

## Supplementary Materials for

### **PTPN22 inhibition resets defective human central B cell tolerance**

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Table S17. Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing 620W PTPN22 from mouse #13.

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Table S19. Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing R620 PTPN22 from mouse #15.

Table S20. Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing 263Q PTPN22 from mouse #16.

Table S21. Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing 263Q PTPN22 from mouse #17.

Table S22. Repertoire and reactivity of antibodies from new emigrant B cells of mouse #18 treated with 0.75 mg of the LTV-1 PTPN22 inhibitor.

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Table S24. Repertoire and reactivity of antibodies from new emigrant B cells of mouse #20 treated with 0.15 mg of the LTV-1 PTPN22 inhibitor.

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Table S26. Repertoire and reactivity of antibodies from GFP-negative new emigrant B cells of mouse #21.

Table S27. Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing PTPN22 shRNA from mouse #21.

Table S28. Repertoire and reactivity of antibodies from GFP-negative new emigrant B cells of mouse #22.

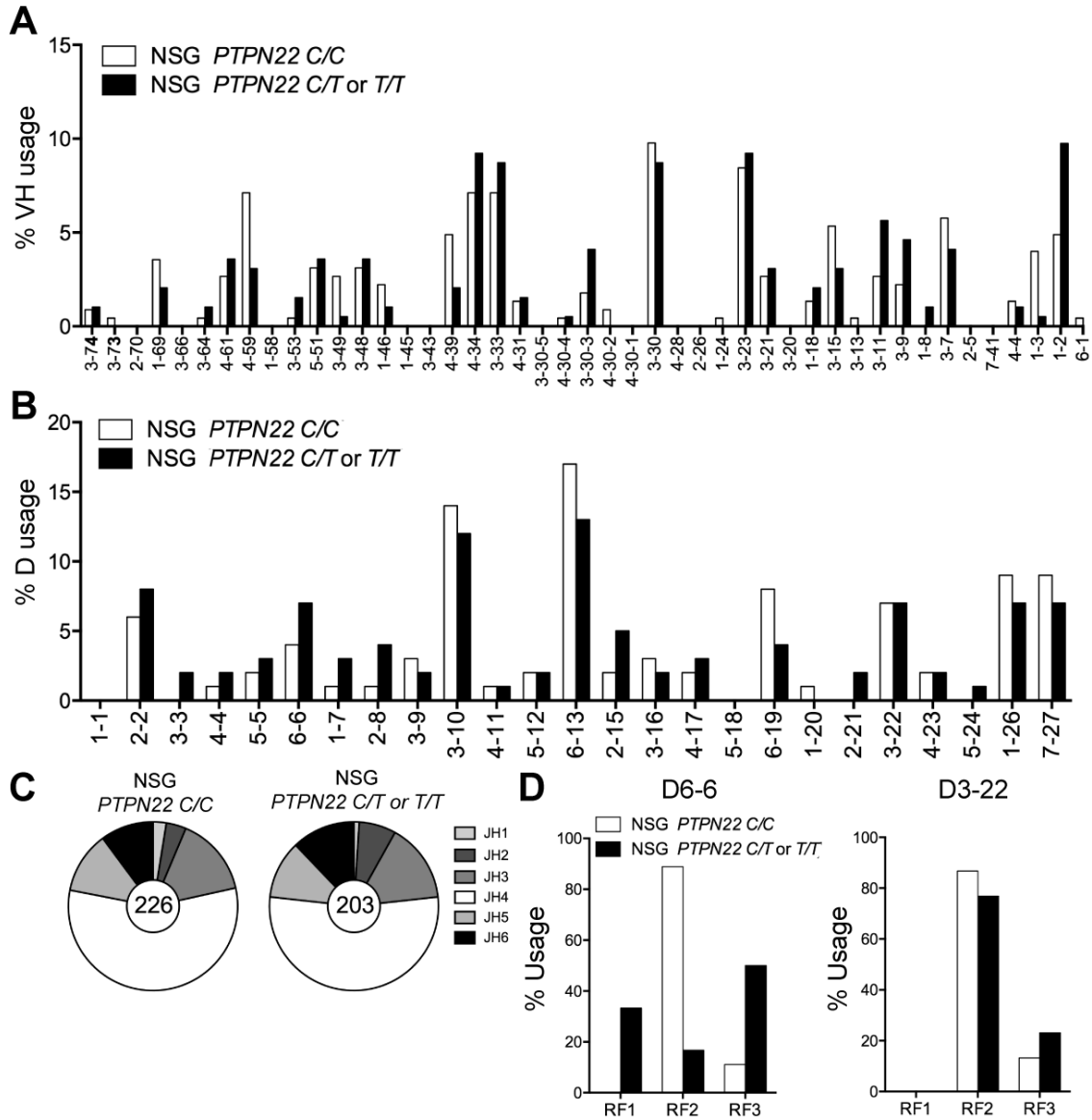
Table S29. Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing PTPN22 shRNA from mouse #22.

Table S30. Repertoire and reactivity of antibodies from GFP-negative new emigrant B cells of mouse #23.

Table S31. Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing PTPN22 shRNA from mouse #23.

## Supplementary Materials

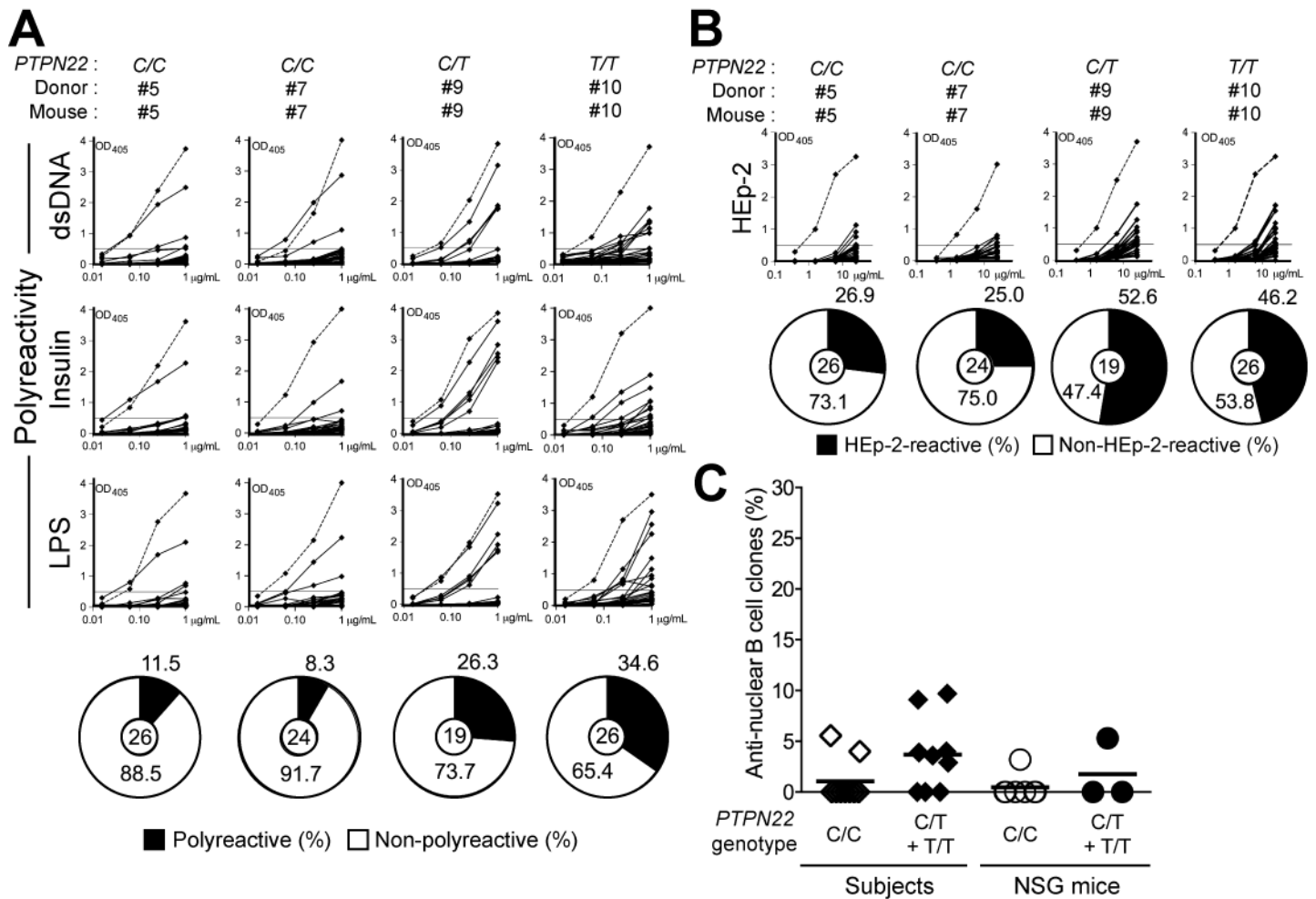
### Supplementary Figures



**Figure S1: New emigrant B cells isolated from NSG mice engrafted with *PTPN22* C/T or T/T HSCs display normal IgH repertoire.**

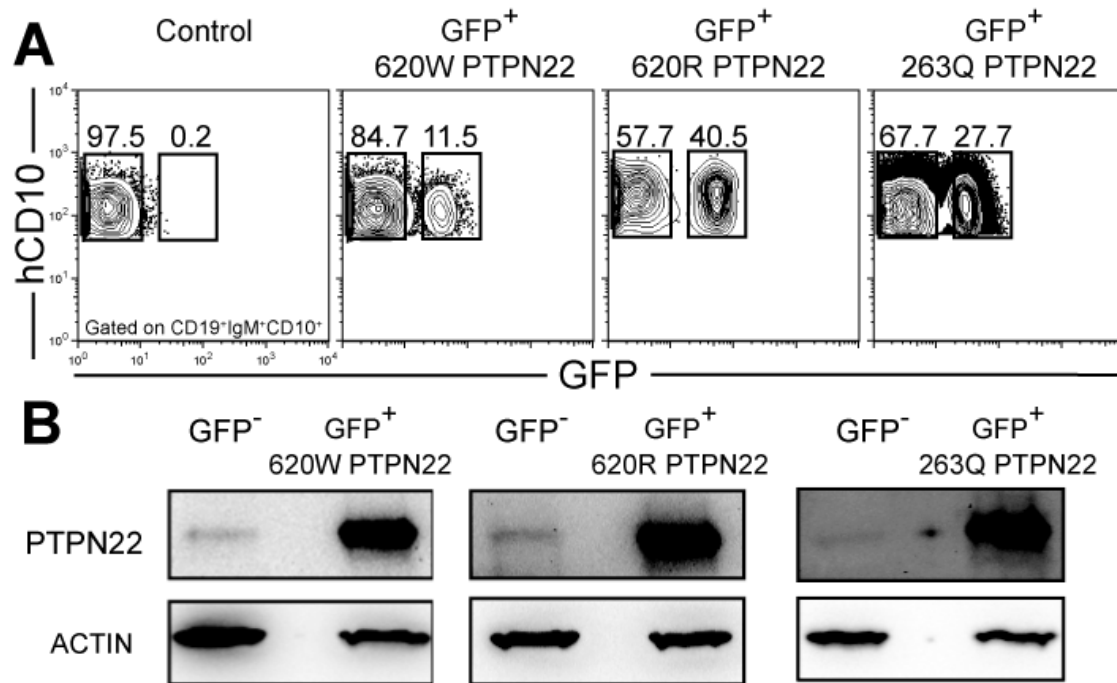
*VH* (A), *D* (B) and *JH* (C) gene-usage frequencies in new emigrant B cells are represented for 7 NSG mice engrafted with *PTPN22* C/C HSCs and 6 NSG mice

engrafted with *PTPN22* C/T or T/T HSCs. Sequences from 226 NSG *PTPN22* C/C and 203 NSG *PTPN22* C/T or T/T single transitional B cells were pooled. (D) Reading frame (RF) usages for the *D6-6* and *D3-22* genes are compared between new emigrant/transitional B cells from 7 NSG mice engrafted with *PTPN22* C/C HSCs and 6 NSG mice engrafted with *PTPN22* C/T or T/T HSCs.



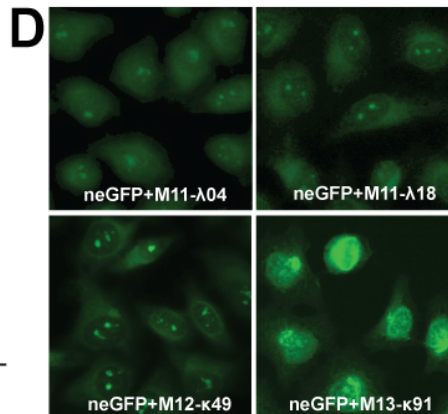
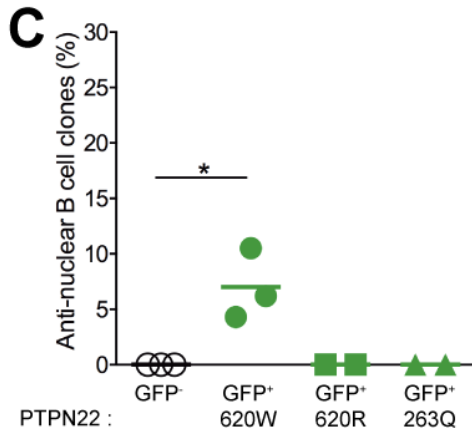
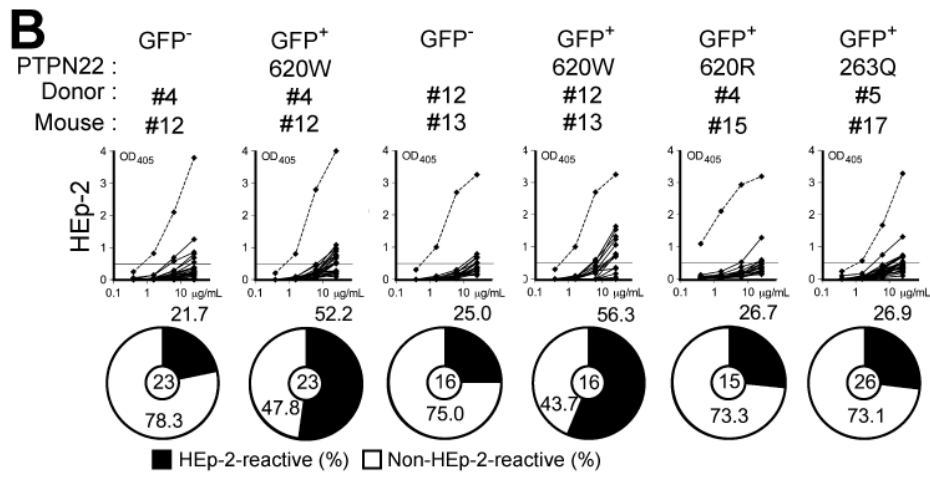
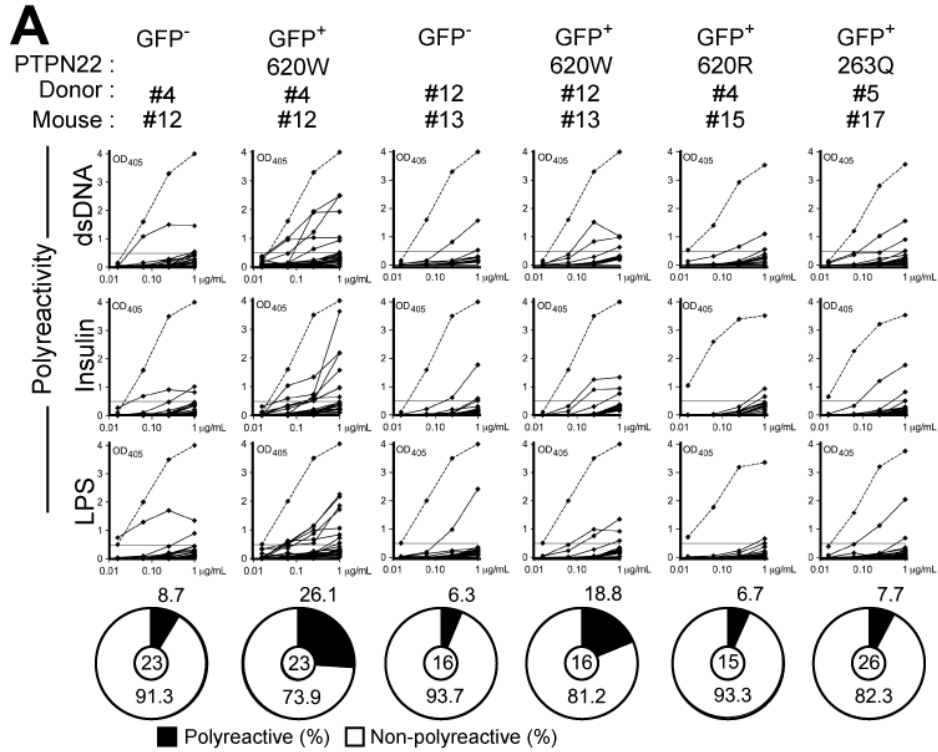
**Figure S2: Defective central B-cell tolerance in humanized mouse engrafted with HSCs carrying *PTPN22* T allele(s).**

The frequencies of polyreactive (A) and HEP-2 reactive (B) new emigrant B cells from different types of humanized mice transplanted with indicated HSCs were determined and compared to those of healthy donors carrying or not *PTPN22* T allele(s). Dotted line shows positive control. For each B-cell fraction, the frequency of reactive (filled area) and non-reactive (open area) clones is summarized in pie charts with the total number of clones tested indicated in the center. (C) The frequencies of antinuclear new emigrant B cells are compared between mouse engrafted with HSCs carrying or not the *PTPN22* T allele.



**Figure S3: Overexpression of PTPN22 variants in NSG mice.**

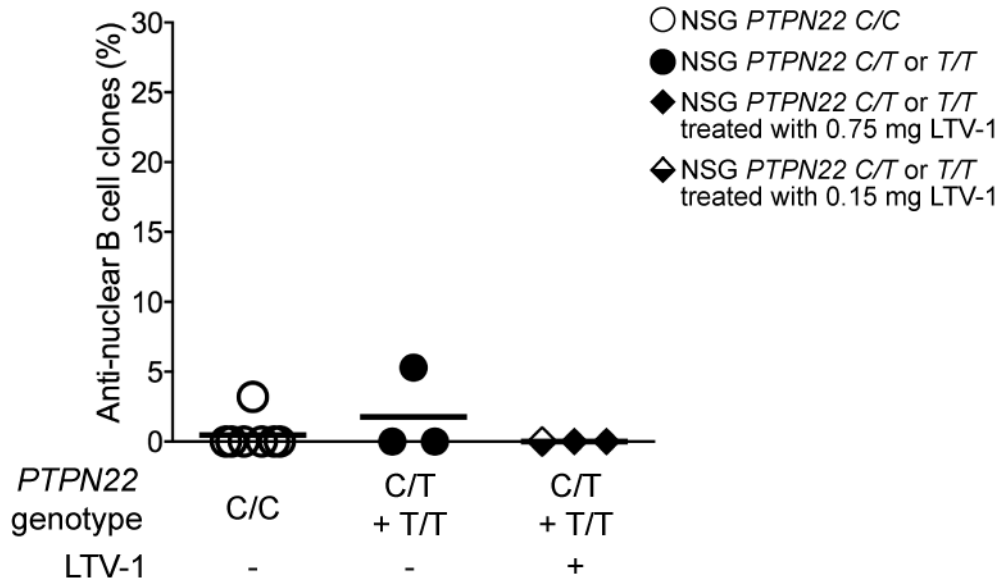
(A) Representative flow cytometry analysis of CD19<sup>+</sup> cells isolated from the spleen of NSG mice engrafted with HSCs transduced with a GFP-tagged lentivirus expressing 620W PTPN22, 620R PTPN22 and 263Q PTPN22. CD19<sup>+</sup> were stained with anti-hCD19, anti-IgM and anti-hCD10 antibodies. The frequencies of GFP<sup>-</sup> and GFP<sup>+</sup> shRNA<sup>+</sup> new emigrant B cells are shown. (B) Western Blot analysis of PTPN22 protein expression in hCD19<sup>+</sup> B cell isolated from PTPN22 620W, 620R or 263Q NSG mice.  $\beta$ -actin is used for normalization of protein expression





