

Supplementary Figure 1. Absolute number of B cell subsets per 0.1 gm of tissue. Shown here are the mean±S.D. of A. weight of a whole liver or spleen at various ages. B. absolute number of each B cell subset per 0.1 gm of tissue weight.

Supplementary Figure 2. Representative H&E pictures of extrahepatic bile ducts from RRV-infected mice that received adoptively transferred B cells.

Supplementary 3. Adoptive transfer of B cells into RRV-infected Ig- $\alpha^{-/-}$  mice results in increased liver NK cell infiltrates. Summary of absolute numbers of liver NK cell infiltrates in newborn Ig- $\alpha^{-/-}$  recipient mice that received either BSS or RRV alone, 14 day old control (BSS) B cells ( $1 \times 10^7$  cells i.p.) with BSS or RRV, or 14 day old BA (RRV) B cells ( $1 \times 10^7$  cells i.p.) with BSS or RRV. \* $p < 0.05$

Supplementary Figure 4. Characterization of 3-83 Ig knock-in mouse B cells. Representative density plots of liver and spleen B cells from wildtype (WT) and 3-83 Ig knock-in mice (3-83) (gated on FSC/SSC lymphocytes, CD45<sup>+</sup> cells, CD19<sup>+</sup> cells). 3-83Ig<sup>+</sup> B cells are identified based on staining with the anti-idiotypic antibody to 3-83 heavy and light chain (clone 54.1). These cells are also kappa-positive and lambda low/negative.

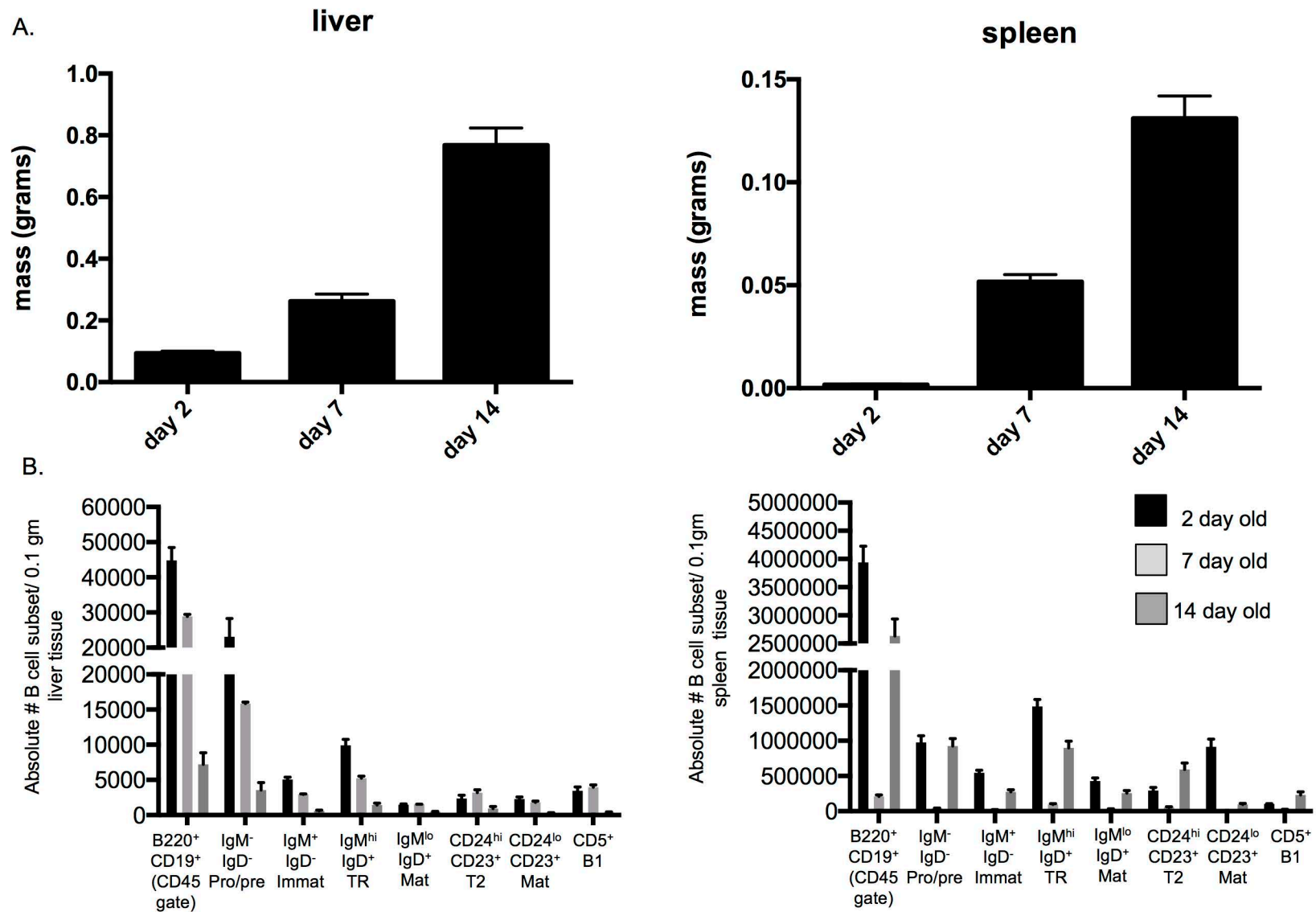
Supplementary Figure 5. RRV-BA B cells produce pro-inflammatory molecules. *Ex-vivo* analysis of intracellular cytokine staining of liver and spleen B cells from BSS-control and RRV-BA mice (gated on FSC/SSC lymphocytes, CD45<sup>+</sup> cells, CD19<sup>+</sup> IgM<sup>+</sup> cells). \*\* $p < 0.005$ ; \* $p < 0.05$

