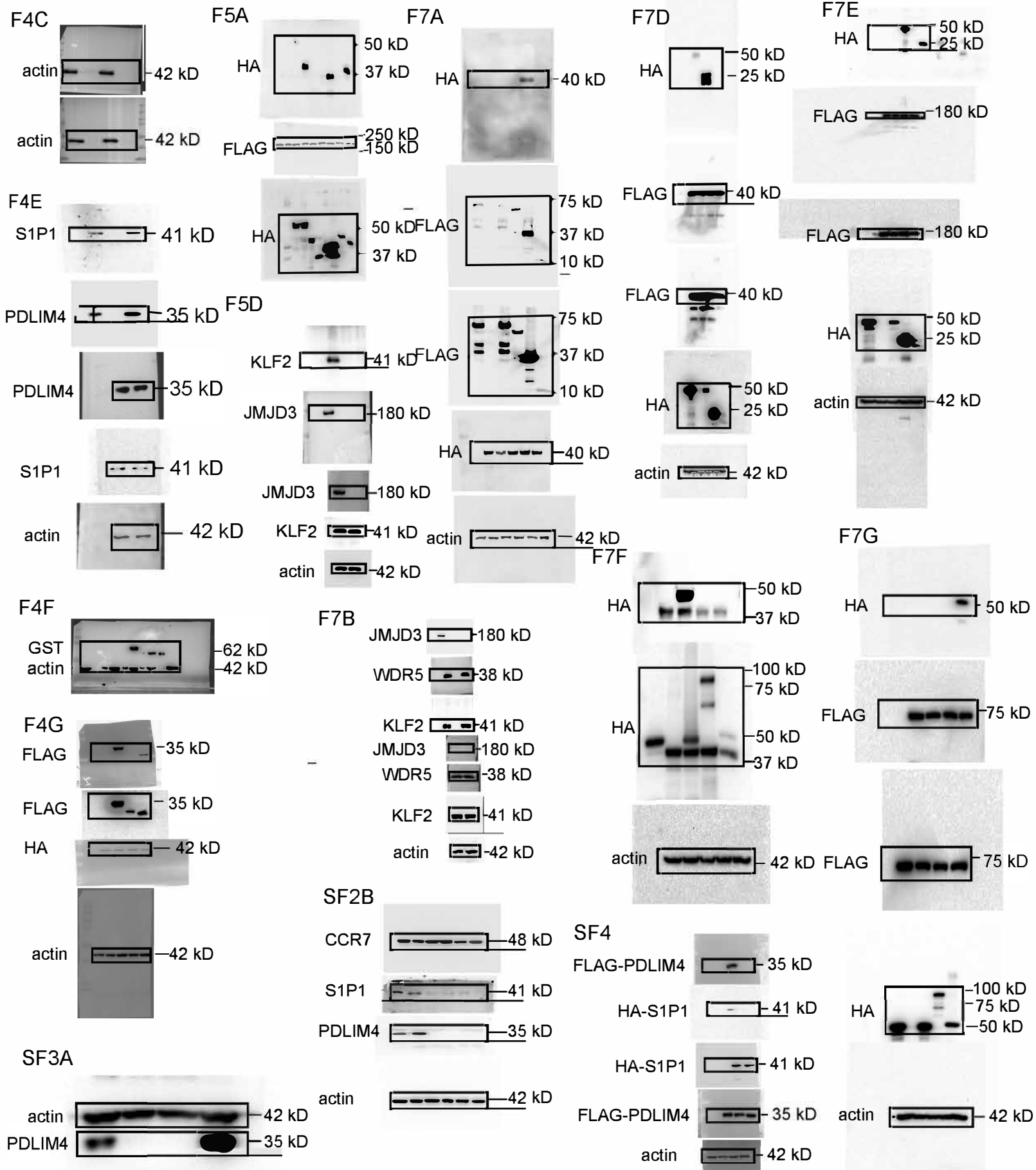


Supplemental Figure 5. (A) 1.6K *Pdlim4* promoter were cloned into the episomal luciferase vector, and then were co-transfected with *Klf2* and *Jmjd3* into CD4⁺ T cells. The data are presented as means \pm SD from three independent experiments. **** $P < 0.01$** , by 1-way ANOVA with Tukey's multiple comparisons test. (B) ChIP-qPCR analysis of the % enrichment of KLF2 binding to the *Pdlim4* promoter in WT and *Jmjd3* cKO CD4 SP T cells. (C) KLF2 band and WDR5 band from KLF2 IP experiment quantified by Image J. The data are presented as means \pm SD from three independent experiments. Asterisks indicate significant differences between groups (*** $P < 0.05$** , **** $P < 0.01$** , as determined by Student's t test).



Supplemental Figure 6. ChIP-seq analysis the H3K27me3 and H3K4me3 levels of *Ccr7*, *Cd62l*, *Cd69*, and *Klf4* in WT and *Jmjd3* cKO CD4 SP T cells. A 1-kb region around the TSS is indicated in a red box. 10 kb region is analyzed.

Supplemental Figure 7



Supplemental Table 1. Microarray assay of gene expression in WT and Jmjd3-deficiency CD4 SP T cells

geneSymbol	refseq_ID	avg_WT	avg_KO	logRatio_KO/WT	pValue	adj_pValue
<i>Pdlim4</i>	NM_019417.2	9.688	7.32	-2.368	0	0.04
<i>Igfbp4</i>	NM_010517.2	12.346	10.559	-1.787	0	0.171
<i>Amigo2</i>	NM_178114.3	11.44	9.798	-1.642	0	0.024
<i>Igfbp4</i>	NM_010517.3	12.793	11.2	-1.593	0	0.049
<i>Myo6</i>	NM_001039546.1	9.748	8.171	-1.577	0	0.043
<i>Lgals1</i>	NM_008495.1	10.455	9.036	-1.419	0.002	0.254
<i>Ccnd2</i>	NM_009829.3	12.39	11.116	-1.274	0	0.04
<i>Erdr1</i>	NM_133362.1	11.206	9.98	-1.226	0	0.153
<i>Samhd1</i>	NM_018851.2	11.708	10.488	-1.219	0.001	0.236
<i>Akr1c18</i>	NM_134066.2	8.96	7.759	-1.201	0	0.04
<i>Erdr1</i>	NM_133362.2	10.22	9.031	-1.189	0.001	0.186
<i>Prlr</i>	NM_011169.4	8.737	7.58	-1.158	0	0.153
<i>E2f2</i>	NM_177733.2	9.757	8.607	-1.149	0.005	0.338
<i>Zfp608</i>	NM_175751.3	8.487	7.357	-1.129	0	0.165
<i>Uhrf1</i>	NM_010931.2	9.638	8.516	-1.121	0	0.087
<i>E2f2</i>	NM_177733.2	9.812	8.757	-1.055	0	0.078
<i>Lgals3</i>	NM_010705.2	9.219	8.225	-0.995	0.002	0.254
<i>Pla2g4f</i>	NM_001024145.1	9.056	8.145	-0.911	0	0.147
<i>Cd44</i>	NM_001039150.1	9.45	8.589	-0.861	0	0.123
<i>E430002D04Rik</i>	NM_172909.1	8.044	7.203	-0.841	0.001	0.244
<i>Csprs</i>	NM_033616.3	7.913	7.085	-0.829	0.003	0.293
<i>Ckb</i>	NM_021273.3	13.314	12.5	-0.814	0.001	0.202
<i>E2f1</i>	NM_007891.3	8.405	7.6	-0.805	0.001	0.243
<i>LOC666403</i>	XR_034389.1	13.332	12.538	-0.794	0	0.153
<i>Top2a</i>	NM_011623.1	8.159	7.365	-0.794	0.002	0.25
<i>Lmna</i>	NM_019390.1	10.092	9.299	-0.792	0.001	0.199
<i>Nudt6</i>	NM_153561.2	8.225	7.449	-0.776	0	0.075
<i>Nrn1</i>	NM_153529.1	7.838	7.087	-0.751	0.003	0.287