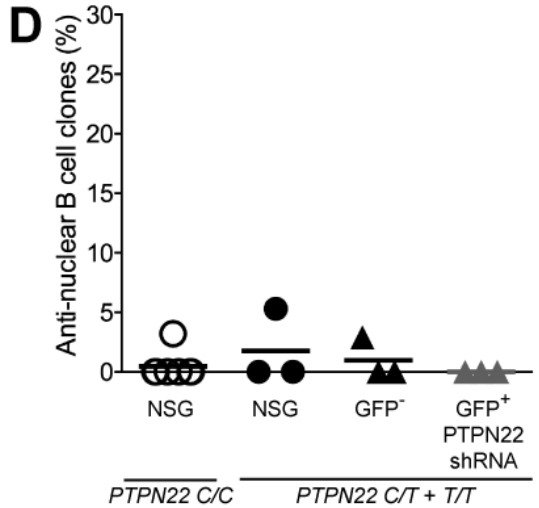
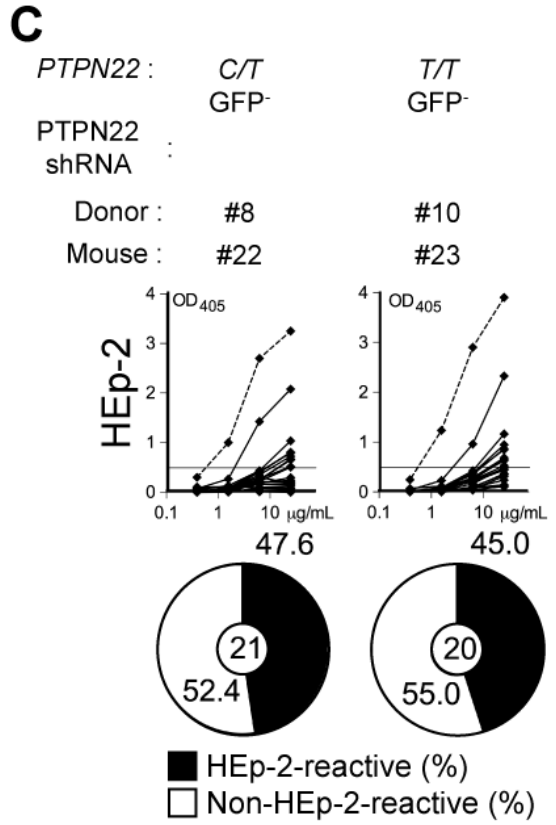
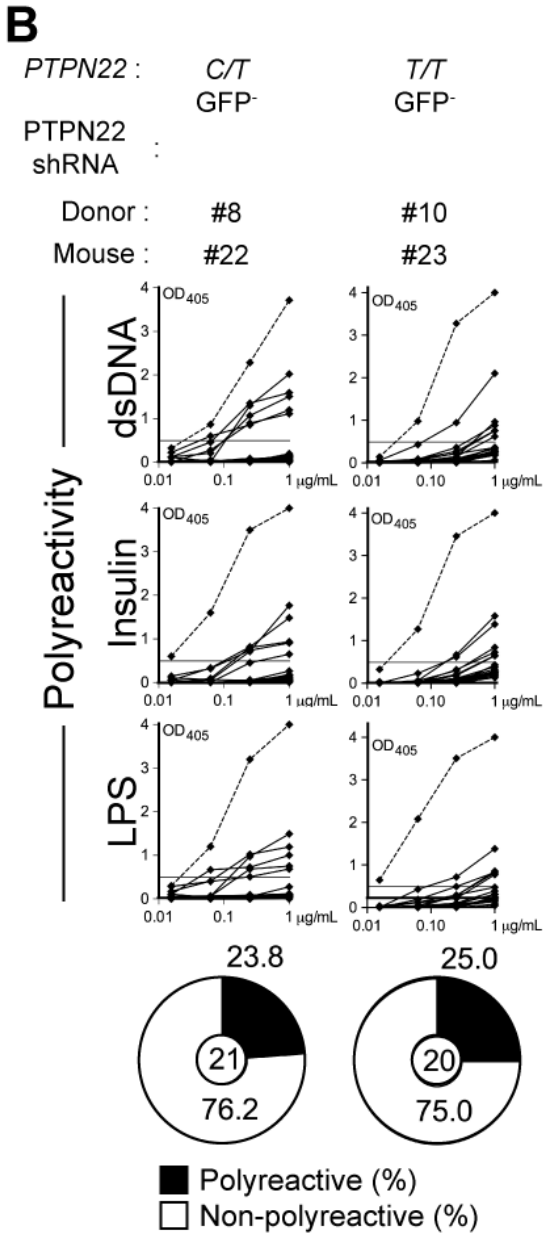
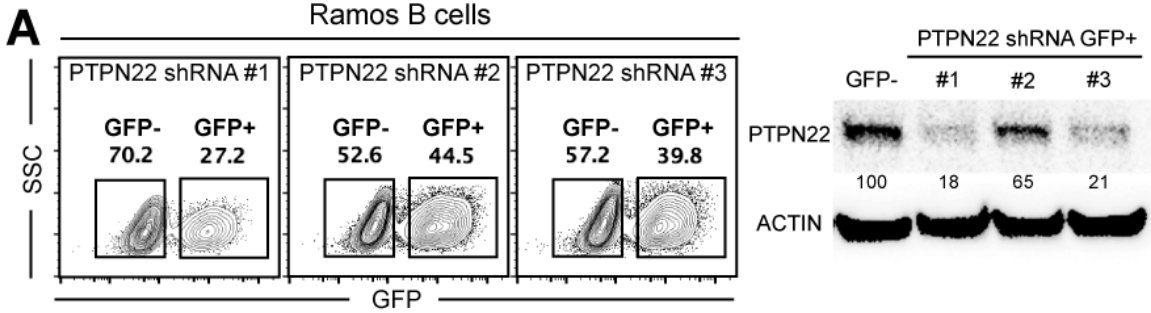
**Figure S4: 620W PTPN22 overexpression interferes with the central B cell tolerance checkpoint.**

The frequencies of polyreactive **(A)** and HEp-2 reactive **(B)** new emigrant B cells from sorted GFP<sup>+</sup> fractions expressing 620W PTPN22, 620R PTPN22 or 263Q PTPN22 were determined and compared to those of GFP<sup>-</sup> new emigrant B cells. Dotted line shows positive control. For each B-cell fraction, the frequency of reactive (filled area) and non-reactive (open area) clones is summarized in pie charts with the total number of clones tested indicated in the center. **(C)** The frequencies of antinuclear new emigrant B cells are compared between GFP<sup>-</sup> and GFP<sup>+</sup> new emigrant B cells expressing 620W PTPN22, 620R PTPN22 or 263Q PTPN22. **(D)** Autoreactive antibodies from GFP<sup>+</sup> 620W PTPN22 expressing new emigrant B cells show various patterns of anti-nuclear HEp-2 staining. Original magnification, ×40. Statistically significant differences are indicated \* P ≤ 0.05.



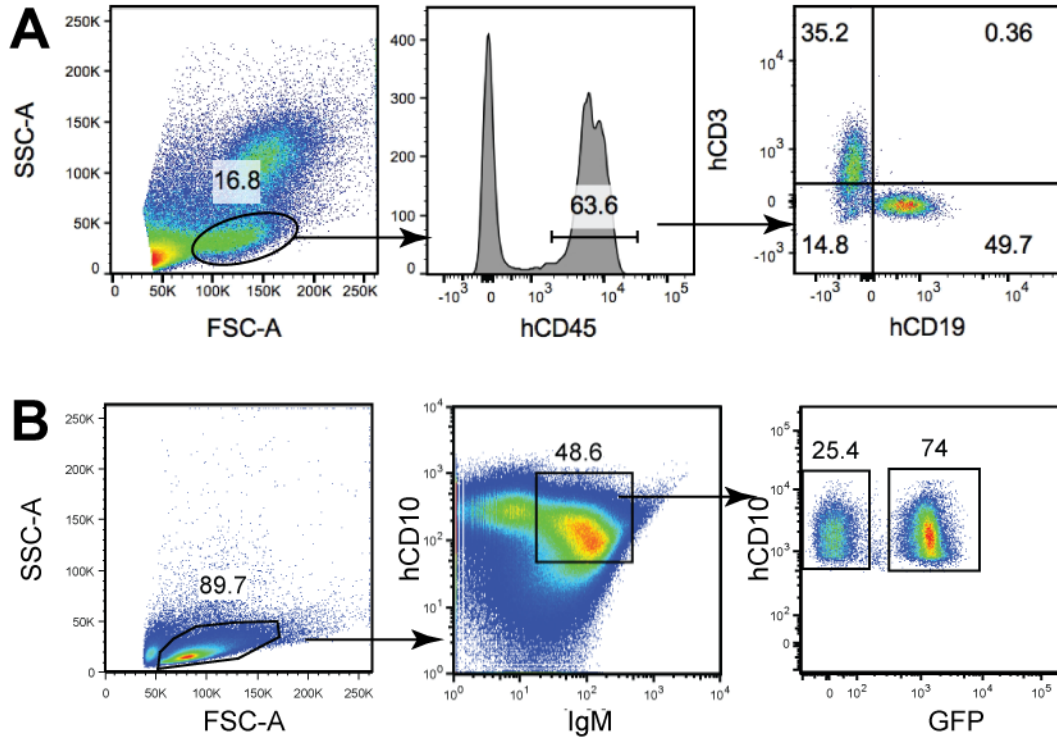
**Figure S5: Frequencies of anti-nuclear new emigrant B cells in *PTPN22* C/T or T/T NSG mice treated with the LTV-1 *PTPN22* inhibitor.**

Anti-nuclear frequencies are compared between the *PTPN22* C/T or T/T NSG mice treated or not with 0.75 mg or 0.15 mg of LTV-1 *PTPN22* inhibitor. Each symbol represents a mouse and horizontal bars denote means.

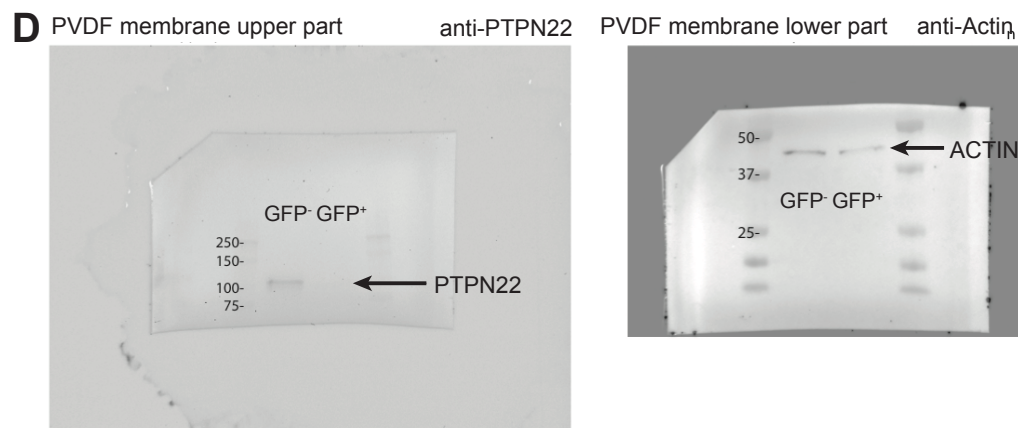
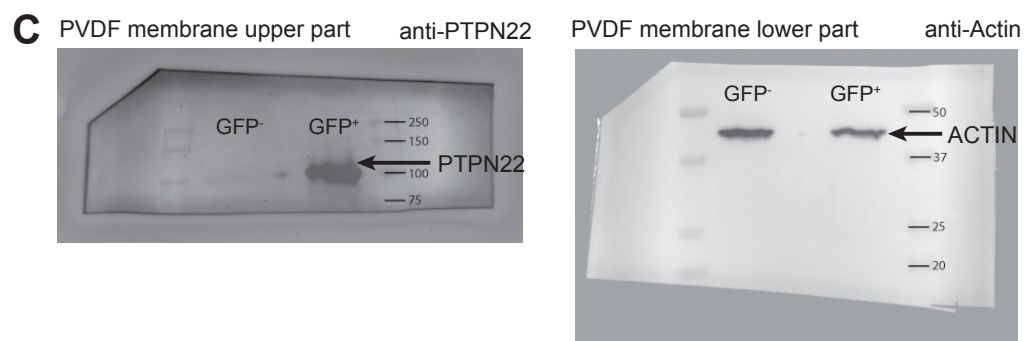
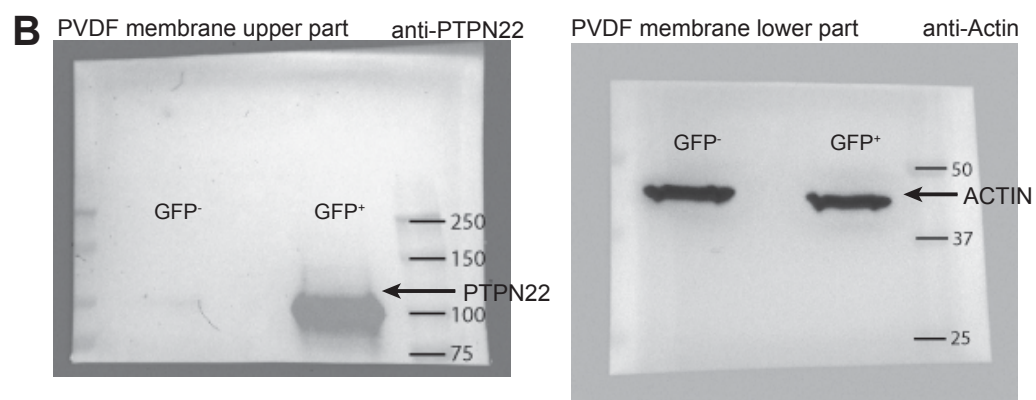
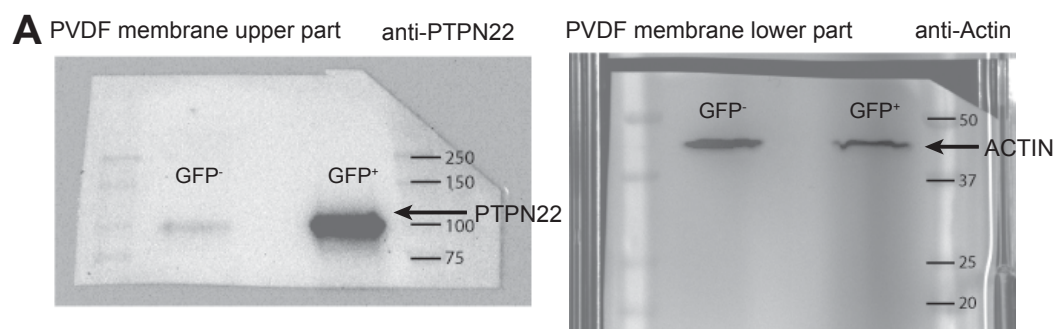


**Figure S6: Inhibition of *PTPN22* expression during B cell development resets central B cell tolerance.**

(A) Flow cytometry analysis of Ramos B cells transduction efficiency. Ramos B cells were transduced with three different GFP-tagged shRNA *PTPN22* expressing lentiviruses and probed for GFP expression. Right panel shows *PTPN22* protein expression in GFP<sup>-</sup> and GFP<sup>+</sup> shRNA<sup>+</sup> Ramos B cells.  $\beta$ -actin is used for normalization of protein expression. Percentage of knock-down is indicated. The frequencies of polyreactive (B) and HEp-2 reactive (C) new emigrant B cells from sorted GFP<sup>-</sup> fractions were determined. Dotted line shows positive control. For each B-cell fraction, the frequency of reactive (filled area) and non-reactive (open area) clones is summarized in pie charts with the total number of clones tested indicated in the center. (D) The frequencies of antinuclear new emigrant B cells are compared between GFP<sup>-</sup> and GFP<sup>+</sup> shRNA<sup>+</sup> new emigrant B cells.



**Figure S7: Representative gating strategies.** (A) Representative flow cytometry analysis of the frequency of human CD45<sup>+</sup>, CD3<sup>+</sup> and CD19<sup>+</sup> cells in the blood NSG mice. (B) Representative flow cytometry analysis of CD19<sup>+</sup> cells isolated from the spleen of NSG mouse engrafted with HSCs transduced with GFP-tagged lentiviruses. CD19<sup>+</sup> B cells were stained with anti-hCD19, anti-IgM and anti-hCD10 antibodies.



**Figure S8: Unprocessed immunoblot images.** Western Blot analysis of PTPN22 (left image) and ACTIN (right image) protein expression in GFP<sup>-</sup> and GFP<sup>+</sup> overexpressing 620W PTPN22 (A), 620R PTPN22 (B) and 263Q PTPN22 (C) hCD19<sup>+</sup> cells isolated from the spleen of NSG mice. (D) PTPN22 (left image) and ACTIN (right image) protein expression in GFP<sup>-</sup> and GFP<sup>+</sup> shRNA<sup>+</sup> hCD19<sup>+</sup> cells isolated from the spleen of NSG mice.

## Supplementary Tables

**Table S1:** Fetal donor characteristics

Donor #	PTPN22 genotype	Age (days)	Gender
1	C/C	105	Female
2	C/C	115	Female
3	C/C	108	Male
4	C/C	110	Female
5	C/C	120	Male
6	C/C	137	Female
7	C/C	112	Female
8	C/T	122	Female
9	C/T	125	Female
10	T/T	105	Female
11	C/C	111	Female
12	C/C	108	Female
13	C/T	125	Female

C/C: homozygote for the *PTPN22* C allele in position 1858

C/T: heterozygote for the *PTPN22* T allele in position 1858

T/T: homozygote for the *PTPN22* T allele in position 1858



**Table S2:** Repertoire and reactivity of antibodies from new emigrant B cells of Mouse #1

Ig	HEAVY						LIGHT					REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining	
neM1-K2	1-3	1-7	2	4	DLELYYFDY	9	3-20	1	QQYGSSPT	8	-	-	-	
neM1-K5	4-30-2	3-10	2	4	ISGSYYNY	8	1-39	1	QQSYSTPWT	9	-	+	-	
neM1-K8	4-59	3-9	2	4	SPPFDWIYYFDY	12	3-20	1	QQYGSSPWT	9	-	-	-	
neM1-K9	3-73	4-23	2	4	RYGGNYFFDY	10	3-11	4	QQRSNWPLT	9	-	+	-	
neM1-K1	3-15	1-26	1	3	QTEWELDAFDI	11	3-20	4	QQYGSSPPLT	10	-	-	-	
neM1-K11	3-74	3-10	2	6	DPGKGYGSGSYYYYYGMDV	20	1-6	2	LQDYNYPYT	9	-	-	-	
neM1-K16	4-30-2	/	/	3	TNEPNAFDI	9	2-28	4	MQALQTPLT	9	-	-	-	
neM1-K22	4-4	3-22	2	3	DRADYDSSGYYYAFDI	17	1-17	4	LQHNSYPPT	9	-	-	-	
neM1-K23	3-7	1-26	2	6	NRPPGAINYYGMDV	14	3-11	1	QQRSNWPWT	9	-	-	-	
neM1-K25	4-34	1-26	3	4	GGGATEY	7	1-17	1	LQHNSYLWT	9	-	-	-	
neM1-K32	4-59	/	/	3	THPQSDAFDI	10	2-30	4	MQGTHWPLT	9	-	+	-	
neM1-K33#	3-7	3-10	3	3	ILGGITMVRGAEDAFDI	17	3-20	1	QQYGSSPRT	9				
neM1-K37	3-30	3-10	1	4	EKGWFELEGLAIDY	15	3-15	1	QQYNWPQT	9	-	-	-	
neM1-K38	4-34	7-27	2	2	GLTGDSGTDWYFDL	14	1-39	4	QQSYSTPLT	9	-	-	-	
neM1-K4	4-39	6-13	2	4	HPYSSSFDY	9	3-20	2	QQYGSSYT	8	-	-	-	
neM1-K42	3-33	3-10	2	6	DPRLGSGSYYYYYGMDV	16	1-39	3	QQSYSTPFT	9	-	+	-	
neM1-K43#	4-30-4	7-27	2	4	NKLNWGLDY	9	1-5	1	QQYNSYSPWT	10				
neM1-K45	4-4	7-27	2	5	GWGFGNWFDP	10	3-20	2	QQYGSSPPYT	10	-	-	-	
neM1-K46	4-59	/	/	4	SFSRLASFDY	10	3-20	1	QQYGSSLGT	9	-	-	-	
neM1-K48	4-59	/	/	4	VGGRGGDFDY	10	1-33	3	QQYDNLPRVT	10	-	-	-	
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining	
neM1-L1	3-30	6-13	2	4	SGSSWYYFDY	10	2-14	2	SSYTSSTV	9	-	-	-	
neM1-L3	1-69	/	/	4	VMAVYYFDY	9	1-40	1	QSYDSSLGYV	11	+	+	-	
neM1-L6	3-30-3	3-16	2	4	GPSRGGEVFDY	11	3-21	3	QVWDSSSDQNWV	12	-	-	-	
neM1-L7	5-51	3-22	2	4	LRIPDYDSSGYFFDY	15	2-8	3	SSYAGSNNLV	10	-	-	-	
neM1-L12	4-4	/	/	4	GSIPSDYYFDY	11	3-25	2	QSADSSGTYPV	11	-	-	-	
neM1-L13#	1-69	6-13	2	5	TIYSSSWYWFDP	12	5-37	2	MIWPSNAYVV	10				
neM1-L14	3-30	3-22	2	2	DYYDSSGYYYWYFDL	15	1-44	2	AAWDDSLNGPV	11	-	+	-	
neM1-L24	3-13	6-13	2	3	GGRDSSWYIAFDI	13	2-23	1	CSYAGSSTYV	10	-	+	-	
neM1-L26	1-3	7-27	2	5	GQTTNLGMGPNWFDP	15	1-40	2	QSYDSSLGVV	11	-	-	-	
neM1-L27	3-23	2-15	2	3	DPLSRYCSGGSCYSGAFDI	19	1-44	2	AAWDDSLNGHVV	12	-	-	-	
neM1-L28	1-18	6-19	3	4	GIAVAGYFDY	10	2-8	2	SSYAGSNNLV	10	-	-	-	
neM1-L3	3-7	/	/	4	DRLGSFDY	8	1-47	3	AAWDDSLSGWV	11				
neM1-L31	3-33	3-9	2	4	DAALRYFDWLLDY	13	2-14	1	SSYTSSTLV	10	-	-	-	
neM1-L34	3-7	/	/	4	DLVGIRATDY	10	1-51	1	GTWDSSLSAYV	11	-	+	-	
neM1-L35	3-30	6-13	3	1	DVNAAAGNRAYFQH	14	3-21	1	QVWDSSSDHYV	11	-	-	-	
neM1-L36	3-30	1-26	2	4	DGDSGSYFDY	10	2-23	2	CSYAGSSTYV	11	-	-	-	
neM1-L39	3-30-3	7-27	1	3	VCSPELGQWIDI	12	3-21	2	QVWDSSSDHV	11	-	+	-	
neM1-L41	3-15	3-16	2	3	DWGTRAFDI	9	1-51	3	GTWDSSLSAGV	11	-	-	-	
	VH	D	RF	JH	CDR3(aa)	Length								
neM1-H4	3-64	6-19	3	4	GIVAVAGNLDY	11								

