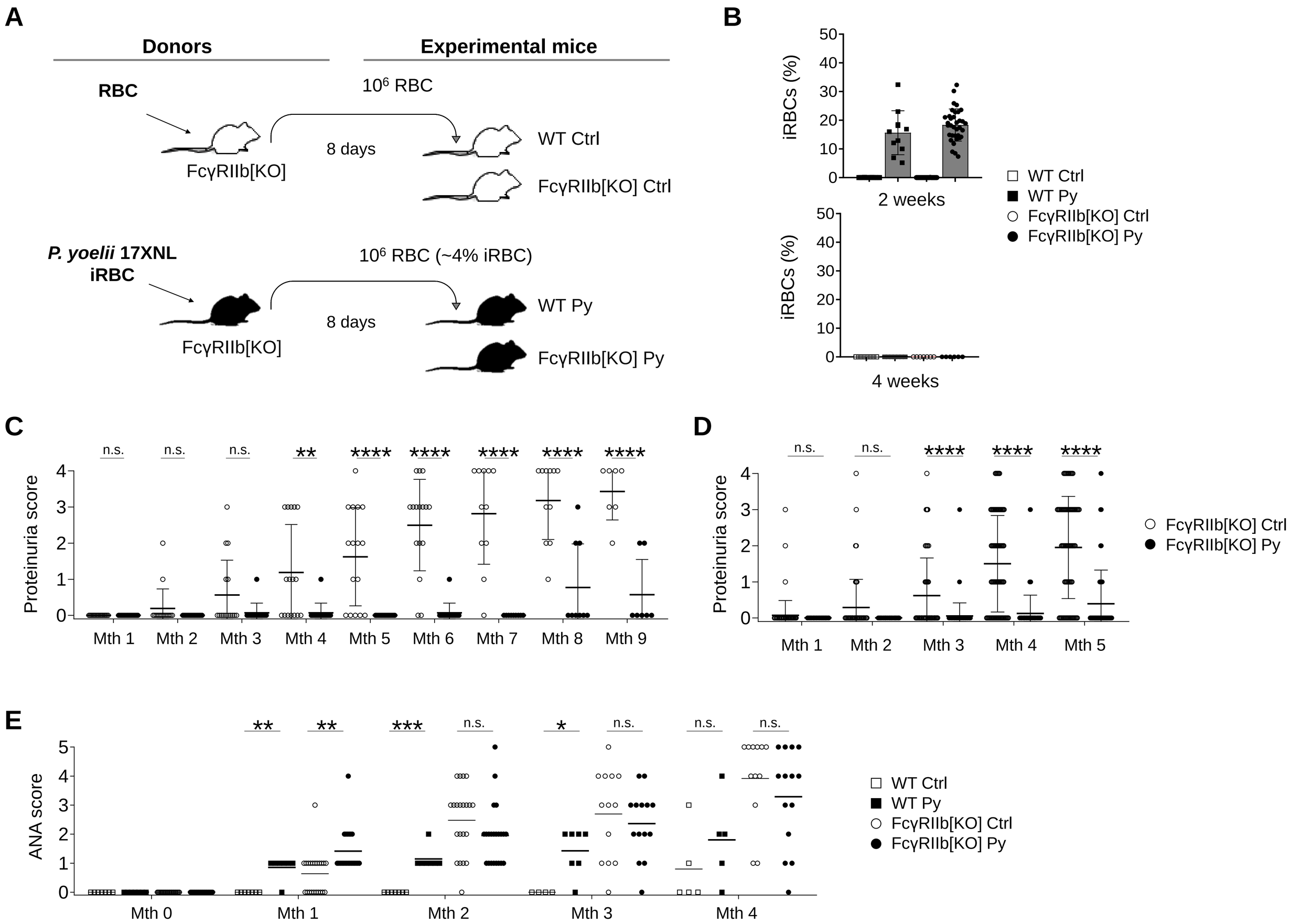
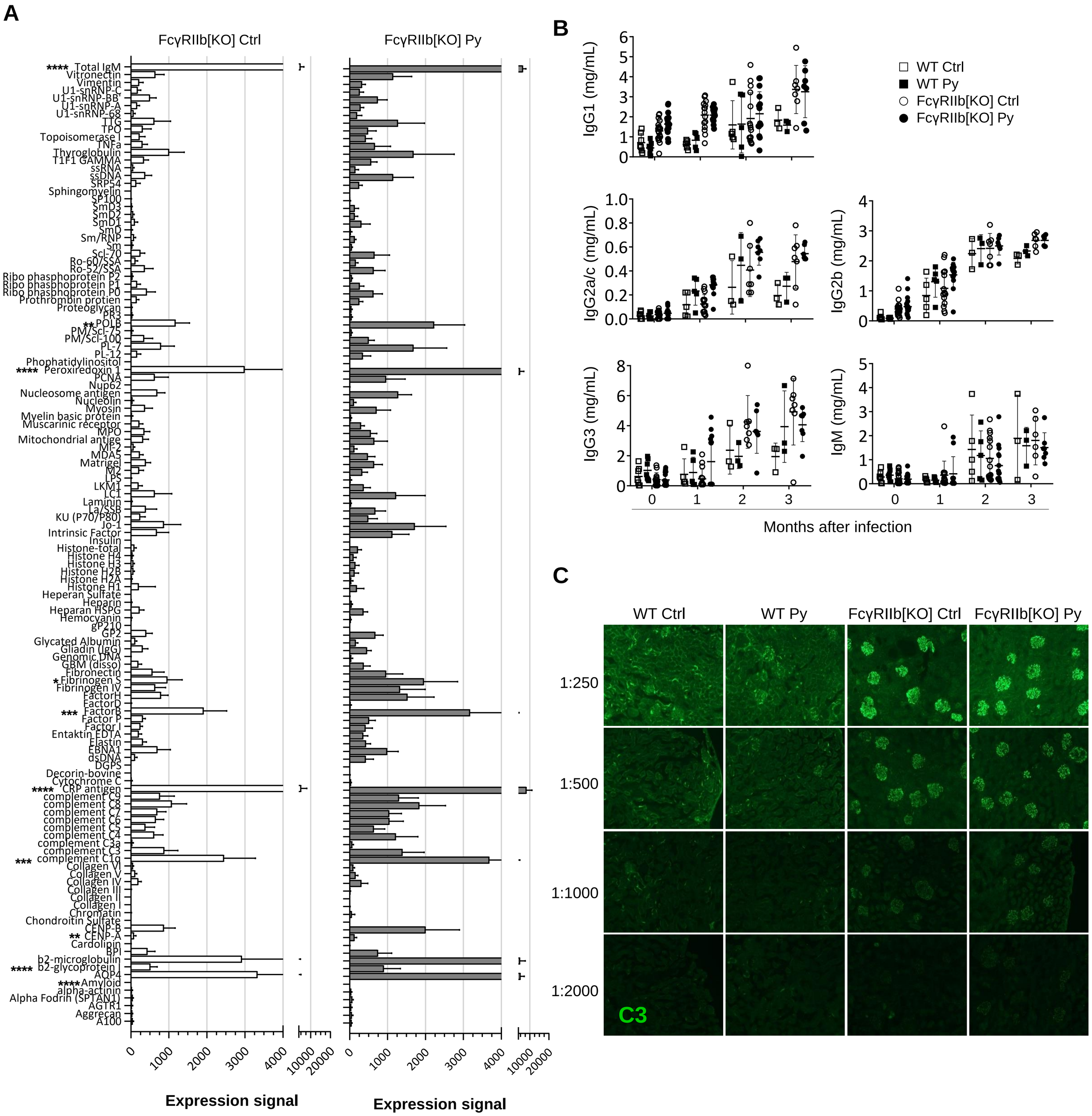
