

## Supplementary Table and Figure Legends

### **Table S1. Genes contained in rearrangement region**

MGI symbol, name, and genomic position of annotated genes located within the Df11(1) and Dp11(1) region (reference strain C57Bl/6J, NCBI m7 mouse assembly, April 2007).

### **Table S2. Altered anxiety in Dp11(1) and Df11(1) mice**

Measures from the elevated plus maze (EPM) and open field (OF) in Dp11(1)/+, wild-type, and Df11(1) littermates demonstrated a significant positive gene dosage effect for % time in open arms (EPM) and trend for positive gene dosage effect for distance travelled in open arms (EPM), number of entries in center (OF), and total distance travelled (OF; mean  $\pm$  SEM; Df11(1), N = 15-17; WT, N = 23, Dp11(1), N = 12. \* P < 0.05; OA = open arms; Ce = center).

### **Figure S1. Breeding strategy for phenotyping cohort**

Chimeric mice were derived from blastocyst injection of Dp11(1)/Df11(1) ES cells and bred with C57BL/6J mice to obtain Df11(1)/+ and Dp11(1)/+ 129/SvEvBrdxC57BL/6J animals (top row). Dp11(1)/+ and Df11(1)/+ females were bred to 129/SvEvBrd males to produce female Dp11(1)/+ and Df11(1)/+ mice (second row) that were crossed to either *ApoE*<sup>KO</sup>/*ApoE*<sup>KO</sup> or *Apc*<sup>Min</sup>/+ females to produce the phenotyping cohorts (last row, C57BL/6J x [129/SvEvBrd;C57BL/6] background).

### **Figure S2. Flow cytometry of splenic T cells**

Flow cytometric analysis of splenocytes from aneuploidy animals revealed significant changes in the percentage of CD8+, but not CD4+ cells (mean  $\pm$  SEM; Df11(1)/+, N = 4; WT, N = 4; Dp11(1)/+, N = 4; \* P < 0.05).

### **Figure S3. Time course of glucose tolerance test**

Blood glucose levels at 15, 30, 60, and 120 min after administration of dextrose (2 mg/g, i.p.) for (A) animals maintained on a high fat diet for 14 weeks, or (B) age matched controls kept on a normal diet.

**Figure S4. Immunoblotting of Stat5 and Stat3 protein in liver tissue**

(A) Representative immunoblots showing levels of Stat3, Stat5 and gamma globulin protein in total liver extracts of Df11(1)/+, WT, or Dp11(1)/+ animals. (B) Densitometric quantification of immunoreactivity revealed gene dosage dependent changes in normalized protein levels for Stat3 and Stat5 in Df11(1)/+, WT, and Dp11(1)/+ animals (Stat3, N = 2; Stat5, N = 2).

**Figure S5. Peripheral blood phenotype of Df11(1) and Dp11(1) mice on an ApoE wild-type background**

A significant positive gene dose dependent effect was observed for peripheral blood (A) white cells, and a trend for (B) platelets in Dp11(1)/+, wild-type, and Df11(1)/+ littermates at 12 weeks of age. All mice were wild-type at the *ApoE* locus. Flow cytometry revealed a trend for a positive gene dose dependent effect for percentage (F) CD8+, but not (C) B220+, (D) Mac1+, (E) CD4+ positive cells in peripheral blood (mean  $\pm$  SEM; Df11(1)/+, N = 4; WT, N = 10; Dp11(1)/+, N = 4\* P < 0.05, \*\* P < 0.01, \*\*\* P < 0.001).

**Figure S6. Time course of glucose tolerance test in Dp11(1)/+;Stat5ab<sup>KO</sup>/+ double mutant mice**

Blood glucose levels were measured at 15, 30, 60, and 120 min after administration of dextrose (2 mg/g, i.p.) for animals maintained on a normal diet. GTT was measured at the age of 14-16 weeks (mean  $\pm$  SEM; Dp11(1), N = 7; Dp11(1)/Stat5ab, N = 9; WT, N = 14; Stat5ab, N = 8; mean  $\pm$  SEM, \* P < 0.05).

**Figure S7. Contact hypersensitivity response in Dp11(1)/+;Stat5ab<sup>KO</sup>/+ double mutant mice.**

**(A)** A significant reduction of ear swelling was observed in heterozygous *Stat5ab* knockout mice when compared to wild-type animals and a trend for increased ear swelling was seen in Dp11(1)/+ mice and reversed in Dp11(1)/+;*Stat5ab*<sup>KO</sup>/+ double mutant littermates following local application of dinitro-fluoro-benzene (DNFB). Ear thickness was measured at 24, 48, and 72 hours following DNFB treatment in mice that had been sensitized by DNFB pre-treated on the abdomen 5 days earlier (mean ± SEM; Dp11(1), N = 7; Dp11(1)/Stat5ab, N = 9; WT, N = 10; Stat5ab, N = 8; \* P < 0.05, \*\* P < 0.01). **(B)** Regression analysis revealed a significant correlation between ear swelling following application of DNFB and peripheral white blood cell counts in mice (N = 34; R<sup>2</sup> = 0.641, P = 0.001).