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S3:** Repertoire and reactivity of antibodies from new emigrant B cells of Mouse #2

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining
neM2- K04#	3-33	3-16	1	3	PRPRGEPLLNWSWAFDI	17	1-5	1	QHYNPYSRT	9			
neM2- K08	3-33	1-26	3	4	AEEGVGGSYFDY	12	2-24	1	MQATQFPWT	9	-	-	-
neM2- K10	4-31	3-22	2	3	NPAREYYDSSGYGYAFDI	20	4-1	2	QQYYSTPFMYT	11	-	-	-
neM2- K12	3-11	2-2	3	4	ARERGVVPAIVGDY	16	4-1	2	QQYYSAPQT	9	-	-	-
neM2- K13	4-34	2-8	2	4	GQQDNAPHTPLYY	13	2-28	2	MQALQTPT	8	-	-	-
neM2- K14	3-9	6-6	2	3	GTHTSSGAFDI	12	4-1	4	QQYYSTPLT	9	-	-	-
neM2- K15	3-7	2-2	3	3	VSHIVVPAAIRGGDAFDI	19	4-1	3	QQYYSTPCT	9	+	+	-
neM2- K16	3-15	1-26	3	4	DPVGACVFDY	10	3-20	4	QQYGSSPLT	9	-	-	-
neM2- K18	3-23	3-22	2	3	TVDYDSSGYYSYAFDI	17	3-20	3	QQYGSSPPT	9	-	-	-
neM2- K24	3-21	2-8	2	4	GGDDSRSPNGGYCLDY	16	2-29	2	MQGIHLRYT	9	-	-	-
neM2- K25	3-11	1-26	3	4	EGPVGIVGHHYPFDY	15	1-39	1	QQSYSTPWT	9	-	-	-
neM2- K26	1-2	3-3	3	5	GSIGVGGSLYGNWFDP	16	1-16	4	QQYNSYPLT	9	-	-	-
neM2- K27	4-39	7-27	3	4	RGLGIVHYFDY	11	3-11	4	QQRINWLT	8	-	-	-
neM2- K29	1-2	6-13	3	3	LWGGIKPGIAAAGTAFDI	18	3-20	1	QQYGSSPRT	9	-	+	-
neM2- K30	1-46	4-23	2	4	ARLAEHYQRYGGNSGPFYD	19	3-20	1	QQYGSSPGT	9	-	+	N
neM2- K35#	4-34	3-10	3	5	RGKLTMDRGNWFDP	14	2-28	2	MQALQTPT	8			
neM2- K38	3-49	3-10	2	4	DHLIGSGSYFDY	12	3-20	2	QQYGSSPQT	9	-	+	-
neM2- K41	3-49	6-13	3	4	DPLEGKSIAAAGPWDFDY	18	2-30	2	MQGTHWPPYT	10	-	+	-
neM2- K48#							1-39	2	QQSYSTPYT	9			
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neM2- L01	3-48	6-19	3	4	GIAVAGESVDY	11	1-44	3	AWDDSLNGPV	10	-	-	-
neM2- L2	1-2	1-26	2	4	LRDSGSSYFDY	11	2-18	2	SSYTSSSNVV	10	-	-	-
neM2- L04	3-33	3-16	1	3	PRPRGEPLLNWSWAFDI	17	2-8	2	SSYAGSNNLV	10	-	-	-
neM2- L05#	3-53	6-13	2	4	AGYSSWSAFDY	12	1-51	2	TWSSLSAVV	10			
neM2- L07	1-46	6-13	3	6	DKAAAGTDYYYGMDV	15	6-57	2	QSYDSSNHVV	10	-	-	-
neM2- L09	3-9	6-13	2	5	DRAGYSSSDWFDP	13	1-40	2	QSYDSSLGSGV	11	-	-	-
neM2- L17	3-33	6-13	3	4	DTAAAGLQSRYYFDY	15	2-11	1	CSYAGSYTYV	10	-	-	-
neM2- L19	3-30	4-17	2	4	DPCSDYGDYFDY	13	1-40	2	YDSSLGSGVV	10	+	+	-
neM2- L22	3-9	6-13	3	4	DMAAAGPYFDY	12	2-14	2	SSYTSSSTFGV	11	-	-	-
neM2- L23	3-15	6-19	3	4	VHARIAVAARNDY	13	2-14	2	SSFTSITYVV	10	-	-	-
neM2- L28	4-59	5-24	2	1	DGGDGYKYGYFQH	13	1-44	3	AWDDSLNGVV	10	-	-	-
neM2- L31	3-23	1-26	3	4	VWGATTMGGHYFDY	14	2-14	2	SSYTSSSTFVV	11	-	-	-
neM2- L33	4-34	3-10	3	5	RGKLTMDRGNWFDP	14	2-23	1	AGSSTFHVV	9	-	+	-
neM2- L40	3-7	6-19	3	4	DVRIAVAGFDY	11	3-1	2	QAWDSSTVV	9	-	+	-
neM2- L42	3-11	7-27	1	2	RQLGLSIEYWYFDL	14	9-49	3	GADHGSGSNFVWV	13	-	+	-
neM2- L44	3-9	6-19	2	5	ALGRYSSGWTGWDFDP	15	1-51	3	GTWSSLSAPWV	12	-	-	-
neM2- L47#	3-23	1-26	2	2	GGGSPWGWYFDL	12	2-8	1	SSYAGSNNFYV	11			
neM2- L32#							2-8	1	SSYAGSNNYV	10			
	VH	D	RF	JH	CDR3(aa)	Length							
neM2- H37	1-69	2-2	2	4	ASHHRNTYCSSTSCFDY	17							
neM2- H46	3-23	1-26	3	4	VWGATTMGGHYFDY	14							
neM2- H06	4-34	6-19	2	4	GGMVDSSGWYFDY	14							
neM2- H20	3-33	3-22	2	4	DISLYYYDSSGYSAGVFDY	19							

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S4:** Repertoire and reactivity of antibodies from new emigrant B cells of Mouse #3

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining
neM3 K02	4-39	/	/	2	PRGRYWYFDL	10	1-33	2	QQHDNLPYT	9	-	-	-
neM3 K03	4-34	6-19	2	4	GLGVSGWFDY	10	3-20	3	QQYGSSPFT	9	-	-	-
neM3 K08	5-a	/	/	6	HQARPYYYYGMDV	13	3-20	2	QQYGSSPKT	9	-	-	-
neM3 K09	4-59	7-27	3	3	VSGDAFDI	8	1-9	4	QQLNSYPLT	9	-	-	-
neM3 K11	1-69	7-27	2	5	ANWGSYNWFDP	11	3-11	4	QQRSNWPT	8	-	-	-
neM3 K15	4-59	7-27	2	2	DLSWGPYWYFDL	12	3-15	3	QQYNNWPFT	9	-	-	-
neM3 K16	4-39	6-13	2	3	QPGQYSSSWYAFDI	14	1-33	3	QQYDNLPIFT	10	-	-	-
neM3 K18	1-18	1-7	3	4	DRWAGITGTPFDY	14	3-15	3	QQYNNWPFT	10	-	-	-
neM3 K21	3-23	5-12	2	4	YSGYDFTYFDY	12	1-8	3	QQYYSFPFT	9	-	+	-
neM3 K22	4-61	6-19	2	4	RDSAYSSGFDY	11	2-28	4	MQALQTPLT	9	-	-	-
neM3 K27	4-39	/	/	4	AVFIDY	6	3-15	2	QQYNNWPYT	9	+	+	-
neM3 K30	3-23	7-27	1	4	DPPELGMGESGFDY	14	1-5	1	QQYNSYSRT	9	-	-	-
neM3 K32	4-61	4-4	2	4	DLGSNYDY	8	3-10	1	QQYGSSPQT	9	-	-	-
neM3 K33	3-23	6-13	2	4	DPRSSWYFDY	10	1-39	3	QQSYSTPFT	9	-	-	-
neM3 K34	3-30	6-13	3	2	DRIAAAGTWYFDL	13	1-33	4	QQYDNLPLT	10	-	-	-
neM3 K37	3-33	/	/	4	GAGYYFDY	8	3-11	1	QQRSNWRGT	9	-	+	-
neM3 K38	3-30	7-27	2	4	DSSAHEPSWG YFDY	14	3-15	4	QQYNNWPLT	9	-	-	-
neM3 K40	1-3	6-13	2	4	DLGADSSSWTFDY	13	3-15	2	QQYNNWPMYT	10	-	+	-
neM3 K41	3-30	/	/	5	GHPKGNWFDP	10	3-20	2	QQYGSSRYT	9	-	+	-
neM3 K42#	4-59	3-10	1	4	APRFGELYFDY	11	3-15	1	QQYNNWWT	8			
neM3 K46#	1-69	1-26	3	4	AVGATVDFDY	10	3-11	4	QQRSNWLT	8			
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neM3 L4#	4-59	5-5	2	4	QPGYSYGFYD	10	2-11	2	CSYAGSYVV	9			
neM3 L12#	3-11	1-26	1	5	DGWELYHWDFP	11	2-23	2	CSYAGRV	7			
neM3 L17#	4-59	3-22	2	4	GRDTTKASYDSSGYYY	17	3-21	1	QVWDSSSDHYV	11			
neM3 L19	1-24	1-14	2	3	VLYPGNAFDI	10	1-47	1	AAWDDSLSGYV	11	-	-	-
neM3 L24	4-39	1-26	2	4	NSGSYYFDY	9	2-23	1	CSYAGSSTYV	10	-	-	-
neM3 L25#	1-69	1-26	2	4	DSSAYS S GSY YFDY	14	1-51	2	GTWDSSLSAVV	11			
neM3 L31#	5-51	6-13	2	4	RGSSSWG YFDY	11	1-51	1	GTWDSSLSV	9			
neM3 L7							9-49	1	GADHGSGSNFVYV	13			
neM3 L10							3-21	2	QVWDSSSDHV	11			
neM3 L29							3-1	1	QAWDSSTYV	9			
neM3 L36							3-25	1	QSADSSGTYGV	11			
neM3 L43							2-23	2	CSYAGSSTLV	10			
	VH	D	RF	JH	CDR3(aa)	Length							
neM3 K13	4-31	6-13	3	6	DLAGTNY YGMDV	13							
neM3 L20	1-69	6-19	2	1	HYSSRAEYFQH	11							
neM3 L26	5-51	4-4	2	4	RRDYSNYDY	9							
neM3 L45	5-51	3-10	2	6	ANGSGSYNY YGMDV	16							
neM3 K47	3-33	4-4	2	4	GTAHSNYSGFDY	12							

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S5:** Repertoire and reactivity of antibodies from new emigrant B cells of Mouse #4

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vk	Jk	CDR3(aa)	Length	Poly	HEp-2	Staining
neM4-K49	4-59	3-10	2	5	QGVTSAYNWFDP	12	1-39	2	QQSYSTPRYT	10	-	-	-
neM4-K61	1-2	/	/	4	DGPAGVGVGFDY	12	1-39	4	RQSYSTPRLT	10	-	-	-
neM4-K62	1-2	1-20	3	3	GFSASTGTTDAFDI	15	3-11	1	QQRSNWPPWT	10	-	+	-
neM4-K66#	3-49	3-9	1	5	DFQPWGYFDWPLNWFDP	17	3-20	1	QQYGSSPRT	9			
neM4-K72	3-7	6-13	3	6	VRRGGAAAGIVDWYYYYGMDV	21	1-39	4	QQSYSTPLT	9	-	-	-
neM4-K74	1-46	6-6	2	4	RRYSSSFYD	9	3-20	1	QQYGSSPT	8		-	-
neM4-K75	1-2	2-2	3	5	ANIVVVPAAMYNWFDP	16	1-9	4	QQLNSYPLT	9	-	+	-
neM4-K77	3-30	6-13	3	4	VRGGIAAGFLAGENGSDY	20	2-28	3	MQALLTQFT	9	-	-	-
neM4-K79	3-30	3-9	2	5	DWADYDILTSQSGPYWFDP	20	1-8	1	QQYYSYPQT	9	-	-	-
neM4-K81#	1-3	4-11	3	5	NPTTITTIWFNP	13	1D-8	4	QQYYSFPLT	9			
neM4-K83	3-21	6-6	3	4	VPGSIAARPNFLDY	14	1-17	2	LQHNSYPVT	9	+	+	-
neM4-K85	4-61	3-22	2	6	GPGYYYDSSGPPYGMVDV	17	1-9	4	QQLNSYPPT	9	-	-	-
neM4-K88	3-23	2-2	2	2	VGCSSTSCYEDFDL	14	1-39	2	QQSYSTPYT	9	-	-	-
neM4-K90	3-48	/	/	4	DRNSVDY	7	3-15	1	QQYNNWPPWT	10	-	-	-
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neM4-L52	3-33	6-6	2	4	DPDLRYSSSSSFYD	14	2-23	1	CSYAGSSTPNYV	13	-	-	-
neM4-L53	3-30	/	/	6	LHAPNLYMDV	11	1-51	3	GTWDSLSAGV	11	-	-	-
neM4-L54	3-30	2-2	2	4	DCLGTWRYCSSTSCSVGADY	20	1-44	2	AAWDDSLNGVV	11	+	+	-
neM4-L55	3-30	6-13	3	5	DKGSAAADNWFDP	13	3-21	1	QVWDSSSDHYV	11	-	-	-
neM4-L58	4-59	6-19	1	4	MKRLGIDY	9	3-21	1	QVWDSSSDHYV	11	-	-	-
neM4-L63	3-30	6-13	3	6	SYEGIAADKNYYYYGMDV	19	6-57	2	QSYDSSNQV	9	-	-	-
neM4-L67	3-21	2-2	3	5	APRGVPAANWFDP	13	2-14	3	SSYTRSSTLV	10	-	-	-
neM4-L76#	4-34	2-2	3	3	ACERDIVVPAVNGAFDI	18	2-14	2	SSYTSSTRV	10			
neM4-L78#	3-23	2-15	3	3	DLNKTSLAAAGDRDAFDI	18	1-51	2	GTWDSLSAGV	11			
neM4-L89#	3-48	/	/	4	DRNSVDY	7	1-51	2	GTWDSLSAGVV	12			

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S6:** Repertoire and reactivity of antibodies from new emigrant B cells of Mouse #5

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining
neM5-H08	3-74	/	/	3	EGSLNHDAFDI	11	3-15	1	QQYNNWPPWT	10	-	-	-
neM5-H12	1-2	6-19	3	4	GSTENRIAVAGRPGVGADY	19	3-20	4	QQYGSSPMQS	10	-	-	-
neM5-H17	3-33	3-10	2	4	GPSSGVPPAFDY	12	1-5	1	QQYNSYSRT	9	-	-	-
neM5-H19	4-39	1-26	2	4	RWTGGSYGY	9	1-39	3	QQSYSTPFT	9	-	-	-
neM5-H21#	5-10	5-5	2	4	LVREERYSYGLTNRDDY	17	3-20	2	QQYGSSPPNT	10			
neM5-H34	3-33	6-13	2	5	VDNSSSPYNWFDP	13	1-39	3	QQSYSTPFT	9	-	-	-
neM5-H35	4-61	4-23	3	2	RTVVGKKGDWYFDL	14	3-20	4	QQYGSSLT	8	-	-	-
neM5-H37	3-15	2-8	2	6	EAYCTGGVCYTGVLGYYYYYMDV	23	1-39	1	QQSYSTPTRGMT	12	+	+	-
neM5-H38	3-33	1-7	3	4	DTGITGTFDY	10	1-17	2	LQHNSYPYT	9	-	-	-
neM5-H45	4-59	3-22	2	4	GRAQDSSGPNPLDY	14	3-11	4	QQRSNWPLT	9	-	-	-
neM5-H46	3-48	3-9	2	4	DLHDYDILTYGYIFDY	16	1-39	1	QQSYSTPWT	9	-	-	-
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neM5-H01	4-34	6-6	2	6	GFKWSGRNSSSSLNYYYYMDV	21	3-25	2	QSADSSGTYVV	11	-	+	-
neM5-H03	4-34	7-27	1	4	GPRLGTARKPFDY	13	9-49	3	GADHGSGSNFVWV	13	+	+	-
neM5-H04	3-30	7-27	1	4	LGSDYKPFDY	10	1-51	1	GTWDDSLSAYV	11	-	-	-
neM5-H05	6-19	/	/	4	VEGLSVVGLPY	11	1-47	2	AWDDSLSGVV	10	-	-	-
neM5-H06#	3-30-3	3-10	2	6	DRGSGSYLTYYYYYGMDV	18	2-14	1	SSYTSSTYV	10			
neM5-H07	3-23	/	/	4	DELPIDDESERFDY	15	1-44	2	AAWDDSLNGVV	11	-	+	-
neM5-H09	3-48	5-12	2	4	SKTDVADHLPRYSGYDPGNY	20	1-44	3	AAWDDSLNGWV	11	-	-	-
neM5-H11	4-34	4-17	2	4	APGDSTRMVDY	11	1-44	2	AAWDDSLNGRV	11	-	-	-
neM5-H13#	5-51	2-2	2	6	WYANLGYCSSTSCYTAGMDV	20	2-11	1	CSYAGSSYV	9			
neM5-H15	3-21	6-6	2	4	DLDEYSSVPPFDY	13	2-8	1	SSYAGSNNYV	10	-	-	-
neM5-H23#	4-31	2-15	3	3	QIVVVDAIRDAFDI	15	1-47	2	AAWDDSLSGVV	11			
neM5-H24#	3-15	6-13	2	3	SDSSSWGAFDI	11	1-40	2	QSYDSSLGGSV	11			
neM5-H25	3-15	3-16	2	4	DVWGSYRYLDY	11	1-44	3	AAWDDSLNGPV	11	-	-	-
neM5-H26	3-15	1-20	3	4	GWITGTSPDFDY	12	2-14	1	SSYTSSTLYV	11	-	-	-
neM5-H27	4-34	4-17	2	4	GDLHGDLDY	9	6-57	2	QSYDSNVV	8	-	-	-
neM5-H28	1-2	6-19	2	6	GGSGWSPPNYYYYMDV	16	2-23	2	CSYAGSSTYVV	11	-	+	-
neM5-H31	3-30-3	2-2	3	4	DPVVVPAAMWGTFDY	15	3-1	1	QAWDSSTNYV	10	-	-	-
neM5-H41	3-23	/	/	3	GAPRGAFDI	9	3-21	3	QVWDDSSDHRV	11	-	+	-
neM5-H43	1-46	3-16	2	5	ERDYVWGSYRYTGPWFDP	18	2-11	1	CSYAGSYTYV	10	+	+	-
neM5-H48	3-7	6-13	3	4	GRYGAIAAGTVLDY	15	2-23	2	CSYAGSSSVV	10	-	-	-
	VH	D	RF	JH	CDR3(aa)	Length							
neM5-H33	3-49	2-15	3	4	QDIDIVVVAATPRGIDY	18							

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining; F, cytoplasmic fibers; V, vesicles

