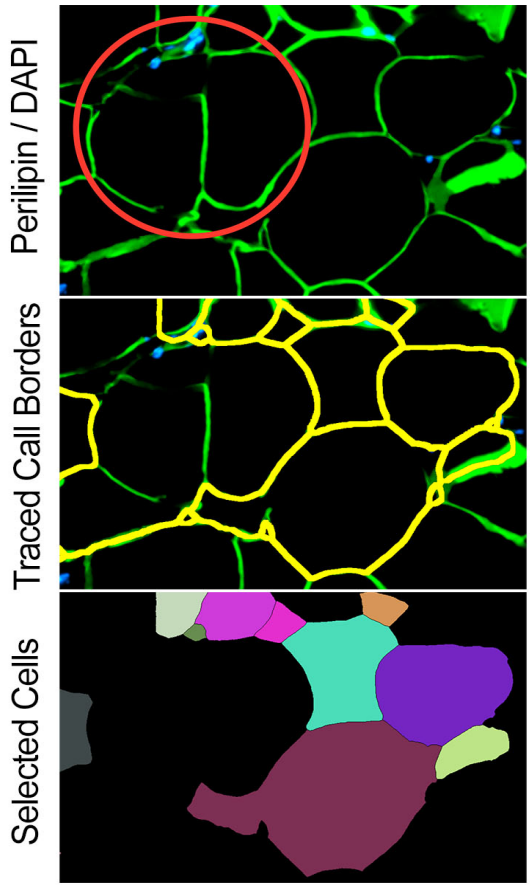
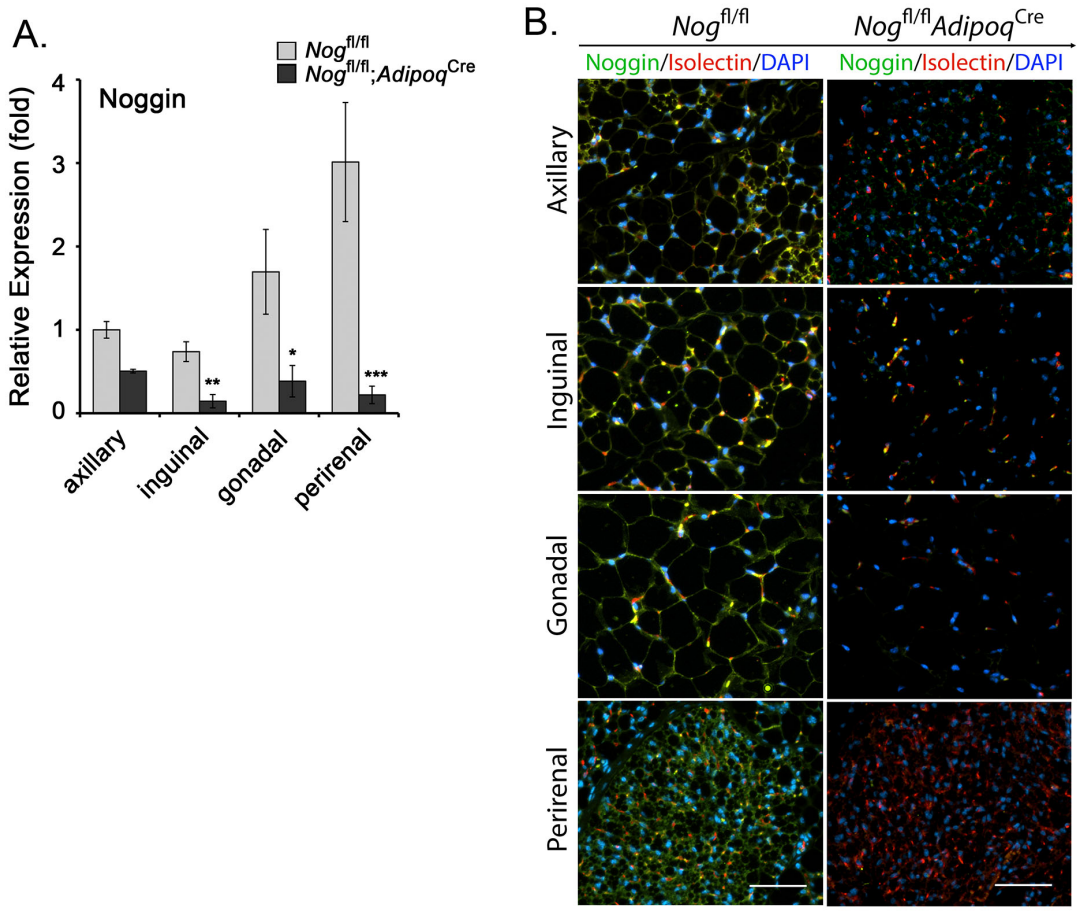
SUPPLEMENTAL FIGURES