Supplementary Figure 6. Purification of liver B cells for RNA-Seq analysis. Summary FACS

analysis of ARIA cell sorting of B cells from BSS-control and RRV-BA livers, verifying that the isolated cells were positive for CD19 and negative for other immune cell markers (CD3, CD11b, F480, NKG2d). Levels of B cell purity from parent lymphocyte group was 98-100%.

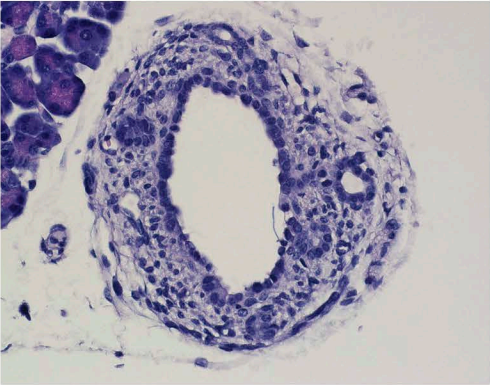
Supplementary Figure 7. RNA-Seq rank list of fold change in RRV-BA liver B cell genes. Shown is the fold change in gene expression from RRV-BA liver B cells compared to BSS-control liver

Supplementary Figure 1.

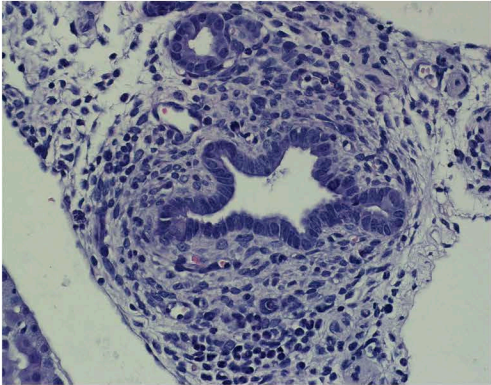


Supplementary Figure 2.