<i>LOC270152</i>	XM_194453.3	8.444	7.694	-0.75	0.001	0.172
<i>Cdca7</i>	NM_025866.3	10.241	9.518	-0.723	0.001	0.25
<i>Lmna</i>	NM_019390.1	9.638	8.928	-0.71	0	0.153
<i>Arhgap20</i>	NM_175535.3	9.682	8.991	-0.691	0	0.155
<i>Ddit4</i>	NM_029083.1	10.941	10.254	-0.687	0	0.127
<i>Gramd4</i>	NM_172611.2	8.127	7.444	-0.682	0.004	0.297
<i>LOC100041103</i>	XM_001476013.1	10.965	10.286	-0.679	0.002	0.268
<i>Rora</i>	NM_013646.1	8.961	8.285	-0.676	0.009	0.387
<i>Myl4</i>	NM_010858.4	8.647	7.972	-0.675	0.001	0.192
<i>Lmna</i>	NM_001002011.1	9.24	8.571	-0.669	0.001	0.193
<i>Mki67</i>	XM_001000692.2	7.707	7.051	-0.656	0	0.098
<i>Inpp1</i>	NM_010567.1	8.179	7.529	-0.65	0.002	0.258
<i>Mmp9</i>	NM_013599.2	7.891	7.251	-0.64	0.001	0.226
<i>Mcm10</i>	NM_027290.1	7.7	7.061	-0.638	0.003	0.294
<i>Tyms</i>	NM_021288.3	8.756	8.12	-0.636	0	0.098
<i>F13a1</i>	NM_028784.2	8.96	8.327	-0.633	0.001	0.181
<i>Zfp467</i>	NM_001085416.1	8.978	8.347	-0.631	0.006	0.355
<i>Il18r1</i>	NM_008365.1	9.054	8.43	-0.624	0.009	0.386
<i>Tesc</i>	NM_021344.2	10.001	9.382	-0.62	0.006	0.345
<i>LOC100046855</i>	XM_001476916.1	9.82	9.203	-0.618	0.023	0.499
<i>Rassf3</i>	NM_138956.3	9.378	8.777	-0.602	0	0.087
<i>Dtx1</i>	NM_008052.3	9.037	8.436	-0.601	0.006	0.343
<i>Cd7</i>	NM_009854.1	8.102	7.501	-0.6	0	0.042
<i>E130016E03Rik</i>	NM_001039556.2	7.769	7.169	-0.6	0.007	0.361
<i>Lig1</i>	NM_010715.2	8.752	8.157	-0.595	0.003	0.284
<i>Lmna</i>	NM_019390.1	9.082	8.49	-0.591	0.02	0.485
<i>Cish</i>	NM_009895.3	10.801	10.221	-0.58	0.001	0.173
<i>Mmp14</i>	NM_008608.2	8.058	7.488	-0.571	0	0.081
<i>1110017D15Rik</i>	NM_028624.1	7.698	7.147	-0.551	0.001	0.24
<i>Sidt1</i>	NM_198034.2	9.759	9.211	-0.548	0	0.171
<i>Clspn</i>	NM_175554.3	7.953	7.413	-0.54	0.002	0.254

<i>Hist1h2ah</i>	NM_175659.1	11.343	10.802	-0.54	0.011	0.407
<i>Hist1h2ah</i>	NM_175659.1	11.573	11.042	-0.531	0.001	0.199
<i>LOC100046608</i>	XM_001476583.1	11.146	10.617	-0.529	0.003	0.293
<i>Gpr83</i>	NM_010287.2	11.011	10.485	-0.526	0.012	0.429
<i>Bcl2</i>	NM_009741.2	10.493	9.97	-0.523	0.002	0.259
<i>Tcf19</i>	NM_025674.1	9.035	8.514	-0.521	0.001	0.24
<i>Glrx</i>	NM_053108.2	10.441	9.92	-0.521	0.002	0.254
<i>Tomm22</i>	NM_172609.3	10.677	10.162	-0.515	0.01	0.397
<i>Birc5</i>	NM_009689.1	7.671	7.157	-0.514	0	0.098
<i>Lad1</i>	NM_133664.2	8.464	7.949	-0.514	0.035	0.554
<i>Cacnb3</i>	NM_007581.2	8.372	7.864	-0.508	0	0.04
<i>Capn2</i>	NM_009794.1	9.194	8.687	-0.507	0.001	0.237
<i>Hist1h2ak</i>	NM_178183.1	11.527	11.021	-0.507	0.002	0.257
<i>Trat1</i>	NM_198297.3	11.36	10.855	-0.505	0.003	0.293
<i>Hist1h2ao</i>	NM_178185.1	13.464	12.96	-0.504	0	0.098
<i>Asb2</i>	NM_023049.1	9.542	9.039	-0.504	0.001	0.194
<i>Cd44</i>	NM_001039150.1	8.116	7.614	-0.502	0.001	0.193
<i>H2-T10</i>	NM_010395.5	11.473	10.971	-0.502	0.009	0.394
<i>Chaf1a</i>	NM_013733.3	7.782	7.282	-0.5	0.001	0.242
<i>Gpc1</i>	NM_016696.3	10.253	9.759	-0.495	0	0.157
<i>Hist1h2ai</i>	NM_178182.1	12.442	11.952	-0.491	0.003	0.281
<i>Tyms-ps</i>	NR_000040.1	8.207	7.716	-0.491	0.01	0.399
<i>Trat1</i>	NM_198297.3	10.175	9.689	-0.486	0.002	0.259
<i>Mapk11</i>	NM_011161.4	10.603	10.118	-0.485	0.001	0.173
<i>Tnfrsf9</i>	NM_011612.2	8.705	8.221	-0.485	0.007	0.362
<i>Inpp1</i>	NM_010567.1	8.016	7.532	-0.484	0.002	0.268
<i>Mcm6</i>	NM_008567.1	9.711	9.229	-0.483	0.002	0.254
<i>Rec8</i>	NM_020002.2	7.599	7.118	-0.481	0.007	0.366
<i>Tnfrsf9</i>	NM_011612.2	8.357	7.877	-0.48	0.01	0.397
<i>Birc5</i>	NM_009689.2	7.824	7.344	-0.48	0.013	0.438
<i>Tgfbr3</i>	NM_011578.2	10.435	9.957	-0.477	0.002	0.251

<i>2510009E07Rik</i>	NM_001001881.1	9.611	9.134	-0.477	0.003	0.293
<i>Mansc1</i>	NM_026345.2	8.618	8.143	-0.476	0.002	0.258
<i>Hist1h2ad</i>	NM_178188.3	11.562	11.085	-0.476	0.006	0.345
<i>Acpl2</i>	NM_153420.2	10.051	9.576	-0.475	0.001	0.193
<i>Btbd14a</i>	NM_001037098.1	7.969	7.496	-0.473	0	0.153
<i>Rasgrp4</i>	NM_145149.3	7.982	7.511	-0.471	0.004	0.316
<i>Mcm5</i>	NM_008566.2	11.155	10.686	-0.469	0.001	0.184
<i>Lmna</i>	NM_019390.1	8.267	7.798	-0.469	0.003	0.281
<i>H2-T10</i>	NM_010395.2	12.507	12.038	-0.469	0.006	0.359
<i>Hist1h2ag</i>	NM_178186.2	8.505	8.038	-0.467	0.008	0.381
<i>Appl2</i>	NM_145220.2	9.31	8.843	-0.466	0.001	0.193
<i>Hist1h2af</i>	NM_175661.1	11.991	11.525	-0.466	0.004	0.308
<i>Tnfrsf25</i>	NM_033042.3	9.732	9.269	-0.463	0.001	0.193
<i>LOC381738</i>	XM_355721.1	7.646	7.184	-0.462	0.001	0.196
<i>Prc1</i>	NM_145150.1	8.091	7.633	-0.457	0.003	0.293
<i>Gpr97</i>	NM_173036.2	9.349	8.893	-0.456	0.013	0.432
<i>Hist1h2ad</i>	NM_178188.3	13.139	12.685	-0.454	0.002	0.261
<i>Clspn</i>	NM_175554.3	7.77	7.319	-0.452	0.008	0.379
<i>2810001G20Rik</i>	XM_001476904.1	10.355	9.904	-0.451	0.005	0.336
<i>Glo1</i>	NM_025374.2	11.615	11.167	-0.448	0	0.125
<i>3830406C13Rik</i>	NM_178141.2	8.3	7.853	-0.447	0.002	0.254
<i>Gpr97</i>	NM_173036.2	9.252	8.805	-0.447	0.004	0.297
<i>Capn2</i>	NM_009794.2	9.48	9.034	-0.446	0.01	0.407
<i>Foxo1</i>	NM_019739.2	11.182	10.738	-0.444	0.001	0.178
<i>Atf4</i>	NM_009716.2	11.314	10.871	-0.443	0.001	0.217
<i>Capn2</i>	NM_009794.2	9.399	8.956	-0.443	0.002	0.254
<i>LOC381000</i>	XM_354911.1	8.287	7.847	-0.44	0.004	0.3
<i>Mllt4</i>	NM_010806.1	9.062	8.625	-0.437	0	0.153
<i>2810417H13Rik</i>	NM_026515.2	7.589	7.154	-0.436	0.001	0.173
<i>Abhd7</i>	NM_001001804.1	7.831	7.395	-0.436	0.001	0.236
<i>Sp6</i>	NM_031183.1	8.365	7.93	-0.435	0.002	0.258