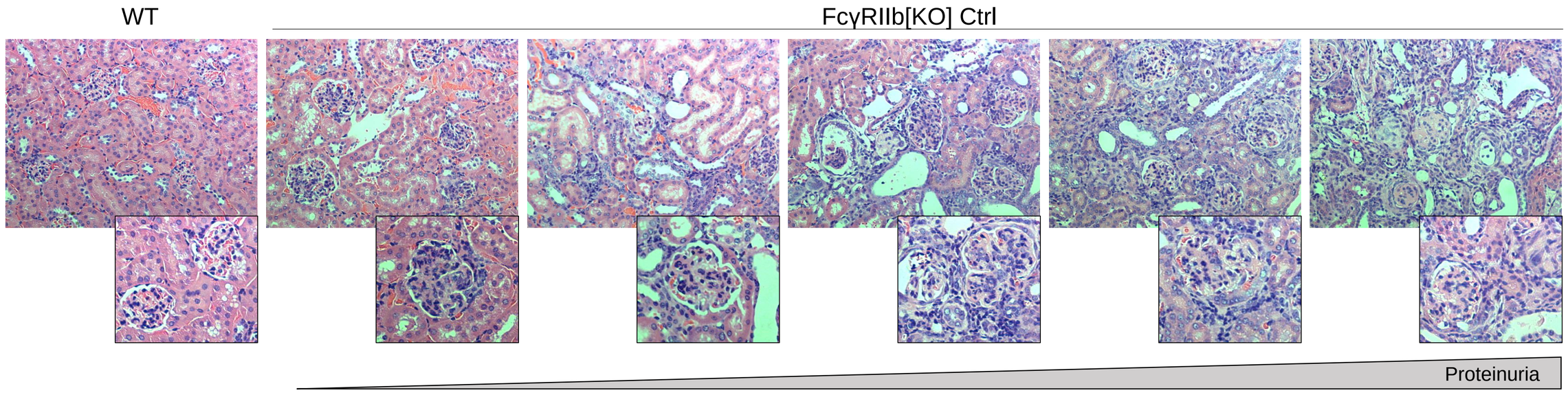