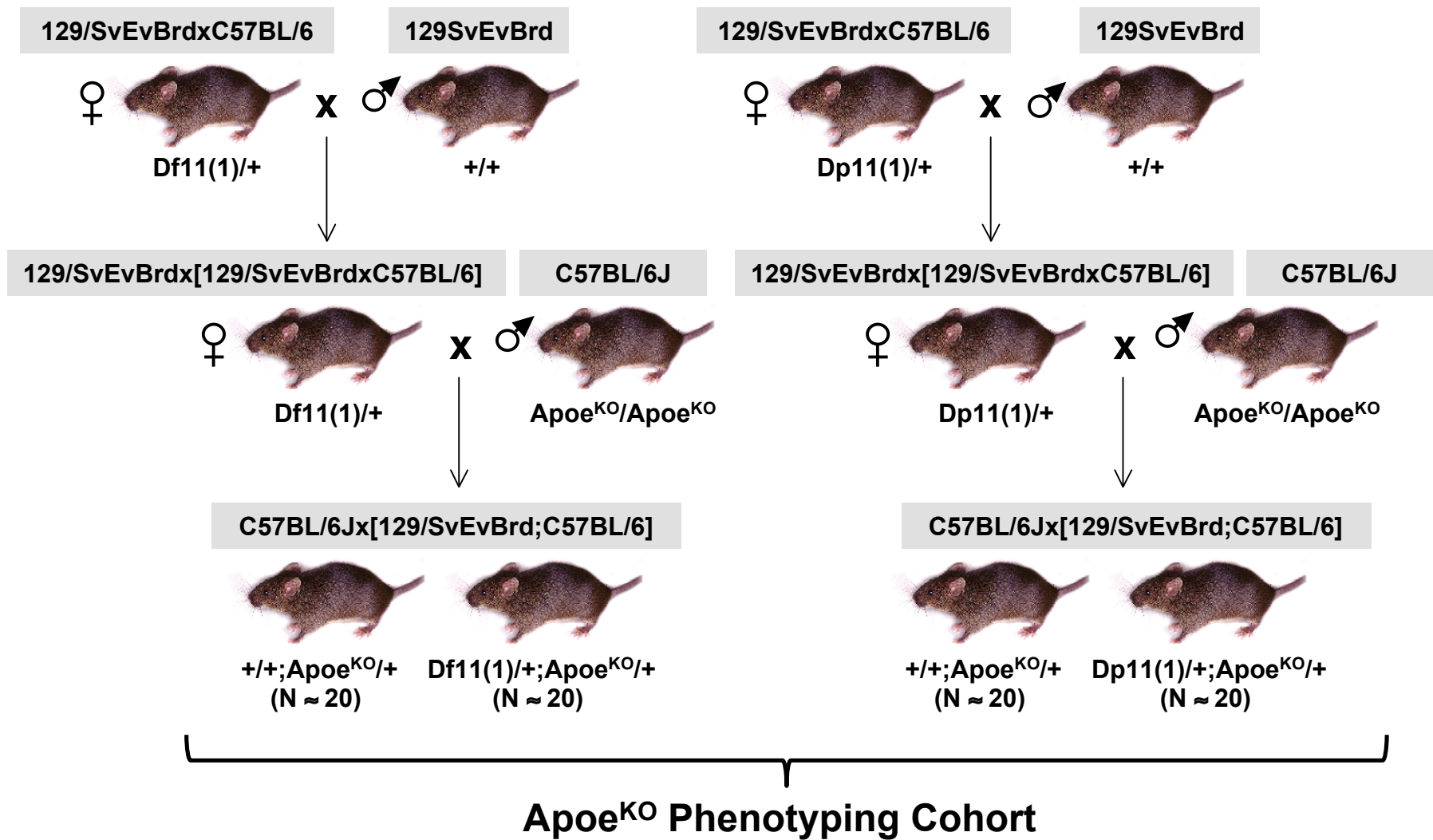
MGI symbol	MGI name	Position (Ensembl-NCBI v37)
<b>Gast</b>	Gastrin	100,195-100,198 kb
<b>Hap1</b>	Huntingtin-associated protein 1	100,208-100,217 kb
<b>Jup</b>	Junction plakoglobin	100,231-100,259 kb
<b>1110036O03Rik</b>	1110036O03Rik	100,269-100,276 kb
<b>Fkbp10</b>	FK506 binding protein 10	100,277-100,286 kb
<b>Nt5c3l</b>	5'-nucleotidase, cytosolic III-like	100,283-100,303 kb
<b>Klhl10</b>	Kelch-like 10 Drosophila	100,303-100,318 kb
<b>Klhl11</b>	Kelch-like 11 Drosophila	100,323-100,334 kb
<b>Acly</b>	ATP citrate lyase	100,337-100,389 kb
<b>Ttc25</b>	Tetratricopeptide repeat domain 25	100,406-100,433 kb
<b>Cnp</b>	2',3'-cyclic nucleotide 3' phosphodiesterase	100,436-100,443 kb
<b>Dnajc7</b>	Dnaj (Hsp40) homolog, subfamily C, member 7	100,444-100,480 kb
<b>Nkiras2</b>	NFKB inhibitor interacting Ras-like protein 2	100,480-100,488 kb
<b>Zfp385c</b>	Zinc finger protein 385C	100,488-100,518 kb
<b>Dhx58</b>	DEXH (Asp-Glu-X-His) box polypeptide 58	100,556-100,565 kb
<b>Kat2A</b>	K(lysine) acetyltransferase 2A (GCN5)	100,566-100,573 kb
<b>Hspb9</b>	Heat shock protein, alpha-crystallin-related, B9	100,575-100,575 kb
<b>Rab5c</b>	RAB5C, member RAS oncogene family	100,576-100,599 kb
<b>Kcnh4</b>	Potassium voltage-gated channel, member 4	100,601-100,621 kb
<b>Ghdc</b>	GH3 domain containing	100,627-100,632 kb
<b>Hcrt</b>	Hypocretin	100,623-100,624 kb
<b>Stat5b</b>	Signal transducer and activator of transcription 5B	100,642-100,712 kb
<b>Stat5a</b>	Signal transducer and activator of transcription 5A	100,720-100,746 kb
<b>Stat3</b>	Signal transducer and activator of transcription 3	100,746-100,800 kb
<b>Ptrf</b>	Polymerase I and transcript release factor	100,818-100,832 kb
<b>Atp6v0a1</b>	ATPase, H <sup>+</sup> transporting, lysosomal V0 subunit A1	100,870-100,925 kb
<b>Naglu</b>	Alpha-N-acetylglucosaminidase (San Filippo disease IIIB)	100,931-100,938 kb
<b>Hsd17B</b>	Hydroxysteroid (17-b) dehydrogenase	100,939-100,941 kb

