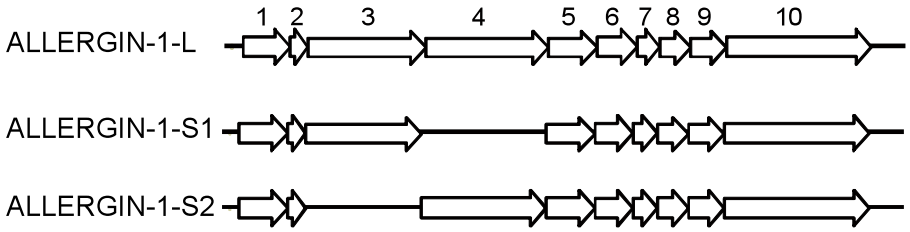
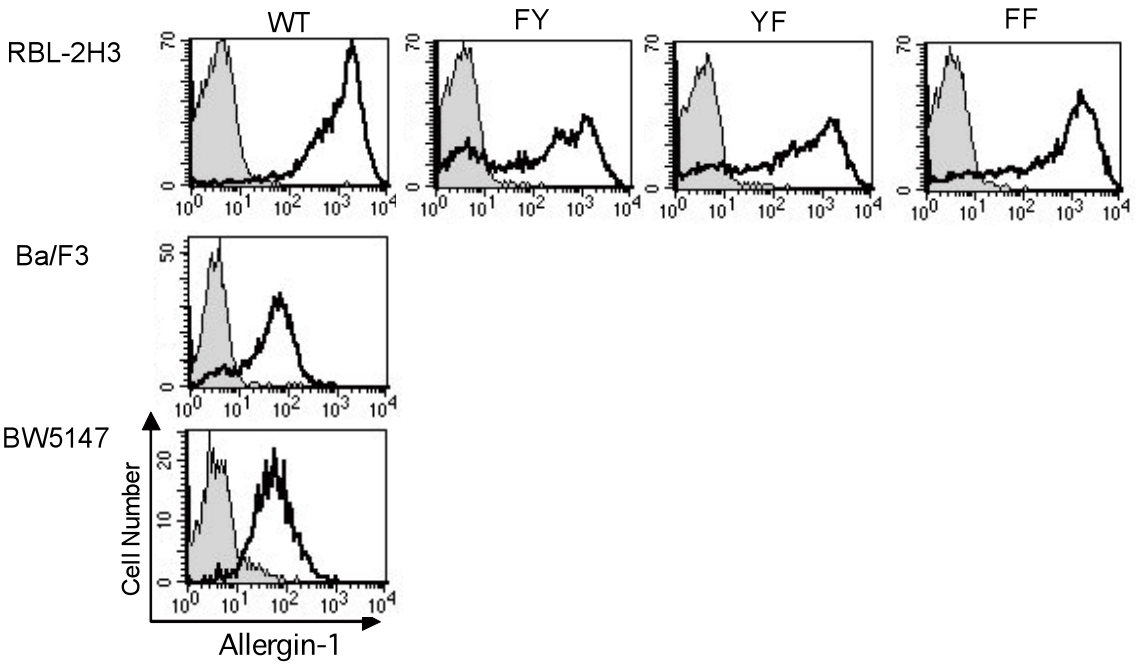