Supplementary Figure 1. Experimental design: *Plasmodium yoelii* 17XNL infection into FcγRIIb[KO] mice. (**A**) Schematic representation of the experimental injections performed. To ensure equivalent infection rates, seeder FcγRIIb[KO] mice were injected with frozen aliquots of Py-infected or non-infected RBCs. At a point when parasitemia is 4% (usually 8 days after injection), the amount of blood equivalent to one million infected RBCs was injected i.p into experimental mice. Control mice received the same amount of blood from uninfected mice. (**B**) Percentage of Py-infected RBCs (parasitemia) at 2 and 4 weeks after infection. Genotypes and infection status are as indicated. n = 12, 11, 29 and 35 for WT Ctrl, Py, FcγRIIb[KO] Ctrl and Py mice, respectivelly. (**C-D**) Graphical representation that shows individual mouse scores and statistical analysis from proteinuria testing corresponding to Fig 1C, E. Proteinuria score was defined as 1, 30mg/dL; 2, 100mg/dL; 3, 500mg/dL and 4, death due to kidney failure. (C) n = 14 (month 1 to 6), n = 9 (month 7-8), n = 7 (month 9). (**D**) n = 7 and n = 15-22 in WT and FcγRIIb[KO] groups. (**E**) ANA score values showing individual mouse scores from the experiment shown in Fig 1F. The ANA scores were defined by the positive IgG staining in different serum dilutions: ANA 1 (1:100), ANA 2 (1:300), ANA 3 (1:900), ANA 4 (1:2700), ANA 5 (1:8100). n = 7 in WT and 22 in FcγRIIb[KO] groups (month 0 to 2), n = 5 in WT and 14 in FcγRIIb[KO] groups. Data are represented as mean ± SD. Group comparisons were made using two-way ANOVA test. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$, ****$p < 0.0001$.