**Table S7:** Repertoire and reactivity of antibodies from new emigrant B cells of Mouse #6

Ig	HEAVY					LIGHT				REACTIVITY			
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining
neM6-K1	5-51	6-13	3	5	GIAAAGTWFDP	11	3-15	4	QQYNNWPPLT	10	-	-	-
neM6-K2	1-3	3-22	2	4	DPFRRFGGYDSSGGYYDY	18	3-15	2	QQYNNWPPYT	10	-	-	-
neM6-K3	6-1	6-13	3	5	GIAAAGTPYWFDP	13	1-39	1	QQSYSTRTF	9	-	-	-
neM6-K4	3-15	4-23	3	4	GAAVVTPY	8	3-20	1	QQYGSSPWT	9	-	-	-
neM6-K13	3-23	3-22	2	6	EKDYYDSSGRTSNYYYYGMDV	21	1-39	3	QQSYSTPFT	9	-	-	-
neM6-K17	4-34	7-27	2	6	RMTANWDYYYYGMDV	15	3-20	4	QQYGSSSPLT	9	-	-	-
neM6-K18	3-7	1-1	2	5	DAKYNWWDGRS WFDP	16	1D-8	2	QQYYSFPYT	9	-	-	-
neM6-K22	1-3	6-13	3	3	DSSIAAAGTSDAFDI	15	1-5	2	QQYNSYSYT	9	-	-	-
neM6-K29#	1-3	4-11	3	5	DRTTVTTINWFDP	13	1-17	4	LQHNSYPLT	9			
neM6-K37#	3-21	3-22	3	4	SKINSPVTMIVGAKGFDY	19	3-15	3	QQYNNWPFT	9			
neM6-K38	4-34	3-16	2	6	VRMLGDYDYVHYYYGMDV	18	3-11	2	QQRSNWPRYT	10	-	+	-
neM6-K39	3-7	/	/	4	DTPAGRSY	8	1-17	2	LQHNSYPYT	9	-	+	-
neM6-K41	3-49	6-6	2	4	PHSSSSDYFDY	11	1D-8	3	QQYYSFPFPT	10	-	-	-
neM6-K12#							1-5	1	QQYNSYSTFG	10			
neM6-K15#							3-15	3	QQYNNWPFT	9			
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neM6-λ6	3-30	2-2	3	3	VLTVVPAADDAFDI	14	3-21	2	QVWDSSSDHVV	11	-	-	-
neM6-λ8	4-30	5-5	3	4	IIVDTIFDY	9	2-23	2	CSYAGSSTLV	10	-	+	-
neM6-λ11	3-11	/	/	4	DPKGIGY	8	1-51	2	GTWDSSLSAVV	11	-	-	-
neM6-λ16#	1-69	7-27	3	2	DRTQLGNTGTYYWYFDL	17	2-11	3	CSYAGSYTWV	10			
neM6-λ20	1-3	6-19	2	6	ERVRR LAVAGPYYYYYGMDV	20	1-40	1	QSYDSSLGGYV	11	+	+	-
neM6-λ24	3-23	6-13	2	6	KGSSSQYYYYYGMVDV	16	2-14	2	SSYTSSSTVV	10	-	-	-
neM6-λ25	3-30	6-13	2	6	YGYSSWYYYYYGMDV	16	2-8	2	SSYAGSNNLV	10	-	-	-
neM6-λ27	3-9	3-10	2	4	ALYYYGSGSYFDY	13	2-14	2	SSYTSSSTHVV	11	-	+	-
neM6-λ32	4-30	3-10	3	4	LRARGVIDY	9	3-1	3	QAWDSSTAV	10	-	-	-
neM6-λ33	3-15	6-13	2	3	GGSSSWWDAFDI	13	2-8	1	SSYAGSNNYV	10	-	-	-
neM6-λ36	1-2	6-6	2	3	NSSSAFDI	9	2-23	3	CSYAGSST	8	-	-	-
neM6-λ19							3-10	2	YSTDSSGNHRV	11			
neM6-λ28							3-21	1	QVWDSSSDHYV	11			
neM6-λ31							1-40	3	QSYDSSLGWV	11			
neM6-λ26							1-47	3	AAWDDSLGWV	11			
	VH	D	RF	JH	CDR3(aa)	Length							
neM6-H34	4-30	2-15	2	6	YCSGGSCYGMDV	12							
neM6-H36	1-2	6-6	2	3	NSSSAFDI	9							
neM6-H40	3-23	/	/	4	SFSGGDYDY	9							
neM6-H43	4-59	3-9	2	4	HPGTYDILTGYFDY	15							
neM6-H10	4-39	3-10	3	4	RRVVRGVMIFDY	12							
neM6-H14	3-15	3-10	2	4	DDYYGSGSPYY	11							
neM6-H35	3-7	4-23	2	5	DNRDHDYGGNSPWFDP	16							
neM6-H45	3-23	3-10	2	5	DKEMYYYGSGSYWFDP	17							
neM6-H46	3-30	3-10	1	4	EDDPLWFGDY	10							
neM6-H48	4-39	1-26	1	4	QFAGWELRKQYKNFDY	16							
neM6-H9	3-48	3-10	2	4	LISGSYYFDY	11							
neM6-H42	4-61	6-13	2	4	GAGYSSWYFDY	13							
neM6-H40	3-23	/	/	4	SFSGGDYDY	9							

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S8:** Repertoire and reactivity of antibodies from new emigrant B cells of Mouse #7

Ig	HEAVY						LIGHT					REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining	
neM7-k1	1-18	7-27	2	3	GWAGNWGLGSDAFDI	15	1-5	1	QQYNSYWT	8				
neM7-k2	3-21	3-9	2	4	CDILTGYLLFDY	12	3-11	4	QQRSNWPLT	9	-	+	-	
neM7-k3	3-30	6-13	3	4	SIAAAVHYFDY	11	3-15	2	QQYNNRPPYP	10	-	+	-	
neM7-k4	3-48	7-27	2	4	GRGGNWGSTQPGYYFDY	17	1-8	2	QQYYSFPYT	9	-	-	-	
neM7-k5	1-2	/	/	3	GPIVAVADAFDI	12	3-20	2	QQYGSSPYT	9	-	-	-	
neM7-k7	3-15	3-10	1	4	VNPSFGDQDFDY	12	1-8	3	QQYYSYPFT	9	-	-	-	
neM7-k9	3-33	5-5	1	4	GRGWQLWTDLYYFDY	16	1-5	2	QQYNSYSPYT	10	+	+	-	
neM7-k11	3-7	3-10	1	1	DYRGGFGELLYFQH	14	3-11	2	QQRSNWPPYT	10	-	-	-	
neM7-k18	3-33	6-13	3	4	VKGIAAAGSFDY	12	1-8	2	QQYYSYPYT	9	-	+	C	
neM7-k22	4-38	3-10	2	1	PQKRYYYGSGSYDEYFQH	18	3-11	4	QQRNSLTL	8	-	+	-	
neM7-k25	3-11	1-26	2	4	GGRSGSYFDY	10	3-20	1	QQYGSSPPGT	10	-	-	-	
neM7-k26	4-38	6-19	3	4	HAAVAGTPYYFDY	13	3-15	1	QQYNNWPPTCT	11	-	-	-	
neM7-k28	1-3	3-10	2	4	GGSGSYNLFYD	12	3-15	4	QQYNNWPPLT	10	-	-	-	
neM7-k31	4-59	3-10	3	3	VAMVRGVISAFDI	13	3-20	2	QQYGSSPPY	9	-	-	-	
neM7-k33#	3-49	3-22	2	6	DRYYDSSGYYYYYYMDV	19	1-8	2	QQYYSFPRT	9				
neM7-k34	4-38	/	/	4	RGKYYFDY	8	3-15	2	QQYNNWPPYT	10	-	+	-	
neM7-k37	4-38	4-17	2	4	NYGDYVGFYD	10	1-12	4	QQANSFPPLT	10	-	-	-	
neM7-k38#	4-39	5-12	2	4	HIGGAGYSGPFYD	13	3-20	4	QQYGSFLT	8				
neM7-k42	4-61	3-10	2	4	DSDYYGSGSYFDY	13	3-11	5	QQRSNWPLT	9	-	-	-	
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining	
neM7-λ10	1-46	2-2	2	5	RYCSSTSCWFDP	12	6-57	2	QSYDSSNQV	9	-	-	-	
neM7-λ14	3-30	3-10	2	3	GGRKYYGSGSYDLDAFDI	19	2-14	3	SSYTSSSTWV	10	-	-	-	
neM7-λ19	4-34	/	/	4	LGLKGLGPYFDY	12	2-23	3	CSYAGSSTKV	10	-	-	-	
neM7-λ20	4-38	2-2	2	5	RYCSSTSCYVNWFDP	15	1-40	3	QSYDSSLGSGV	11	-	-	-	
neM7-λ21	3-30	6-19	2	4	SYSSGWFDY	9	2-14	3	SSYTSSSTYWV	11	-	-	-	
neM7-λ24	4-59	1-26	1	3	RSEWEPEGVDAFDI	14	3-21	2	QVWDSSDHVV	10	-	-	-	
neM7-λ29#	4-34	3-10	2	4	NPYYYGSGRPPFDY	14	1-47	1	SLSGPDGTGKVTVL	28				
neM7-λ32	3-7	3-10	2	4	VGYGSGSYFDY	11	3-10	3	YSTDSSGNQGV	11	-	-	-	
neM7-λ38	4-39	5-12	2	4	HIGGAGYSGPFYD	13	1-47	2	AAWDDSLSGVV	11	-	-	-	
neM7-λ41#	5-51	6-13	2	4	HRDHSSSWDTLGYFDY	16	2-23	3	CSYAGSSTWV	10				

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining; F, cytoplasmic fibers; V, vesicles

**Table S9:** Repertoire and reactivity of antibodies from new emigrant B cells of Mouse #8

Ig	HEAVY						LIGHT					REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining	
neM8-K01	4-34	3-10	1	4	GQLHVLLWFGELLSSHIFDY	20	2-28	4	MQALQTPLT	9	+	+	-	
neM8-K02	3-23	3-22	2	4	RSDYDSSGYPISVDY	15	1-16	3	QQYNSYPFT	9	-	-	-	
neM8-K10	4-4	3-10	2	6	VGDPKDYYYGSGGNYYYYGMDV	23	3-20	3	QQYGSSPPVFT	11	-	-	-	
neM8-K13#	5-51	5-12	3	6	HVVATTNLASYYYYGMDV	18	3-15	2	QQYNNWPLYT	10				
neM8-K15#	4-59	2-8	2	2	STGYWYFDL	10	3-11	3	QQRSNWPFT	9				
neM8-K18#	3-30	4-23	3	6	VFSRSVTTYYYYYGMDV	17	2-28	1	MQALQTPT	9				
neM8-K20	3-30-3	3-10	2	5	YYGSGSLSD	9	3-20	3	QQYGSSPFT	9	-	-	-	
neM8-K25	3-11	5-5	3	4	ETTRGDTAMVTPCNY	15	1-12	3	QQANSFPFT	9	+	+	-	
neM8-K26#	1-46	3-9	2	3	DLCRGGGYDILTHDAFDI	18	3-20	2	QQYGSSPLYT	10				
neM8-K27#	4-34	2-2	2	6	DRYCSSTSCSYYYYYGMDV	19	3-20	5	QQYGSSPPIT	10				
neM8-K29	4-34	4-4	2	4	VAKEDDYSKLVYYFDY	17	1-8	1	QQYYSFPWT	9	-	+	-	
neM8-K35	3-30-3	/	/	6	VSTAGMDV	8	3-20	3	QQYGSSPHT	9	-	-	-	
neM8-K41	4-34	/	/	4	ADFIDY	6	3-11	3	QQRSTWVT	8	-	-	-	
neM8-K42#	5-51	6-13	3	2	HRIAAAGTWYFDL	13	1-5	1	QQYNSYSQT	9				
neM8-K43	3-64	/	/	6	RMTGMDV	7	1-17	3	LQHNSYPFT	9	-	+	-	
neM8-K44	3-48	4-17	2	5	DPPPYGDYDGWDFP	14	1-8	4	QQYYSYPPL	9	-	-	-	
neM8-K45	4-34	6-13	2	4	GLSSSPYFDY	11	3-20	4	QQYGSSLT	8	-	-	-	
neM8-K47	3-23	/	/	4	DFLYYFDY	8	3-15	2	QQYNNWPPYT	10	-	-	-	
neM8-K48#	3-30	2-15	2	4	IGYCSGGSCYSQGDYFDY	18	2-30	5	MQGTHWPIT	9				
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining	
neM8-L07	1-3	/	/	4	EEGY	4	3-25	1	QSADSSGTYV	0	-	+	-	
neM8-L19#	5-51	5-5	2	4	PRRGTAMAFGYSYGPYYFDY	20	2-14	3	SSYTSSSTQV	0				
neM8-L21	4-34	4-17	2	4	SPYGDSLPIDY	11	2-8	2	SSYAGSNNLV	0	-	-	-	
neM8-L23#	1-69	2-15	2	6	DGYCSGGSCYAPYYYYGMDV	20	7-43	2	LLYYGGAVV	0				
neM8-L30	3-7	3-22	3	4	DQSVTMIVVIWPEYYFDY	19	1-40	3	QSYDSSLGSGSV	11	+	+	-	
neM8-L38	3-11	1-7	2	6	ASGWNYYYYYGMDV	13	1-47	3	AWDDSLSGPV	0	+	+	-	
neM8-L42	5-51	6-13	3	2	HRIAAAGTWYFDL	13	2-14	2	SSYTSSSTLV	10	-	+	-	
neM8-L09							2-14	1	SSYTSSSTYV	10				

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles



**Table S10:** Repertoire and reactivity of antibodies from new emigrant B cells of Mouse #9

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining
neM9-K01	4-61	2-21	2	4	VGCGGDCPLDY	11	3-15	4	QQYNNWPPLT	10	-	+	-
neM9-K07#	3-48	3-10	2	6	LKAVRGVYYYYMDV	14	1-39	1	QSYSTPPWT	10			
neM9-K08	3-23	2-2	2	3	DQGGYCSSTSCPDAFDI	17	1-16	2	QQYNSYPYT	9	-	-	-
neM9-K13	3-30-3	6-6	3	4	DGADTGSIASSSGYFDY	17	3-20	4	QQYGSSPLT	9	-	-	-
neM9-K15	3-30	/	/	2	ATGDRGNWYFDL	12	3-20	4	QQYGSSPPLT	10	+	+	-
neM9-K17	3-33	3-10	2	4	GVSEYSGSYYFDY	14	3-20	4	QQYGSSSPLT	10	+	+	-
neM9-K22	3-49	2-8	2	4	DPTLLYCTNGVCHSFDY	17	3-20	1	QQYGSSPRT	9	+	+	-
neM9-K26	3-48	6-19	1	4	ESTTQWLDDY	11	1-16	4	QQNSYPLT	8	-	+	-
neM9-K30	1-69	7-27	3	3	GGTGAQGFAFDI	12	1-17	4	LQHNSYPLT	9	+	+	-
neM9-K31	4-34	/	/	4	GDRHYFDY	8	1-39	1	QSYSTPPWT	10	-	-	-
neM9-K32	3-11	7-27	1	4	QLGKGLDFD	10	1-17	1	LQHNSYPWT	9	-	-	-
neM9-K34	4-59	6-13	3	4	GGIAAAGSLGHGY	13	3-20	1	QQYGSSPWT	9	-	+	-
neM9-K35	3-30-3	3-22	2	4	EASLPYDSSGRVGEATDY	18	3-20	1	QQYGSSPTWT	10	-	-	-
neM9-K39	3-30-3	/	/	3	DCVSGAFDI	9	3-15	4	QQYNNWPPLT	10	-	-	-
neM9-K42	4-34	6-6	2	4	GNPTPTYSSSYFDY	15	2-28	2	MQALQTPQT	9	-	-	-
neM9-K43	3-21	1-26	2	4	NSGSYHLFDY	10	2-30	4	MQGTHWPPLT	10	-	-	-
neM9-K44#	3-23	7-27	2	4	DRDWGFIDY	9	3-20	1	QQYGSSPTWT	10			
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neM9-L06	4-34	/	/	4	PLGFDY	6	1-51	3	GTWDSLSAV	10	-	+	-
neM9-L11	3-33	6-13	3	4	PLAAAGLY	8	1-51	2	GTWDSLSV	10	+	+	N
neM9-L12#	3-11	1-26	2	3	DHGYSGSYAFDI	13	1-44	2	AAWDDSLNGVV	11			
neM9-L24	3-15	7-27	3	4	DPPLSRTGGSDY	12	2-14	2	SSYTSSSTLNVV	12	-	-	-
neM9-L29	3-33	6-13	3	4	PLAAAGLY	8	3-1	2	QAWDSSTAHHV	11	-	+	-
neM9-L45	3-30	7-27	1	4	VALSPAELGMRPFYD	16	2-14	2	SSYTSSSTLVV	11			
neM9-L48	4-38-2	2-8	3	4	SCLSQMVFYFDY	12	1-47	3	AAWDDSLSGRV	9			
	VH	D	RF	JH	CDR3(aa)	Length							
neM9-H38	1-18	/	/	2	DQDPRPSYFDL	11							

**Table S11:** Repertoire and reactivity of antibodies from new emigrant B cells of Mouse #10

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vk	Jk	CDR3	Length	Poly	HEp-2	Staining
neM10-K03#	4-34	7-27	1	2	ASLGNDRNWYFDL	13	1-37	4	QRTYNAP	7			
neM10-K04#	5-51	6-13	3	6	LPGIAAAGASYYYYYMDV	19	3-20	4	QQYGSSPLT	9			
neM10-K07	3-15	/	/	3	DRWGAFDI	8	1-8	4	QQYYSYPLT	9	-	-	-
neM10-K11	3-9	6-13	2	4	GYSSSWYFDY	10	1-8	4	QQYYSYHGT	9	-	-	-
neM10-K14	3-21	7-27	2	3	HWGSGAFDI	9	3-11	3	QQRSNWPPFT	10	-	-	-
neM10-H17	3-15	6-19	2	4	DFPYSTYYFDY	11	1-8	2	QQYYSYPYS	9	+	+	-
neM10-K19	1-2	7-27	3	4	DTGTGAGDRFDY	12	3-20	4	QQYGSSRLT	9	-	-	-
neM10-K20	4-34	7-27	1	2	GGVQLGMVKGWYFDL	15	1-8	4	QQYYSYPLT	9	+	+	-
neM10-K21	1-2	1-7	2	4	ASYNWNYYFDY	11	3-11	1	QQRSTWPPWT	10	+	+	-
neM10-K23	4-39	6-6	2	5	RSSSYWFDP	9	1-39	3	QQSYSTPFT	9	-	+	-
neM10-K24	3-7	2-2	2	1	GKDCSSTSCYLSEYFQH	17	1-12	1	QQANSFPQT	9	-	-	-
neM10-K25	3-33	/	/	4	DSNGGSYYFDY	11	1-27	2	QKYNAPRD	9	+	-	-
neM10-K26	3-33	6-13	1	3	GSSMSDPQLVSTDAFDI	17	2-30	4	MQGTHWPLT	9	+	-	-
neM10-K31	4-31	5-5	3	4	EWRNTAMVDY	10	1-39	2	QQSYSTPPYT	10	-	-	-
neM10-K32	3-53	1-26	2	4	ASRASSGSYYFDY	13	3-20	4	QQYGSSPPLT	10	-	+	-
neM10-K35	3-23	6-13	3	4	DQSFKAAAGPIDY	13	1D-8	1	QQYYSFPRT	9	-	+	-
neM10-K37	3-23	6-13	2	4	DRLGGYSSSWYFDY	14	1D-12	2	QQANSFPPYT	10	-	-	-
neM10-K39#	1-18	7-27	3	4	ITGDHHYFDY	10	1D-8	4	QQYYSFPLT	9			
neM10-K42	4-34	3-10	2	4	SRYYGSGSYYYYFDY	15	1-8	2	QQYYSYPYT	9	+	+	-
neM10-K43	3-23	/	/	4	RPGAGDY	7	1-39	4	QQSYSTPLT	9	+	+	-
neM10-K45	3-30-3	7-27	1	4	DRGQLGIFDY	10	3-15	2	QQYNNWPYS	9	-	-	-
neM10-K47	5-51	2-21	2	4	LVDFSGVGSYCGGDCYFDY	20	3-15	4	QQYNNWPPLT	10	-	-	-
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3	Length	Poly	HEp-2	Staining
neM10-L01#	1-2	/	/	6	DLVGRQTEYYYYGMDV	17	1-47	2	AAWDDSLSGVV	11			
neM10-L09	4-61	2-15	2	3	RYCSGGSCYSAFDI	14	3-1	2	QAWDSSTAHVV	11	-	-	-
neM10-L12	4-59	3-10	2	4	TAYGSGSYYIDY	12	3-25	1	QSADSSGTIV	10	+	+	-
neM10-L16	3-11	2-8	2	4	EATNGVCFDY	10	1-44	2	AAWDDSLNGPV	11	-	-	-
neM10-L18#	4-59	6-13	2	4	DRSWGSNYFDY	11	1-47	2	AAWDDSLSGPV	11			
neM10-L29	3-30-3	3-10	3	3	VMVRGVNAFDI	11	1-40	2	QSYDSSLSGVV	11	-	+	-
neM10-L30	3-23	4-17	2	4	ERTSYGDYFDY	11	2-11	3	CSYAGSYTWV	10	-	+	-
neM10-L34	3-7	1-26	2	4	DSGSYYFDY	10	2-23	1	CSYAGSSTIV	10	+	+	-
neM10-L38	3-11	3-22	2	3	WDYYDSSGYAFDI	14	2-18	2	SSYTSSSTLV	10	-	-	-
	VH	D	RF	JH	CDR3(aa)	Length							
neM10-H02	3-23	1-7	3	3	IITGENAFDI	10							
neM10-H06	4-34	6-6	1	4	EGQLVGDYFDY	11							
neM10-H17	3-15	6-19	2	4	DFPYSTYYFDY	11							
neM10-H27	3-48	3-10	2	4	TYYYGSGSRYFDY	14							
neM10-H36	4-38-2	6-13	1	2	GGEQQLVSWYFDL	13							
neM10-H40	1-2	6-13	2	4	GGSSSWYFDY	11							
neM10-H41	1-2	/	/	4	ERWGDY	6							

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S12:** Repertoire and reactivity of antibodies from GFP-negative new emigrant B cells of Mouse #11

