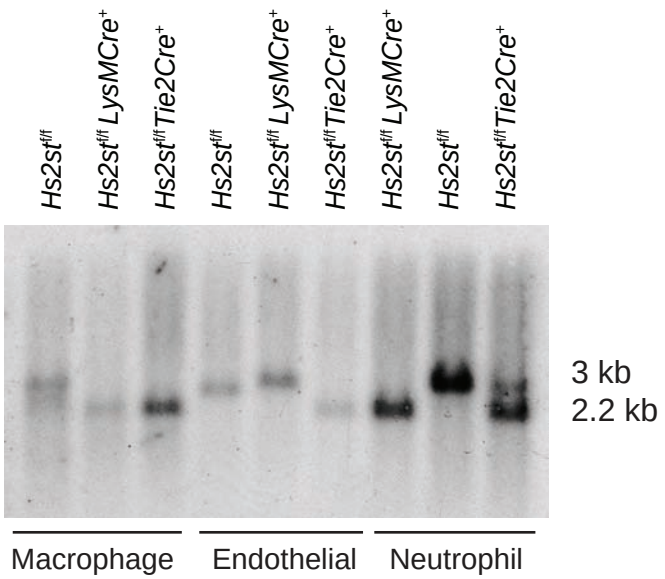
Supplemental Table 1. Hematology analysis of wild-type and mutant mice

	2OSTf/f Cre-	2OSTf/f Tie2Cre	2OSTf/f LysMCre
WBC (K/μL)	7.9±0.6	8.7±0.5	8.5±0.6
NE (K/μL)	1.5±0.2	1.4±0.1	1.6±0.2
MO (K/μL)	0.2±0.02	0.3±0.01	0.3±0.02
LY (K/μL)	6.1±0.5	7.0±0.5	6.7±0.6
EO (K/μL)	0.08±0.03	0.1±0.04	0.03±0.01
BA (K/μL)	0.02±0.01	0.03±0.01	0.01±0.002
RBC (M/μL)	9.3±0.1	10.1±0.2	9.4±0.1
Hb (g/dL)	12.0±0.2	12.7±0.2	12.1±0.1
HCT (%)	42.4±0.4	46.2±0.8	42.8±0.6
MCV (fL)	45.5±0.4	46.0±0.3	45.7±0.4
MCH (pg)	13.0±0.2	12.7±0.2	13.0±0.2
MCHC (g/dL)	28.5±0.5	27.6±0.5	28.4±0.5
RDW (%)	19.4±0.1	18.7±0.1	19.6±0.2
PLT (K/μL)	740.3±21.6	677.3±18.1	786.7±21.6
MPV (fL)	5.0±0.03	4.9±0.02	5.0±0.02