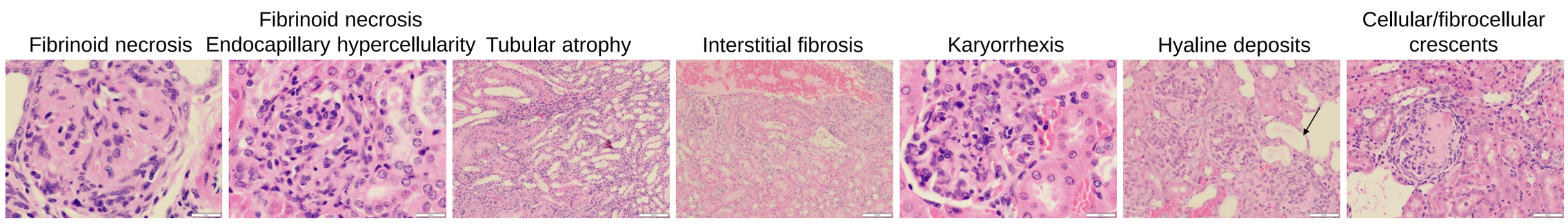
Supplementary Figure 2. Measures of circulating antibodies and IC deposition. (**A**) Autoantigen specificities of serum IgM in FcγRIIb[KO] mice at 1 month after infection. Signal values from Autoantigen Microarray Super Panel [24] were shown. Mean ± SD are represented from a total of 8 and 7 mice per group. (**B**) IgG1, IgG2a, IgG2b, IgG3 and IgM levels in serum of WT and FcγRIIb[KO] mice before and 1, 2 and 3 months after infection. n = 7, 5, 4, 3 in WT groups and n = 22, 15, 7, 7 in FcγRIIb[KO] groups for the months 0, 1, 2, 3, respectively. (**C**) Kidney sections from WT and FcγRIIb[KO] mice at 5 months after infection were stained with serial dilutions of FITC conjugated anti-complement C3. Data are represented as mean ± SD. Group comparisons were made using two-way ANOVA test. **p < 0.01, **p < 0.01, ***p < 0.001, ****p < 0.0001.