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<b>Behavioral parameters</b>	<b>Df11(1)</b>	<b>WT</b>	<b>Dp11(1)</b>	<b>p value</b>
<b><i>Elevated Plus Maze</i></b>				
% time spent in OA	14.9 ± 3.1	10.1 ± 1.6	6.3 ± 1.3*	0.045
No. of entries in OA	9.0 ± 1.03	10.0 ± 1.2	7.25 ± 1.15	0.313
Distance travelled in OA (cm)	95.2 ± 20.7	70.7 ± 11.7	37.0 ± 7.54	0.051
Total number of entries	25.8 ± 3.66	26.9 ± 2.45	18.9 ± 2.38	0.162
Total distance travelled (cm)	535 ± 59.6	594 ± 36.9	474.0 ± 37.5	0.194
<b><i>Open Field</i></b>				
Time spent in Ce (sec)	75.1 ± 24.4	68.4 ± 11.5	24.0 ± 6.3	0.121
No. of entries in Ce	26.5 ± 7.50	27.3 ± 4.49	9.42 ± 2.74	0.082
Distance travelled in Ce (sec)	387 ± 121	377 ± 77.1	117 ± 39	0.123
Total distance travelled (cm)	5357 ± 569.8	4575 ± 431.2	3454 ± 506	0.065

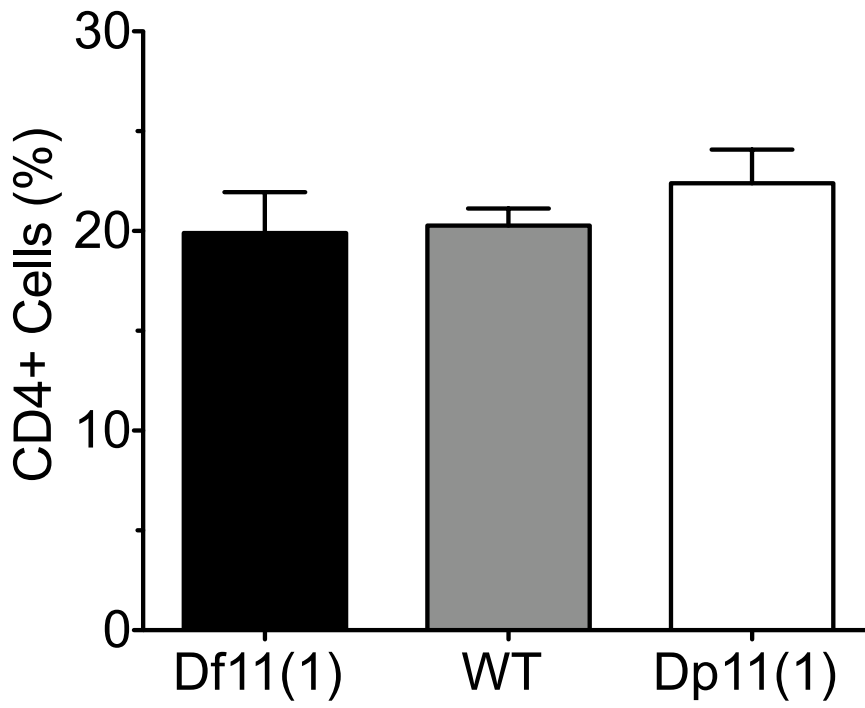
Legends: OA: open arms; Ce: center. Data are presented as mean ± S.E.M