Ig	HEAVY						LIGHT					REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining	
neGFP-M11-K53	4-4	6-19	2	4	VLSSGHFDY	9	1-8	4	QQYYSYPLT	9	-	-	-	
neGFP-M11-K58#	4-59	1-26	2	3	EEEGGSYAFDI	11	1-33	3	QQYDNLPL	7				
neGFP-M11-K61	4-34	2-2	2	4	RYCSSTSCYYFDY	13	3-15	3	QQYNNWPFT	9	-	-	-	
neGFP-M11-K63	4-39	3-22	2	5	RDLNYYDSSGYYSWFDP	17	1-39	1	QQSYSTPPWT	10	-	-	-	
neGFP-M11-K67#	3-30-3	6-13	3	1	DPQRIAAAGPFQH	13	1-5	1	QQYNSYSRT	9				
neGFP-M11-K68	3-48	/	/	2	DSQLGRGYFDL	11	3-15	1	QQYNNWPPWT	10	-	-	-	
neGFP-M11-K73	4-4	4-11	2	4	GSSNRNTNDY	10	3-20	2	QQYGSSYS	8	-	-	-	
neGFP-M11-K78	4-34	/	/	4	GVAANRLRSPGLDY	14	3-20	4	QQYGSSPPT	9	-	+	-	
neGFP-M11-K80	4-34	6-19	2	4	PYSSGWYFDY	10	3-11	1	QQRSNWLYT	9	-	-	-	
neGFP-M11-K64							1-17	2	LQHNSYPQYS	10				
neGFP-M11-K75							3-20	2	QQYGSSPPYS	10				
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining	
neGFP-M11-L59	4-34	1-26	2	4	HLPVRYSGSYSPSSDY	15	1-36	1	AAWDDSLSGSYV	12	-	-	-	
neGFP-M11-L62	4-61	7-27	2	4	IRPTTNWGFTKYYFDY	16	2-14	2	SSYTSSTLV	10	+	+	-	
neGFP-M11-L66	3-11	/	/	4	GVAGLGY	7	2-14	1	SSYTSSTYV	10	-	+	-	
neGFP-M11-L70	3-7	/	/	3	AAFDI	5	1-51	1	GTWDDSLSAYV	11	-	+	-	
neGFP-M11-L76	4-34	4-17	2	3	VPHYGDYHDAFDI	13	1-47	3	AAWDDSLSGRV	11	-	-	-	
neGFP-M11-L77	3-11	3-10	3	3	VKANRGAEDAFDI	13	2-14	3	SSYTSSTWV	10	-	-	-	
neGFP-M11-L81	4-59	3-22	2	3	SHASSGYAFDI	12	2-23	1	CSYAGSSTYV	10	-	-	-	
neGFP-M11-L91	4-39	3-10	2	4	LIRVFDYYGSGSAFDY	16	1-44	2	AAWDDSLNGHV	12	-	-	-	
neGFP-M11-L94	3-30-3	/	/	4	DPPLFDY	7	2-14	3	SSYTSSTLV	10	-	-	-	

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining; F, cytoplasmic fibers; V, vesicles

**Table S13:** Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing 620W PTPN22 from Mouse #11

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M11-K7	3-23D	6-13	3	4	DRGIAAAGTFDY	12	1-39	2	QQSYSTRYS	9	-	-	-
neGFP+M11-K8	3-7	3-3	3	6	GRFTADYYYYMDV	13	3-15	3	QQYNNWPT	8	-	-	-
neGFP+M11-K10	4-39	3-3	1	4	AEGDLLEWLSIGCFDY	16	1-27	4	QKYNSTALLT	9	-	+	-
neGFP+M11-K19	3-74	7-27	/	3	AEYFLGDWHHDAFDI	15	1-12	3	QQANSFPFT	9	-	-	-
neGFP+M11-K24	3-23D	6-13	3	4	DRGIAAAGTFDY	12	1-39	1	QQSYSTPWT	9	-	-	-
neGFP+M11-K25	4-61	2-21	3	4	ATVVVTAQYYFDY	13	1-39	2	QQSYSTPYT	9	+	+	-
neGFP+M11-K29	3-23D	6-19	2	3	RGWGHAFDI	9	1-33	2	QQYDNLPPRGTA	12	+	-	-
neGFP+M11-K38	1-2	6-13	2	4	HSWYYFDY	8	3-11	1	QQRSNWWT	8	+	+	-
neGFP+M11-K47	3-30	2-21	2	3	KSPPYCGGDCYSRDDAFDI	19	3-20	5	QQYGSSVT	8	-	-	-
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M11-L2	3-21	2-15	1	4	DERGIGWYFDY	11	2-23	1	CSYAGSSTYV	10	-	+	-
neGFP+M11-L4	1-2	6-6	3	3	VRGIAARRPDAFDI	14	3-21	3	QVWDSSSDHPV	11	-	-	N
neGFP+M11-L6	3-11	4-17	2	4	RDYGDYGRGGPRWYFDY	17	3-21	1	QVWDSSSDHYV	11	-	-	-
neGFP+M11-L12	3-33	4-11	2	4	NDYSNYGAFDY	11	1-40	3	QSYDSSLSGWV	11	-	-	-
neGFP+M11-L13	3-21	3-22	3	3	GRVTMIVVDAFDI	13	1-51	2	GTWDSSLSAVV	11	-	+	-
neGFP+M11-L14	1-69	6-6	3	5	EGASIAARPYNWFDP	15	1-47	3	AAWDDSLSGWV	11	+	+	-
neGFP+M11-L18	3-73	3-22	2	4	SPGYDSSGYGY	13	2-11	3	CSYAGSYTWV	10	+	+	N
neGFP+M11-L32	3-30	6-6	1	6	GEQLSDFDYGGMDV	16	3-1	1	QAWDSSTAYV	10	-	-	-
neGFP+M11-L44	4-30	3-3	3	4	ERITIFGVAGSFDY	14	2-23	2	CSYAGSSTLV	10	+	+	-
neGFP+M11-L48	3-33	7-27	3	4	EGTITGPGYFDY	14	3-25	3	QSADSSGTYWV	11	-	-	-

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S14:** Repertoire and reactivity of antibodies from GFP-negative new emigrant B cells of Mouse #12

Ig	HEAVY					LIGHT				REACTIVITY			
	VH	D	RF	JH	CDR3(aa)	Length	Vk	Jk	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP-M12-k02	3-53	4-11	3	5	GWSTVTNWDFP	11	1-39	3	QSYSTPFT	9	+	+	-
neGFP-M12-k07	3-33	6-13	1	4	PALHEQQLDYDFY	14	3-15	1	QYNNWPRWT	10	-	-	-
neGFP-M12-k16	1-3	6-13	3	5	DCGIAAAGNWDFP	13	1-8	3	QYYSYPFT	9	-	+	-
neGFP-M12-k19#	1-69	7-27	3	4	VVETGVENY	9	3-11	1	QRRNWPPWT	10			
neGFP-M12-k20	4-34	/	/	3	GRIPFDI	7	3-20	4	QYGSPPGT	9	-	-	-
neGFP-M12-k24	1-3	/	/	4	AGMAFDY	7	1-5	1	QYNSYSWT	9	-	+	-
neGFP-M12-k25	4-39	7-27	3	4	PGTGTNIDY	9	3-15	1	QYNNWPRT	9	+	+	-
neGFP-M12-k26	4-34	7-27	1	4	SRHARKELGLLDY	13	1-5	2	QYNSYST	8	-	-	-
neGFP-M12-k29	4-34	7-27	3	3	ARTRGHRDDAFDI	14	4-1	1	QYYSTPWT	9	-	-	-
neGFP-M12-k30	4-61	3-9	2	3	LGGFLTYGYNDAFDI	15	1-5	2	QYNSYPYT	9	-	-	-
neGFP-M12-k32	6-1	2-21	2	4	DGYCGGDCYSVDY	13	2-30	1	MQGTHWPWT	9	-	-	-
neGFP-M12-k33	3-15	4-17	2	4	VGEDPRDY	8	3-20	2	QYGSPPYT	10	-	-	-
neGFP-M12-k37	1-18	7-27	1	6	DLGMVGMVDV	9	3-20	1	QYGSRT	8	-	-	-
neGFP-M12-k40	6-1	7-27	2	4	GRGPPAGDFDY	11	2-30	1	MQGTHWPWT	9	-	-	-
neGFP-M12-k44	4-34	5-5	2	3	VQSGYSYGAFDI	13	3-20	4	QYGSPPPT	9	-	-	-
neGFP-M12-k45#	4-31	6-13	3	4	DHGIAAAGTFDY	12	1-39	1	QSYSTPRT	9			
neGFP-M12-k46	4-61	4-23	2	4	DYGGNSVGYDFY	12	3-20	1	QYGSPPWT	9	-	-	-
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP-M12-L04	3-11	3-22	2	4	GRDYDSSGYDFY	14	2-18	2	SSYSSSTLV	10	-	-	-
neGFP-M12-L05	3-11	1-7	3	5	DWGDITGTNWDFP	13	2-23	2	CSYAGSSTFV	11	-	-	-
neGFP-M12-L10#	3-48	3-10	2	4	DKPFDYGGSGSYNYDFY	18	2-8	2	SSYAGSNNLV	10			
neGFP-M12-L12#	1-3	1-26	3	3	SKLTPDAFDI	10	2-14	3	SSYSSSTWV	10			
neGFP-M12-L14	3-15	3-3	3	4	DPGITIFGVVIDY	13	2-14	3	SSYSSSTLV	10	-	-	-
neGFP-M12-L15	1-2	6-6	2	2	DLKREAGWYFDL	12	3-1	2	QAWDSSTV	9	-	+	-
neGFP-M12-L18	3-33	6-13	2	4	TGGYSSSWYDFY	12	2-14	2	SSYSSSTPYV	12	-	-	-
neGFP-M12-L28#	3-33	6-13	3	3	DRRIAADDAFDI	13	1-44	1	AAWDDSLNGPYV	12			
neGFP-M12-L39	1-69	6-19	2	4	DHSSGWYDFY	11	3-1	1	QAWDSSTNYV	10	-	-	-
neGFP-M12-L42	5-51	7-27	2	2	IPGDWYFDL	9	2-11	3	CSYAGSYTWV	10	-	-	-
neGFP-M12-L47	3-23	7-27	1	4	EELGIDY	7	1-47	3	AAWDDSLSGWV	11	-	-	-

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S15:** Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing 620W PTPN22 from Mouse #12

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M12-K49	4-38-2	/	/	4	DGRTFFDY	8	3-11	2	QQRSNWPPYT	10	+	+	N
neGFP+M12-K50	4-34	6-13	2	3	TGYSSSWYRAFDI	13	3-15	3	QQYNNWPPGGP	11	+	+	-
neGFP+M12-K53	3-33	/	/	6	DYYYYGMDV	9	3-20	3	QQYGSSPT	8	-	+	-
neGFP+M12-K55	4-39	7-27	3	2	AELGGGYWYFDL	12	1-5	1	QQYNSYWT	8	+	+	-
neGFP+M12-K56	1-69	/	/	5	VGPRRDWFDP	10	3-11	4	QQRSNWLT	8	+	-	-
neGFP+M12-K58	1-69	/	/	4	RGIGGLDY	8	1-5	2	DYNYPYT	7	-	-	-
neGFP+M12-K60	3-23	/	/	4	VGKAPDEKLTHYYFDY	16	1-5	4	QQYNSYSLT	9	-	+	-
neGFP+M12-K63	4-4	7-27	3	3	SVLLPGDQRHDAFDI	15	2-30	1	MQGTHWPPTVRT	12	-	+	-
neGFP+M12-K65	1-69	1-26	2	4	VSGSYYYFDY	10	3-20	2	QQYGSSPRYT	10	+	+	-
neGFP+M12-K68	4-59	/	/	2	DGDWYFDL	8	1-NL1	3	QQYYSTPFT	9	-	+	-
neGFP+M12-K70	3-33	/	/	4	DLGRFDY	7	1-39	2	QQSYSTPQYT	10	-	+	-
neGFP+M12-K71	3-48	7-27	3	4	GATGDSFDY	9	1D-8	1	QQYYSFPWT	9	-	-	-
neGFP+M12-K81	3-21	/	/	4	DSWPSYYFDY	10	3-15	3	QQYNNWPFT	9	-	+	-
neGFP+M12-K91	4-39	/	/	3	HSTEKKNDAFDI	12	2-28	4	MQUALQTPLS	9	-	+	-
neGFP+M12-K92#	1-69	5-5	2	5	YLLGYSYGYWFDP	13	3-20	4	QQYGSSPLT	9			
neGFP+M12-K95	3-64D	7-27	3	3	DRQLTGDLHDAFDI	14	1-5	1	QQYNSYWGT	9	-	-	-
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M12-L57	4-39	/	/	4	LGADRGWYFDY	11	3-21	3	QVWDSSSDHWV	11	-	+	-
neGFP+M12-L61#	3-30	3-10	2	4	ERLQSYGSGSYFDY	16	2-11	3	CSYAGSYTWV	10			
neGFP+M12-L69#	4-34	2-2	2	1	AGLGYCSSTSCYAEIFQH	18	2-23	7	CSYAGSSTGHAV	12			
neGFP+M12-L80	1-69	6-6	2	5	NDSSNWFPD	9	2-23	1	CSYAGSYV	8	-	-	-
neGFP+M12-L82	4-34	4-11	3	4	GGRMTTVTDYFDY	13	1-44	3	AAWDDSLNGWV	11	-	-	-
neGFP+M12-L83	3-53	3-16	3	2	DQFGDRTLHFDL	12	3-21	2	QVWDSSSDHPV	11	-	-	-
neGFP+M12-L84#	4-34	6-13	3	4	RQTAAAFDY	9	2-23	1	CSYAGSSTYV	10			
neGFP+M12-L85	4-39	7-27	3	2	RVLGIGRYFDL	11	3-21	1	QVWDSSSDLYV	11	-	-	-
neGFP+M12-L86	3-49	7-27	3	4	DLETGDLGFDY	11	2-23	2	CSYAGSSTVV	10	-	-	-
neGFP+M12-L92					see kappa		2-14	2	SSYTSSTVV	10	+	-	-
neGFP+M12-L96	4-61	6-6	2	5	EGFHERWDSSSSNWFPD	17	2-23	3	CSYAGSSTWV	10	-	-	-

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S16:** Repertoire and reactivity of antibodies from GFP-negative new emigrant B cells of Mouse #13

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP-M13-K03	3-15	2-15	2	6	DPPYCSGGSCYYYGMDV	17	2-30	1	MQGTHWPRT	9	-	-	-
neGFP-M13-K04	3-15	/	/	4	DNSNYFDY	8	2-24	2	MQATQFPYT	9	-	-	-
neGFP-M13-K06#	4-34	6-6	2	4	GGEYSSSYFDY	11	1-9	3	QQLNSYPT	8			
neGFP-M13-K11	1-3	/	/	3	VGTGNDAFDI	10	3-15	1	QQYNNWPPWT	10	-	+	-
neGFP-M13-K13	4-61	6-6	1	4	VVEGQLVDY	9	3-15	2	QQYNNWPLYT	10	+	+	-
neGFP-M13-K16	3-20	/	/	4	RWKGYFDY	9	3-11	3	QQRSNWPPFT	10	-	+	-
neGFP-M13-K18	3-13	6-6	2	2	GEYSSDWWYFDL	12	1-17	2	LQHNSYPHT	9	-	-	-
neGFP-M13-K20	3-15	1-26	2	4	GWRVFGSYFDY	13	1-9	3	QQLNSYPFT	9	-	-	-
neGFP-M13-K25	4-4	/	/	4	DGFQYYYYYY	10	3-20	3	QQYGSSPFT	9	-	-	-
neGFP-M13-K27	3-11	1-26	3	4	DGVGATDY	8	1-5	2	QQYNSYSY	9	-	-	-
neGFP-M13-K32#	3-7	1-1	1	2	VQLGIVRWYFDL	12	3-20	3	QQYGSSPHNVTEFT	15			
neGFP-M13-K39#	4-59	6-19	2	4	GGSGWYFDY	10	3-11	4	QQRSNWPPLT	10			
neGFP-M13-K40	3-30	1-26	2	4	DGHSGSYFDY	10	1-17	2	LQHNSYPYT	9	-	-	-
	VH	D	RF	JH	CDR3(aa)	Length	VI	Jl	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP-M13-L02	3-33	5-24	2	4	DWDGYNDY	8	1-47	1	AAWDDSLSGYV	11	-	-	-
neGFP-M13-L09	5-51	7-27	3	4	HEDSGLTGDHYFDY	14	2-14	1	SSYTSSSTLV	10	-	-	-
neGFP-M13-L14#	3-30	7-27	3	2	QSRLGTWYFDL	11	2-14	2	SSYTSSSTLV	10			
neGFP-M13-L17	3-33	6-13	3	4	EESIAAAGTDY	11	2-23	2	CSYAGSSTFV	11	-	-	-
neGFP-M13-L28	3-7	6-13	2	4	DPGYSSSWFDY	11	2-23	2	CSYAGSHVV	9	-	-	-
neGFP-M13-L30	3-15	6-13	3	4	AIAAAGNY	8	2-23	3	CSYAGSSTWV	10	-	-	-
neGFP-M13-L46	3-30	4-11	2	4	ARHDYSNYFDY	11	2-14	1	SSYTSSSTYV	10	-	+	-

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S17:** Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing 620W PTPN22 from Mouse #13

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M13-K49	4-39	6-6	2	4	RGYSSSFYD	9	1-5	1	QQYNSYSWT	9	-	+	-
neGFP+M13-K54#	3-11	1-26	2	4	EAQSGSYYY	9	3-15	1	QQYNNWPRT	9			
neGFP+M13-K56	3-11	3-10	2	2	REGSGSYYNWYFDL	14	1-39	2	QQSYSPTYT	9	-	-	-
neGFP+M13-K59	3-7	3-22	2	3	DRGYDSSGYSDAFDI	16	1-NL1	2	QQYYSTPRT	9	-	+	-
neGFP+M13-K60	1-46	7-27	2	3	QNWGDAFDI	9	1-17	3	LQHNSYPFT	9	+	-	-
neGFP+M13-K62#	2-15	2-15	2	4	GSCSGGSCYFDY	12	4-1	2	QQYYSTPPT	9			
neGFP+M13-K64#	3-30	7-27	3	6	DRTGDLHYYYGMDV	14	3-20	2	QQYGSSPYT	9			
neGFP+M13-K66	3-23	3-10	1	5	DEFGENNWFDP	12	1-39	2	QQSYSPTYT	9	+	-	-
neGFP+M13-K74#	4-4	7-27	2	4	RNWGVSGY	8	1D-8	4	QQYYSFPLT	9			
neGFP+M13-K77	4-4	5-5	1	3	VPGIQLWLKGAFDI	14	3-20	1	QQYGSSRT	8	-	-	-
neGFP+M13-K90	3-33	/	/	4	APPVLGGENYYFDY	14	3-20	4	QQYGSSPLT	9	-	+	-
neGFP+M13-K91	4-31	7-27	3	4	GVVTGDFDY	9	1-16	5	QQYNSYPIT	9	-	-	N
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M13-L50#	3-33	6-6	2	2	ARDSSSSWYFDL	12	6-57	7	QPYDSSNHAV	10			
neGFP+M13-L52	3-15	1-26	2	2	NHYSGSYNYWYFDL	14	1-51	1	GTWDSSLSAYV	11	-	-	-
neGFP+M13-L53	3-30-3	6-6	3	2	ERGRITIAARYFDL	13	2-14	1	SSYTSSSTLV	10	-	+	-
neGFP+M13-L61	3-23	/	/	4	DLILVLA	7	2-23	3	CSYAGSRV	8	-	+	-
neGFP+M13-L63	4-39	4-11	2	2	PPWFDDYSNYWYFDL	15	3-1	2	QAWDSSTAV	9	+	+	-
neGFP+M13-L65	3-53	/	/	2	GLRDGAAWYFDL	12	2-23	3	CSYAGSSTWV	10	-	-	-
neGFP+M13-L72#	3-53	3-10	3	2	ASWPGVWYFDL	11	2-23	3	CSYAGSYTWA	10			
neGFP+M13-L73	5-10-1	6-13	3	1	LVRIAAAGTEYFQH	14	2-14	3	SSYTSSSTLV	10	-	+	-
neGFP+M13-L88	4-34	4-17	2	2	GNDYGDYWYFDL	12	2-23	3	CSYAGSHWV	9	-	+	-
neGFP+M13-L93	4-23	4-23	2	6	GSGVYGGNYYYGMDV	16	2-14	3	SSYTSSSTGWV	11	-	+	-

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles



**Table S18:** Repertoire and reactivity of antibodies GFP-positive new emigrant B cells expressing R620 PTPN22 from Mouse #14

Ig	HEAVY						LIGHT					REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining	
neGFP+M14-K12	4-34	3-22	3	6	LVVKSYYYYGMDV	14	1-9	4	QQLNSYPLT	9	-	+	-	
neGFP+M14-K20	3-48	3-22	2	2	DGTDYYDSSGGYWFYDL	17	3-20	4	QQYGSSPLT	9	-	+	-	
neGFP+M14-K21	3-21	4-17	2	4	ANYGDYFDY	9	3-15	4	QQYNNWPLT	9	-	-	-	
neGFP+M14-K27	3-23	3-10	2	4	LIVREMATLYGSGSYQNY	19	1-5	4	QQYNSYPLT	9	-	-	-	
neGFP+M14-K29	1-69	6-13	2	5	NGVYSSSWYWFDP	13	4-1	2	QQYSTPPYT	10	+	-	-	
neGFP+M14-K30	3-30	4-17	2	4	DVYGDYFDY	9	1-39	2	QSYSTPYT	9	-	-	-	
neGFP+M14-K33	1-3	1-26	2	4	DLGVSGSYFDY	12	3-20	4	QQYGSSLT	8	-	-	-	
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining	
neGFP+M14-L01	3-15	6-19	3	4	GTHYFDY	7	3-27	2	YSAADNNLV	9	-	-	-	
neGFP+M14-L02	3-30-3	6-13	3	4	EKAGTHYFDY	10	2-18	1	SSYTSSSTYV	10	-	+	-	
neGFP+M14-L07	3-30	1-26	2	4	DDSGSYLIDY	10	1-44	3	AAWDDSLNGL	10	-	-	-	
neGFP+M14-L08#	3-30-3	6-13	3	6	NVAAAGTYPYSAVFYYYYGMDV	21	3-25	1	QSADSSGTIV	10				
neGFP+M14-L09#	3-7	3-22	2	4	GHSSGYHYFDY	12	2-14	2	SSYTSSSTGV	10				
neGFP+M14-L11	4-4	4-17	2	4	GTDDYGDNRERNYFDY	16	2-14	2	SSYTSSSTP	9	-	-	-	
neGFP+M14-L13	4-59	7-27	3	4	QGKITGEGNFDY	12	2-18	2	SSYTSSSTLVV	11	-	-	-	
neGFP+M14-L14	4-39	3-22	2	5	HERYYYYDSSGYNWFDP	17	1-51	3	GTWDSSLSVNWV	12	-	-	-	
neGFP+M14-L24#	1-3	3-3	2	4	TDTVRTDYDFWWSGYSY	16	2-14	2	SSYTSSSVV	9				
neGFP+M14-L25#	1-3	2-15	2	4	NSIDCSGGSCYFDY	14	1-40	1	QSYDSSLGSGV	11				
neGFP+M14-L31	3-30-3	6-13	3	4	EKAGTHYFDY	10	2-18	2	SSYTSSSTFE	10	-	-	-	
neGFP+M14-L39	4-34	2-2	2	4	RLHRGSTSCYDY	12	2-14	2	SSYTSSSTVV	10	-	+	-	
neGFP+M14-L40	3-23	6-6	2	4	RLLTSSCDSGFDY	13	1-40	1	QSYDSSLGSGFYV	12	-	-	-	
neGFP+M14-L45#	4-34	6-13	3	3	GIAAADDAFDI	11	2-14	3	SSYTSSSWV	9				
	VH	D	RF	JH	CDR3(aa)									
neGFP+M14-H16	4-61	/	/	4	ATKLLSFDY	9								
neGFP+M14-L18	3-21	2-2	3	4	DQSPSHDIVVPAAIYFDY	19								
neGFP+M14-H48	1-46	3-16	1	4	DHHYEGLRLGELSLFDY	17								