Supplemental Figure 1

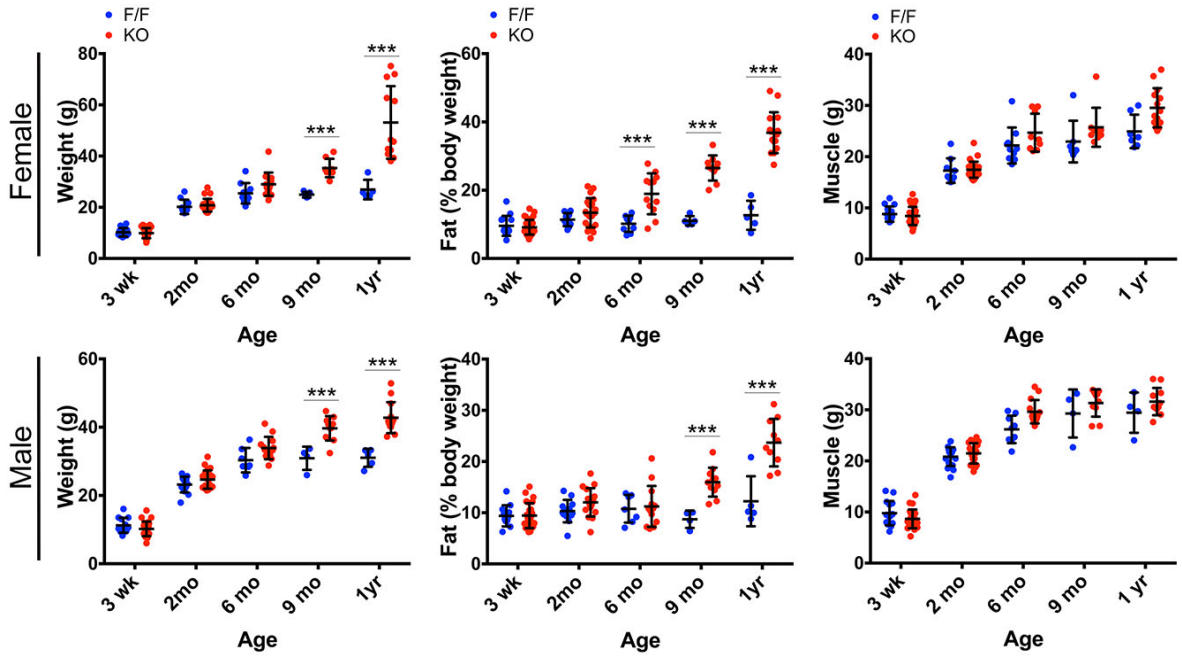
Tracing of cell borders and selection of cells in adipose tissue stained with anti-Perilipin antibodies and DAPI.