(Df11(1): n=15-17, WT: n=23, Dp11(1): n=12). \* $p < 0.05$ , D11(1) vs Dp

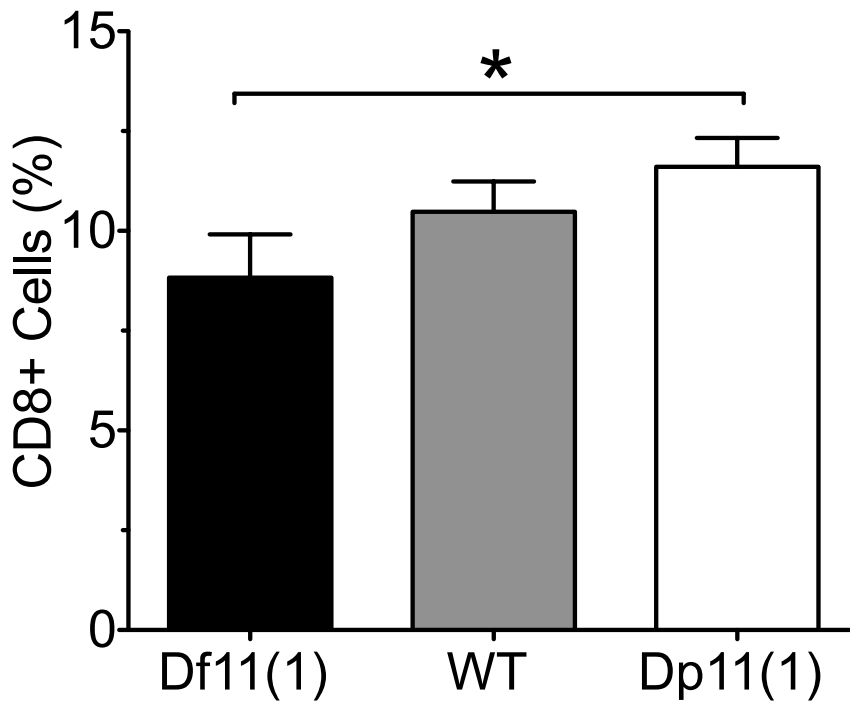


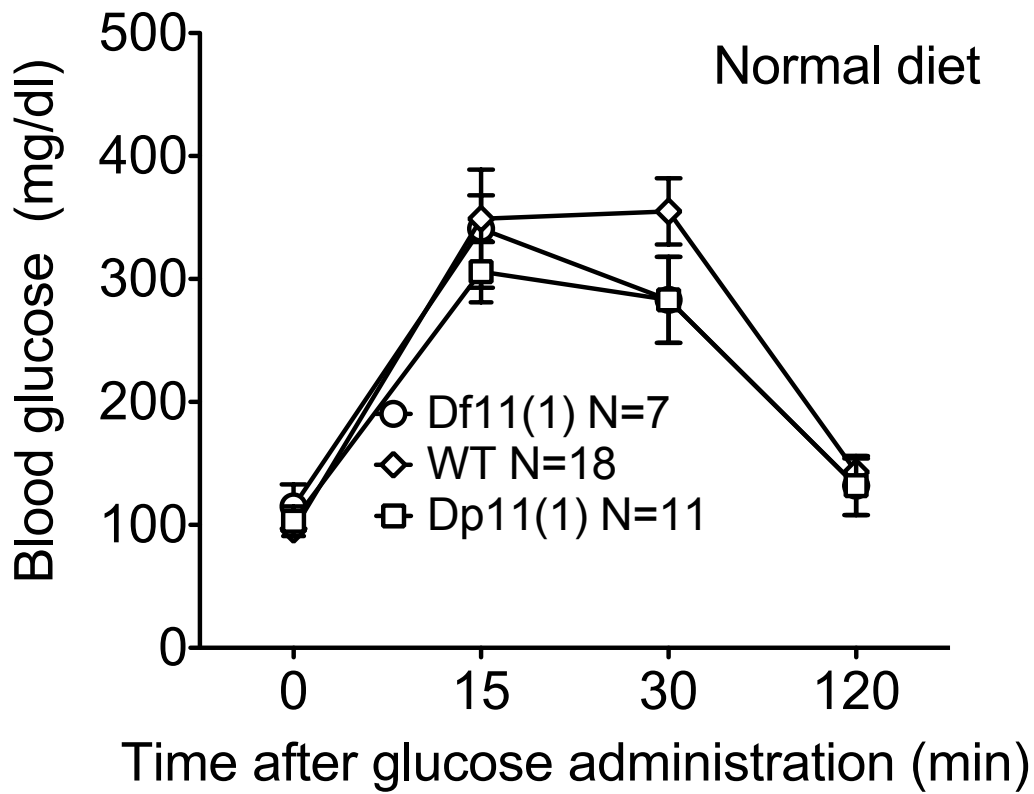
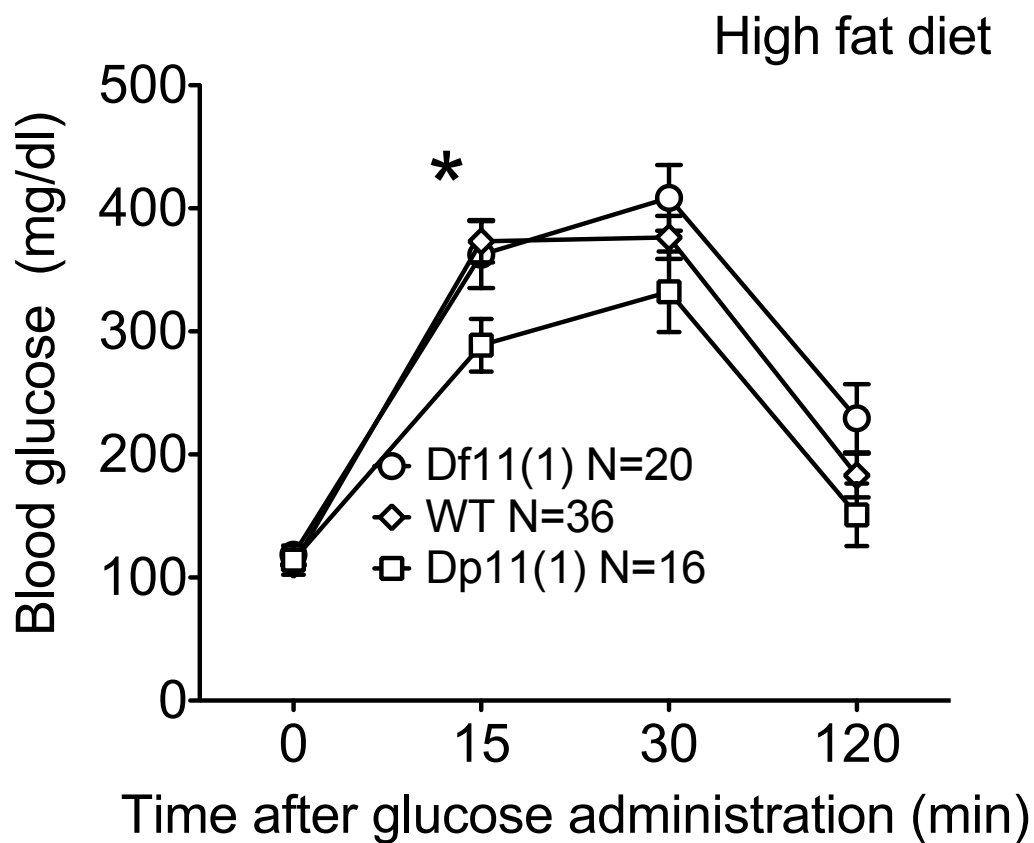
Ermakova et al., Figure S1