<i>Nmral1</i>	NM_026393.1	8.224	7.789	-0.434	0.006	0.342
<i>Itm2a</i>	NM_008409.2	13.948	13.517	-0.431	0.001	0.225
<i>Mcm3</i>	NM_008563.2	8.601	8.169	-0.431	0.004	0.299
<i>F2rl3</i>	NM_007975.3	8.042	7.612	-0.43	0.007	0.364
<i>Hist1h2an</i>	NM_178184.1	11.536	11.107	-0.429	0.01	0.397
<i>Klhdc2</i>	NM_027117.1	12.175	11.748	-0.427	0	0.042
<i>Litaf</i>	NM_019980.1	10.504	10.077	-0.427	0	0.098
<i>Pdgfb</i>	NM_011057.2	7.812	7.385	-0.427	0.002	0.271
<i>Hmgn3</i>	NM_175074.1	9.931	9.505	-0.426	0.006	0.342
<i>Amica1</i>	NM_001005421.3	7.941	7.517	-0.424	0	0.153
<i>Acot7</i>	NM_133348.1	11.155	10.731	-0.423	0.005	0.328
<i>1190002F15Rik</i>		7.787	7.369	-0.419	0.002	0.25
<i>Acot7</i>	NM_133348.1	9.347	8.929	-0.418	0.001	0.246
<i>Acvrl1</i>	NM_009612.2	7.699	7.281	-0.418	0.002	0.254
<i>Adam15</i>	NM_009614.2	8.662	8.245	-0.418	0.008	0.381
<i>S100a13</i>	NM_009113.3	9.787	9.37	-0.417	0.007	0.366
<i>Aqp9</i>	NM_022026.2	8.54	8.122	-0.417	0.008	0.372
<i>Birc5</i>	NM_009689.2	7.484	7.068	-0.416	0.001	0.236
<i>Sec61b</i>	NM_024171.1	8.909	8.493	-0.415	0.017	0.464
<i>Anxa2</i>	NM_007585.3	10.235	9.822	-0.413	0	0.166
<i>LOC100046608</i>	XM_001476583.1	10.096	9.682	-0.413	0.002	0.259
<i>Tubb2b</i>	NM_023716.1	10.292	9.888	-0.403	0.003	0.281
<i>Mapre2</i>	NM_153058.3	8.586	8.183	-0.403	0.091	0.674
<i>Sp6</i>	NM_031183.1	8.599	8.198	-0.401	0.008	0.379
<i>Mcm6</i>	NM_008567.1	9.597	9.196	-0.401	0.014	0.444
<i>Cdca8</i>	NM_026560.3	8.13	7.732	-0.398	0.008	0.373
<i>Fibcd1</i>	NM_178887.3	8.553	8.157	-0.396	0.002	0.268
<i>Fas</i>	NM_007987.1	9.824	9.428	-0.396	0.009	0.388
<i>Lyz</i>	NM_013590.2	9.196	8.801	-0.395	0	0.172
<i>Dclk2</i>	NM_027539.3	8.654	8.259	-0.395	0.001	0.208
<i>Axl</i>	NM_009465.3	9.311	8.917	-0.394	0.005	0.337

<i>Ager</i>	NM_007425.2	9.012	8.618	-0.394	0.012	0.421
<i>Tbc1d1</i>	NM_019636.2	9.034	8.641	-0.393	0.004	0.318
<i>Gfer</i>	NM_023040.3	10.57	10.179	-0.391	0.004	0.297
<i>BC017643</i>	NM_144832.1	9.255	8.868	-0.387	0.003	0.281
<i>Rasa1</i>	NM_013832.3	8.313	7.926	-0.387	0.006	0.346
<i>Gpnmb</i>	NM_053110.3	8.868	8.485	-0.384	0.007	0.364
<i>Ptgir</i>	NM_008967.1	8.396	8.014	-0.382	0.001	0.226
<i>LOC100040525</i>	XR_031953.1	9.848	9.466	-0.382	0.009	0.387
<i>Cdc45l</i>	NM_009862.1	7.705	7.326	-0.379	0.002	0.26
<i>Klra3</i>	NM_010648.2	7.339	6.961	-0.378	0.001	0.183
<i>Aim1</i>	NM_172393.1	10.493	10.117	-0.377	0.013	0.437
<i>Aldh2</i>	NM_009656.3	11.111	10.734	-0.376	0.001	0.217
<i>Pole</i>	NM_011132.1	7.639	7.264	-0.375	0.003	0.281
<i>A430093F15Rik</i>	XR_035341.1	11.359	10.985	-0.375	0.008	0.379
<i>1500031L02Rik</i>	NM_025892.1	10.392	10.017	-0.375	0.01	0.397
<i>Jmjd3</i>	NM_001017426.1	9.951	9.577	-0.374	0.088	0.669
<i>Pcbp4</i>	NM_021567.2	10.317	9.945	-0.372	0.01	0.399
<i>H2-Eb1</i>	NM_010382.2	8.43	8.059	-0.371	0.015	0.452
<i>Samhd1</i>	NM_018851.2	7.81	7.44	-0.37	0.025	0.511
<i>Sec61b</i>	NM_024171.2	9.883	9.514	-0.369	0.01	0.397
<i>Klhdc1</i>	NM_178253.4	9.091	8.723	-0.368	0.002	0.268
<i>1110038D17Rik</i>	NM_175133.1	10.893	10.525	-0.368	0.004	0.313
<i>Ifi30</i>	NM_023065.3	9.097	8.731	-0.366	0.002	0.254
<i>sc10004175.1_57</i>	BC026739.1	7.723	7.357	-0.366	0.004	0.302
<i>Mllt4</i>	NM_010806.1	8.261	7.899	-0.363	0	0.128
<i>Map3k8</i>	NM_007746.2	8.095	7.733	-0.362	0.005	0.341
<i>Hectd2</i>	NM_172637.1	9.335	8.976	-0.359	0.005	0.332
<i>Hap1</i>	NM_010404.2	8.329	7.97	-0.359	0.012	0.421
<i>Tipin</i>	NM_025372.1	9.836	9.478	-0.358	0.027	0.518
<i>Ppp3cc</i>	NM_008915.2	9.687	9.334	-0.354	0.026	0.515
<i>St3gal1</i>	NM_009177.4	9.172	8.821	-0.351	0.004	0.296