A

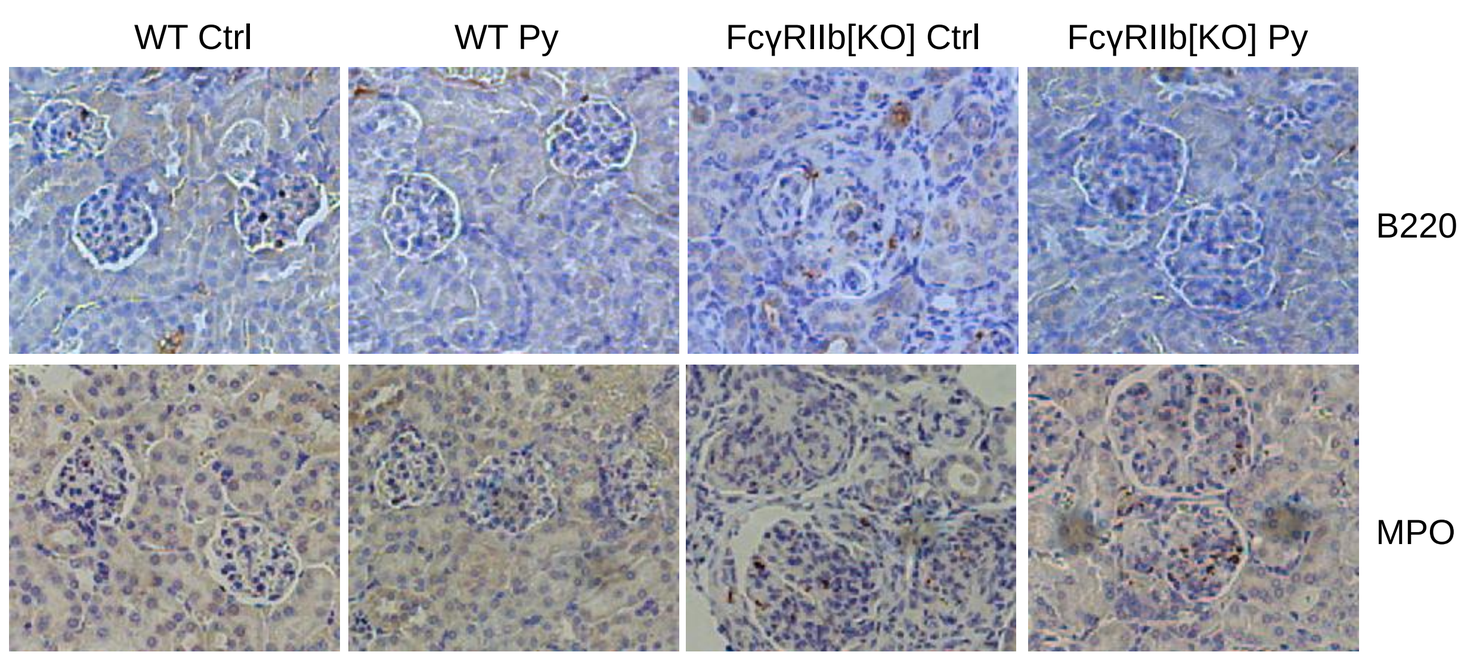


B

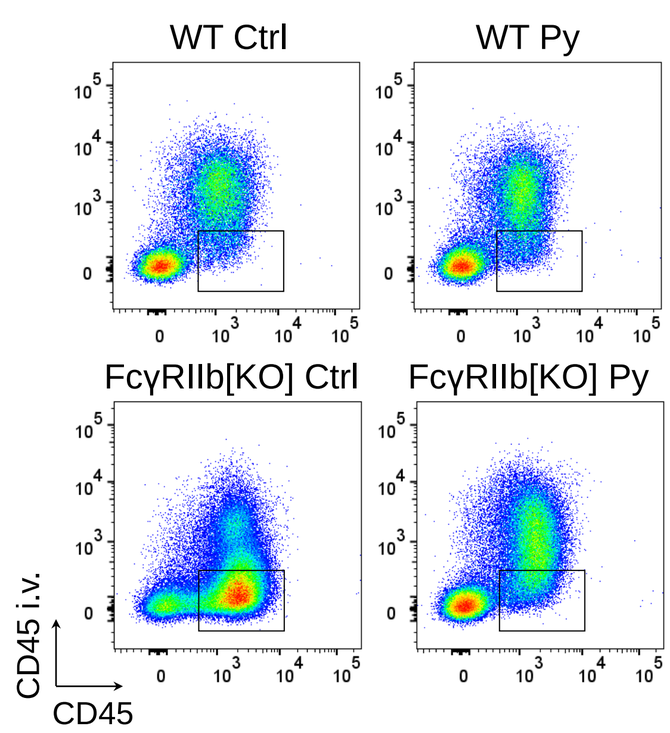
	WT Ctrl					WT Py			FcγRIIb[KO] Ctrl											FcγRIIb[KO] Py									
NIH activity index	**K1**	**K7**	**2809**	**793**	**Media**	**790**	**2820**	**Media**	**K3**	**K4**	**K2**	**K8**	**K9**	**783**	**787**	**2803**	**2804**	**2806**	**Media**	**K11**	**777**	**776**	**2813**	**K12**	**K10**	**K6**	**2816**	**2819**	**K5**	**Media**
Endocapillary hypercellularity	0	1	0	1	**0.5**	1	1	**1**	3	3	2	2	2	3	3	2	2	2	**2.4**	2	2	1	2	1	1	1	1	1	2	**1.4**
Neutrophils/karyorrhexis	0	0	0	0	**0**	0	0	**0**	2	2	2	1	0	2	2	0	0	0	**1.1**	0	0	0	0	0	0	0	0	0	0	**0.0**
Fibrinoid necrosis X 2	0	0	0	0	**0**	0	0	**0**	3	2	2	3	1	3	2	1	1	2	**2**	0	1	0	0	0	0	0	0	0	1	**0.2**
Hyaline deposits	0	0	0	0	**0**	0	0	**0**	2	2	2	1	0	2	2	0	0	0	**1.1**	0	0	0	0	0	0	0	0	0	0	**0.0**
Cellular/fibrocellular crescents X2	0	0	0	1	**0.25**	0	0	**0**	2	2	2	3	2	2	3	2	2	2	**2.2**	2	2	0	0	0	0	0	0	0	2	**0.6**
Interstitial Inflammation	1	1	0	2	**1**	1	1	**1**	3	3	2	3	2	3	3	3	2	2	**2.6**	2	2	1	1	1	1	0	0	0	2	**1.0**
Total	**1**	**2**	**0**	**5**	**2**	**2**	**2**	**2**	**20**	**18**	**16**	**19**	**10**	**20**	**20**	**11**	**10**	**12**	**15.6**	**8**	**10**	**2**	**3**	**2**	**2**	**1**	**1**	**1**	**10**	**4.0**
NIH chronicity index																														
Total glomerulosclerosis score	0	0	0	1	**0.25**	0	1	**0.5**	3	2	2	2	1	3	3	2	2	2	**2.2**	1	2	0	0	0	0	0	0	0	1	**0.4**
Fibrous crescents	0	0	0	0	**0**	0	0	**0**	2	1	1	2	1	2	2	1	2	2	**1.6**	0	0	0	0	0	0	0	0	0	0	**0.0**
Tubular atrophy	0	0	0	0	**0**	0	0	**0**	0	0	0	0	0	1	1	0	0	0	**0.2**	0	0	0	0	0	0	0	0	0	0	**0.0**
Interstitial fibrosis	0	0	0	1	**0.25**	1	0	**0.5**	1	1	2	2	1	1	2	1	1	1	**1.3**	0	0	0	0	0	0	0	0	0	0	**0.0**
Total	**0**	**0**	**0**	**2**	**0.5**	**1**	**1**	**1**	**6**	**4**	**5**	**6**	**3**	**7**	**8**	**4**	**5**	**5**	**5.3**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0.4**