**A**

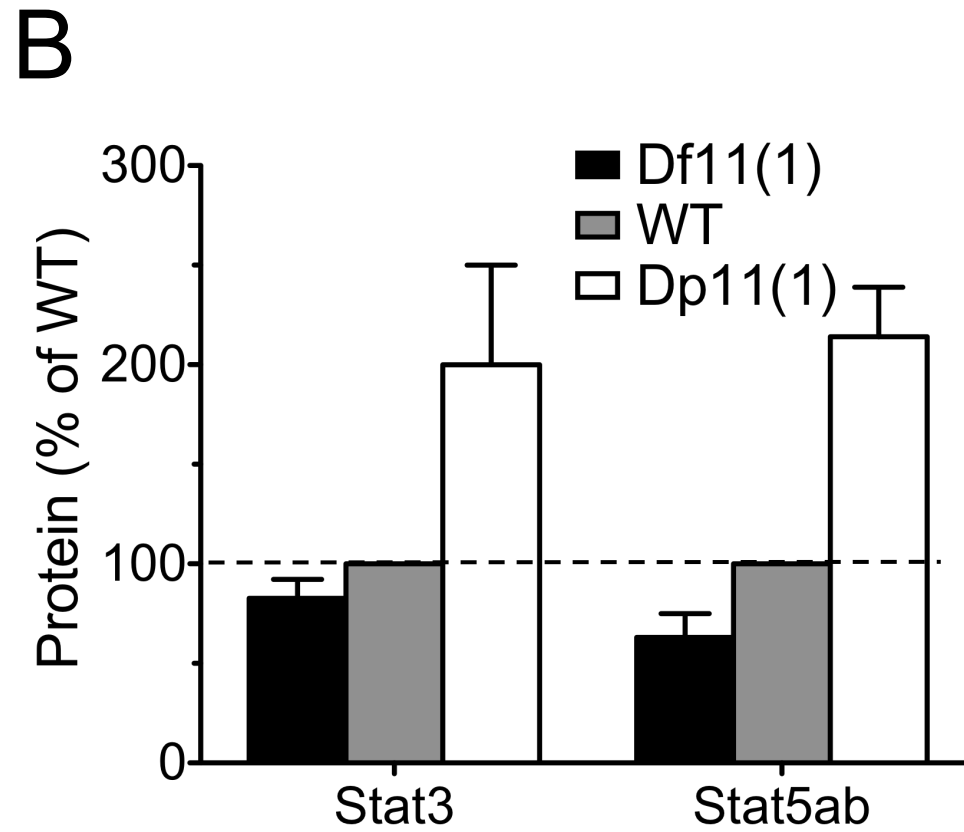
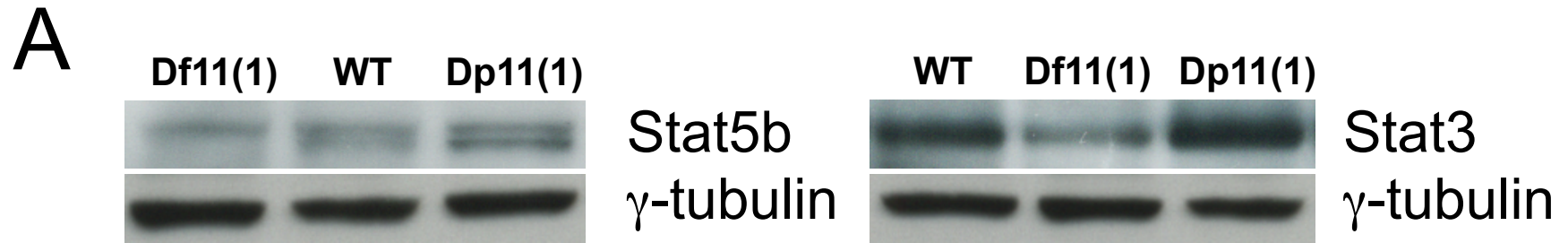