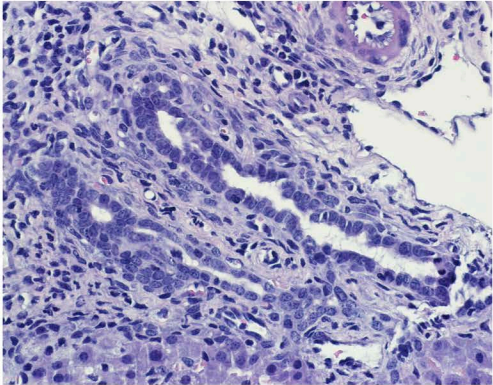
RRV-injected  $Ig\text{-}\alpha^{-/-}$  mouse



Control B cells + RRV into  $Ig\text{-}\alpha^{-/-}$

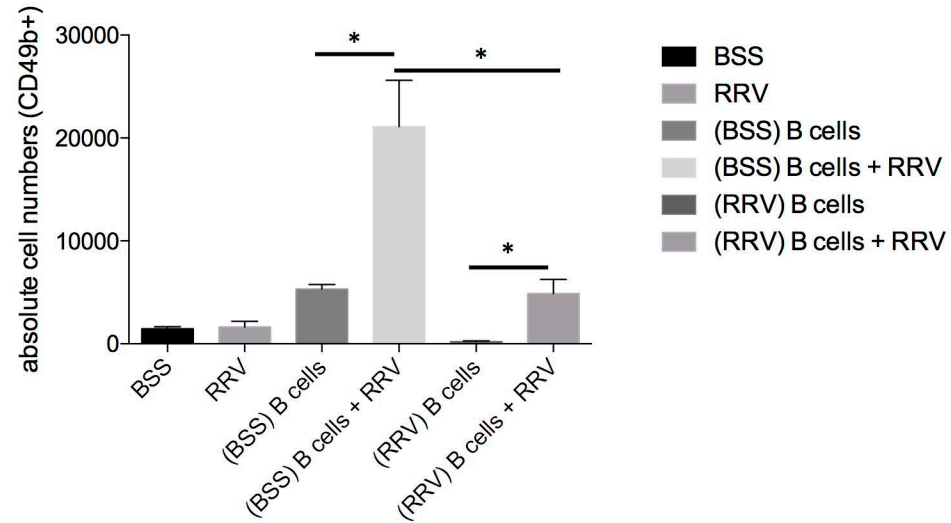


BA B cells + RRV into  $Ig\text{-}\alpha^{-/-}$



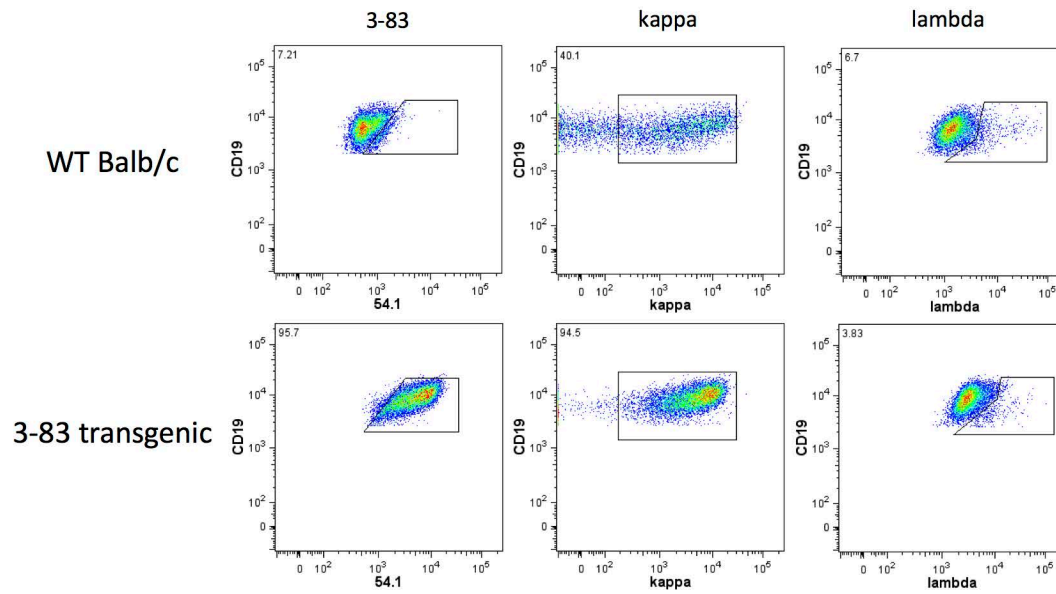
Supplementary Figure 3.