RF, reading frame : #antibody failed to be expressed

- non reactive ; +, reactive

c, diffuse cytoplasmic staining ; N, nuclear staining, F, cytoplasmic fibers ; V, vesicles

**Table S19:** Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing R620 PTPN22 from Mouse #15

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M15-K49	3-33	6-13	2	3	STRTYSSSWYAFDI	14	1-33	5	QQYDNLPLSFKVT	13	-	+	-
neGFP+M15-K51	3-30-3	6-6	2	3	RRIHYSSSLDAFDI	14	3-20	1	QQYGSSRT	8	+	+	-
neGFP+M15-K52	3-33	3-16	2	4	EAWWGFYD	8	1-6	1	LQDYNYPWT	9	-	-	-
neGFP+M15-K59	4-34	4-17	2	4	GLYGDYFDY	9	1-8	1	QQYYSYPRT	9	-	-	-
neGFP+M15-K60	3-72	7-27	3	3	AGLTGVGAFDI	11	3-20	1	QQYGSSRT	8	-	-	-
neGFP+M15-K67	3-74	3-3	1	4	DEGYLRFYD	9	1-17	4	LQHNSYPLT	9	-	-	-
neGFP+M15-K77	4-34	3-9	2	4	AGYYDILTYGYYFDY	15	3-20	4	QQYGSSPAKLT	11	-	+	-
neGFP+M15-K79#	3-30	3-3	2	6	DHDFWSGYYYYYGMVDV	16	1-12	4	QQANSFPLT	9			
neGFP+M15-K80	3-33	6-6	2	4	DPYSSSYFDY	11	1-39	4	QQSYSTPLT	9	-	-	-
neGFP+M15-K83	3-43	4-17	2	4	AIDYGDYFDY	11	1-5	2	QQYNSYSYT	9	-	-	-
neGFP+M15-K86	4-61	3-22	2	4	GGRQQRSGYFDY	12	3-20	4	QQYGSSPFT	9	-	+	-
neGFP+M15-K94	4-39	3-22	2	4	HQIDSRSTYYDSSGYFDY	20	3-20	3	QQYGSSPT	8	-	-	-
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M15-L54#	1-46	1-1	1	4	DLQLGRYFDY	11	2-23	1	CSYAGSSTSYV	11			
neGFP+M15-L55	1-2	6-6	2	4	SPDSSSMKLPYFDY	15	2-23	1	CSYAGSSTV	9	-	-	-
neGFP+M15-L57	1-2	7-27	2	3	DLREANWDAFDI	12	2-23	1	CSYAGSSTV	9	-	-	-
neGFP+M15-L66	4-61	6-6	2	3	YSSSFFAFDI	11	1-51	1	GTWDSLSLAHV	11	-	-	-
neGFP+M15-L89	1-8	2-2	2	6	GYCSSTSCYYYYYMDV	16	1-44	3	AAWDDSLNGPV	11	-	-	-
	VH	D	RF	JH	CDR3(aa)	Length							
neGFP+M15-H62	4-31	7-27	3	3	DRRGDLGAFDI	11							
neGFP+M15-H69	3-15	4-23	2	3	NYGGNKNAFDI	11							
neGFP+M15-H93	4-61	6-6	3	4	SIAARPVYD	9							

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S20:** Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing 263Q PTPN22 from Mouse #16

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M16-K2	3-30	1-26	2	4	TDHSGSYFDY	10	1-5	2	QQYNSYSMYT	10	-	-	-
neGFP+M16-K9	3-11	7-27	2	3	SETNWXGDDAFDI	12	3-11	3	QQRSNWPFT	9	-	-	-
neGFP+M16-K10	4-34	7-27	3	4	EARTGAFFDY	10	1-5	2	QQYNNYSYS	9	-	+	-
neGFP+M16-K19	3-33	3-3	2	3	DYNFWSGYYTGDAFDI	16	2-28	4	MQALQTPLT	9	-	+	-
neGFP+M16-K21	3-30	7-27	2	4	HEDPNWGXPLDY	12	1-39	4	QSYSYTPLT	9	-	-	-
neGFP+M16-K24	4-34	4-17	2	4	GVFDDPLDYGDYFDY	15	1-17	1	LQHNSYPRT	9	-	-	-
neGFP+M16-K32	3-30	4-17	2	4	GLGYGDYVSLYFDY	14	4-1	2	QQYYSTAYT	9	-	-	-
neGFP+M16-K33#	4-59	5-5	3	4	AQEAMVIFDY	10	1D-8	4	QQYYSFPLT	9			
neGFP+M16-K37#	4-34	3-10	3	4	APITMVRGVPIYFDY	15	3-11	5	QQRSNWIT	8			
neGFP+M16-K41	4-34	2-2	2	3	LPCSSTSCYAFDI	13	3-11	4	QQRSTWPPT	9	-	-	-
neGFP+M16-K42#	3-33	/	/	3	DGAPGTGAFDI	11	1-39	1	QSYSYTPWT	9			
neGFP+M16-K44	4-61	6-13	2	2	DQRYSSSWYWFYDL	14	1-39	3	QSYSYTPFT	9	+	-	-
neGFP+M16-K45#	3-33	1-1	3	4	EPTGTTGTFDY	11	3-20	2	QQYGSSPPYT	10			
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M16-L1#	3-15	/	/	4	GCGADGY	7	2-14	3	SSYTSSGWV	9			
neGFP+M16-L8	4-34	4-17	2	4	TFYGDYFDY	9	2-14	3	SSYTSSSTWV	10	-	-	-
neGFP+M16-L15	3-30	6-19	2	4	ADSSGWYFFDY	11	1-47	3	AAWDDSLSGQV	11	-	-	-
neGFP+M16-L16	6-1	5-5	1	4	GQLWFDY	7	2-14	1	SSYTSSSTKV	10	-	-	-
neGFP+M16-L20	3-15	2-21	3	1	AGVVVTAIRAEYFQH	15	3-1	2	QAWDSSTAVV	10	-	-	-
neGFP+M16-L26	3-23	/	/	4	DRRYFFDY	8	1-40	3	QSYDSSLSGWV	11	-	+	-
neGFP+M16-L27	3-7	6-19	2	4	TSSGWYFFDY	9	2-11	1	CSYAGSYTFV	10	-	-	-
neGFP+M16-L29	4-39	/	/	4	SARDFDY	7	1-47	3	AAWDDSLSGWV	11	+	+	-
neGFP+M16-L31	3-74	6-6	2	4	DRIGDSSSYFFDY	13	3-1	2	QAWDSSTVV	9	-	-	-
neGFP+M16-L36	4-59	/	/	3	PGPGHDAFDI	10	2-23	3	CSYAGYWV	8	-	-	-
neGFP+M16-L37#	4-34	3-10	3	4	APITMVRGVPIYFDY	15	1-47	2	AAWDDSLSGVV	11			
neGFP+M16-L40	4-34	6-6	3	3	GKAARAFDI	9	3-1	2	QAWDSSTVV	9	-	-	-
neGFP+M16-L43#	4-59	6-19	3	3	DGGIADAFDI	12	3-10	3	YSTDSSGNHRV	11			
	VH	D	RF	JH	CDR3(aa)	Length							
neGFP+M16-K23	3-15	6-13	2	4	DLREYSSSWRFDY	13							
neGFP+M16-K35	4-34	1-26	2	4	GLGSYFFDY	9							
neGFP+M16-L38	4-59	3-9	2	3	AHYDILTGYAFDI	14							
neGFP+M16-L39	1-46	6-13	2	4	DRSLPYSSSWYFFDY	15							

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S21: Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing 263Q PTPN22 from Mouse #17**

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vk	Jk	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M17-K1	3-30-3	1-7	2	4	VPASNWNYFDY	11	1D-8	2	QQYYSFPYT	9	-	-	-
neGFP+M17-K4	3-23D	7-27	2	4	SDWGYFDY	8	3-11	1	QQRSTWPRT	9	-	-	-
neGFP+M17-K10	3-30-3	6-13	3	3	WRAAADAFDI	10	1-17	4	LQHNSYPLT	9	-	-	-
neGFP+M17-K14	4-34	7-27	2	2	LKKANWGSSTHWFYDL	16	3-11	3	QQRSNWPLT	9	+	+	-
neGFP+M17-K15	3-30	6-13	2	4	DVSSSWYFDY	10	1D-8	2	QQYYSFPYT	9	-	-	-
neGFP+M17-K32	4-34	6-6	3	6	RPPSIAARYYYYMDV	16	3-11	4	QQRSNWLT	8	+	+	-
neGFP+M17-K48#	3-30-3	6-6	2	4	GTEYSSSYFDY	12	1D-8	1	QQYYSFPWT	9			
neGFP+M17-K55	3-33	7-27	3	4	DRPTGDLDY	9	3-11	4	QQRSNWPPLT	10	-	+	-
neGFP+M17-K72	3-30	6-19	2	4	DGAYSSGWYFDY	13	1D-8	2	QQYYSFPYT	9	-	-	-
neGFP+M17-K78	4-39	6-19	3	4	ILTAGVDY	8	1-39	1	QQSYSTPPT	9	-	-	-
neGFP+M17-K80	3-30	6-13	2	4	DVSSSWYFDY	10	1D-8	2	QQYYSFPYT	9	-	-	-
neGFP+M17-K83	3-30-3	1-7	2	4	VPASNWNYFDY	11	1D-8	2	QQYYSFPYT	9	-	-	-
neGFP+M17-K89	3-30-3	6-6	2	4	GTEYSSSYFDY	12	1D-8	1	QQYYSFPWT	9	-	-	-
neGFP+M17-K90	3-15	6-13	2	4	DHVVSSSWYFDY	12	3-15	3	QQYNNWLPFT	10	-	-	-
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M17-L3	4-34	3-10	3	2	GIRAYWYFDL	10	2-14	1	SSYTSSTKV	10	-	-	-
neGFP+M17-L6	1-2	3-3	3	4	IFGVVIYY	8	2-14	3	SSYTSSTWV	10	-	+	-
neGFP+M17-L7	3-23	6-6	2	1	DDRFKYSSSYFQH	14	2-14	1	SSYTSSTLYV	11	-	-	-
neGFP+M17-L16	1-2	3-3	3	4	IFGVVIYY	8	2-14	3	SSYTSSTWV	10	-	+	-
neGFP+M17-L19	1-2	3-10	1	4	EPWFGYFDY	11	2-14	3	SSYTSSTRV	10	-	-	-
neGFP+M17-L25	3-30-3	1-26	3	4	DQGVGRFDY	9	1-40	2	QSYDSSLGGSV	11	-	-	-
neGFP+M17-L38	3-23D	6-13	3	4	KVPAAGIFDY	10	5-37	1	MIWPSNAYV	9	-	-	-
neGFP+M17-L39	3-48	5-24	2	4	DRRGTGFDY	9	2-11	1	CSYAGSYTYV	10	-	-	-
neGFP+M17-L40	3-7	/	/	4	ISRAFDY	7	2-11	3	CSYAGSYTWV	10	-	+	-
neGFP+M17-L53	1-2	3-3	3	4	IFGVVIYY	8	2-14	3	SSYTSSTWV	10	-	+	-
neGFP+M17-L63#	1-69	5-5	2	4	VGPYSYGYDYSNYFDY	17	2-14	3	SSYTSSTLGWV	12			
neGFP+M17-L66	3-7	4-11	2	4	DHPQYFDY	9	1-44	3	AAWDDSLNGWV	11	-	-	-
neGFP+M17-L71	3-33	7-27	2	4	ANWGFYFDY	10	1-44	3	AAWDDSLNGWV	11	-	-	-
neGFP+M17-L81	1-2	3-10	2	4	GDYGGSYNDY	12	7-46	3	LLSYSGAWV	9	-	-	-
neGFP+M17-L94#	1-69	4-17	2	5	HGDYWFDP	8	1-47	3	AAWDDSLSGRV	11			
neGFP+M17-L95#	4-61	6-6	2	3	AYSSSSGDAFDI	12	2-11	2	CSYAGSYHVV	10			

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S22:** Repertoire and reactivity of antibodies from new emigrant B cells of Mouse #18 treated with 0.75 mg of LTV-1 PTPN22 inhibitor

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	V $\lambda$	J $\lambda$	CDR3	Length	Poly	HEp-2	Staining
neM18-K13	3-23	2-21	3	6	DRRIVVVTAINYYYYYMDV	19	1-39	1	QQSYSTRT	8	+	+	-
neM18-K15	3-23	3-10	2	4	EGLGDYFDY	9	1-5	1	QQYNSYSRT	9	-	-	-
neM18-K19	1-3	7-27	1	4	GELGPFDY	8	1-16	4	QQYNSYPLT	9	-	+	-
neM18-K20	3-74	/	/	3	GPRSFADFI	9	3-15	2	QQYNNWPPYS	10	-	-	-
neM18-K21	3-23	5-12	2	4	YSGYDFTYYFDY	12	1-5	1	QQYNSYSRT	9	-	+	-
neM18-K25#	3-23	3-22	2	4	GVGSGYYYFDY	11	1-9	5	QQLNSYLSIT	10			
neM18-K27#	1-24	4-17	2	5	DLLPSRYGDYNWFDP	15	2-10	1	MQGTHWWT	8			
neM18-K29	3-30	7-27	3	4	ERTGAFDY	8	3-20	4	QQYATSLT	8	-	-	-
neM18-K30#	4-59	2-2	2	2	STTNAVYWYFDL	12	1-8	5	QQYYSYPIT	9			
neM18-K33	4-34	6-13	2	4	GHLKSSYSSSWYSY	14	2-24	1	MQATQFPWT	9	-	-	-
neM18-K34	3-9	1-7	3	4	DTRGTGTTYFDY	13	3-20	4	QQYGSSLLT	9	-	-	-
neM18-K35	3-23	6-13	3	4	APASHIAAAGRIYFDY	16	3-20	1	QQYGSSPWT	9	-	-	-
neM18-K37	3-7	/	/	4	TGPYYFDY	8	1-39	2	QQSYSTPYT	9	-	+	-
neM18-K39	3-13	6-19	2	2	QVRGWYFDL	9	3-15	3	QQYNNWPFT	9	-	+	-
neM18-K44	3-48	1-26	2	4	DLGSYYDY	8	1-17	1	LQHQTYPRT	9	-	+	-
neM18-K45	4-34	/	/	2	PLTADYWYFDL	11	3-20	1	QQYGSSPV	8	-	-	-
neM18-K47#	3-13	/	/	3	AGTGAFDI	8	3-11	4	QQRSTWPLT	9			
	VH	D	RF	JH	CDR3(aa)	Length	V $\lambda$	J $\lambda$	CDR3	Length	Poly	HEp-2	Staining
neM18-L02	3-30-3	1-26	2	3	DYQLGGSYYDAFDI	14	2-23	2	CSYAGSSTLV	10	-	-	-
neM18-L03	4-38-2	2-21	2	4	SPAYDCGGDCRFDY	14	3-25	3	QSADSSGTWV	10	-	-	-
neM18-L04	4-30-4	6-13	3	5	AGTAAAGTGWFDP	13	3-25	3	QSADSSGTWV	10	-	-	-
neM18-L16	3-23	3-10	2	4	DQGYYYGSGSYLDY	14	2-23	3	CSYAGSRV	8	-	-	-
neM18-L17	4-39	7-27	2	3	QANWGSSEAFDI	12	1-47	2	AAWDDSLSGVV	11	-	-	-
neM18-L18#	1-18	4-17	2	5	GYGDYWFDP	9	2-23	2	CSYAGSSTHVV	11			
neM18-L23	3-30	/	/	4	EWVY	4	1-44	2	AAWDDSLNGVV	11	-	-	-
neM18-L28#	3-30	7-27	3	4	SVTGGLPMHY	10	5-37	3	MIWASNAWV	9			
neM18-L31	3-15	3-16	2	5	GVYYDYV	7	3-1	2	QAWDSSTVV	9	-	-	-
neM18-L32	3-33	1-26	1	4	NGRWELPTSRFNDFDY	16	3-21	3	QVWDSSSDHWV	11	-	+	-
neM18-L36	1-2	/	/	4	SKRTGEGDY	9	3-21	2	QVWDSSSDHPV	11	-	-	-
neM18-L38	3-30	7-27	3	4	DGAPTGDPILDY	12	2-14	2	SSYTSSTLV	10	-	-	-
neM18-L43#	3-23	1-26	3	1	VIAEGATKYFQH	12	3-1	1	QAWDSSTGV	9			
neM18-L46	1-2	7-27	2	3	ISPNWGSAGFDI	12	2-23	2	CSYAGSSTFVV	11	-	-	-
neM18-L48#	3-21	3-22	2	5	DFSPLYDSSGYFDP	15	2-23	2	CSYAGSSTYVV	11			
	VH	D	RF	JH	CDR3(aa)	Length							
neM18-K05#	3-30	7-27	3	2	RTGDHWYFDL	10							
neM18-K40	1-69	1-26	2	5	AIRRYSGSYWYFDP	14							

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S23:** Repertoire and reactivity of antibodies from new emigrant B cells of Mouse #19 treated with 0.75 mg of LTV-1 PTPN22 inhibitor

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining
neM19-K50	1-69	6-6	3	4	DDFRSIAARPSWGPFDY	17	3-20	2	QQYGSSPYT	9	+	+	-
neM19-K53	4-34	4-4	3	5	GSCGQTENWFDP	13	3-20	2	QQYGSSPMYT	10	-	-	-
neM19-K55	3-11	2-2	2	6	GGYCSSTSCFNYGMDV	16	3-20	2	QQYGSSPPYT	10	-	-	-
neM19-K62	4-31	3-22	2	4	VFWTPRYDSSGYFFDY	17	3-20	4	QQYGSSSLT	8	-	-	-
neM19-K63	3-64	2-21	2	5	DRAYCGGDCYSGTGGFDP	18	4-1	2	QQYYSTPYT	9	-	-	-
neM19-K64	4-59	3-10	2	5	DSVYYYGSGSYNEGSTLPKYNWFDP	26	3-15	1	QQYNNWPQT	9	-	+	-
neM19-K66#	4-39	3-22	3	4	LLFRLTMIVVVTGGIDY	17	3-20	3	QQYGSSPFY	9			
neM19-K68	3-23	1-7	3	5	EPPGTTSPSLTNWFDP	16	3-20	4	QQYGSSPLT	9	-	-	-
neM19-K73	3-21	4-17	2	5	DPFIYDRNDYGDYGWDFP	18	3-11	2	QQRSTWPYT	9	-	+	-
neM19-K74	3-66	5-24	3	6	VGVEATTGRCYGYMDV	17	3-15	4	QQYNNWPPLT	10	-	+	-
neM19-K76#	3-23	3-10	1	6	CRASSGFELGDYGYMDV	18	1-17	1	LQHNSYPWT	9			
neM19-K78	3-30-3	4-17	3	4	GPVTNGYFFDY	11	3-20	1	QQYGSSPQT	9	-	-	-
neM19-K85#	3-21	3-22	2	4	DQGYDSSGYGFDY	15	3-20	1	QQYGSSPRT	9			
neM19-K87	4-59	1-26	3	4	ARLGATFDY	9	1-17	1	LQHNSYPWT	9	-	-	-
neM19-K88	4-30-2	2-2	3	5	AGGALIPAAIDWFDP	15	1-39	3	QSYSTPFT	9	-	-	-
neM19-K90	3-7	2-15	2	3	DHISGGSCYSAFDI	14	3-11	5	QQRSNWPIT	9	-	+	-
neM19-K92	3-74	3-3	3	4	GTIFGVVYSYD	11	3-15	2	QQYNNWPYA	9	+	+	-
neM19-K93#	1-69	/	/	4	PLNRSGFDY	9	3-15	1	QQYNNWPRT	9			
neM19-K79							1-5	1	QQYNSYST	8			
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neM19-L56	4-61	3-22	2	4	MEGSYYDSSGYPFDDY	17	1-51	3	GTWSSLSAEV	11	-	-	-
neM19-L58	3-23	5-5	1	4	VPATTWIQLWGLDY	14	2-14	1	SSYSSSTLV	10	-	-	-
neM19-L60	3-11	4-23	2	3	YGGNGGGLVGAFDI	14	2-14	3	SSYSSSTLV	10	-	-	-
neM19-L67	1-3	3-10	2	5	GLRVGYVSGSYNDWFDP	18	1-44	3	AAWDDSLNGWV	11	-	-	-
neM19-L69	1-18	3-10	3	4	DGREELNSRITMVRGPFDDY	19	2-14	3	SSYSSSTWV	10	-	-	-
neM19-L77	3-21	2-15	2	5	VPPLGYCSGGSCLNWFDP	18	5-37	3	MIWPSNAWV	9	-	+	-
neM19-L80	3-66	1-26	2	4	EIGDSGSYFFDY	12	1-47	3	AWDDSLSGPS	10	-	-	-
neM19-L81#	3-53	3-3	3	5	FGVVKAGNWFDP	12	1-44	3	AAWDDSLNGRV	11			
neM19-L83#	3-33	1-20	2	6	GGQMNLDNPGVLYYYGMDV	20	2-23	1	CSYAGSSTNYV	11			
neM19-L84#	4-31	3-22	2	4	VDTYDSSGSRYFFDY	18	2-23	3	AGSSTLVV	8			
neM19-L89	3-15	2-15	2	4	VSPKINCSGGSCFITHFDY	19	1-40	1	QSYDSSLGPPYV	12	-	-	-
neM19-L94	3-15	3-10	2	5	DLGDPRVEDWFDP	13	2-23	1	CSYAGSSTYV	10	-	-	-
neM19-L95	3-74	2-22	2	4	ALPYCSSTSCYQYFFDY	17	2-23	1	AGSSTYV	7	-	+	-
neM19-L96	3-23	4-17	2	4	DQVSYGDYRGGYFFDY	15	2-11	3	CSYAGSYTV	9	-	-	-
neM19-L71							1-47	2	AAWDDSLSGHV	12			
neM19-L82							1-44	3	AAWDDSLNGWV	11			
	VH	D	RF	JH	CDR3(aa)	Length							
neM19-K52	3-7	5-5	3	4	DQVDTAMVLDY	11							
neM19-H59	4-39	3-22	2	4	LTYDSSGYFFDY	15							
neM19-H72	1-69	6-19	2	4	DQDSYSSGWVGLDY	14							