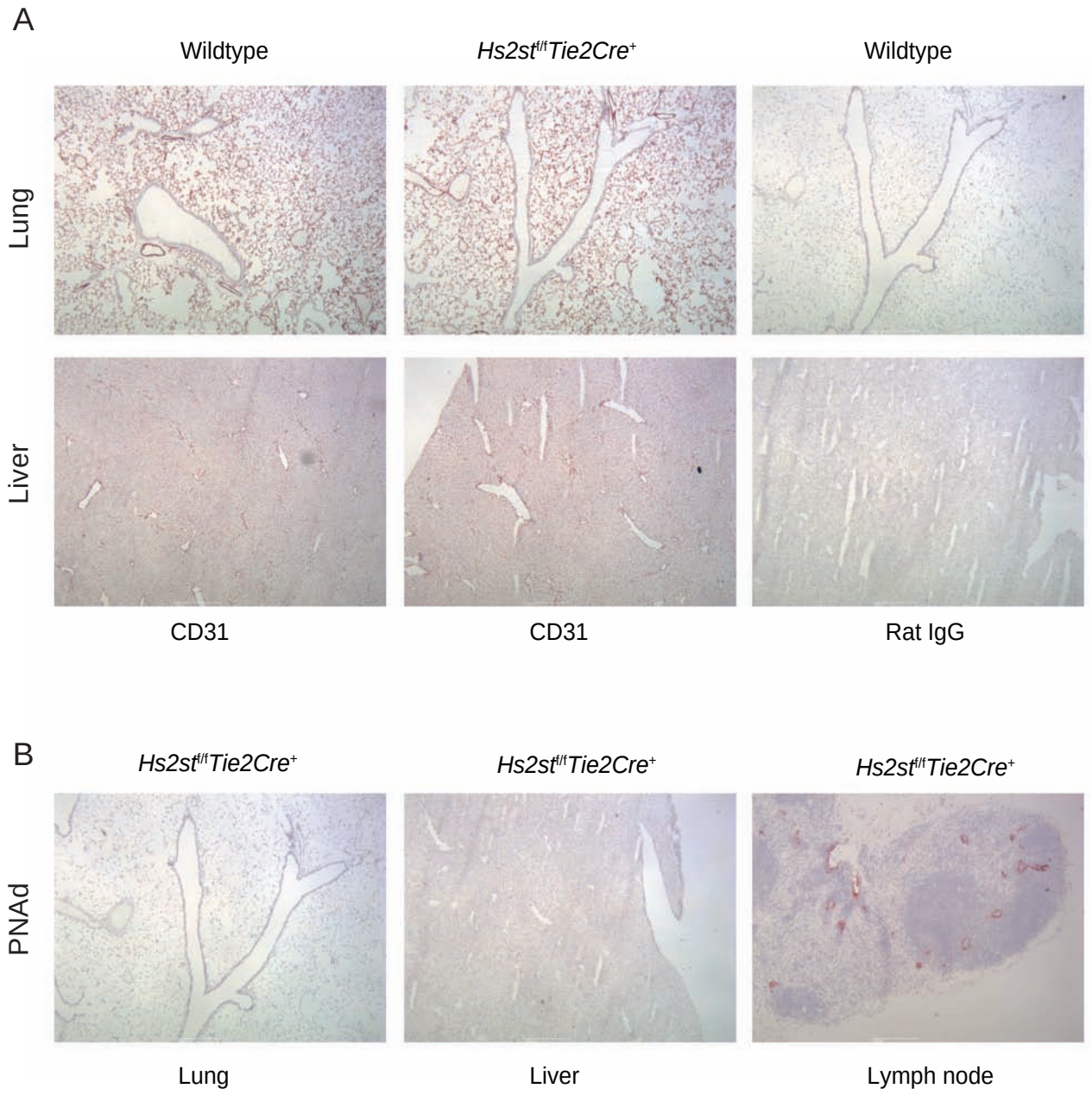
Values are presented as mean ± SEM. WBC white blood cells, NE neutrophils, MO monocytes, LY lymphocytes, EO eosinophiles, BA basophiles, RBC red blood cells, Hb hemoglobulin, HCT hematocrit, MCV mean corpuscular volume, MCH mean corpuscular hemoglobin, MCHC mean corpuscular hemoglobin concentration, RDW red cell distribution width, PLT platelets, MPV mean platelet volume. n=17-24 for each group.