Supplemental Figure 2

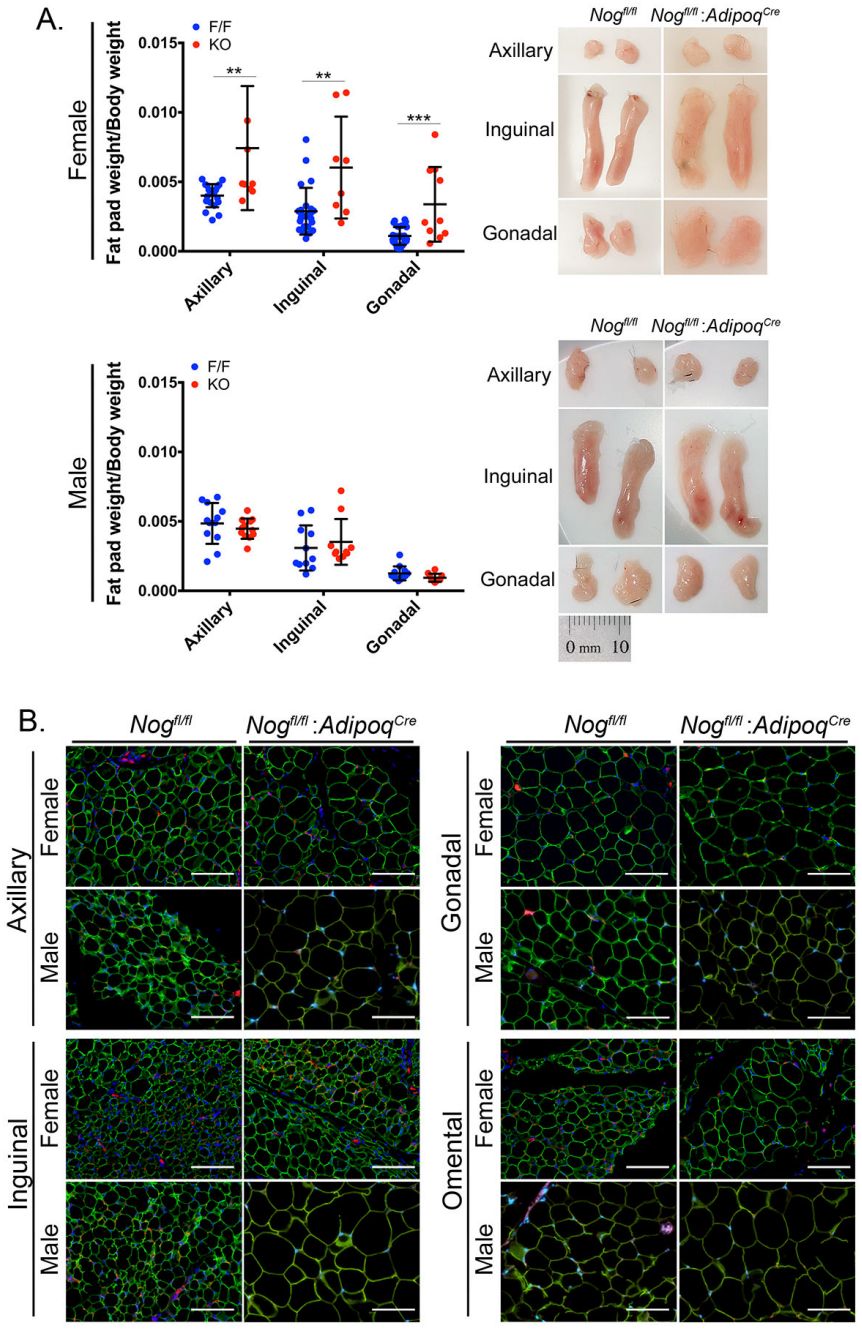
(A) *Noggin expression after adipocyte-specific Noggin deletion using the Adipoq-Cre promoter.* Noggin expression in various fat depots was compared to the axillary depot, as determined by qPCR. **<0.05, **<0.01, ***<0.001*

(B) *Immunofluorescence for Noggin (green) in subcutaneous WAT*; co-stained with Isolectin B4 as a marker of endothelial cells (red). DAPI (blue) was used to visualize nuclei (bars, 100 μm).