<i>Irf6</i>	NM_016851.2	8.677	8.326	-0.351	0.016	0.455
<i>Gng2</i>	NM_001038637.1	8.849	8.498	-0.351	0.072	0.644
<i>Oasl2</i>	NM_011854.1	9.063	8.713	-0.35	0	0.128
<i>Bcl2</i>	NM_177410.2	10.874	10.524	-0.35	0.03	0.531
<i>E2f2</i>	NM_183301.1	7.938	7.589	-0.349	0.003	0.293
<i>Ncaph</i>	NM_144818.1	8.145	7.795	-0.349	0.005	0.341
<i>Figl1</i>	NM_021891.2	7.396	7.047	-0.349	0.011	0.41
<i>Itgb7</i>	NM_013566.1	11.779	11.43	-0.348	0	0.139
<i>Anxa6</i>	NM_013472.2	12.938	12.59	-0.347	0.004	0.308
<i>Nt5e</i>	NM_011851.2	8.357	8.013	-0.344	0.021	0.492
<i>Saps3</i>	NM_029456.1	10.929	10.586	-0.343	0.007	0.366
<i>Tk1</i>	NM_009387.1	7.345	7.001	-0.343	0.035	0.554
<i>LOC100047579</i>	XM_001478437.1	9.291	8.95	-0.342	0	0.158
<i>Acot7</i>	NM_133348.1	9.161	8.82	-0.341	0	0.098
<i>Rrm1</i>	NM_009103.2	8.693	8.351	-0.341	0.003	0.293
<i>LOC100046608</i>	XM_001476583.1	9.11	8.768	-0.341	0.033	0.546
<i>2900062L11Rik</i>	NR_003642.1	9.483	9.144	-0.34	0.019	0.478
<i>Fdps</i>	NM_134469.3	10.151	9.813	-0.339	0.014	0.447
<i>Whsc1</i>	XM_898312.2	8.011	7.673	-0.337	0.003	0.281
<i>Il6ra</i>	NM_010559.2	8.713	8.376	-0.337	0.017	0.462
<i>Klrd1</i>	NM_010654.2	7.532	7.196	-0.336	0.003	0.281
<i>Qpct</i>	NM_027455.1	7.996	7.661	-0.335	0.001	0.244
<i>Cchr1</i>	NM_146248.1	8.545	8.211	-0.335	0.011	0.409
<i>Acot7</i>	NM_133348.1	8.707	8.372	-0.335	0.044	0.585
<i>Garnl4</i>	NM_001015046.2	7.831	7.497	-0.334	0.003	0.293
<i>Hist1h2ai</i>	NM_178182.1	13.209	12.874	-0.334	0.005	0.328
<i>H1f0</i>	NM_008197.3	7.471	7.137	-0.334	0.018	0.47
<i>Ccrn4l</i>	NM_009834.1	9.469	9.136	-0.333	0	0.049
<i>Cdca3</i>	NM_013538.4	8.018	7.686	-0.332	0.003	0.293
<i>Rad54l</i>	NM_009015.2	7.454	7.122	-0.332	0.018	0.477
<i>AI467606</i>	NM_178901.3	11.395	11.064	-0.331	0.001	0.211

<i>Mcm6</i>	NM_008567.1	9.897	9.567	-0.331	0.032	0.541
<i>Tnfrsf18</i>	NM_009400.2	11.519	11.189	-0.33	0.006	0.343
<i>S100a8</i>	NM_013650.2	7.207	6.878	-0.329	0.001	0.173
<i>Trappc1</i>	NM_001024206.1	10.118	9.789	-0.329	0.001	0.202
<i>Xcl1</i>	NM_008510.1	7.547	7.218	-0.329	0.007	0.364
<i>Fcgrt</i>	NM_010189.1	7.965	7.637	-0.328	0.003	0.281
<i>Cox7a2l</i>	XM_123188.1	12.506	12.178	-0.328	0.005	0.326
<i>2510009E07Rik</i>	NM_001001881.1	8.041	7.714	-0.328	0.007	0.368
<i>Ccr8</i>	NM_007720.2	10.097	9.769	-0.328	0.041	0.576
<i>Tiam1</i>	NM_009384.2	10.361	10.034	-0.327	0.006	0.341
<i>Maged2</i>	NM_030700.1	8.976	8.649	-0.326	0.011	0.41
<i>Kif1b</i>	NM_008441.2	9.132	8.806	-0.326	0.023	0.499
<i>Psat1</i>	NM_177420.1	10.128	9.804	-0.324	0.064	0.626
<i>LOC100045677</i>	XR_031705.1	8.623	8.301	-0.323	0.002	0.253
<i>LOC625360</i>	NM_001037925.1	8.832	8.509	-0.323	0.005	0.334
<i>Ifitm3</i>	NM_025378.2	8.605	8.283	-0.322	0.002	0.252
<i>D16Bwg1494e</i>	XM_358773.6	8.374	8.053	-0.321	0.022	0.495
<i>Lxn</i>	NM_016753.4	9.881	9.561	-0.32	0.003	0.293
<i>Mrpl33</i>	NM_025796.2	12.452	12.132	-0.32	0.01	0.406
<i>Lcmt1</i>	NM_025304.3	10.891	10.571	-0.32	0.033	0.547
<i>LOC100046608</i>	XM_001476583.1	8.695	8.375	-0.32	0.033	0.546
<i>Vim</i>	NM_011701.3	11.994	11.676	-0.318	0.005	0.328
<i>Il6ra</i>	NM_010559.2	10.315	9.997	-0.318	0.045	0.587
<i>Ptms</i>	NM_026988.1	8.186	7.87	-0.316	0.013	0.434
<i>Rab4a</i>	NM_009003.2	8.112	7.796	-0.316	0.014	0.44
<i>LOC381770</i>	XM_355767.1	8.149	7.835	-0.315	0.002	0.254
<i>Hmgn3</i>	NM_026122.3	9.676	9.362	-0.315	0.005	0.332
<i>Akr1c12</i>	NM_013777.2	9.132	8.817	-0.314	0.006	0.341
<i>0610007P14Rik</i>	NM_021446.1	9.532	9.219	-0.313	0.001	0.249
<i>Arhgef6</i>	NM_152801.1	11.984	11.673	-0.311	0.014	0.447
<i>Gins2</i>	NM_178856.1	7.638	7.327	-0.311	0.03	0.533

<i>LOC100040592</i>	XM_001475189.1	11.33	11.02	-0.31	0.005	0.326
<i>Psme2</i>	NM_011190.3	9.499	9.189	-0.31	0.01	0.397
<i>Bcor</i>	NM_029510.1	10.18	9.871	-0.309	0.006	0.358
<i>Zmat3</i>	NM_009517.2	9.129	8.819	-0.309	0.065	0.628
<i>Gsto1</i>	NM_010362.2	9.823	9.516	-0.307	0.002	0.265
<i>Hist2h2ac</i>	NM_175662.1	13.389	13.082	-0.307	0.007	0.365
<i>Fas</i>	NM_007987.1	10.63	10.324	-0.306	0.004	0.302
<i>Dnahc8</i>	NM_013811.3	9.621	9.316	-0.306	0.017	0.46
<i>Trappc1</i>	NM_001024206.1	10.48	10.175	-0.306	0.025	0.509
<i>EG433229</i>	XM_899874.3	11.386	11.081	-0.305	0.006	0.355
<i>Atn1</i>	NM_007881.4	9.061	8.757	-0.304	0.002	0.268
<i>Zdhhc15</i>	NM_175358.2	8.316	8.012	-0.304	0.003	0.289
<i>Cd74</i>	NM_010545.3	9.633	9.33	-0.303	0.024	0.506
<i>ENSMUSG00000043795</i>	XM_001480835.1	13.167	12.865	-0.302	0.007	0.368
<i>2010001J22Rik</i>	NM_001013022.1	8.198	7.896	-0.302	0.012	0.421
<i>Sqstm1</i>	NM_011018.2	10.888	11.189	0.301	0.004	0.314
<i>Ddx6</i>	NM_007841.3	9.671	9.971	0.301	0.12	0.711
<i>BC094916</i>	NM_001024721.1	9.071	9.373	0.302	0.013	0.434
<i>Pecam1</i>	NM_001032378.1	8.679	8.981	0.302	0.034	0.548
<i>LOC433955</i>	XR_033167.1	11.844	12.148	0.303	0.004	0.308
<i>Slc25a25</i>	NM_146118.2	8.966	9.268	0.303	0.03	0.531
<i>scI0002975.1_346</i>	AK088505.1	10.127	10.43	0.303	0.089	0.671
<i>Btbd11</i>	NM_001017525.1	9.793	10.097	0.304	0.002	0.27
<i>Pdcd4</i>	NM_011050.3	11.185	11.489	0.304	0.024	0.505
<i>D12Ert551e</i>	NM_028731.2	8.523	8.827	0.304	0.043	0.582
<i>Hcn3</i>	NM_008227.1	7.447	7.753	0.306	0.016	0.455
<i>H6pd</i>	NM_173371.3	9.417	9.724	0.307	0.001	0.228
<i>LOC100043821</i>	XM_001481017.1	9.966	10.274	0.307	0.012	0.419
<i>Csde1</i>	NM_144901.2	8.42	8.727	0.307	0.022	0.495
<i>EG434404</i>	XM_486222.5	10.709	11.016	0.307	0.134	0.726
<i>Wdr51b</i>	NM_027740.5	7.834	8.142	0.308	0.002	0.259