Supplemental Figure 1



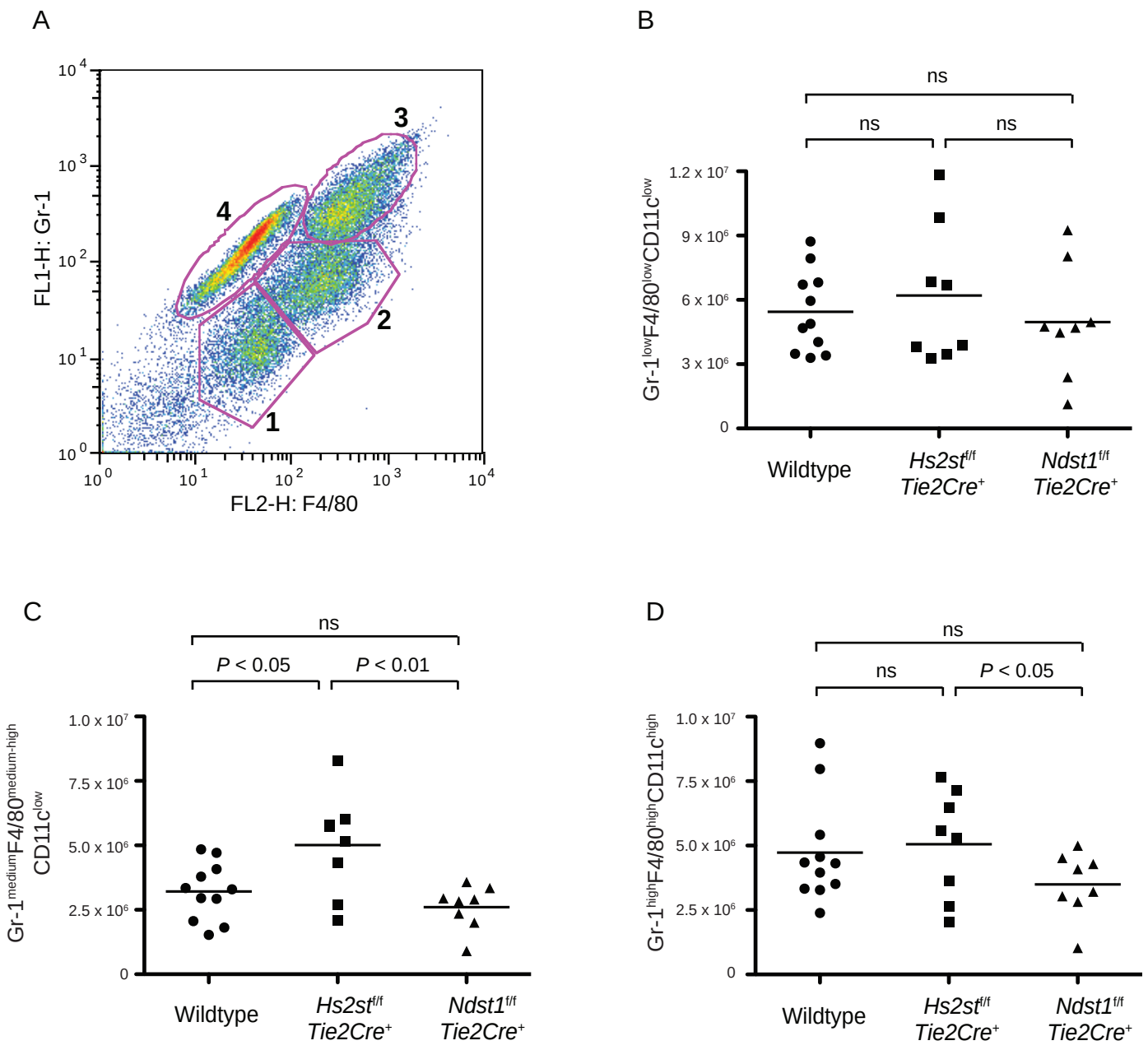
Supplemental Figure 1. Southern blot of Hs2st in endothelial cells, macrophages and neutrophils. Genomic DNA was prepared from wild type, *Hs2st*$^{f/f}$*Tie2Cre*$^{+}$ and *Hs2st*$^{f/f}$*LysMCre*$^{+}$ mutant endothelial cells (EC), bone marrow-derived macrophages (Mac) and bone marrow-derived neutrophils (N) and subjected to EcoRI digestion. Treatment of Cre^{-} wildtype samples generates a 3 kb fragment, whereas treatment of a Cre^{+} mutant samples generates a 2.2 kb fragment due to the loss of a EcoRI restriction site during recombination. The DNA was separated on a 1% agarose gel, blotted onto a nitrocellulose membrane and crosslinked using UV. A Hs2st-specific probe was amplified using PCR and labeled with [α-^{32}P]dCTP using NEBlot kit (New England BioLabs, Ipswich, MA) according to the manufacturer's instructions. The probes were hybridized to the DNA and the radiograph was created using x-ray film.