Supplemental Figure 3

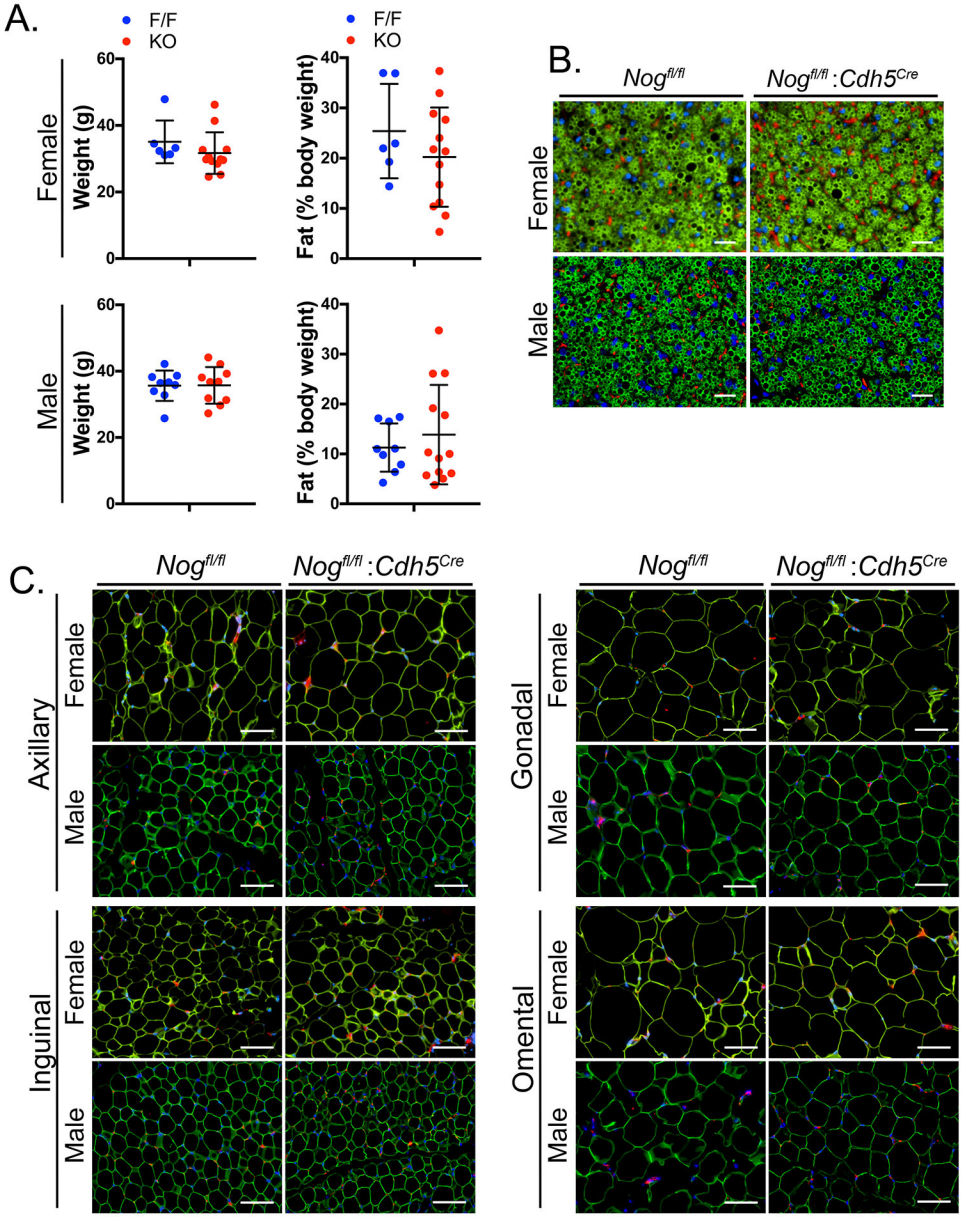
Time Course; Adipocyte-specific deletion of Noggin in mice promotes obesity. Female and male mice with adipocyte-specific deletion of Noggin (*Nog*$^{fl/fl}$;*Adipoq*^{Cre} or KO) and control mice (*Nog*$^{fl/fl}$ or F/F) were analyzed between ages 3 weeks and one year in regards to body weight and % fat and muscle.



Supplemental Figure 4

(A) *Adipocyte-specific deletion of Noggin in mice promotes obesity; fat pads at two months of age.* Female and male mice with adipocyte-specific deletion of Noggin (*Nog*$^{fl/fl}$;*Adipoq*^{Cre} or KO) and control mice (*Nog*$^{fl/fl}$ or F/F) were analyzed at 2 months in regards to fat pad size from the axillary, inguinal and gonadal locations.