<i>Peli1</i>	NM_023324.2	10.049	10.358	0.309	0.001	0.244
<i>LOC624083</i>	XR_035632.1	10.818	11.127	0.309	0.046	0.589
<i>2210010C17Rik</i>	NM_027308.2	8.143	8.454	0.311	0.001	0.244
<i>0610007P22Rik</i>	NM_026676.2	7.962	8.273	0.311	0.005	0.328
<i>BC022224</i>	NM_177564.4	7.546	7.856	0.311	0.02	0.487
<i>LOC667370</i>	XM_001480084.1	8.999	9.311	0.312	0.033	0.545
<i>2010308M01Rik</i>	XM_131083.2	9.31	9.622	0.312	0.062	0.623
<i>Pitpnm2</i>	NM_011256.1	11.158	11.471	0.313	0.012	0.417
<i>Eef2</i>	NM_007907.1	11.443	11.756	0.313	0.055	0.608
<i>B230342M21Rik</i>	NM_133898.3	10.428	10.742	0.314	0.003	0.293
<i>Rpl29</i>	NM_009082.2	11.692	12.006	0.314	0.003	0.293
<i>Arrdc4</i>	NM_001042592.2	7.92	8.235	0.315	0	0.123
<i>Zfp295</i>	NM_001081684.1	8.459	8.775	0.316	0.003	0.281
<i>Smpdl3a</i>	NM_020561.2	9.325	9.643	0.317	0.011	0.409
<i>Per1</i>	NM_011065.2	11.644	11.962	0.318	0	0.153
<i>Cbx7</i>	NM_144811.3	9.705	10.023	0.318	0.01	0.397
<i>Gnptg</i>	NM_172529.3	10.705	11.023	0.318	0.015	0.45
<i>C030048B08Rik</i>	NM_172991.2	9.069	9.388	0.319	0.029	0.528
<i>EG382843</i>	XM_905000.3	10.782	11.103	0.32	0.001	0.199
<i>Galnt9</i>	NM_198306.1	7.653	7.973	0.32	0.002	0.254
<i>Gimap5</i>	NM_175035.5	8.99	9.31	0.32	0.017	0.46
<i>Gpr137b-ps</i>	NR_003568.1	7.056	7.378	0.323	0	0.157
<i>Xdh</i>	NM_011723.2	7.568	7.891	0.323	0	0.078
<i>Psd2</i>	NM_028707.3	7.34	7.663	0.323	0.003	0.293
<i>Gimap5</i>	NM_175035.5	8.556	8.879	0.323	0.021	0.49
<i>Jun</i>	NM_010591.1	8.236	8.56	0.324	0.001	0.244
<i>Rgs11</i>	XM_128488.3	8.769	9.093	0.324	0.003	0.293
<i>Inadl</i>	NM_172696.2	7.916	8.24	0.324	0.078	0.656
<i>Eef2</i>	NM_007907.1	12.049	12.374	0.325	0.04	0.571
<i>Sfxn4</i>	NM_053198.2	7.761	8.089	0.328	0.022	0.493
<i>Gprasp1</i>	NM_001005385.1	10.693	11.021	0.328	0.025	0.511

<i>Ifit3</i>	NM_010501.2	8.849	9.177	0.329	0.003	0.293
<i>Srfbp1</i>	NM_026040.2	8.475	8.804	0.329	0.023	0.5
<i>Rn18s</i>	NR_003278.1	11.008	11.339	0.331	0.019	0.478
<i>Oat</i>	NM_016978.1	10.693	11.026	0.332	0.001	0.193
<i>Plp1</i>	NM_011123.2	7.647	7.981	0.334	0.047	0.591
<i>Smyd3</i>	NM_027188.3	7.854	8.19	0.336	0	0.128
<i>Plk3</i>	NM_013807.1	9.732	10.069	0.336	0.011	0.407
<i>Egr1</i>	NM_007913.5	13.522	13.861	0.339	0.005	0.326
<i>Sdcbp2</i>	NM_145535.1	8.611	8.95	0.339	0.007	0.369
<i>LOC100046232</i>	XM_001475817.1	8.518	8.858	0.34	0.02	0.487
<i>D12Ertd551e</i>	NM_028731.5	8.683	9.023	0.34	0.028	0.522
<i>LOC100045780</i>	XM_001475019.1	9.516	9.857	0.341	0.007	0.366
<i>4631423B10Rik</i>	NM_175422.2	9.934	10.276	0.342	0.001	0.228
<i>Atg16l2</i>	XM_001476186.1	9.509	9.851	0.342	0.006	0.349
<i>Ppic</i>	NM_008908.3	7.792	8.135	0.343	0.007	0.362
<i>Ggnbp1</i>	NM_027544.1	8.759	9.102	0.343	0.01	0.397
<i>Specc1</i>	NM_001029936.2	7.911	8.254	0.344	0.004	0.32
<i>Aebp2</i>	NM_009637.1	8.633	8.978	0.344	0.016	0.455
<i>Pknox1</i>	NM_016670.2	8.586	8.931	0.344	0.02	0.486
<i>Ephx1</i>	NM_010145.2	11.553	11.898	0.345	0	0.078
<i>LOC100048331</i>	XR_034509.1	7.517	7.863	0.345	0.011	0.408
<i>Tardbp</i>	NM_001008545.1	9.972	10.318	0.346	0.005	0.328
<i>lqgap2</i>	NM_027711.1	10.394	10.74	0.346	0.015	0.452
<i>LOC100045617</i>	XM_001474613.1	11.826	12.173	0.347	0.002	0.258
<i>Tob2</i>	NM_020507.3	10.68	11.026	0.347	0.012	0.425
<i>Pknox1</i>	NM_016670.2	8.974	9.321	0.347	0.026	0.513
<i>Ifit3</i>	NM_010501.1	11.325	11.673	0.348	0.005	0.332
<i>Hsd3b2</i>	NM_153193.2	11.119	11.467	0.348	0.015	0.452
<i>Numa1</i>	NM_133947.2	9.026	9.375	0.349	0.035	0.554
<i>Rn18s</i>	NR_003278.1	12.645	12.994	0.349	0.046	0.589
<i>EG434197</i>	NM_001013811.2	11.372	11.722	0.35	0.012	0.421