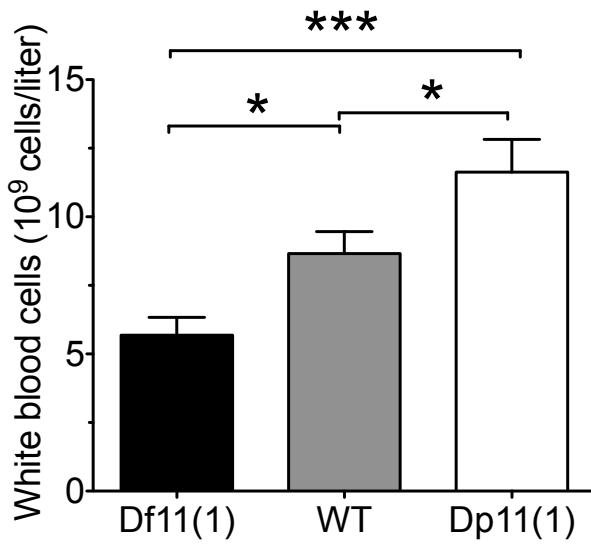
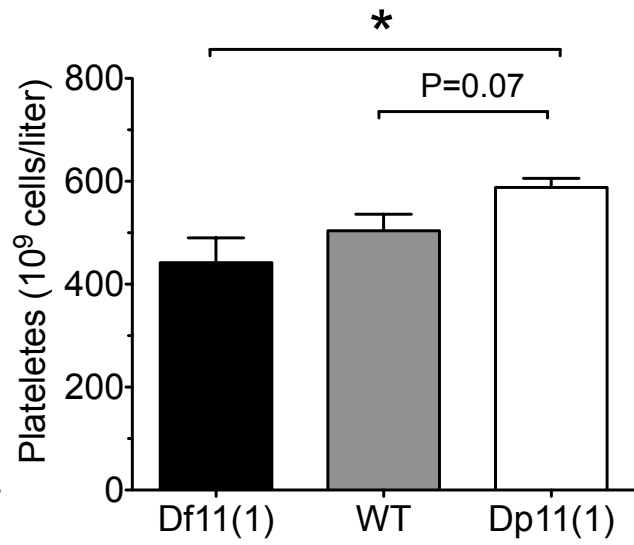
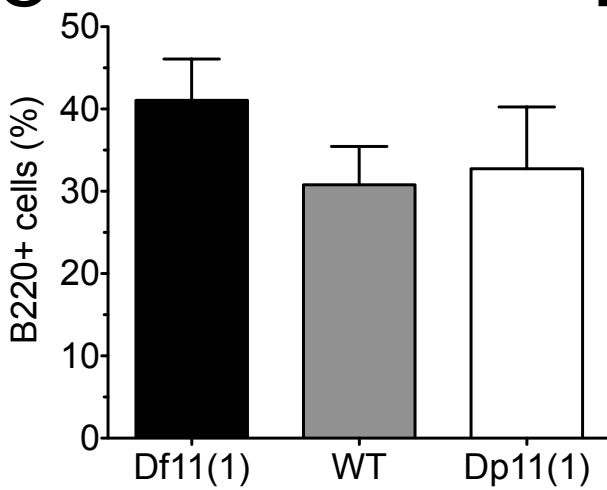
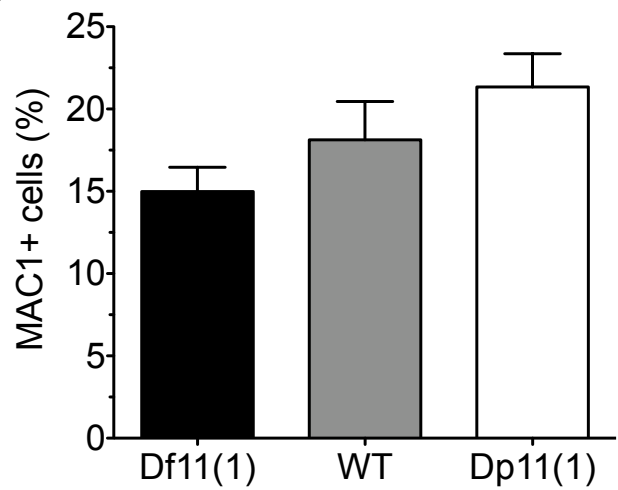