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S24:** Repertoire and reactivity of antibodies from new emigrant B cells of Mouse #20 treated with 0.15 mg of LTV-1 PTPN22 inhibitor

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vk	Jk	CDR3(aa)	Length	Poly	HEp-2	Staining
neM20-K02	4-61	3-9	2	4	AHYDILTGYWFDY	13	Feb-30	1	MQGTHWPPT	9	+	+	-
neM20-K05	3-30	3-22	2	4	SGDSSGYFDY	11	3-15	4	QQYNNWPLT	9	-	-	-
neM20-K06	3-30-3	6-13	2	4	TAGYSSSWFDY	11	1-16	3	QQYNSYPFT	9	-	-	-
neM20-K07	3-74	2-2	3	4	DIVVVAATPGVSGFDY	17	1-27	3	QKYNSAPFT	9	-	-	-
neM20-K10	1-8	1-26	1	3	GPSVMMWELSSDAFDI	16	3-15	2	QQYNNWPLYT	10	-	-	-
neM20-K11	4-59	6-19	2	5	EWAGYSSGWSYDYNWFDP	17	1-17	1	LQHNSYPRT	9	-	-	-
neM20-K13	4-31	7-27	3	2	SAGDWGWYFDL	11	3-20	2	QQYGSSPLYT	10	-	+	-
neM20-K14	4-34	4-11	2	4	VGDYSNYPADY	11	3-11	4	QQRSNWPLT	10	-	-	-
neM20-K22	3-23	6-13	2	4	TYSSSWLYIDY	11	3-15	1	QQYNNWPPVWT	11	+	+	-
neM20-K23	3-21	6-13	2	5	DLVGYSSSWNWFDP	14	1-NL1	2	QQYYSTPYT	9	+	-	-
neM20-K27	3-23	3-22	2	4	DLYYDSSGYPLGGGFDY	18	3-20	2	QQYGSSPYT	9	-	-	-
neM20-K32	4-59	7-27	3	4	GTKQELGKYFDY	13	3-15	1	QQYNNWT	7	-	-	-
neM20-K34	3-23	6-6	1	4	AGQLEPHYFDY	11	1-5	1	QQYNSYSRT	9	-	-	-
neM20-K36	1-8	3-22	2	4	GLSYDSDRGDYFDY	14	3-20	1	QQYGSSPGT	9	-	-	-
neM20-K37	3-48	1-26	3	4	NNGATTWRADY	11	3-20	5	QQYGSSPIT	9	-	-	-
neM20-K39	3-23	2-15	2	3	DWGDNCSSGSCYSNKVPDAFDI	22	1-5	1	QQYNSYRT	8	-	-	-
neM20-K41	3-66	4-17	2	4	NEGYGDLYYFDY	13	3-11	3	QQRSNCT	7	-	+	-
neM20-K45	3-72	1-26	3	5	ERVAIGVGTARRGGQQYNWFDP	24	3-11	3	QQRSNWPT	8	-	+	-
neM20-K47#	3-53	3-22	2	4	QLLNYYDSSGYYYY	14	3-20	2	QQYGSSPLVT	10			
neM20-K48	4-34	/	/	4	HGSGTYQHFDY	11	3-11	2	QQRSNWYT	8	-	-	-
	VH	D	RF	JH	CDR3(aa)	Length	VI	JI	CDR3(aa)	Length	Poly	HEp-2	Staining
neM20-L01	4-39	3-22	2	5	HFFAIGDSSGYVGAYNWFDP	20	8-61	3	VLYMGSGVWV	10	-	-	-
neM20-L08	1-2	6-13	3	3	EPNLAAAGTKKNAFDI	16	2-14	1	SSYTSSTLV	10	-	-	-
neM20-L12	4-39	1-26	3	5	HFEVGAHRFDP	11	3-1	2	QAWDSSTYVV	10	-	-	-
neM20-L15	3-23	6-13	3	6	DGRGIAAAGTPYYGMDV	18	3-1	1	QAWDSSTYVV	9	-	-	-
neM20-L16	3-48	7-27	3	3	DLTGDRGNAFDI	12	3-21	3	QVWDSSTDHWV	11	-	-	-
neM20-L17	3-9	2-21	3	3	DFGAIVVVDAFDI	14	2-11	2	CSYAGSYTVV	10	-	-	-
neM20-L18	3-33	5-5	3	6	GASDTAMVYYYYGMDV	17	2-14	1	SSYTSSTLV	10	-	+	-
neM20-L19	3-73	6-19	3	3	HAPPPIAVAGTVAFDI	16	1-44	3	AAWDDSLNGWV	11	-	-	-
neM20-L24	3-15	3-3	3	4	EVWSGYTIFGVVIY	14	2-14	3	SSYTSSTWV	10	-	+	-
neM20-L26	3-21	6-19	2	5	TGYSSGWNWFDP	12	2-11	1	CSYAGSYTVV	10	-	-	-
neM20-L28	4-61	3-10	2	5	FGSSPHHSGSAVDWFDP	17	1-36	2	AAWDDSLNGVW	11	-	-	-
neM20-L29	3-23	3-22	2	3	DRVDYYDSSGYPTDAFDI	19	1-44	2	AAWDDSLNVV	10	-	+	-
neM20-L31	3-15	/	/	4	DPPGKGTQSFYD	12	2-14	3	SSYTSSTWV	10	-	-	-
neM20-L42	3-30	6-13	3	2	AGGPLVRYAAAGYWYFDL	18	2-23	1	CSYAGSSTYV	10	+	+	-
neM20-L43	4-34	3-10	3	5	RGTMVRGVNVGWDFDP	15	2-11	3	CSYAGSYTWV	10	-	-	-
	VH	D	RF	JH	CDR3(aa)	Length							
neM20-H25	3-66	5-5	2	4	DLGYSYGYTDY	11							
neM20-H30	3-49	3-9	2	4	DQYDILTGFDY	11							

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

**Table S25:** Repertoire and reactivity of antibodies from new emigrant B cells of Mouse #21 treated with 0.15 mg of LTV-1 PTPN22 inhibitor

Ig	HEAVY							LIGHT				REACTIVITY			
	VH	D	RF	JH	(-)	CDR3(aa)	(+)	Length	Vk	Jk	CDR3(aa)	Length	Poly	Hep-2	Staining
neM21-K6	3-30	3-10	3	3	1	GGSSVRGVIIIGAFDI	1	15	2-30	4	MQGTHWPLT	9	+	+	-
neM21-K8	3-30	2-2	2	3	2	QGRYCSSTSCYADAFDI	1	17	1-5	2	QQYNSYSYT	9	-	+	-
neM21-K10	1-69	6-13	2	4	1	AGGNDSSWSFY	0	12	1-39	2	QQSYSTLPYT	10	-	-	-
neM21-K14	3-48	5-24	?	3	2	ATAPDLANAFDI	0	12	3-20	1	QQYGSSPPWT	10	-	-	-
neM21-K15#	1-24	3-22	3	3	1	PITMIVVVITFGAFDI	1	16	3-20	1	QQYGSSPVT	9			
neM21-K27#	7-4	7-27	?	3	4	DSRSRGEPDAFDI	2	13	1-8	2	QQYYSYPYT	9			
neM21-K28	3-49	2-2	2	4	1	TRSPYCSSTSCYPFDY	1	16	1D-33	3	QQYDNLPPFT	9	-	-	-
neM21-K29	3-33	5-5	2?	4	2	DQNNRIQLWYGVFDY	2	15	1D-33	3	QQYDNLPPFT	10	-	-	-
neM21-K30	4-34	3-22	2	4	3	RGPDGEGSSGYYYFDY	1	17	1-12	2	QQANSFPCT	9	-	-	-
neM21-K32	3-64	2-2	1	2	1	VKGGRLQLLYSYWYFDL	1	17	3-20	1	QQYGSSPRT	9	-	-	-
neM21-K33	3-15	5-5	2	5	2	TTGGDSYGYSWFDP	0	14	3-11	4	QQRSNWPLT	9	-	-	-
neM21-K40	4-38	3-3	3	3	2	DLAIFGVVTPYYYYMDV	0	18	1-12	4	QQANSFPLT	9	+	+	-
neM21-K41	4-61	1-14	2	4	4	DDGDHRNYFDY	2	11	1-39	4	QQSYSTPLT	9	-	-	-
neM21-K46	3-30	6-19	3	4	3	DRIAVAGIGEYFDY	2	15	2-28	3	MQALQTLFT	9	-	-	-
neM21-K26									3-15	1	QQYNNWPPWT	10			
	VH	D	RF	JH	(-)	CDR3(aa)	(+)	Length	VI	Jl	CDR3(aa)	Length	Poly	Hep-2	Staining
neM21-L4	4-31	6-13	2	1	1	APKSSSSSWYFAEYFQH	1	17	6-57	2	QSYDSSNVV	9	+	+	-
neM21-L23	3-15	7-27	?	3	1	TTAPPGCAFDI	0	11	1-47	2	AAWDDSLSGVV	11	-	-	-
neM21-L24	3-23	/	/	3	4	PWEAEVTDAFDI	2	12	1-44	2	AAWDDSLNGVV	11	-	+	-
neM21-L37	3-9	6-13	2	3	1	RYSSSWYAFDI	1	11	1-47	2	AAWDDSLSGPV	11	-	+	-
neM21-L44	3-30	3-16	?	3	2	DTSGAFDI	1	8	2-11	3	CSYAGSYTWV	10	-	-	-
neM21-L45	1-58	6-13	3	4	1	AAIGRTAAAGTDY	1	13	1-44	1	AAWDDSLNV	9	-	-	-
	VH	D	RF	JH	(-)	CDR3(aa)	(+)	Length							
neM21-H5	3-23	2-2	2	3	4	DPREYCSSTSCYRVRDAFDI	3	20							
neM21-H48	3-72	6-6	2	6	3	SYSSSDLSLAASDYYYYYMDV	1	22							

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles



**Table S26:** Repertoire and reactivity of antibodies from GFP-negative new emigrant B cells of Mouse #21

	HEAVY				LIGHT				REACTIVITY				
	VH	D	RF	JH	CDR3(aa)	Length	Vk	Jk	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP-M22-K2	3-30	4-23	2	3	GASPYGGNSGAFDI	14	1-5	2	QQYNSYST	8	+	-	-
neGFP-M22-K11	3-15	1-7	2	2	GPNYPNQSRFYFDL	13	3-15	2	QQYNNWPPYT	10	+	+	-
neGFP-M22-K12	1-69	2-15	2	4	KTDGGGSSSHFDY	14	3-15	3	QQYNNWPPSST	11	-	-	-
neGFP-M22-K13	3-30	3-22	3	3	DPTSVVVMDSAFDI	14	3-15	1	QQYNNWLWT	9	+	+	-
neGFP-M22-K14	3-23	6-19	1	1	DTVGGWLGKIFYQH	13	1-39	4	QQSYSTPLT	9	+	+	-
neGFP-M22-K17	4-39	1-26	2	4	RSGSNRGLGYFDY	13	3-15	1	QQYNNWPPWT	10	+	+	-
neGFP-M22-K18	3-7	4-23	3	2	TNTVVGYYWYFDL	12	1-12	1	QQANSFPWT	9	+	+	-
neGFP-M22-K19	3-23	2-21	2	4	DRGGDYFDY	9	1-5	2	QQYNSYSHT	9	-	-	-
neGFP-M22-K20	1-2	6-6	3	4	PGSIAARVLDY	11	4-1	2	QQYYSTPYT	9	-	+	C
neGFP-M22-K23	4-39	6-13	3	4	HRGIAAAGDY	10	1-39	1	QQSYSTPWT	9	-	+	-
neGFP-M22-K24	4-39	2-15	3	5	HPIQDIVVVAANWFDP	17	3-11	3	QQRNLVT	7	-	-	-
neGFP-M22-K25#	4-61	3-22	2	6	DRYYDSSGYSDYYGMDV	18	3-20	2	QQYGSSPYT	9			
neGFP-M22-K29	3-23	6-19	3	4	DPGGSIAVAGDY	12	3-11	4	QQRSNWLT	8	-	-	-
neGFP-M22-K30	4-4	4-17	2	6	VGWEDDYDQGGRYYYGMDV	21	2-28	4	MQALQTLT	8	-	-	-
neGFP-M22-K33	4-31	4-17	3	2	GAMTTVTGGPAAGYFDL	18	1-39	1	QQSYSTPGP	9	-	+	-
neGFP-M22-K34	1-18	5-24	2	4	AGRRDGYNYFDY	13	3-15	2	QQYNNWPPYT	9	-	+	-
neGFP-M22-K39	3-64	3-9	2	5	DPHYDILTGYSHNWFDP	17	2-28	2	MQALQTPYT	9	-	-	-
neGFP-M22-K40#	3-74	5-24	3	6	DRVEMATYYYYYGMVDV	17	2-28	1	MQALQTPRT	9			
neGFP-M22-K42	3-33	3-22	2	4	DAHYYDSSGYPPAYYFDY	18	1-5	1	QQYNSYPWT	9	+	+	-
neGFP-M22-K45	4-61	4-23	3	4	EGVVTKFPDY	10	1-17	1	LQHNSYPWT	9	-	-	-
neGFP-M22-K46	4-61	2-2	2	4	WGVNSCSSTSCYSSRLYYFDY	22	1-17	3	LQHNSYLFT	9	-	+	-
neGFP-M22-K47	3-11	/	/	4	DTGHTGDY	8	1-39	2	QQSYSTPRT	9	-	+	-
neGFP-M22-K48	3-30	2-2	2	3	GYCSSTSCYRGAFDI	15	3-20	3	QQYGSSPFT	9	-	+	-
	VH	D	RF	JH	CDR3(aa)	Length	Vk	Jk	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP-M22-L1	3-33	2-8	2	4	GNVGYCTNGVCSSISFDY	18	1-51	1	GTWDSLSLAHYV	12	-	+	-
neGFP-M22-L3	4-61	5-5	2	5	EFKRGYSYGYWWFDP	15	1-51	3	GTWDSLSL SAGV	11	+	+	N
neGFP-M22-L4	3-23	3-3	3	4	STIFGWITPFDY	13	2-11	3	CSYAGSVV	8	-	-	-
neGFP-M22-L5	3-11	4-4	3	5	VGGLRPTVTTGYNWFDP	17	2-14	3	SSYTSSSTWV	10	-	-	-
neGFP-M22-L6	3-30	4-17	2	4	PKADYGDYTPAQYFDY	17	2-11	2	CSYAGSYHV	10	-	-	-
neGFP-M22-L8	3-9	/	/	6	VTHPLNYYYGMVDV	13	1-47	3	AAWDDSLSGPV	11	-	-	-
neGFP-M22-L9	3-30	3-10	1	4	DRGRFGEGYFDY	12	1-51	3	GTWDSLSL SAWV	11	-	-	-
neGFP-M22-L10	3-30	3-3	2	4	DSFPRFWSGYCSFDY	15	1-44	1	AAWDDSHYV	9	-	+	-
neGFP-M22-L16	3-74	2-2	1	6	DRVVPHRGTQLNGMDV	17	2-11	2	CSYAGSYTLV	10	-	-	-
neGFP-M22-L22	3-11	3-9	2	5	DRTPTYDILTQQLNWFDP	18	2-8	2	SSYAGSNNV	10	-	-	-
neGFP-M22-L27	3-23	2-2	2	4	SLNCSSTSWYLPRVGFYD	18	2-14	3	SSYTSSSIWV	10	-	-	-
neGFP-M22-L38	3-21	6-6	3	4	VVAARWDIYYFDY	13	2-14	2	SSYTSSSIPV	11	-	-	-
neGFP-M22-L43	3-33	4-4	2	5	GSEKNDYSNYMNVFDP	16	1-51	3	GTWDSLSL SAGV	11	-	-	-

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S27:** Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing PTPN22 shRNA from Mouse #21

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vk	Jk	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M22-K49	3-15	6-19	3	4	DRYVAVAGTVDY	12	3-11	3	QQRSNLFT	8	-	-	-
neGFP+M22-K58	4-4	6-6	2	4	AGPYSSSYFDY	12	1-17	1	LQHNSYPWT	9	-	+	-
neGFP+M22-K65#	1-46	2-15	1	4	TLRGWCPDY	9	1-16	2	QQYNSYPHT	9			
neGFP+M22-K67#	3-48	4-4	2	4	ADDYSNYFDY	10	1-33	4	QQYDNLPLT	9			
neGFP+M22-K68#	3-30	2-8	2	6	DGANGARLGHHYYYYGMDV	20	3-11	5	QQRSNWPPIT	10			
neGFP+M22-K71	3-11	2-2	2	6	DHTARGACSTSCYIYYGMDV	22	1-17	2	LQHNSYPYT	9	-	+	-
neGFP+M22-K74#	3-33	6-19	1	3	DYFFGQWLAAGDAFDI	16	2-30	3	MQGTHWPRVT	10			
neGFP+M22-K77	3-7	6-13	3	4	GVAAGIFGY	9	3-20	4	QQYGSSPLT	9	+	+	-
neGFP+M22-K86	4-61	2-21	3	1	TYFVVVMEAEYFQH	14	3-11	4	QQRRTWSLT	9	-	-	-
neGFP+M22-K87	3-30	2-15	3	4	DGGRGVVAATLLYFDY	16	1-8	4	QQYYSFPLT	9	-	+	-
neGFP+M22-K90	3-21	6-6	2	6	DLSEYSSSSFFRYYGMDV	19	1-39	3	QQSYSTPQT	9	-	+	-
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M22-L51	3-30	6-19	2	4	DGRYSSGWSYFDY	13	1-40	2	QSYDSSLGSGV	11	-	+	-
neGFP+M22-L52#	3-23	3-9	2	6	EPPPSYDILTGSNYYYYGMDV	21	1-44	3	AAWDDSLNGWV	11			
neGFP+M22-L60	4-61	2-2	2	5	VSGCSSTSCFGWFDP	16	2-23	3	RSYAGSSTWV	10	-	-	-
neGFP+M22-L62	3-23	3-22	2	3	VDTETDDSSGYAFDI	15	1-47	2	AAWDDSLSGVV	11	-	-	-
neGFP+M22-L64	3-23	2-15	2	3	DRCSGGSCPDAFDI	14	2-23	1	CSYAGSSTLYV	11	-	-	-
neGFP+M22-L69	4-59	4-17	2	2	DRNGDYPWYFDL	12	1-40	2	QSYDSSLSVV	10	-	-	-
neGFP+M22-L75	1-18	4-23	3	4	GAVVTPGYFDY	11	2-14	1	SSYTSSKV	8	-	-	-
neGFP+M22-L79	3-30	2-21	2	4	SYCGGDYFDY	11	1-40	1	QSYDSSLGSGYV	11	-	-	-
neGFP+M22-L81#	1-69	5-24	2	4	PSGDGYNLEY	11	2-14	3	SSYTSSSTWV	10			
neGFP+M22-L82	3-20	3-22	2	4	VQSNPLYYYDSSGYYYDY	18	2-14	1	SSYTSSNYV	9	-	-	-
neGFP+M22-L83	1-81	2-2	2	3	VEPPTRVAHCSSTSCYILGAFDI	23	2-14	1	SSYTSSSYV	9	-	-	-
neGFP+M22-L84	4-34	4-17	2	3	GLYGDYVDAFDI	12	1-44	3	AAWDDSLNGWV	11	-	-	-
neGFP+M22-L85	4-39	3-10	2	6	HGVHLPPYGGSGSYYYGMDV	21	1-40	3	QSYDSSLGSGWV	11	-	-	-
neGFP+M22-L89	1-3	6-13	3	4	GKIAAAGFDY	10	3-21	2	QVWDSSSDHPV	11	-	-	-
neGFP+M22-L91	1-46	4-4	3	4	TTTVIYFDY	10	2-11	1	CSYAGSYTYV	10	-	-	-
neGFP+M22-L96	3-48	4-17	2	4	GKYQEPYGYFPTRGFDY	19	1-51	1	GTWDDSSL SAYV	11	-	-	-