Liver absolute NK (CD49b<sup>+</sup>) cell numbers in Ig- $\alpha^{-/-}$  mice

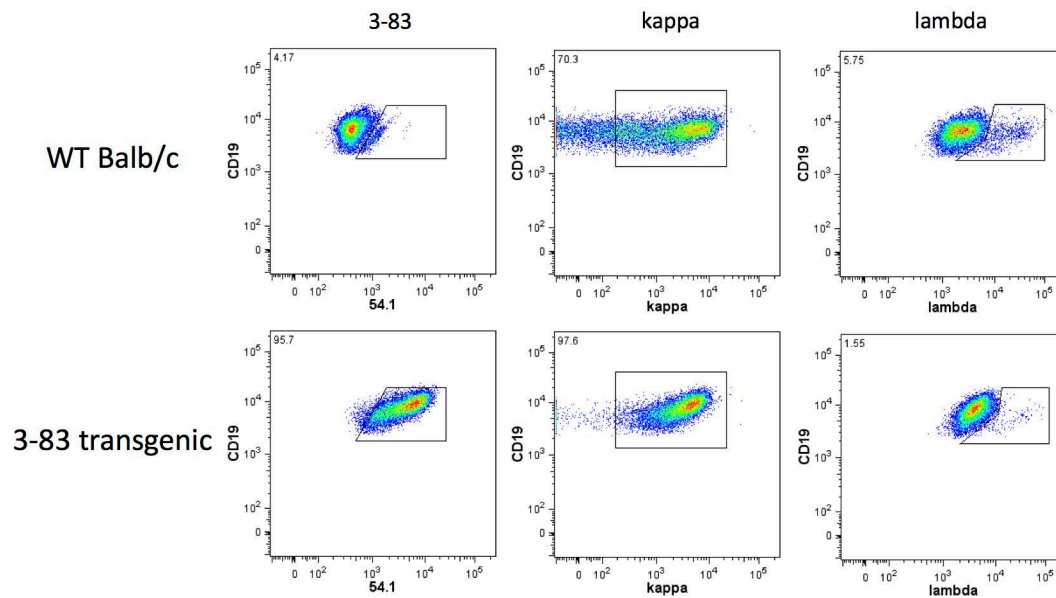


Supplementary Figure 4.