<i>LOC384710</i>	XR_003896.1	11.3	11.651	0.351	0.118	0.707
<i>Gramd1a</i>	NM_027898.3	8.823	9.177	0.354	0.018	0.475
<i>Nfkbib</i>	NM_010908.3	8.5	8.855	0.355	0.011	0.41
<i>AI450540</i>	NM_145505.2	10.416	10.771	0.356	0.001	0.173
<i>LOC667337</i>	XM_990977.1	9.123	9.479	0.356	0.005	0.33
<i>Wdr89</i>	XM_001479426.1	10.385	10.742	0.357	0.094	0.677
<i>Ccdc126</i>	NM_175098.2	8.751	9.112	0.361	0.002	0.251
<i>Pkp4</i>	NM_175464.2	9.639	10	0.361	0.003	0.281
<i>Dap</i>	NM_146057.1	8.729	9.09	0.361	0.022	0.493
<i>Ppargc1b</i>	NM_133249.2	9.024	9.386	0.362	0.003	0.281
<i>Folr4</i>	NM_022888.1	8.384	8.747	0.363	0	0.098
<i>E130012A19Rik</i>	NM_175332.3	7.869	8.232	0.363	0.069	0.64
<i>4930431B09Rik</i>	XR_002338.2	9.304	9.668	0.364	0	0.098
<i>Fbxl12</i>	NM_013911.2	8.352	8.716	0.364	0.004	0.307
<i>Tcf25</i>	NM_001037878.1	9.679	10.043	0.364	0.015	0.452
<i>LOC623121</i>	XM_001480713.1	10.335	10.7	0.365	0.003	0.281
<i>Ube2n</i>	NM_080560.3	8.594	8.959	0.365	0.009	0.387
<i>H2-Q8</i>	NM_023124.2	9.677	10.042	0.365	0.015	0.452
<i>Klf6</i>	NM_011803.2	11.694	12.06	0.366	0.032	0.541
<i>LincR</i>	NM_153408.2	7.55	7.917	0.367	0.003	0.281
<i>Klf6</i>	NM_011803.2	8.189	8.556	0.367	0.016	0.455
<i>LOC630146</i>	XM_973806.1	7.731	8.098	0.367	0.019	0.482
<i>Tlr1</i>	NM_030682.1	8.361	8.735	0.374	0.006	0.355
<i>Rabac1</i>	NM_010261.2	10.892	11.266	0.374	0.01	0.397
<i>Rapgef6</i>	NM_175258.3	8.842	9.216	0.374	0.016	0.455
<i>Ifngr1</i>	NM_010511.2	9.765	10.144	0.379	0.024	0.505
<i>EG668300</i>	XM_001000750.1	9.736	10.117	0.38	0.053	0.606
<i>Gprasp1</i>	NM_026081.5	8.882	9.265	0.382	0.026	0.514
<i>Adh1</i>	NM_007409.2	7.967	8.351	0.384	0.016	0.455
<i>Asah3l</i>	NM_139306.1	7.849	8.234	0.385	0.006	0.346
<i>Adi1</i>	NM_134052.2	10.729	11.117	0.388	0.006	0.353

<i>Errfi1</i>	NM_133753.1	8.917	9.306	0.389	0.002	0.259
<i>Ccdc117</i>	NM_134033.1	9.134	9.525	0.391	0.007	0.362
<i>1810054D07Rik</i>	NM_027238.2	8.155	8.548	0.393	0.005	0.337
<i>LOC674427</i>	XR_030796.1	8.457	8.85	0.393	0.011	0.407
<i>Accs</i>	NM_183220.2	9.242	9.637	0.394	0.009	0.393
<i>Actb</i>	NM_007393.3	8.265	8.66	0.395	0.136	0.73
<i>H2-Q6</i>	NM_207648.1	9.216	9.612	0.396	0.032	0.541
<i>Mycbp2</i>	NM_207215.2	11.013	11.409	0.397	0.003	0.293
<i>EG384179</i>	XM_912278.3	8.256	8.653	0.397	0.049	0.597
<i>LOC675899</i>	XM_985882.1	11.245	11.645	0.4	0.031	0.536
<i>Ttc3</i>	NM_009441.2	8.364	8.766	0.402	0.012	0.426
<i>Ogfrl1</i>	XM_973033.1	7.87	8.273	0.403	0.014	0.444
<i>Cldn10</i>	NM_023878.2	8.244	8.649	0.405	0.001	0.223
<i>Wdr51b</i>	NM_027740.3	9.212	9.619	0.406	0	0.093
<i>LOC385615</i>	XM_358790.1	10.099	10.505	0.407	0.002	0.259
<i>A230050P20Rik</i>	NM_175687.1	10.425	10.832	0.407	0.012	0.415
<i>D330028D13Rik</i>	NM_172727.2	8.307	8.715	0.408	0.002	0.254
<i>Adh1</i>	NM_007409.2	7.755	8.163	0.408	0.003	0.293
<i>Icam1</i>	NM_010493.2	9.248	9.656	0.408	0.03	0.534
<i>Ldhd</i>	NM_027570.3	7.44	7.849	0.409	0.001	0.223
<i>9430079M16Rik</i>	NM_175414.2	7.677	8.086	0.409	0.003	0.281
<i>LOC100040505</i>	XM_001475564.1	8.977	9.389	0.411	0	0.098
<i>Arsb</i>	NM_009712.3	8.87	9.283	0.413	0	0.153
<i>C030048B08Rik</i>	NM_172991.2	10.389	10.806	0.416	0.007	0.366
<i>Trub1</i>	NM_028115.2	9.256	9.672	0.416	0.007	0.361
<i>Rab6b</i>	NM_173781.3	9.212	9.63	0.418	0.001	0.244
<i>Gm484</i>	NM_001033356.2	7.866	8.285	0.419	0.007	0.366
<i>LOC623121</i>	XM_001480713.1	12.083	12.505	0.422	0.016	0.455
<i>Xist</i>	NR_001463.2	11.926	12.35	0.424	0.006	0.346
<i>Rundc3b</i>	NM_198620.1	8.51	8.939	0.43	0	0.089
<i>Xist</i>	NR_001463.2	11.783	12.215	0.432	0.016	0.457

<i>Trub1</i>	NM_028115.2	9.194	9.628	0.434	0.003	0.293
<i>Ctsw</i>	NM_009985.3	12.385	12.82	0.435	0.004	0.303
<i>Ppic</i>	NM_008908.1	9.332	9.778	0.445	0.003	0.293
<i>Itgae</i>	NM_008399.1	7.897	8.343	0.446	0.001	0.244
<i>Ltb</i>	NM_008518.1	11.509	11.965	0.456	0.001	0.236
<i>Gpsm1</i>	NM_153410.4	9.322	9.777	0.456	0.006	0.343
<i>Fanci</i>	NM_145946.2	7.794	8.252	0.458	0.005	0.328
<i>Magi1</i>	NM_001029850.2	7.013	7.472	0.46	0.014	0.442
<i>Tmem108</i>	NM_178638.2	9.636	10.097	0.461	0.006	0.359
<i>lqgap2</i>	NM_027711.1	9.415	9.88	0.465	0	0.153
<i>Gbp3</i>	NM_018734.3	8.508	8.973	0.465	0.004	0.302
<i>Il8ra</i>	NM_178241.4	7.187	7.653	0.466	0	0.157
<i>Egr2</i>	NM_010118.1	10.3	10.767	0.467	0.001	0.184
<i>Tgif1</i>	NM_009372.2	7.708	8.176	0.468	0.002	0.254
<i>EG665378</i>	NM_001081746.1	8.774	9.256	0.483	0.005	0.326
<i>Usp11</i>	NM_145628.3	7.42	7.904	0.484	0.001	0.249
<i>Dusp2</i>	NM_010090.2	12.918	13.406	0.488	0	0.147
<i>Rp23-357i14.1</i>	NM_001085518.1	8.835	9.325	0.49	0.003	0.281
<i>Snf1lk</i>	NM_010831.2	8.287	8.78	0.494	0	0.153
<i>Klf9</i>	NM_010638.4	9.353	9.847	0.494	0.002	0.257
<i>Irs2</i>	NM_001081212.1	9.099	9.597	0.499	0.005	0.337
<i>Cldn10</i>	NM_021386.3	9.035	9.537	0.502	0	0.153
<i>Eif4a2</i>	NM_013506.1	10.507	11.013	0.506	0.009	0.384
<i>Actb</i>	NM_007393.1	8.292	8.802	0.511	0.126	0.718
<i>Itgae</i>	NM_008399.1	7.869	8.394	0.525	0.005	0.328
<i>Pstpip2</i>	NM_013831.4	8.417	8.952	0.535	0.014	0.441
<i>Abcb1b</i>	NM_011075.1	8.042	8.589	0.547	0.004	0.308
<i>Gbp3</i>	NM_018734.2	8.207	8.771	0.564	0	0.04
<i>Ldhd</i>	NM_027570.3	7.228	7.798	0.571	0	0.153
<i>Ank</i>	NM_020332.3	7.842	8.427	0.586	0.001	0.238
<i>Folr4</i>	NM_176807.3	8.462	9.053	0.592	0	0.168