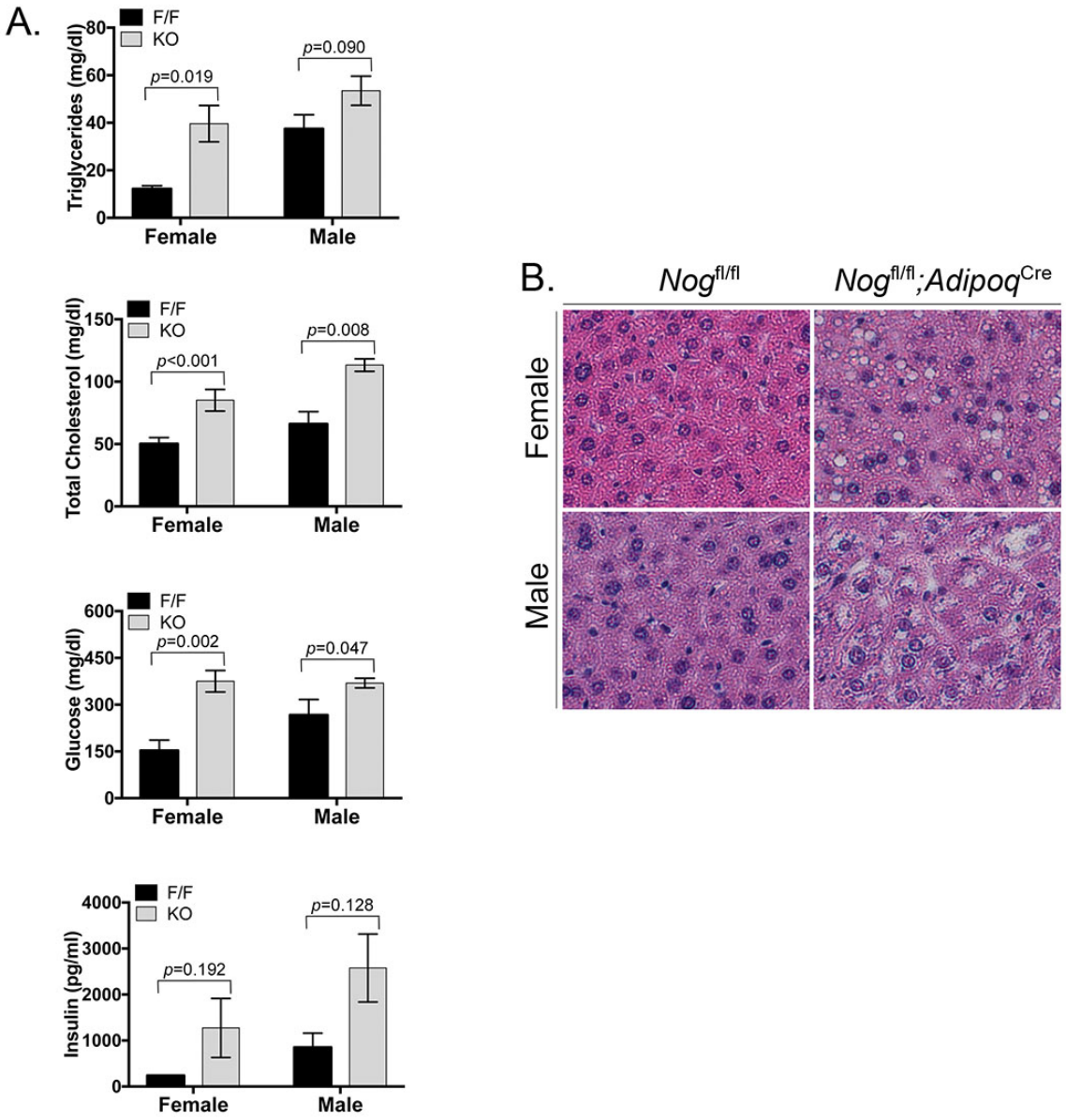
(B) *Adipocyte-specific deletion of Noggin in mice at 2 months of age.* Female and male mice with adipocyte-specific deletion of Noggin (*Nog*$^{fl/fl}$;*Adipoq*^{Cre} or KO) and control mice (*Nog*$^{fl/fl}$ or F/F) aged 2 months were analyzed by immunofluorescence for Perilipin (green). Sections were co-stained for CD31 (red) and DAPI (blue) was used to visualize nuclei (bars, 100 μm).



Supplemental Figure 5

(A,B) *Endothelial cell (EC)-specific deletion of Noggin in mice does not cause obesity.* Female and male mice with EC-specific deletion of Noggin (*Nog*$^{fl/fl}$;*Cdh5*^{Cre} or KO) and control mice (*Nog*$^{fl/fl}$ or F/F) aged one year were analyzed in regards to (A) body weight and percent fat, and by (B) immunofluorescence for Perilipin (green). Sections were co-stained for CD31 (red) and DAPI (blue) was used to visualize nuclei (bars, 100 μm).