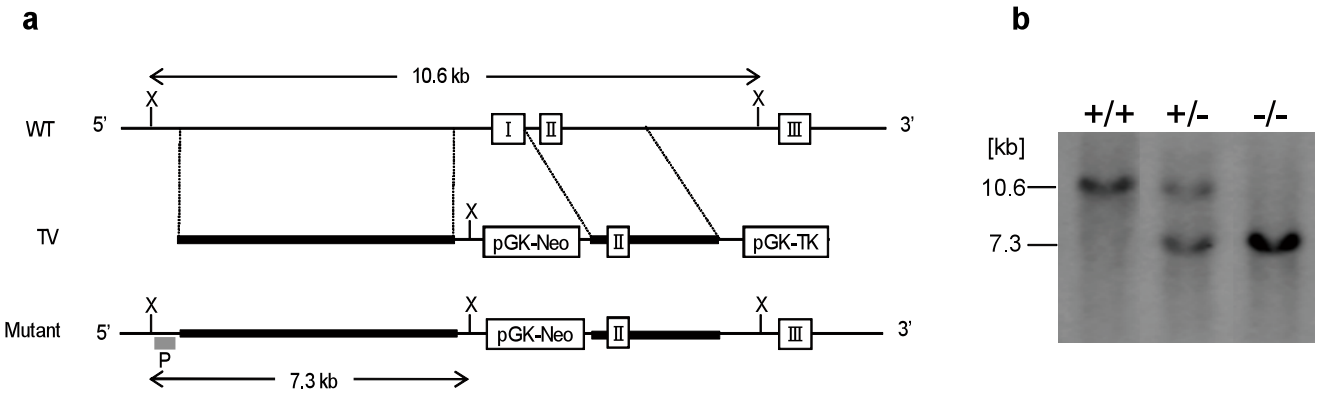
Supplementary Figure 1. Alignment of the exon structures of human *ALLERGIN-1-L, ALLERGIN-1-S1* and *ALLERGIN-1-S2*.

Human *ALLERGIN-1-L* consists of ten exons, whereas *ALLERGIN-1-S1 and ALLERGIN-1–S2* lack exons 4 and 3, respectively.



Supplementary Figure 2. Establishment of transfectants expressing wild-type or mutant Allergin-1.

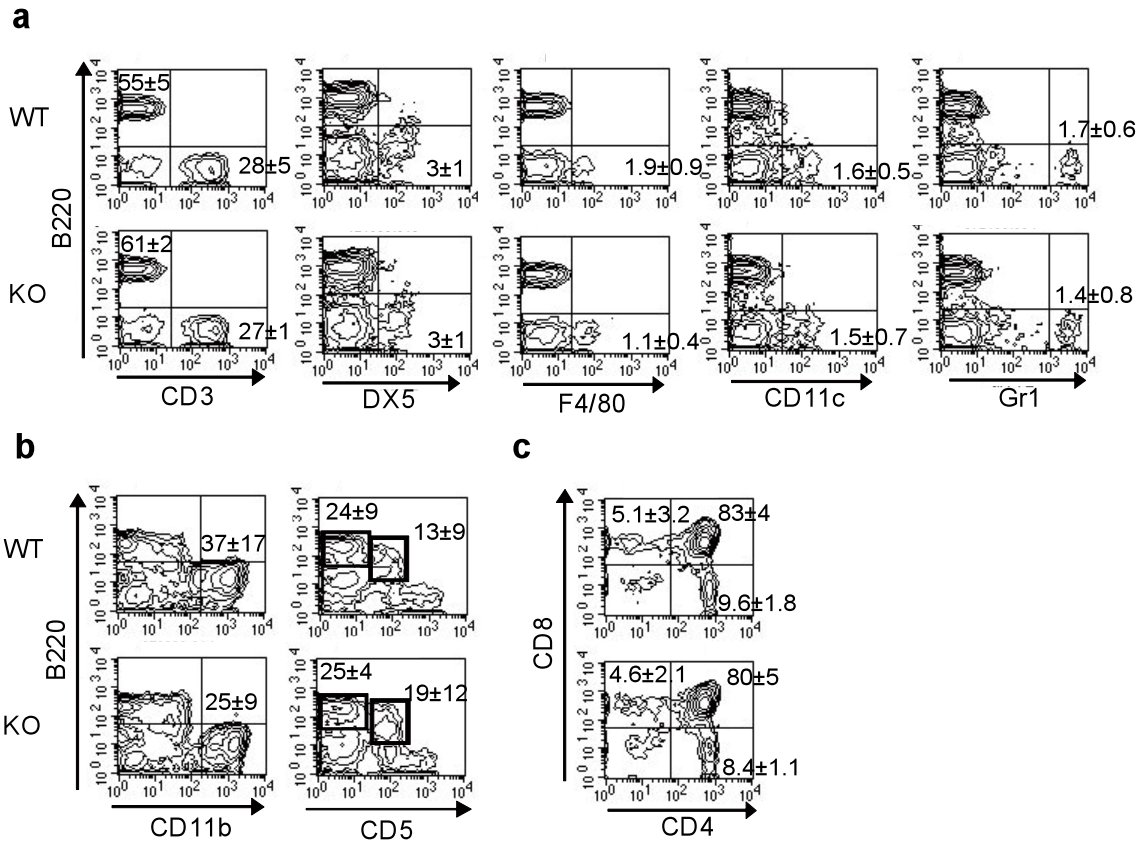
RBL-2H3, BW5147, and Ba/F3 transfectants expressing Flag-tagged WT or mutant (FY, Y-F^{216}; YF, Y-F^{241}; and FF, Y-F$^{216, 241}$) Allergin-1 were established, as described in Experimental Procedures and Figure 3A. The transfectants were stained with anti-Allergin-1 mAb (TX83) (open histogram) or isotype control antibody (shaded histogram), and analyzed by flow cytometry. Data are representative of more than two independent experiments.