<i>Camk2b</i>	NM_007595.3	7.891	8.486	0.594	0	0.171
<i>A630023P12Rik</i>	NM_173766.2	8.824	9.43	0.606	0.026	0.515
<i>Stx1a</i>	NM_016801.3	10.363	10.971	0.608	0	0.153
<i>LOC100046770</i>	XM_001476780.1	8.55	9.169	0.619	0	0.098
<i>Ccl4</i>	NM_013652.2	8.584	9.203	0.619	0.022	0.496
<i>Folr4</i>	NM_176807.3	8.578	9.205	0.627	0.001	0.24
<i>Tgif1</i>	NM_009372.2	8.75	9.38	0.63	0.001	0.223
<i>Actb</i>	NM_007393.3	11.825	12.455	0.63	0.144	0.734
<i>Art4</i>	NM_026639.2	8.98	9.616	0.636	0	0.128
<i>Art2b</i>	NM_019915.2	7.874	8.529	0.655	0	0.098
<i>Lpxn</i>	NM_134152.3	10.975	11.636	0.661	0.001	0.184
<i>Dusp2</i>	NM_010090.2	11.848	12.511	0.663	0	0.128
<i>Igf1r</i>	NM_010513.2	8.117	8.786	0.669	0.001	0.244
<i>H2-Ob</i>	NM_010389.3	8.558	9.228	0.67	0.003	0.281
<i>Ebi2</i>	NM_183031.1	10.663	11.341	0.678	0	0.049
<i>Arrdc3</i>	NM_178917.2	8.788	9.469	0.68	0.014	0.444
<i>Magi1</i>	NM_010367.2	7.046	7.749	0.703	0.004	0.315
<i>2610035D17Rik</i>	XM_902349.2	9.242	9.956	0.714	0	0.078
<i>Gfi1</i>	NM_010278.1	9.533	10.264	0.731	0	0.127
<i>Foxq1</i>	NM_008239.3	7.228	7.981	0.753	0	0.04
<i>Adam11</i>	NM_009613.1	8.105	8.93	0.825	0	0.04
<i>Eng</i>	NM_007932.1	7.963	8.816	0.853	0.001	0.232
<i>Rgs1</i>	NM_015811.1	9.251	10.167	0.916	0.002	0.269
<i>Rgs1</i>	NM_015811.1	10.054	10.997	0.943	0	0.128
<i>Rgs1</i>	NM_015811.1	9.268	10.247	0.979	0	0.156
<i>Slc15a2</i>	NM_021301.1	8.733	10.155	1.423	0.002	0.254
<i>Slc15a2</i>	XM_147213.1	9.697	11.197	1.501	0	0.04
<i>Gbp1</i>	NM_010259.2	6.973	9.273	2.3	0	0.04

Supplemental Table 2. List of Primers

Real-time Primers

<i>mPdlim4</i> -1F	5'-CACCATCTCGCGGGTTCAT-3'
<i>mPdlim4</i> -1R	5'-GCAGCCTTTAATGCGGTCT-3'
<i>mSIP1</i> -1F	5'-ATGGTGTCCACTAGCATCCC-3'
<i>mSIP1</i> -1R	5'-CGATGTTCAACTTGCCTGTGTAG-3'
<i>mKlf2</i> -1F	5'-CTAAAGGCGCATCTGCGTA-3'
<i>mKlf2</i> -1R	5'-TAGTGGCGGGTAAGCTCGT-3'
<i>mAmigo2</i> -1F	5'-CTGTGTCTGTTGGTGATCGCA-3'
<i>mAmigo2</i> -1R	5'-CGGGCACCTTAGATAGGTTTTTG-3'
<i>mCCR7</i> -1F	5'-GCTCCAGGCACGCAACTTT-3'
<i>mCCR7</i> -1R	5'-GACTACCACCACGGCAATGA-3'
<i>mSlc15a2</i> -1F	5'-GGCACGGACTAGATACTTCTCG-3'
<i>mSlc15a2</i> -1R	5'-AACGGCTGTTACATCCTTTT-3'
<i>mCD62L</i> -1F	5'-TGGCAAGGCGGTTAAAAA-3'
<i>mCD62L</i> -1R	5'-AAAACCTGCAGCAGACTGTGG-3'
<i>mIgfbp4</i> -1F	5'-AGAAGCCCCTGCGTACATTG-3'
<i>mIgfbp4</i> -1R	5'-TGTCCCCACGATCTTCATCTT-3'
<i>mGbp1</i> -1F	5'-ACAACCTCAGCTAACTTTGTGGG-3'
<i>mGbp1</i> -1R	5'-TGATACACAGGCGAGGCATATTA-3'
<i>mLgals1</i> -1F	5'-AACCTGGGGAATGTCTCAAAGT-3'
<i>mLgals1</i> -1R	5'-GGTGATGCACACCTCTGTGA-3'
<i>mErdr1</i> -1F	5'-GGTCAAGATGTATGTGCCACC-3'
<i>mErdr1</i> -1R	5'-GCTTCTACGTGTGTGCTTTTCG-3'
<i>mSamhd1</i> -1F	5'-CAGCTCATTCCGGGTGTACTGT-3'
<i>mSamhd1</i> -1R	5'-GTGGCTTGGTGAAGTCCCT-3'
<i>mAkr1c18</i> -1F	5'-TCGTCCAGAGTTGGTCAGAC-3'
<i>mAkr1c18</i> -1R	5'-GCCTGGCCTATCTCTTCTTCAT-3'
<i>mAdam11</i> -1F	5'-ATCGTAGAGCCTAAGGAGATAGC-3'
<i>mAdam11</i> -1R	5'-TTGGGGAGAGCAGACTGGG-3'
<i>mActin</i> -1F	5'-CCTCTGGTCGTACCACAG-3'
<i>mActin</i> -1R	5'-GCCACAGGATTCCATACCC-3'
<i>mGapdh</i> -1F	5'-CTGCACCACCAACTGCTTAG-3'
<i>mGapdh</i> -1R	5'-GTCGCTGTTGAAGTCAGAGG-3'
<i>mCCR5</i> -1F	5'-AGGCCATGCAGGCAACAG-3'
<i>mCCR5</i> -1R	5'-TCTCTCCAACAAAGGCATAGATGA-3'

ChIP-qPCR Primers

<i>mPdlim4</i> -2F	5'-TCCTCCGTGTCCGGCTCCAG-3'
<i>mPdlim4</i> -2R	5'-GCGGAAGCCCCAGGGTGAAG-3'
<i>mSIP1</i> -2F	5'-GAGAGGGGAACCCCCGGTCC-3'
<i>mSIP1</i> -2R	5'-CCTCCACCCCCTCCACTCCG-3'

sgRNA Primers

<i>mPdlim4</i> -sgRNA-1F	5'-CACCG ACCCA CTCGG TGACCCTGCG-3'
<i>mPdlim4</i> -sgRNA-1R	5'-AAACCGCAGGGTCACCGAGTGGGTC-3'
<i>mPdlim4</i> -sgRNA-2F	5'-CACCG GCCGCGCAGGGTCACCGAGT-3'
<i>mPdlim4</i> -sgRNA-2R	5'-AAACACTCGGTGACCCTGCGCGGCC-3'