Supplementary Figure 2



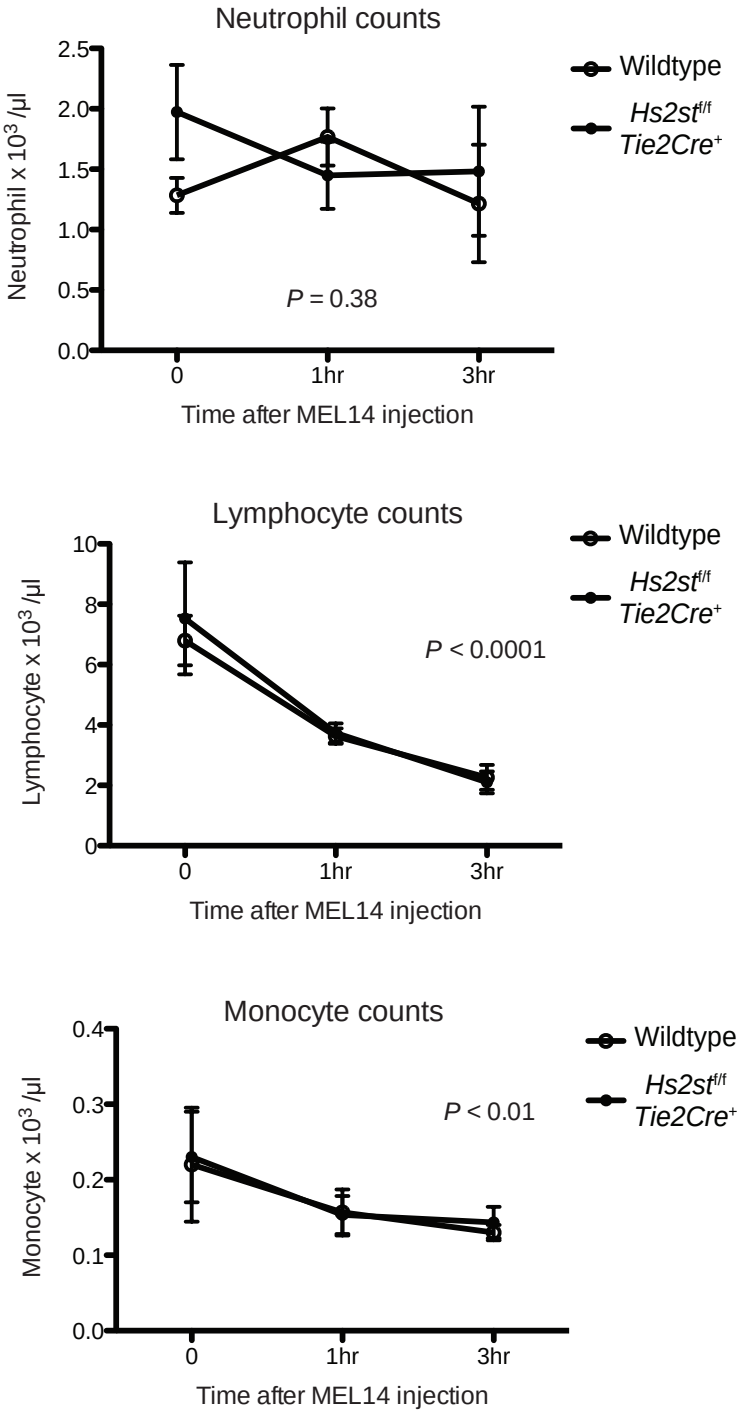
Supplemental Figure 2. CD31 and PNAd immunostaining of lung, liver and lymph node frozen sections. (A) Lung and liver of *Hs2st*$^{f/f}$*Tie2Cre*$^{+}$ mice show normal vascular structure and expression of CD31. (B) PNAd, a major receptor for L-selection is highly expressed in high endothelial venules in lymph node, but not in vessels from the lung and liver of *Hs2st*$^{f/f}$*Tie2Cre*$^{+}$ mice.