Supplementary Figure 3. Generation of Allergin-1-deficient mice.

(a) A targeting vector was designed to disrupt the Allergin-1 gene by homologous recombination. The WT *Allergin-1* allele (WT), the targeting vector (TV), and the targeted allele (Mutant) are shown. The first exon (I) containing the start codon was replaced by a gene for neomycin resistance (pGK-Neo). X marks the cleavage sites for *Xho* I restriction enzyme.

(b) Southern blot analysis of mouse genomic DNA digested with *Xho* I. DNA fragments from the WT (~10.6 kb) and targeted (~7.3 kb) alleles are shown. +/+, +/- and -/- represents C57BL/6N mice that are WT, chimeric, or homozygous negative for *Allergin-1,* respectively.



Supplementary Figure 4. Normal development of hematopoietic cells in Allergin-1-deficient mice.

Splenocytes (a), peritoneal exudative cells (b) and thymocytes (c) from WT (n=5) and *Allergin-1*$^{-/-}$ KO mice (n=5) were stained with the antibodies indicated and analyzed by flow cytometry. Numbers in the quadrants and the boxes indicate the percentages of cell populations (mean ± SD). Data are representative of two independent experiments.

Supplementary Table

Normal development of hematopoietic cells in Allergin-1-deficient mice

Cells	WT	KO	*P* value
Splenocytes（$\times 10^7$）	10.0±5.3	12.6±1.3	0.07
CD3+（$\times 10^7$）	2.3±0.8	2.5±0.8	0.74
B220＋（$\times 10^7$）	5.8±1.3	7.0±0.8	0.22
CD11b+（$\times 10^6$）	3.5±2.3	3.7±2.6	0.93
CD11c+（$\times 10^6$）	1.8±8.9	1.6±1.3	0.88
Gr1+（$\times 10^6$）	1.5±0.8	1.3±0.8	0.76
DX5+（$\times 10^5$）	7.7±5.1	6.8±3.2	0.84
PECs（$\times 10^6$）	2.6±0.7	3.6±1.0	0.15
CD5+B220+（$\times 10^5$）	4.8±2.2	3.4±1.9	0.43
CD5-B220+（$\times 10^5$）	4.6±1.8	6.3±1.5	0.29
CD11b+（$\times 10^5$）	9.1±5.1	14.8±6.2	0.28
BM cells（$\times 10^7$）	3.4±1.3	4.0±0.4	0.47
B220+（$\times 10^6$）	5.8±4.2	5.7±3.0	0.95
Gr1+（$\times 10^6$）	7.1±5.6	13.9±6.9	0.60
CD11b+（$\times 10^6$）	5.7±4.2	4.6±2.1	0.81
Thymocytes（$\times 10^7$）	8.2±0.7	7.2±1.7	0.15
CD4+（$\times 10^6$）	6.6±1.6	6.6±1.3	0.99
CD8+（$\times 10^6$）	4.0±3.5	3.8±0.5	0.92
CD4+CD8+（$\times 10^7$）	6.4±0.4	5.6±0.5	0.40

Splenocytes, peritoneal exudative cells (PECs), bone marrow (BM) cells and thymocytes from wild-type (WT, n=5) and Allergin-1-deficient mice (KO, n=5) were stained as described in Supplementary Figure 4, and the absolute cell number of each population (mean ±SD) was determined.