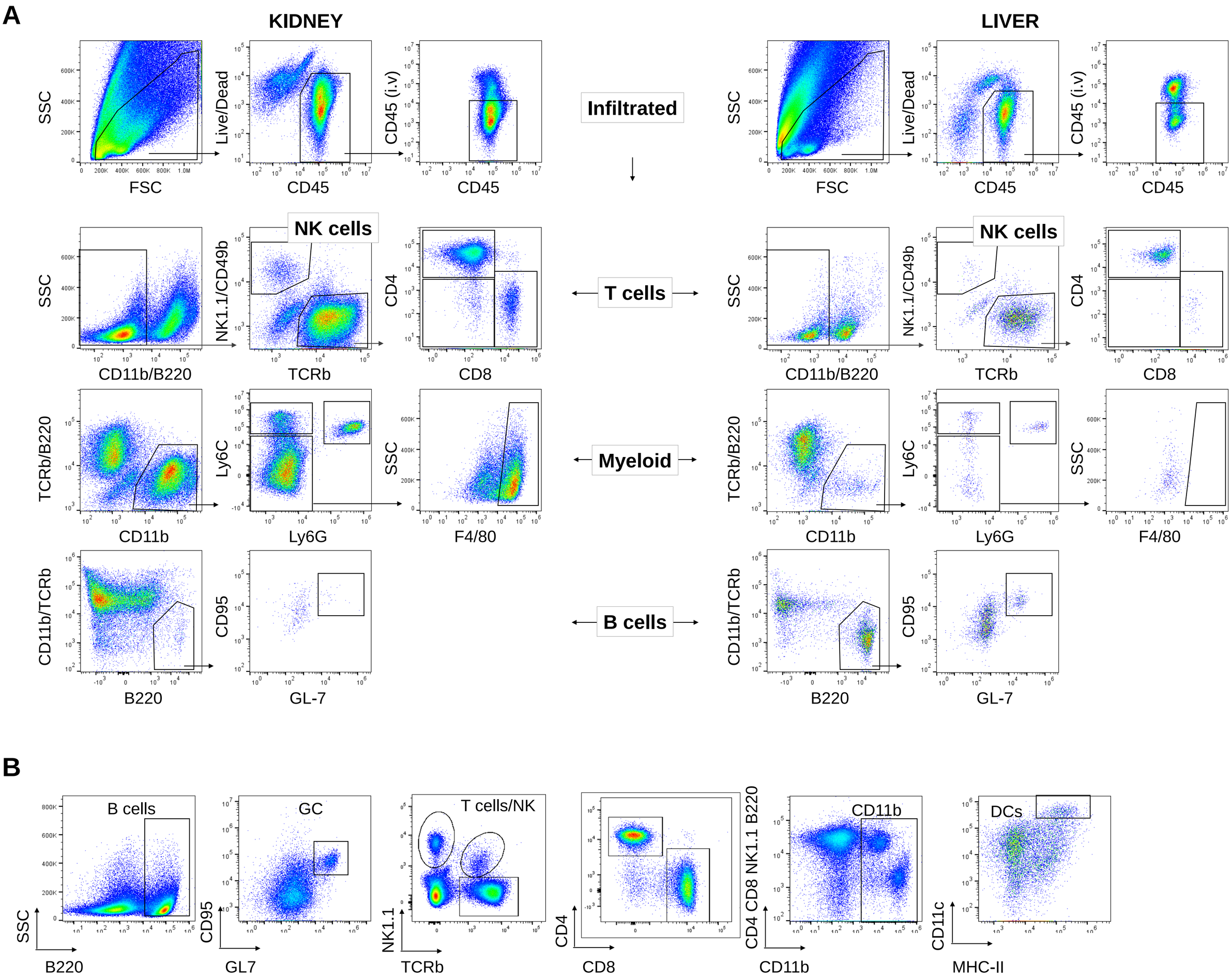
C



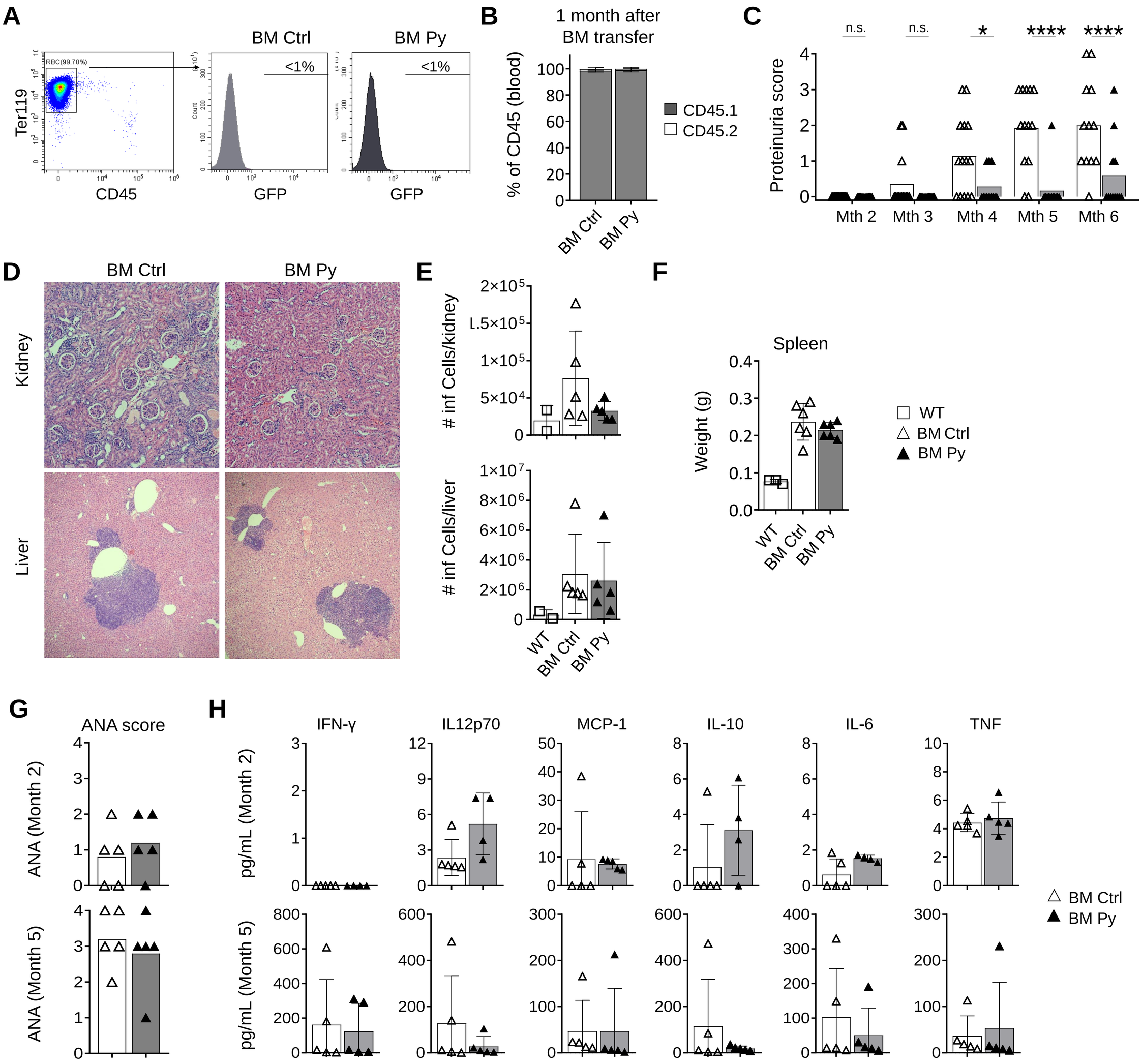
D



Supplementary Figure 3. Kidney pathology evaluation. Kidneys of WT and FcγRIIb[KO] mice were analyzed 5 months after *Py* injection. (**A**) Representative pictures showing the progression of lupus nephritis in FcγRIIb[KO] mice comparing to WT. (**B**) NIH Activity and Chronicity Index values for every kidney sample studied, with H&E images showing the indicated pathologies below. (**C**) Kidney sections stained with B220 (B cells) and MPO (myeloperoxidase). (**D**) Flow cytometry gating of infiltrating leukocytes (CD45i.v.$^{-}$ CD45^{+}) in the kidney.