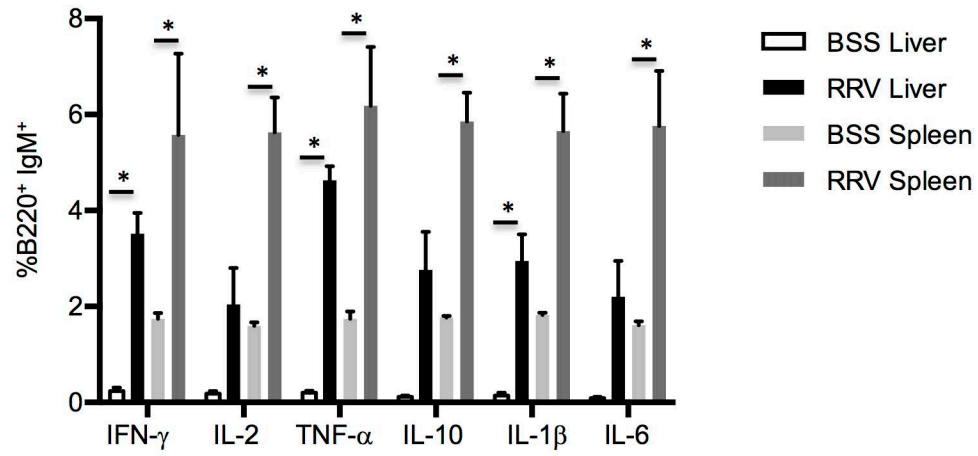
Liver



Spleen

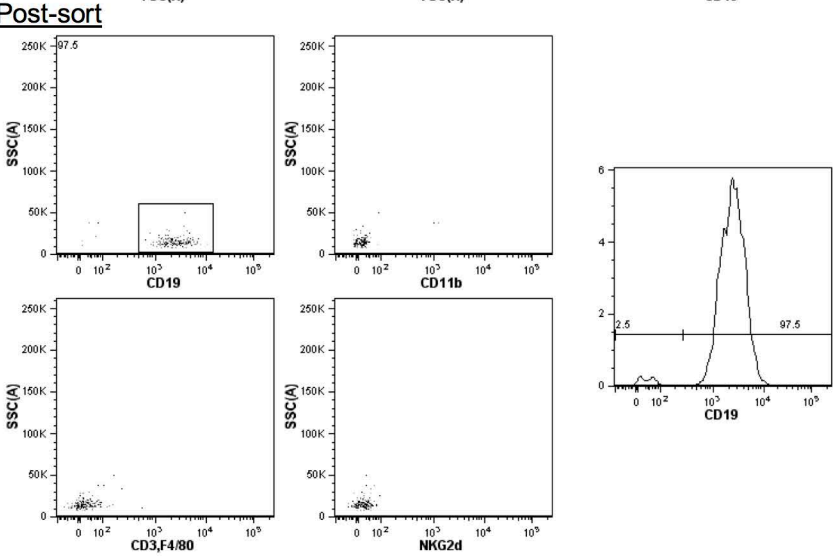
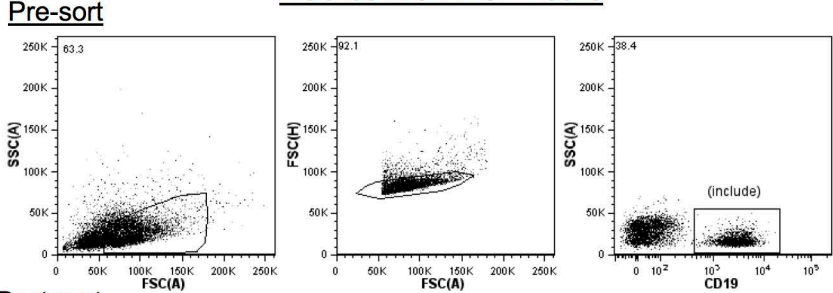


Supplementary Figure 5.

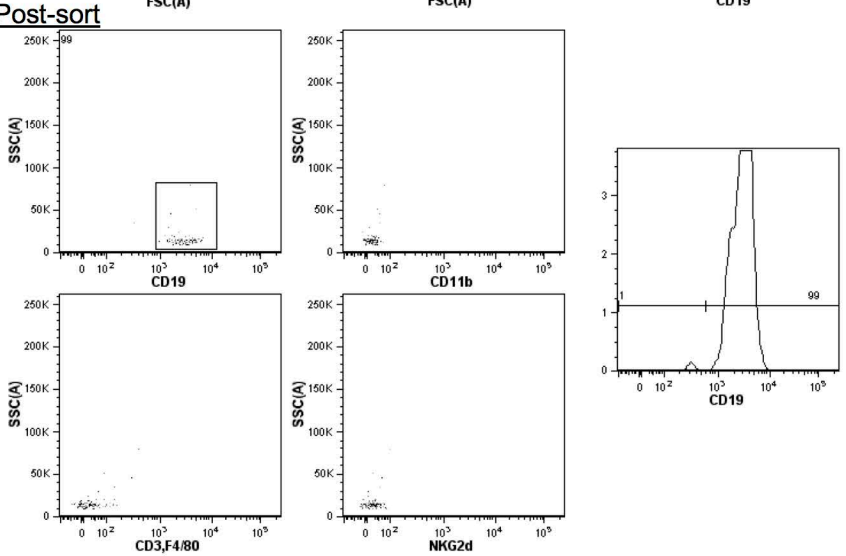
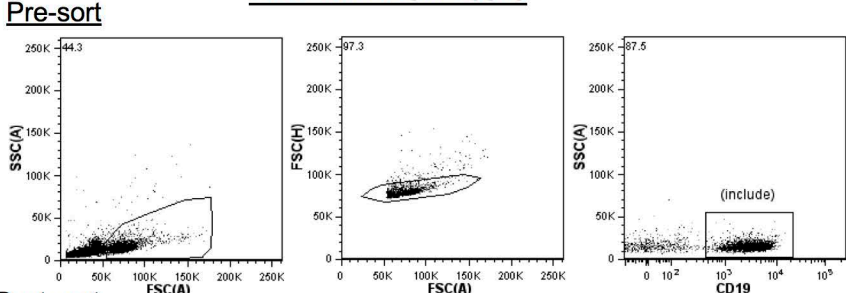