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S28:** Repertoire and reactivity of antibodies from GFP-negative new emigrant B cells of Mouse #22

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP-M23-K01	3-23	1-26	3	5	RKGATGDWDFDP	11	1-8	2	QQYYSYPYT	9	+	+	-
neGFP-M23-K02#	4-34	3-22	2	4	SDDSSGYRKAFDY	15	3-11	1	QQRSTWPPWT	10			
neGFP-M23-K09	3-15	2-15	2	6	APSGYCSGGSCYYYGMDV	19	2-28	2	MQALQTPYT	9	-	+	-
neGFP-M23-K16#	1-2	3-10	2	6	LYYYGSGSYSQYYYGMDV	19	3-11	4	QQRSTWPPWT	10			
neGFP-M23-H25	4-59	2-8	1	2	STGYWYFDL	10	4-1	1	QQYDTPRA	9	-	-	-
neGFP-M23-K29#	1-2	2-2	3	4	ESDIVVPAASRASRYDY	19	3-15	2	QQYNNWPSYT	10			
neGFP-M23-K35	3-33	3-22	2	4	VSRDYDSSGYGPFADY	18	1-12	4	QQANSFPLT	9	-	+	-
neGFP-M23-K40#	3-53	5-12	3	5	DSGGVATWGQGLTVTSSARTSQDP	25	1-8	1	QQYYSYPRT	9			
neGFP-M23-K41	3-30	3-10	3	5	DRRRITMVRGVTNWDFDP	17	2-28	1	MQALQTPWT	9	+	+	-
neGFP-M23-K43#	3-9	3-10	2	2	DMRMHYGSGGYWYFDL	16	3-15	2	QQYNNWPPYT	10			
neGFP-M23-K44#	1-2	6-6	1	4	ALIWLQATSPLDY	13	1-5	1	QQYNSYSQWT	10			
neGFP-M23-K47#	4-34	3-9	2	5	EREPPYDISNWDFDP	14	3-11	4	QQRSTWPLT	9			
neGFP-M23-K22							1-39	2	QQSYSTPYT	9			
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP-M23-L03	3-9	3-10	2	3	GRVYDILTIGSGSLYAFDI	19	2-14	2	SSYSSSTLV	10	-	-	-
neGFP-M23-L04	3-30	2-15	2	5	PYCSCGGSCVSGSRALYNWDFDP	22	2-14	1	SSYSSSTLV	11	-	-	-
neGFP-M23-L05	1-2	2-2	3	6	EAVVPSRGMNDV	12	2-11	2	CSYAGSYTVV	10	-	-	-
neGFP-M23-L06#	1-18	5-12	2	4	DPGSGYDNDY	11	3-25	3	QSADSSGTWV	10			
neGFP-M23-L11	3-9	/	/	4	DRQMPQIGAQGFYD	15	3-1	2	QAWDSSTVV	9	-	+	-
neGFP-M23-L12#	3-23	6-13	2	6	HSGYSSSWPNVMDV	14	3-21	2	QVWDSSTDHVV	11			
neGFP-M23-L13	3-33	6-13	2	3	GTRQDSSWWGHAFDI	16	1-51	1	GTWDSLSAYV	11	-	-	-
neGFP-M23-L14#	1-69	6-13	2	5	EGGVSSSWPYNWDFDP	16	1-40	3	QSYDSSLGWV	11			
neGFP-M23-L18#	3-9	6-13	3	4	DGAAAGLRY	9	1-44	3	AAWDDSLNGWV	11			
neGFP-M23-L19#	3-33	6-6	1	6	DRTQQLVPYYYGMDV	16	2-8	2	SSYAGSNNLV	10			
neGFP-M23-L20	1-2	3-10	1	4	DLLRFGLWDY	11	1-47	1	AAWDDSLSGPV	11	-	+	C
neGFP-M23-L21	3-9	2-15	2	4	DVTNGRDCSGSCYSFYD	18	1-44	2	AAWDDSLNGVV	11	-	-	-
neGFP-M23-L23	3-48	2-2	2	2	DTHCSSTSCYSDFYD	17	2-23	3	CSYAGSST	8	-	-	-
neGFP-M23-L24	1-2	2-2	3	5	EGDIVVPAAHGWDFDP	16	2-23	1	AGSSTYNYV	9	-	-	-
neGFP-M23-L25	4-59	2-8	1	2	STGYWYFDL	10	3-1	2	QAWDSSTVV	9	-	-	-
neGFP-M23-L26	4-34	6-13	2	1	PGYSSWYFQH	12	2-14	3	SSYSSSTL	9	+	+	-
neGFP-M23-L27	3-11	3-16	3	5	GTLETYDLYPRLGRGLYNWDFDP	22	1-47	3	AAWDDSLSGWV	11	+	+	-
neGFP-M23-L28	3-33	3-10	2	4	YYYGSGSYLGLRALHFDY	18	2-11	2	CSYAGSYTLV	11	-	+	-
neGFP-M23-L30	3-21	2-21	3	6	DRVVVVIAEGLGYYYGMDV	20	2-14	3	SSYSSSRV	9	-	-	-
neGFP-M23-L31	3-30	3-10	1	3	GLKFGAVRSAFDI	13	1-51	3	GTWDSLSSTNVV	12	+	+	-
neGFP-M23-L39#	4-34	6-13	2	3	GCRNSSSWYVEKSDAFDI	18	1-44	2	AAWDDSLNGHVV	12			
neGFP-M23-L46	3-23	3-22	2	6	PPYYDSSGYLYGMDV	18	1-40	2	QSYDSSLGVV	11	-	-	-
neGFP-M23-L48#	3-33	5-5	2	3	GRAWHSYGDDAFDI	14	1-51	1	GTWDSLSAYV	11			
neGFP-M23-L10							1-40	3	QSYDSSLGWV	11			
neGFP-M23-L38							3-1	2	QAWDSSTVV	9			
	VH	D	RF	JH	CDR3(aa)	Length							
neGFP-M23-L08	7-4	2-2	1	5	GSEYQLLRGWDFDP	13							
neGFP-M23-H17	3-30	1-26	3	6	VLPVGAGHYYYGMDV	15							
neGFP-M23-H29	1-2	2-2	3	4	ESDIVVPAASRASRYDY	19							
neGFP-M23-H34	5-51	1-7	2	4	LWGLYNWNYFDY	12							
neGFP-M23-H35	3-33	3-22	2	4	VSRDYDSSGYGPFADY	18							
neGFP-M23-H41	3-30	3-10	3	5	DRRRITMVRGVTNWDFDP	17							
neGFP-M23-H43	3-9	3-10	2	2	DMRMHYGSGGYWYFDL	16							
neGFP-M23-H44	1-2	6-6	1	4	ALIWLQATSPLDY	13							
neGFP-M23-H47	4-34	3-9	2	5	EREPPYDISNWDFDP	14							

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S29:** Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing PTPN22 shRNA from Mouse #22

Ig	HEAVY						LIGHT				REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M23-K49	3-30-3	3-10	2	3	GAYYGSYSYKDAFDI	16	1-17	4	LQHNSYPLT	9	-	+	-
neGFP+M23-K52	3-11	6-6	2	4	AGSDSSSAVFDY	13	1-33	2	QQYDNLP	7	-	-	-
neGFP+M23-K54#	1-18	1-26	2	6	DPRVPGGSYYYYGMDV	16	1-16	4	QQYNSYPLT	9			
neGFP+M23-K55	3-21	/	/	4	EPAPLGVAGGY	11	1-17	3	LQHNSYPFT	9	-	+	-
neGFP+M23-K56	3-11	3-3	2	3	LPFLDLFWSGYYADAFDI	18	3-15	4	QQYNNWPLT	9	-	+	-
neGFP+M23-K63	3-7	/	/	4	VQDNRAPDFDY	11	1-17	1	LQHNSYPWT	9	-	+	-
neGFP+M23-H65	1-2	6-13	2	4	AGGGSSSWYFDY	13	3-20	5	QQYGSSPIT	9	-	-	-
neGFP+M23-K68	3-7	6-13	2	4	SKYSSSWYGDY	11	3-11	1	QQRSNWW	7	-	+	-
neGFP+M23-K72	4-34	6-13	3	6	GNRLIAAAGSYYYYGMDV	18	1-39	4	QQSYSTLT	8	-	-	-
neGFP+M23-K79	3-23	3-10	2	4	VTNYGSGSYNGFDY	15	1-39	1	QQSYSTWT	8	-	-	-
neGFP+M23-H80	3-30-3	6-13	3	1	DLSDSIAAAGVGYFQH	16	3-20	3	QQYGSSPT	8	-	-	-
neGFP+M23-K83	3-74	4-4	3	4	LLTVTSYFDY	10	1-13	5	QQLNSYPPIT	10	-	-	-
neGFP+M23-K84	4-59	6-13	2	4	GPYSSSWFSIDY	12	1-39	2	QQSYSTPYT	9	-	-	-
neGFP+M23-K85	3-15	1-26	2	6	DRVGGSSYYYYGMDV	15	1-39	5	QQSYSTPPIT	10	-	-	-
neGFP+M23-K89	1-2	1-26	1	4	GQWELDY	7	3-20	4	QQYGSSLT	8	-	-	-
neGFP+M23-K92	3-33	7-27	2	4	DRNWGFDY	8	3-20	2	QQYGSSPYT	9	-	-	-
neGFP+M23-K94#	1-2	/	/	4	GLLGLFDY	8	2-30	2	MQGTHWPYT	9			
neGFP+M23-K95#	4-39	3-10	1	4	LGFGLSHDY	10	1-39	5	QQSYSTPPIT	10			
neGFP+M23-K51							3-11	4	QQRSNWPPVT	10			
neGFP+M23-K75							2-30	1	MQGTHWPPT	9			
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining
neGFP+M23-L50	3-33	5-5	2	2	DSMGQSTGYSYGYPYWYFDL	20	1-40	2	QSYDSSLGHVV	12	-	-	-
neGFP+M23-L53	3-30	6-19	2	3	CYSSGWDDAFDI	12	1-47	3	AWDDSLSGWV	10	-	-	-
neGFP+M23-L60#	7-4-1	3-10	3	5	PSITMVRGVIIFNWFDP	17	1-40	2	QSYDSSLSGDVV	12			
neGFP+M23-L61	1-2	6-19	3	4	SNFQYSYGY	10	2-8	1	SSYAGSNNYV	10	+	+	-
neGFP+M23-L62	1-2	6-13	2	4	DRVKDGGSSWPDY	13	2-14	2	SSYTSSTLV	10	-	-	-
neGFP+M23-L64	3-7	1-7	3	5	ETGITGTTGWFDP	13	3-1	1	QAWDSSTAYV	10	-	-	-
neGFP+M23-L66	4-59	6-13	1	6	VLSGGQQHPSYYYYGMDV	19	1-51	1	GTWDSSLSARYV	12	-	-	-
neGFP+M23-L70	3-48	/	/	4	GMLFLGWYFDY	12	2-11	2	CSYAGSYTLV	10	-	-	-
neGFP+M23-L73	3-53	3-22	2	3	SSGYRHDAFDI	11	2-23	2	CSYAGSSTHV	11	-	-	-
neGFP+M23-L77	3-11	2-15	2	2	VGSWVDYWYFDL	12	1-44	3	AAWDDSLNGWV	11	-	-	-
neGFP+M23-L81#	3-15	7-27	2	4	GPPNWGEQRQDDY	13	2-14	2	SSYTSSTTV	10			
neGFP+M23-L82	3-9	/	/	3	DSPASGLAFDI	11	2-14	1	SSYTSSTTYV	10	-	-	-
neGFP+M23-L96	3-48	3-3	2	4	GASGSGQIGFDY	13	6-57	3	QSYDSSNHVV	10	-	-	-
	VH	D	RF	JH	CDR3(aa)	Length							
neGFP+M23-H58	4-34	3-22	2	3	HYYYDSSGYARLNAFDI	18							
neGFP+M23-H59	4-34	6-19	3	4	VSLHIAVAGTGPFYD	15							
neGFP+M23-K69	1-2	7-27	3	3	EGTGDPDAFDI	11							
neGFP+M23-H71	4-34	2-8	2	3	GLVVRCTNGVCYNHAFDI	18							
neGFP+M23-H74	3-30-3	3-9	2	4	DQYYDILTGSVAVFDY	16							
neGFP+M23-H76	4-30-2	/	/	2	VGGDRYWYFDL	11							
neGFP+M23-H80	3-30-3	6-13	3	1	DLSDSIAAAGVGYFQH	16							
neGFP+M23-H88	3-15	1-26	2	6	DRVGGSSYYYYGMDV	15							
neGFP+M23-H91	3-33	2-21	2	6	DGQYCGGDCYSPYYYYGMDV	21							

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S30:** Repertoire and reactivity of antibodies from GFP-negative new emigrant B cells of Mouse #23

Ig	HEAVY						LIGHT					REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vk	Jk	CDR3(aa)	Length	Poly	HEp-2	Staining	
neGFP-M24-K51	4-31	5-5	2	4	EMGMAAGYSYGFYD	14	1-17	3	LQHNSYPFT	9	+	-	-	
neGFP-M24-K56	3-53	/	/	4	DRGEFDY	7	3-15	2	QQYNNWPLYS	10	+	+	-	
neGFP-M24-K57	3-48	1-7	3	4	GRGITGTNYFDY	12	3-20	3	QQYGSSPPFT	10	-	-	-	
neGFP-M24-K58	3-33	6-6	3	4	DSSVVAARFDY	11	1-39	3	QQSYSTPFT	9	-	+	-	
neGFP-M24-K59	3-33	7-27	3	4	EGTGFDY	7	1-5	4	QQYNSYSPLT	10	+	+	-	
neGFP-M24-K61	1-2	3-10	2	5	DLREYKGDWFDP	12	3-20	4	QQYGSSPPLT	10				
neGFP-M24-K63	3-7	3-10	2	4	DGAYYYGSGSSTFDY	15	3-20	3	QQYGSSLFT	9	-	-	-	
neGFP-M24-K64	3-7	3-22	2	4	GRRNFSRGDYDSSGYTTPFDY	23	1-5	2	QQYNSYSPNS	10	-	-	-	
neGFP-M24-K65	3-30	2-8	2	3	DKTGASRLGYCTNGVCPDAFDI	22	3-15	2	QQYNNWPPYS	10	-	+	-	
neGFP-M24-K67	3-21	6-19	2	3	DSGYSSGWSHDAFDI	15	3-20	1	QQYGSSPRT	9	-	+	-	
neGFP-M24-K68	1-46	6-13	3	4	DWPGAAGLDY	11	3-20	4	QQYGSSPPLT	10	-	-	-	
neGFP-M24-K71	4-34	3-22	3	3	GLFITMIVVGDFAFDI	15	2-24	2	MQATQFPRT	9				
neGFP-M24-K72	1-2	2-2	3	4	DKIVVVAAMGGNYFDY	17	1-8	3	QQYYSYPLFT	10	+	+	-	
neGFP-M24-K75	3-48	1-26	1	3	ERWELRTDAFDI	12	3-15	2	QQYNNWPPYS	10	-	+	-	
neGFP-M24-K76	3-7	2-15	3	3	DGAGVVVAATLLDDAFDI	19	3-20	4	MQGTHWPLT	9	-	-	-	
neGFP-M24-K84	3-30	6-6	3	4	ISSIAALPDY	10	1-17	4	LQHNSYPLT	9				
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining	
neGFP-M24-L54	3-7	3-16	2	3	KNWGWCYAFDI	11	2-14	3	SSYTSSTGV	10	-	+	-	
neGFP-M24-L60	4-30-4	3-16	1	3	LNGLGAFDI	9	1-47	3	AAWDDSLSGWV	11	-	-	-	
neGFP-M24-L79	3-9	3-3	1	4	DIRFLEWFDY	10	3-21	1	QVWDSSTDHYV	11	-	-	-	
neGFP-M24-L80	1-2	1-26	1	4	DTAGGELLPYYFDY	14	2-23	2	CSYAGSSTLV	10	-	-	-	
neGFP-M24-L83	5-10	4-11	1	4	LLVGRGLQKHYYFDY	15	2-14	2	SSYTSSTTVV	10	+	+	-	
neGFP-M24-L89	1-8	6-13	3	4	GRAAGGIDY	9	8-61	3	VLYMGSGIWW	10	-	-	-	
neGFP-M24-L90	3-11	3-10	3	5	IITMVRGVIITYNWFDP	17	2-23	2	CSYAGSSTFVV	11	-	-	-	
neGFP-M24-L94	1-8	7-27	2	4	GNWDGGLFHY	10	1-51	2	GTWDSLSAVV	11				
	VH	D	RF	JH	CDR3(aa)	Length								
neGFP-M24-H50	3-21	6-19	2	2	PGYSSGWDYWYFDL	14								
neGFP-M24-H52	4-61	1-26	3	3	EDIVGAIRRAFDI	13								
neGFP-M24-H55	1-2	1-26	2	3	DGGSYSAFDI	10								
neGFP-M24-H70	3-30-3	6-6	3	4	DLSPNLIAARDAIDY	15								
neGFP-M24-H73	3-33	/	/	3	GLGRATSYGDAFDI	14								
neGFP-M24-H78	3-23	/	/	4	DRPVDY	6								
neGFP-M24-H80	1-2	1-26	1	4	DTAGGELLPYYFDY	14								

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles

**Table S31:** Repertoire and reactivity of antibodies from GFP-positive new emigrant B cells expressing PTPN22 shRNA from Mouse #23

Ig	HEAVY						LIGHT					REACTIVITY		
	VH	D	RF	JH	CDR3(aa)	Length	Vκ	Jκ	CDR3(aa)	Length	Poly	HEp-2	Staining	
neGFP+M24-K1	3-30-3	6-19	2	3	GRQVGGGWKDAFDI	14	3-20	4	QQYGSSPPLT	10	-	+	-	
neGFP+M24-K4	4-34	6-19	2	4	GLWSEGVYYFDY	12	2D-29	4	MQSIQLPLT	9	-	-	-	
neGFP+M24-K5	1-69	1-26	3	3	HGGSQPQIGVATLAFDI	17	3-15	4	QQYNNWPLT	9	+	+	-	
neGFP+M24-K6	4-34	4-17	3	5	GTGTVTTNWFDP	12	3-20	2	KRYGNSPYT	9	-	-	-	
neGFP+M24-K8	3-15	/	/	6	DRLHYYYYYMDV	13	3-20	3	QQYGSSPFT	9	-	+	-	
neGFP+M24-K11	4-34	/	/	4	GEGVLGY	7	1-8	1	QQYYSYPRT	9	-	+	-	
neGFP+M24-K15	3-30	5-24	3	4	SQFLREMATIRNLTDDY	19	1-16	2	QQYNSYPRT	9	-	-	-	
neGFP+M24-K22	3-33	6-13	3	4	EGAAAGTSYFDY	13	3-11	3	QQRSTWPPFT	10	-	-	-	
neGFP+M24-K28	3-15	7-27	1	4	DGLGIRGVADY	11	1-39	3	QQSYSTPFT	9	-	-	-	
neGFP+M24-K29	5-10-1	4-11	3	4	HGSRPVTTYDY	11	1-9	2	QQLNSYPYT	9	-	-	-	
neGFP+M24-K31	3-15	/	/	3	SGTGAFDI	8	1D-33	3	QQYDNLPLFT	11	-	-	-	
neGFP+M24-K34#	3-30-3	1-26	1	1	VFLGSVRELLAEYFQH	16	3-11	4	QQRSNWPRLT	10				
neGFP+M24-K38#	3-21	7-27	1	3	AWGSDAFDI	10	3-20	3	QQYGSSPPFT	10				
	VH	D	RF	JH	CDR3(aa)	Length	Vλ	Jλ	CDR3(aa)	Length	Poly	HEp-2	Staining	
neGFP+M24-L22					See Kappa		2-14	2	SSYTSSSTVV	10	-	-	-	
neGFP+M24-L23	3-33	3-3		3	TISDAFDI	8	2-14	2	SSYTSSSTLV	10	-	-	-	
neGFP+M24-L25	4-4	1-26	2	4	DEGHSGSYFDY	11	3-9	2	QVWDSSTVV	9	-	-	-	
neGFP+M24-L26	3-21	/	/	3	DPGDAFDI	8	1-44	3	AAWDDSLNVVW	11	-	-	-	
neGFP+M24-L27	3-7	/	/	4	KRGVFDY	7	2-14	2	SSYTSSSTVV	10	-	-	-	
neGFP+M24-L35	1-2	6-6	2	6	DSPIEYSSSSGPIYYYYYGMDV	22	2-8	1	SSYAGSNNYV	10	-	-	-	
neGFP+M24-L40	3-33	1-26	2	4	EGGDSGSYFDY	12	3-25	3	QSADSSGTYWV	11	-	-	-	
neGFP+M24-L44	3-30	3-22	3	4	ASARIVVITNVDY	14								

RF, reading frame: # antibody failed to be expressed

- non reactive; +, reactive

c, diffuse cytoplasmic staining; N, nuclear staining, F, cytoplasmic fibers; V, vesicles