Supplementary Figure 4. Flow cytometry gating strategies for the leukocyte analysis in kidney, liver and spleen. Plots representing the gating processes of infiltrating leukocytes in the liver and kidney in parallel (**A**) and in the whole spleen (**B**). First, after discarding the doublets, live leukocytes were selected by $CD45^{+}L/D^{-}$ and infiltrating cells by $CD45i.v.^{-}CD45^{+}$. Subsequent analysis of various immune populations was performed as following: $CD4^{+}/CD8^{+}$ T cells ($CD11b^{-}B220^{-}TCRb^{+}$), NK cells ($CD11b^{-}B220^{-}TCRb^{-}NK1.1^{+}CD49b^{+}$), myeloid cells ($TCRb^{-}B220^{-}CD11b^{+}$) that were comprised by neutrophils ($Ly6G^{+}Ly6C^{dim}$), inflammatory monocytes ($Ly6G^{-}Ly6C^{hi}$), and macrophages ($Ly6G^{-}Ly6C^{-}F4/80^{+}$), and also B cells ($CD11b^{-}TCRb^{-}B220^{+}$), including germinal center B cells ($CD11b^{-}TCRb^{-}B220^{+}CD95^{+}GL\text{-}7^{+}$). For the spleen, DCs were analyzed as $CD11c^{+}MHC\text{-}II^{hi}$.



Supplementary Figure 5. BM alterations underlie the *Py*-mediated protection from nephritis. BM cells from FcγRIIb[KO] Ctrl or Py mice were extracted 1 month after infection and injected into 2 months-old FcγRIIb[KO] mice. (**A**) Flow cytometry analysis of blood from reconstituted mice 15 days after BM injection showing the absence of GFP+ parasite infected RBCs ($Ter119^{+}CD45^{-}$) of recipient mice. (**B**) Reconstitution efficacy measured in blood of recipient mice. Graph shows the percentage of CD45.1 cells (donor) and CD45.2 (recipient) in blood 1 month after transfer. (**C**) Proteinuria score values corresponding to Figure 6G, and statistical analysis using two-way ANOVA was used for group comparisons. Proteinuria score was defined by 1, 30mg/dL; 2, 100mg/dL; 3, 500mg/dL and 4, death due to kidney failure. n = 14 (months 2-4) and n = 12 (months 5-6). (**D-E**,) Kidney and liver H&E sections (**D**) and number of infiltrating leukocytes and subpopulations (**E**) 5 months after BM transfer. (**F**) Spleen weight of FcγRIIb[KO] BM transferred and WT mice. n = 2 and n = 5 in WT and FcγRIIb[KO] groups. (**G**) Anti-nuclear antibodies (ANA) in serum 2 and 5 months after transfer. Scores were defined by the positivity for different serum dilutions: ANA 1 (1:100), ANA 2 (1:300), ANA 3 (1:900), ANA 4 (1:2700), ANA 5 (1:8100). n =5. (**H**) Serum cytokines in recipient mice 2 and 5 months after receiving Py or Ctrl BM (n =5).