Supplementary Figure 6.

**BSS-control Liver B cells**



**RRV-BA Liver B cells**





Supplementary Figure 7

Gene	log2(Fold Change)			Gene	log2(Fold Change)			Gene	log2(Fold Change)			Gene	log2(Fold Change)			Gene	log2(Fold Change)		
Fos	4.83	Trim11	-1.21	Nucks1	-1.56	Gars	-1.67	Nipa2	-1.8	Ube2d2a	-1.94	Ccnd3	-2.08	Fam129b	-2.29				
Ly6a	3.9	Rfc5	-1.25	Pkmyt1	-1.56	Gnb2	-1.68	Tradd	-1.8	Pde12	-1.94	Tbc1d20	-2.08	Inpp1	-2.3				
Ifi44i	2.61	Hells	-1.28	Dscc1	-1.56	Fnta	-1.68	Brd2	-1.81	Fbxo30	-1.94	Fkbp1a	-2.08	Tbcn2	-2.31				
Neat1	2.48	Ppp1r16b	-1.31	Hist1h1b	-1.57	Hiat1	-1.68	Dhx33	-1.81	Hist1h4d	-1.95	Arsb	-2.08	Endod1	-2.31				
Map3k8	2.48	H2afy	-1.32	Tmem2	-1.57	Lrrc8c	-1.68	Mapkap1	-1.81	Pdcd6ip	-1.95	Ddx28	-2.08	Kti12	-2.31				
Pdia4	2.47	Ppp1r15b	-1.32	Csnk1a1	-1.57	Xylt2	-1.68	Ticrr	-1.81	Derf1	-1.95	Eri1	-2.09	Insig1	-2.31				
Fga	2.4	Cd47	-1.32	Zbtb1	-1.58	Zfp280b	-1.69	Socs4	-1.81	Mff	-1.95	Idh2	-2.1	Cdt1	-2.33				
Serpina3g	2.33	Ythdf2	-1.33	Ube4b	-1.58	Sdf2l1	-1.69	Fbxo21	-1.81	Paqr4	-1.95	Fbxo42	-2.11	Cox5a	-2.34				
Plaur	2.21	Pgls	-1.34	Ccz1	-1.58	Arl8b	-1.7	Mlec	-1.82	Ppp2r2a	-1.96	Map1s	-2.11	Kcnn4	-2.36				
Sifn1	2.18	Fam65a	-1.34	Trp53i11	-1.59	Pafah1b2	-1.7	Zfp574	-1.82	Timm50	-1.96	Ddost	-2.11	Msh6	-2.37				
Bhlhe41	2.14	Ptges3	-1.37	Uba5	-1.59	Spg21	-1.7	Rhot1	-1.82	Mfsd1	-1.96	Ccng2	-2.12	Lsm2	-2.37				
Icosl	2.12	Setd8	-1.38	Capn7	-1.59	Smarcd1	-1.7	Creg1	-1.82	Gemin5	-1.97	Pgam5	-2.12	Impdh1	-2.38				
Gimap3	2.11	Sf1	-1.39	Trp53inp2	-1.59	Rbm38	-1.7	Hnrnpul1	-1.83	Cand2	-1.97	Plaa	-2.12	Strap	-2.38				
Ppp1r15a	2.09	Ncoa5	-1.39	Sirt7	-1.59	Rsnax	-1.71	Flywch1	-1.83			Cyc1	-2.12	Mob1a	-2.38				
Ly6c2	2.02	Ywhah	-1.39	Keap1	-1.59	Nubp1	-1.71	Cdc16	-1.83	Hacd2	-1.97	H2afj	-2.12	Dr1	-2.39				