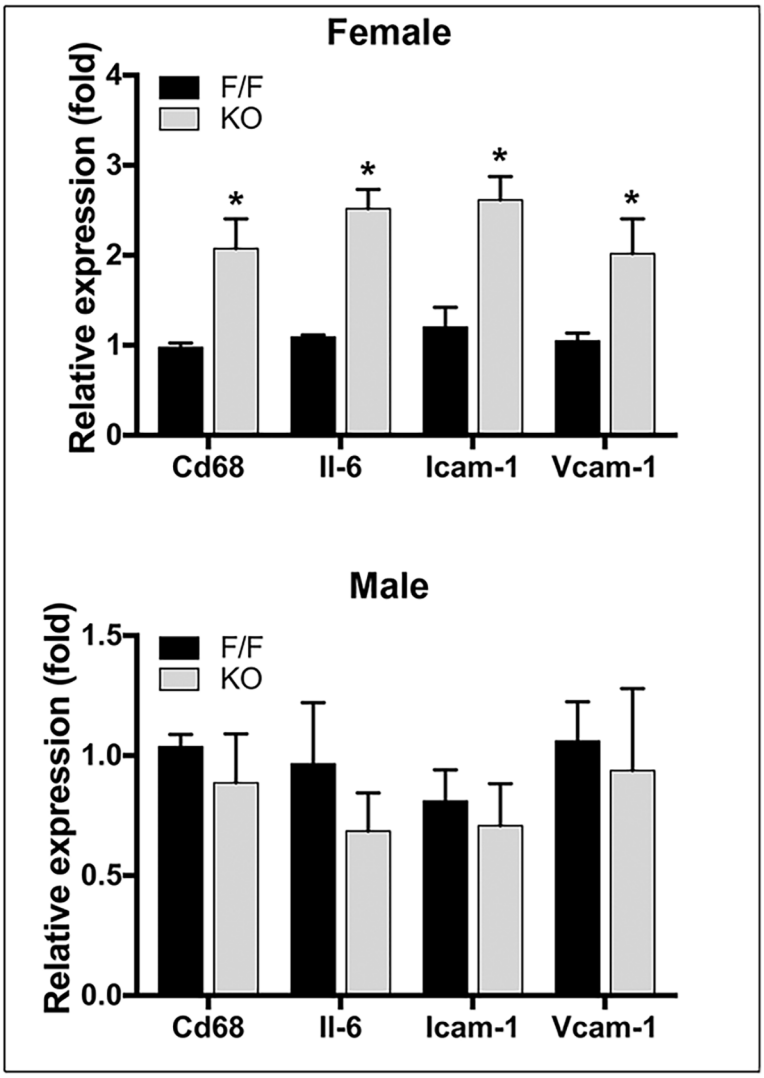
(C) *Endothelial cell (EC)-specific deletion of Noggin in mice does not enlarge adipocytes.* Female and male mice with EC-specific deletion of Noggin (*Nog*$^{fl/fl}$;*Cdh5*^{Cre} or KO) and control mice (*Nog*$^{fl/fl}$ or F/F) aged one year were analyzed by immunofluorescence for Perilipin (green). Sections were co-stained for CD31 (red) and DAPI (blue) was used to visualize nuclei (bars, 100 μm).



Supplemental Figure 6

(A) *Plasma levels of lipids, glucose and insulin.* Random plasma levels of triglycerides, total cholesterol, glucose and insulin in female and male mice with adipocyte-specific deletion of Noggin (KO) and control mice (F/F) aged one year. The values are presented as mean ± SEM; p-values are adjusted for multiple comparisons.

(B) *Fatty liver in mice with Noggin deficiency.* Sections from the livers from female and male mice with adipocyte-specific deletion of Noggin (*Nog*$^{fl/fl}$;*Adipoq*^{Cre}) and control mice (*Nog*$^{fl/fl}$) aged one year were analyzed by H&E staining.



Supplemental Figure 7

Brown adipose tissues were collected from female and male mice with adipocyte-specific deletion of Noggin (*Nog*$^{fl/fl}$;*Adipoq*^{Cre} or KO) and control mice (*Nog*$^{fl/fl}$ or F/F) aged 2 months.
Gene expression was determined by qPCR for CD68, IL-6, ICAM-1 and VCAM-1. *n=3; *<0.05,*