Cloning Primers

<i>mPdlim4</i> -3F	5'-TCTGCTAGCCAGCCCCCAGAGACCATGCAGG-3'
<i>mPdlim4</i> -3R	5'-GGTGCTAGCGGGCCGGAGCTGCAGCCAGAGC-3'
<i>mPdlim4</i> -4F	5'-GGGGCTAGCTGGTTGCCAGCCCCCAGAGAC-3'
<i>mPdlim4</i> -5F	5'-AGAGCTAGCCAAGACAAGGCCCAAGAAGC-3'
<i>mPdlim4</i> -6F	5'-ACGGCTAGCTGGTTTGGGAACAAGGCACG-3'
<i>mPdlim4</i> -7F	5'-CCT GCTAGCGGCAGAACTCAGACATCCAAG-3'
<i>mPdlim4</i> -8F	5'-GGTGCTAGCAGCCCCCAAAGTGGGAGGGT-3'
<i>mSIP1</i> -F	5'-TACCCATACGATGTTCCAGATTACGCTATGGTGTCCACTAGCATC-3'
<i>mSIP1</i> -R	5'-TTAGGAAGAAGAATTGACG-3'
<i>mSIP1</i> -M-F	5'-CATCCGGATCGTATCTCCTTGCAAATGCCCAACGGAGACTCTGCTG-3'
<i>mSIP1</i> -M-R	5'-GAGTCTCCGTTGGGGCATTGCAAGGAGATACGATCCGGATGAAGG-3'

Supplemental Table 3. Key resources

REAGENT or RESOURCE	SOURCE	IDENTIFIER	Concentration
Antibodies and Proteins			
Klf2(IP)	Millipore	09-820	5µg /IP reaction
PDLIM4 (Western)	Santa Cruz	sc-166582	1:250 for WB
S1P1 (IF)	Thermo Fisher	PA1-1040	1µg/ml for IF
Anti-mouse JMJD3 antibody (Western)	Active motif	61387	1:250 for WB
PDLIM4 (IF and IP)	Abcam	Ab6045	1µg/ml for IF, 5µg /IP reaction
Rhodamine Phalloidin	Cytoskeleton, In	PHDR1	1:100 for staining
Sphingosine-1-Phosphate(S1P)	CAYMAN CHEMICAL	62570	50nM for CD4 T cell treatment
CCR7 Monoclonal antibody	Invitrogen	MA1-163	1:1000 for WB
S1P1(IP)	R&D system	MAB7089	5µg /IP reaction
HA	Invitrogen	26183-HRP	1:500 for WB
FLAG	Thermo Fisher	MA1-91878	1:2000 for WB
Alexa Fluor 488 donkey anti-goat IgG	Invitrogen	A11055	1:1000 for IF
Alexa Fluor 488 donkey anti-mouse IgG	Invitrogen	A21202	1:1000 for IF
Cy5 goat anti rabbit IgG	Life techno	A10523	1:1000 for IF
WDR5	Santa Cruz	sc-47572	1:250 for WB
Klf2	Santa Cruz	sc-18690	1:500 for WB
GAPDH	Santa Cruz	sc-47724	1:1000 for WB
anti-Mouse IgG-HRP	Thermo Fisher	31430	1:2500 for WB
anti-Rabbit IgG-HRP	Thermo Fisher	31460	1:2500 for WB
anti-Goat IgG-HRP	Thermo Fisher	A15999	1:1000 for WB
Functional Grade anti-mouse CD3 Clone:145-2C11	eBioscience	16-0031-82	1:500 for stimulation
Functional Grade anti-mouse CD28 Clone:37.51	eBioscience	16-0281-86	1:1000 for stimulation
Anti-mouse CD3 PE Clone:eBio500A2	eBioscience	12-0033-83	1:100 for FACS
Anti-mouse CD4 eFluor450 Clone:GK1.5	eBioscience	48-0041-82	1:100 for FACS
Anti-Mouse CD8 APC Clone:53-6.7	eBioscience	17-0081-83	1:100 for FACS
Anti-Mouse V 3.2 TCR FITC Clone3-16	BD Bioscience	553219	1:100 for FACS
Anti-mouse CD4 APC Clone:RM4-5	eBioscience	17-0042-82	1:100 for FACS
Anti-Mouse CD8b FITC Clone53-5.8	BD Bioscience	553040	1:100 for FACS
Klf2	Invitrogen	PA5-40591	1:1000 for WB
Anti-Mouse CCR7 PE Clone: 4B12	eBioscience	12-1971-82	1:100 for FACS
Anti-Mouse CD62L FITC Clone: MEL-14	eBioscience	17-0621-85	1:100 for FACS
Jmjd3	Santa Cruz	sc-130157	1:100 for WB
Anti-mouse JMJD3 antibody	ABGENT	AP1022b	1:500 for WB
Anti-mouse CD3 PE-Cy5 Clone:145-2C11	eBioscience	15-0031-83	1:100 for FACS
S1P1(WB)	Santa Cruz	sc-48356	1:200 for WB
Recombinant Murine Exodus-2 (CCL21)	PEPROTECH	250-13	40ng/ml CD4 T cell treatment
FITC rat Isotype control	BD Pharmingen	554684	1:100 for FACS
FITC Mouse IgG isotype control	BD Pharmingen	554679	1:100 for FACS
PE Mouse IgG isotype control	BioLegend	400112	1:100 for FACS
APC Mouse IgG isotype control	BioLegend	400120	1:100 for FACS
Mouse IgG isotype control	Thermo Fisher	31903	
Rabbit IgG isotype control	Thermo Fisher	10500C	

Goat IgG isotype control	Thermo Fisher	31245	
Rat IgG isotype control	Thermo Fisher	10700	
Critical Commercial Kit and Assays			
ChIP Sample Prep Kit	Cell Signaling		9003
Actin Binding Protein Spin-Down Assay Kit	Cytoskeleton, In		BK001
Mouse CD4 Naïve T cell enrichment kit	ThermoFisher		8804682474
NEB HiFi DNA assembly Master mix	NEB		E2621
Fluoroshield Mounting Medium with DAPI	Abcam		Ab104139
BD Matrigel	BD		356231
Anti-HA Beads	Pierce		88837
Anti-FLAG Beads	Pierce		A36798
GST Spin Purification kit	Pierce		16107
Deposited Data			
ChIP-seq			GSE58775
Experimental Models: Cell Lines			
293GP	ATCC		ATCC CRL-3215
Experimental Models: Organisms/Strains			
<i>Rag2^{-/-}γc^{-/-}</i>	Taconic		4111
RAG1 ^{B^w} TRP-1	Jackson Lab		008684
2D2	Jackson Lab		006912
C57BL/6	Jackson Lab		000664
NSG	Jackson Lab		005557
<i>Jmjd3^{fl/fl}</i> :CD4-Cre	This paper		N/A
Recombinant DNA			
FUGW- <i>Pdlim4</i> -GFP	This paper		N/A
FUGW-GFP	This paper		N/A
pCLIG- <i>Jmjd3</i> -IRES-GFP	This paper		N/A
pCLIG- <i>Pdlim4</i> -IRES-GFP	This paper		N/A
LentiGuide-Puro	Addgene		52963
LentiCRISPR V2	Addgene		52961
pcDNA3.1-HA- <i>Slp1</i>	This paper		N/A
pcDNA3.1-FLAG- <i>Pdlim4</i>	This paper		N/A
Software and Algorithms			
Image J			
Image Lab Software	Bio-Rad		Image Lab Software

NIS-Elements	Nikon	NIS-Elements
GraphPad Prism	Graphpad Software	GraphPad Prism
Other		
BL21(DE3)pLysS Competent Cells	Promega	L1195