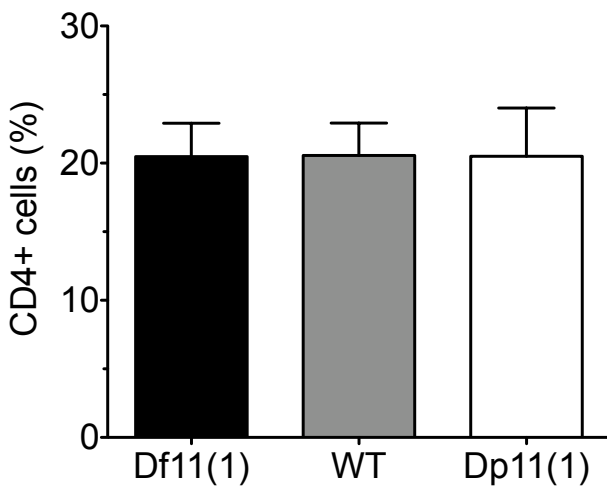
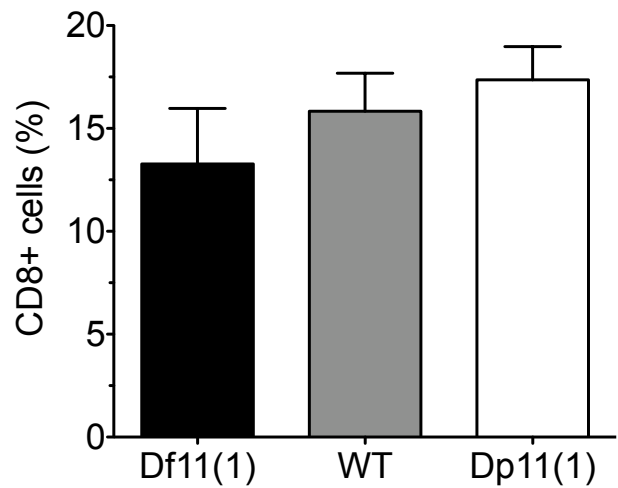
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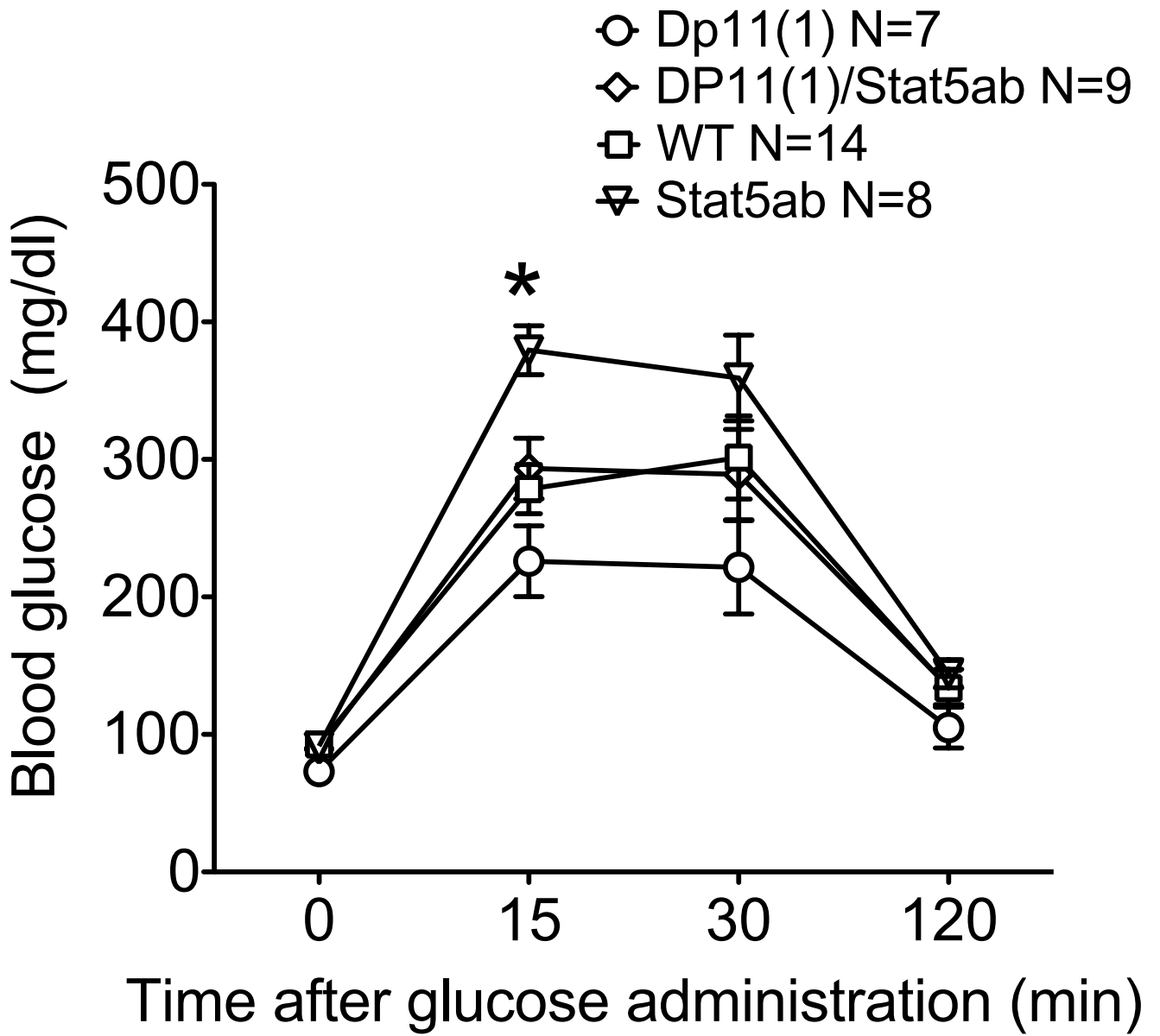