Supplemental Figure 3



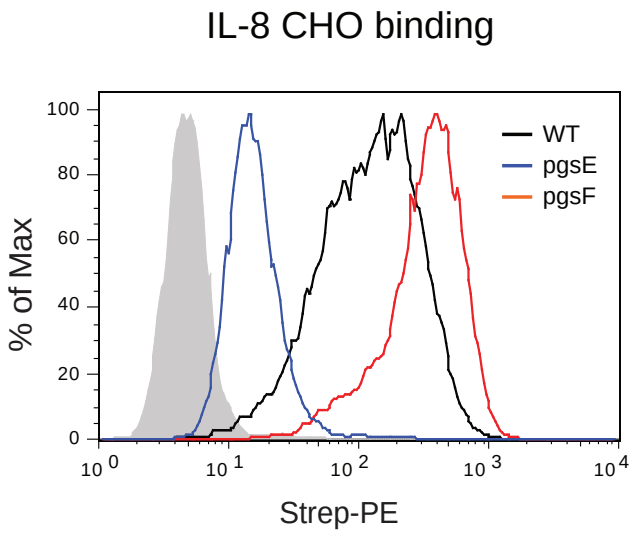
Supplemental Figure 3. *Hs2st*$^{f/f}$*Tie2Cre*$^{+}$ mice show differential effects on infiltration of monocytes subpopulations. The peritoneum was lavaged 18 hours after injection of thioglycolate and infiltrated cells were harvested and gated based on expression of Gr-1 and F4/80. (A) Four distinct populations was identified as: 1, Gr-1^{low}F4/80^{low}CD11c^{low}; 2, Gr-1^{medium}F4/80$^{medium\text{-}high}$CD11c^{low}, 3, Gr-1^{high}F4/80^{high}CD11c^{high} and 4, Gr-1^{high}F4/80^{low}CD11c^{medium}. Population 1, 2 and 3 are of monocyte origin and population 4 are neutrophils. (B) Comparison of Gr-1^{low}F4/80^{low}CD11c^{low}monocytes among three genotypes. (C) Comparison of Gr-1^{medium}F4/80$^{medium\text{-}high}$CD11c^{low}monocytes among three genotypes. (D) Comparison of Gr-1^{high}F4/80^{high}CD11c^{high} monocytes among three genotypes.

Supplemental Figure 4



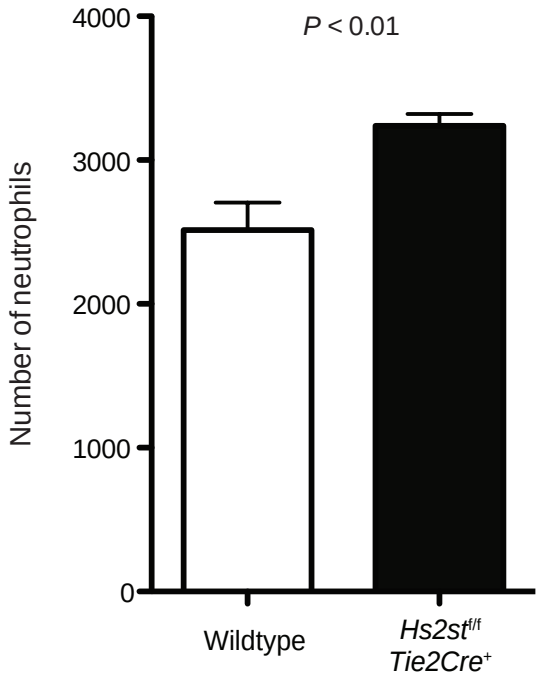
Supplemental Figure 4. Effect of MEL-14 mAb on circulating leukocytes count. Wild-type or *Hs2st*$^{f/f}$ *Tie2Cre*$^{+}$ mice were injected with 25 µg of MEL-14 mAb intravenously and 80 µl of blood were collected prior to mAb injection, and 1 and 3 hours post mAb injections. Leukocytes were counted on a Hemavet 850FS Multi Species Hematology System (Drew Scientific, CT) programmed with mouse hematology settings. n = 3 mice in each group, and data was analyzed by 2-way ANOVA.

Supplementary Figure 5



Supplemental Figure 5. IL-8 binding to wild-type and mutant CHO cells. Binding of biotinylated IL-8 (40 µg/ml) to wild-type or mutant CHO cells was measured by flow cytometry. Binding to wildtype CHO-K1 is shown in black, to 2-O-sulfation deficient mutant pgsF-17 in red, to N-sulfation deficient mutant pgsE-606 in blue. The control sample was incubated only with streptavidin-PE and is shown as filled gray histogram.

Supplementary Figure 6



Supplemental Figure 6. Neutrophil binding to wild-type or *Hs2st*$^{f/f}$*Tie2Cre*$^{+}$ endothelial cells. Cells in 96-well plate were treated with 25 ng/ml mouse TNFα overnight and incubated with 20 μg/ml IL-8 in serum free medium for 30 minutes at 37 degree. The wells were washed to remove unbound IL-8 and bone marrow derived neutrophils labeled with Calcein AM (5 x 10^4) were added to each well in serum free DMEM medium. After 2 hours of incubation at 37 degree, wells were washed 4 times with PBS, and the number of attached neutrophils were quantified by measuring fluorescence at 488 nm. n = 6, data was analyzed by one-tailed t-test.