Lta	1.91	Polg	-1.4	Uggt1	-1.6	Ldlrap1	-1.71	Mrsps15	-1.83	Atpaf1	-1.97	Emc6	-2.13	Desi1	-2.41				
Gimap7	1.9	Oxct1	-1.4	lws1	-1.6	Fam73a	-1.71	Ankra2	-1.83	Smim10l1	-1.98	Spl1	-2.13	Sdc1	-2.43				
Gdap10	1.9	Wtap	-1.4	Arcn1	-1.6	Zcrb1	-1.71	Gtpbp1	-1.84	Impa2	-1.98	Mto1	-2.13	Zfp358	-2.43				
Lime1	1.89	Dnajc3	-1.41	Pdk2	-1.6	Ext2	-1.71	Ela2	-1.84	Fam129c	-1.99	Ndnl2	-2.13	Atp1b3	-2.45				
Fcer2a	1.8	Casc5	-1.42	Dync1li1	-1.6	Hist1h1e	-1.71	Letm1	-1.85	Acss1	-1.99	Ube2s	-2.14	Haus4	-2.47				
H2-DMb1	1.78	Slc1a5	-1.42	Trip13	-1.61	Strip1	-1.72	Klh12	-1.85	Sgol2a	-1.99	Dbr1	-2.15	Sephs2	-2.48				
Gimap4	1.75	Eif3b	-1.42	Ythdf3	-1.61	Mrp13	-1.72	Cdkn2aip	-1.85	Map2k3	-1.99	Twistnb	-2.16	Cpa3	-2.49				
Ms4a4c	1.75	Epha2	-1.43	Usp39	-1.62	Aspm	-1.73	Ctnnb1	-1.86	Swsap1	-1.99	Nme4	-2.16	Mcm6	-2.51				
Cr2	1.74	Ezh2	-1.44	Zbtb11	-1.62	Uhrf1bpl1	-1.73	Cand1	-1.86	Nup50	-2	Psmd3	-2.17	Fam109a	-2.51				
Cdh17	1.73	Slc4a7	-1.44	Atp11b	-1.62	Arid3a	-1.74	Gtf3c4	-1.87	Trpc4ap	-2	Tmem185b	-2.17	Xbp1	-2.52				
Nek8	1.68	Ranbp1	-1.45	Mta2	-1.62	Efr3a	-1.74	Parg	-1.87	Tcerg1	-2	Srsf6	-2.18	Slc16a1	-2.53				
Macf1	1.66	Eef2k	-1.46	Rheb	-1.62	Ankrd10	-1.75	Snip1	-1.87	Jakmip1	-2	Mtmr14	-2.18	Rnf26	-2.54				
Sf1	1.65	Map3k4	-1.46	Pdia3	-1.62	Rn45s	-1.75	Serp1	-1.87	Ash2l	-2	Ctla	-2.18	Mybl2	-2.56				
Irf7	1.61	Rae1	-1.46	Otub2	-1.63	Dhx32	-1.75	Fbxw11	-1.88	Itfg1	-2	Acs3	-2.18	Mrfap1	-2.6				
Fgd2	1.56	Ints8	-1.47	Rps6ka5	-1.63	Acadl	-1.75	Nop9	-1.88	Slc25a1	-2	Hist1h2ab	-2.19	Tm9sf2	-2.61				
Eif4a2	1.56	Caprin1	-1.47	Esyt1	-1.63	Raf1	-1.76	Csrnp2	-1.88	Topors	-2.01	Rnf168	-2.2	Sapcd2	-2.61				
Ccr6	1.56	Mlf2	-1.47	Jup	-1.63	Klcl1	-1.76	Cactin	-1.88	Pspc1	-2.01	Unc119b	-2.21	Uqcrf51	-2.65				