Supplementary Table 1. Antibodies

Reagent			Source	Identifier
anti-mouse Antibodies	**Clone**	**Fluorochrome**		
B220	RA3-6B2	FITC	BD Biosciences	553087
B220	RA3-6B2	PerCP-Cy5.5	BioLegend	103236
B220	RA3-6B2	APC-Cy7	Biolegend	103223
CCL17/TARC		Biotinylated	R&D Systems	BAF529
CD103	2E7	Alexa 647	BioLegend	121409
CD11b	M1/70	Pacific Blue	BioLegend	101223
CD11b	M1/70	FITC	BD Biosciences	557396
CD11b	M1/70	PerCP-Cy5.5	Invitrogen	45-0112-82
CD11b	M1/70	APC-Cy7	Biolegend	101225
CD11c	N418	PE	eBioscience	12-0114-82
CD11c	N418	PerCP-Cy5.5	BioLegend	117328
CD11c	N418	PE.Cy7	Biolegend	117318
CD172a (SIRPa)	REA1201	APC	Miltenyi	130-123-150
CD24 (HSA)	M1/69	BV412	BioLegend	101825
CD26 REAfinity	REA1196	PE	Miltenyi	130-122-775
CD4	GK1.5	FITC	BioLegend	100406
CD4	GK1.5	PerCP-Cy5.5	BioLegend	100434
CD4	GK1.5	APC-Cy7	Biolegend	100414
CD40	3/.23	APC	BioLegend	124612
CD45.2	104	BV421	BD Biosciences	562895
CD45.2	104	APC-Cy7	Biolegend	109824
CD45.2	104	PE-Cy7	Biolegend	109830
CD49b/Pan-NK	DX5	PE	Pharmigen	553858
CD64	X54-5/7.1	PE.Cy7	Biolegend	139313
CD86	GL1	FITC	BD Biosciences	553691
CD88 (C5AR)	20/70	APC-Vio 770	Miltenyi	130-106-126
CD8a	53-6.7	PerCP-Cy5.5	BioLegend	100734
CD8a	53-6.7	APC	BioLegend	100712
CD95		FITC	BD Biosciences	554257
Complement C3		FITC	Fisher scientific (MP Biomedicals)	ICN55510
CX3CR1	SA011F11	PerCP-Cy5.5	BioLegend	149009
F4/80	BM8	APC	BioLegend	123115
f4/80	bm8	APC-Cy7	Biolegend	123117
GL-7	Gl-7	eFluor 660	Invitrogen	50-5902-82
IgG		FITC	eBio	11-4011-85
IgG	Poly4053	Alexa 488	BioLegend	405319
IgG1	A85-1	FITC	BD Biosciences	553443
IgG2a	R19-15	FITC	BD Biosciences	553390
IgG2b	R12-3	FITC	BD Biosciences	553395
Ly6C	HK1.4	APC-Cy7	Biolegend	128026
LY-6C	AL-21	FITC	BD Biosciences	553104
Ly6G	1A8	PE	Pharmigen	551461
Ly6G/6C	RB6-8C5	FITC	BD Biosciences	553127
MHC-II IA/IE	M5/114.15.2	Pacific Blue	BioLegend	107620
MHC-II I-A/I-E	M5/114.15.2	APC	BioLegend	107613
NK-1.1	PK136	PE	eBioscience	12-5941-83
PDCA-1(BST2, CD317)	eBio927	FITC	eBio	11-3172-81
Streptavidin		FITC	eBio	554060
TCRB	H57-597	PE	eBioscience	12-5961-82
TCRβ	H57-597	FITC	BD Biosciences	553171
XCR1	REA707	PerCP-Vio 700	Miltenyi	130-111-376
IgM	II/41	FITC	BD	553437
CD45.1	A20	APC	Thermofisher	17-0453-82
Ter 119		APC-Cy7	Bd Biosciences	560509
CD45.2		APC	Biolegend	109814
IgG		AP (Alkaline Phosphatase)	Southern Biotech	1030-04
IgG1		AP (Alkaline Phosphatase)	Southern Biotech	1070-01
IgG2a		AP (Alkaline Phosphatase)	Southern Biotech	1080-04
IgG2b		AP (Alkaline Phosphatase)	Southern Biotech	1090-04
IgG3		AP (Alkaline Phosphatase)	Southern Biotech	0105-04
IgM		AP (Alkaline Phosphatase)	Southern Biotech	1021-04
IgG	Polyclonal	Unconjugated	Southern Biotech	0107-01
IgG1	15H6	Unconjugated	Southern Biotech	0102-01
Arginase1	C-2	Unconjugated	Santa cruz	sc-166920
CD11c	D1V9Y	Unconjugated	Cell Signalling	97585S
CD3	SP7	Unconjugated	Abcam	ab16669
CD45	5C16	Unconjugated	Fisher Scientific	NB110-93609
CD45R/B220	RA3-6B2	Unconjugated	Biolegend	103201
F4/80	CI:A3-1	Unconjugated	Biorad	MCA497GA
Iba1		Unconjugated	Fujifilm Waco chemicals	019-19741
IgG2a	Polyclonal	Unconjugated	Southern Biotech	1081-01
IgG2b	A-1	Unconjugated	Southern Biotech	0104-01
IgG3	B10	Unconjugated	Southern Biotech	0105-01
IgM	11E10	Unconjugated	Southern Biotech	0101-01
Myeloperoxidase		Unconjugated	Abcam	ab139748

Supplementary Table 2. Primers

Oligonucleotides	Forward	Reverse	Source	Identifier
Aco1	5’-GAACATAGAAGTGCCGTTTAAGC-3'	5’-TCCCAACTTCTTCACAGCATC-3'	IDT	Mm.PT.58.5400066
Actb	5’-GATTACTGCTCTGGCTCCTAG-3'	5’-GACTCATCGTACTCCTGCTTG-3'	IDT	Mm.PT.39a.22214843.g
Ccl17	5’-CATGAGGTCACTTCAGATGCT-3'	5’-CAGCTCACCAACTTCCTGATAG-3'	IDT	Mm.PT.58.9199490
Ccl20	5’-CCAGCACTGAGTACATCAACT-3'	5’-GTATGACGAGAGGCAACAGTC-3'	IDT	Mm.PT.58.13906306
HIF1a	5’-TGCTTGGTGCTGATTTGTGA-3'	5’-GGTCAGATGATCAGAGTCCA-3'	IDT	330890334
Ifn2	5’-GAAGCTCACAGAGACCAAGTC-3'	5’-TGATCTCCACGTTGATTCCTG-3'	IDT	Mm.PT.58.13701797
TNF	5’-AGACCCTCACACTCAGATCA-3'	5’-TCTTTGAGATCCATGCCGTTG-3'	IDT	Mm.PT.58.12575861