**A****B**

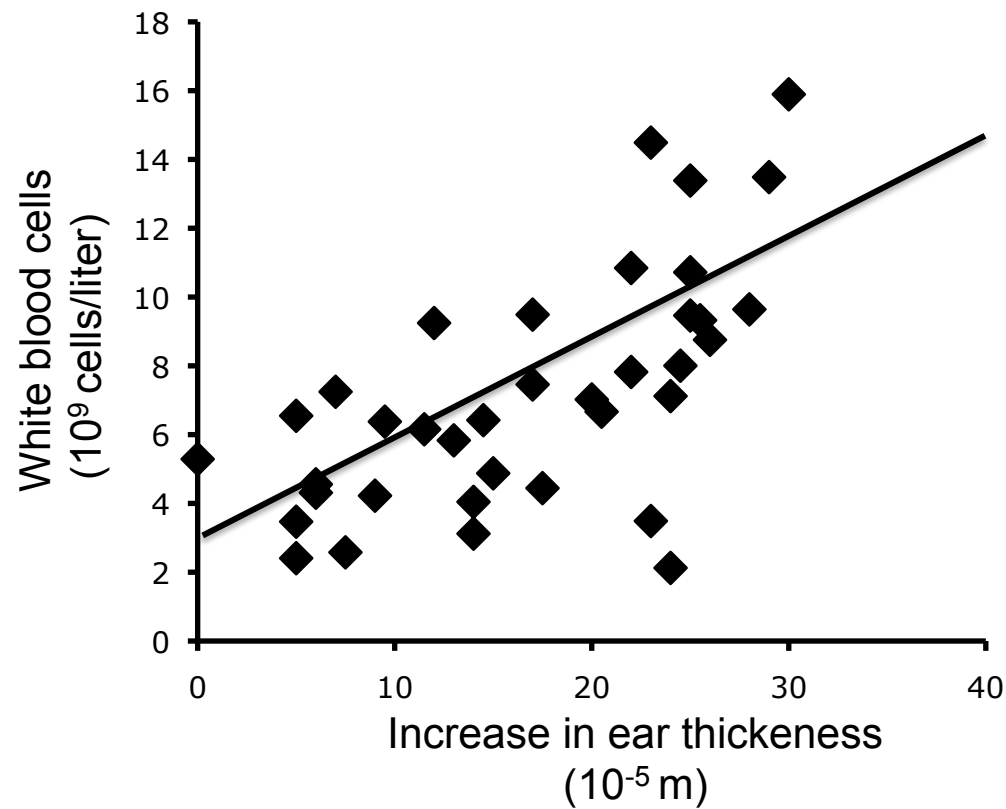
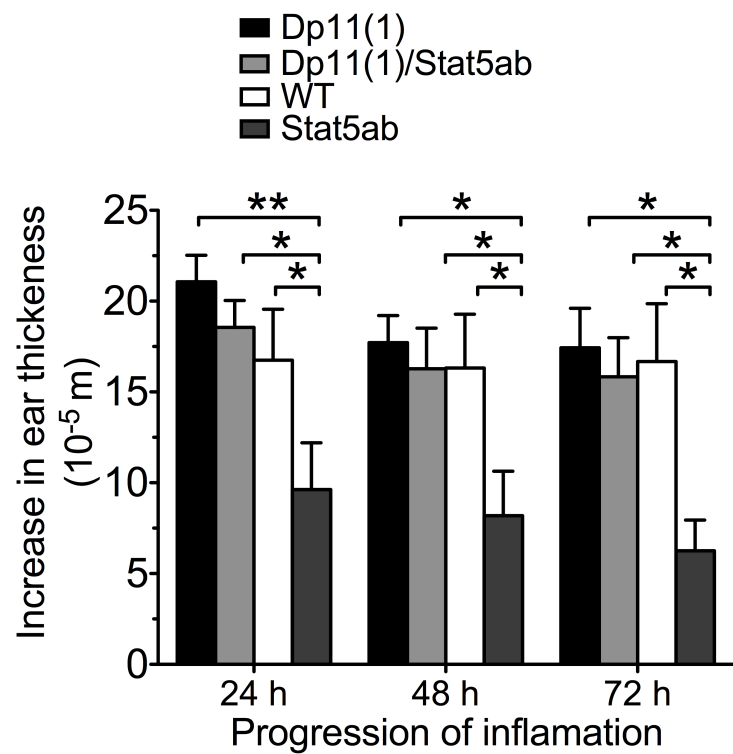




**A****B****C****D****E****F**



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