Gimap6	1.54	Trim37	-1.48	Atxn7l3b	-1.63	Exosc3	-1.76	Pdk3	-1.89	Ndfip1	-2.01	Sart3	-2.22	Tjp3	-2.69				
Gadd45g	1.53	Rnf115	-1.48	Pcbp3	-1.63	Arf5	-1.76	Mylip	-1.9	Srsf1	-2.02	Tgfb1	-2.22	Tsen34	-2.71				
Fyco1	1.53	Cyth3	-1.49	Racgap1	-1.65	Ndufab1	-1.76	Utp18	-1.9	Med16	-2.02	Mcpt4	-2.22	Chchd10	-2.74				
Lax1	1.48	Ccnl2	-1.5	Natd1	-1.65	Dyrk1b	-1.76	Dbf4	-1.91	Cmtm7	-2.03	Gsg2	-2.23	Dut	-2.76				
Cyp4f18	1.48	Kif5b	-1.5	Mplkip	-1.65	Ankle1	-1.77	Plk4	-1.91	Fam43a	-2.03	Clic4	-2.23	Hmga2-ps1	-2.81				
Cd83	1.44	Rab14	-1.5	Plagl2	-1.65	Gde1	-1.77	Tdp2	-1.91	Cdc42ep3	-2.03	Ddx20	-2.23	H1f0	-2.93				
Dennd2d	1.44	Mpnd	-1.51	Psme3	-1.65	Fzr1	-1.78	Simc1	-1.91	Adssl1	-2.03	Hes6	-2.24	Tpsb2	-3.14				
Lat2	1.44	Arih2	-1.52	Atp6v0a2	-1.66	Dnlz	-1.78	Cry2	-1.91	2810403A07Rik	-2.04	Ets2	-2.25	Cma1	-3.35				
Haao	1.42	Myb	-1.53	Armc5	-1.66	Trnau1ap	-1.78	Paox	-1.91	Mms22l	-2.05	Usp38	-2.26	Nek2	-3.36				
Anks3	1.41	H2afv	-1.53	Rfk	-1.66	Homez	-1.78	Cox18	-1.91	Tmem9b	-2.05	Slc2a8	-2.26	Kbtbd6	-3.43				
Rappgef4	1.38	Pip5k1c	-1.53	Tmem30a	-1.66	Lmb2	-1.79	Cdc20	-1.92	Hif1a	-2.06	Tbc1d10a	-2.26	H2afx	-3.45				
H2-DMb2	1.36	Fbxw2	-1.53	Fgf13	-1.66	Naa15	-1.79	Naa50	-1.92	Marcks1	-2.06	Tomm20	-2.28	Alas2	-4.43				
Ciita	1.33	Tmem135	-1.53	Ptdss2	-1.66	H13	-1.79	Gnai2	-1.92	Lrrc59	-2.07	Cog8	-2.28	Tpsab1	-4.87				
Cd55	1.31	Apaf1	-1.54	Ypel3	-1.66	Abhd17a	-1.79	Maf1	-1.92	Slc25a46	-2.07	Emc8	-2.29						
Uba7	1.21	Gltp	-1.54	Ifnar2	-1.66	Ostf1	-1.79	Usp22	-1.93	Hmgn1	-2.07	Tmem70	-2.29						
Cd22	1.19	Thoc3	-1.54	Ak3	-1.67	Vps37a	-1.79	Ostm1	-1.93	Trim35	-2.07	Fam83d	-2.29						
Tsc22d3	1.16	Rbl1	-1.55	Ppm1g	-1.67	Smarcc1	-1.8	Cbx2	-1.94	Abhd8	-2.07	Prkch	-2.29						