**Supplementary Figure 1.** Absence of hepatic ABCA1 and low HDL in ABCA1\(^{-/-}\) mice

Livers were isolated from wt (white bars) and ABCA1\(^{-/-}\) mice (black bars) and ABCA1 protein levels were measured by western blotting (A). Blood was drawn from female wt and ABCA1\(^{-/-}\) mice after 4 hours fasting. Plasma was isolated and assessed for cholesterol (B), HDL-C (C) and triglycerides (D). Body weight was measured (E). Values are means +/- SEM, N=6, *** p<0.001

**A**

- **ABCA1**\(^{+/+}\)
- **ABCA1**\(^{-/-}\)

**B**

- **+/+**
- **-/-**

**C**

- **+/+**
- **-/-**

**D**

- **+/+**
- **-/-**

**E**

- **+/+**
- **-/-**

**Supplementary Figure 2.** Impaired glucose tolerance in male hepatocyte specific ABCA1 knockout mice

Male ABCA1<sup>−/−</sup> mice (black bars/circles) and control littermates (white bars/circles) received an oral gavage of 2g/kg glucose in PBS. Blood was drawn at the indicated time points and assayed for glucose (A,B). Mice received a bolus of insulin to assess insulin sensitivity and glucose was measured at the indicated time points (C,D). Values are means +/- SEM, N=6-7 (A) 6-3 (B) * p<0.05

Supplementary Figure 3. Plasma c-peptide is reduced in ABCA1<sup>−/−</sup> mice after glucose gavage. ABCA1<sup>−/−</sup> mice (black bars/circles) and control littermates (white bars/circles) received an oral gavage of glucose. Blood was drawn and assessed for c peptide (A) and the area under the curve was calculated (B). Values are means +/- SEM, N=7-9, * p<0.05.
Supplementary Figure 4. HDL and apoAI stimulate insulin secretion dependent of ABCA1
Islets were isolated from wt (A) and ABCA1⁻/⁻ (B) mice and insulin secretion was assessed in the
presence of HDL (0.2 mM cholesterol), apoAI (20ug/mL) (black bars), dialysis buffer or PBS (control,
white bars). Values are means +/- SEM, N=6-9, data are pooled from 2-3 independent experiments * p<0.05
Supplementary Figure 5. HDL is reduced in ABCA1<sup>−/−</sup> mice on HFHC diet
ABCA1<sup>−/−</sup> mice (black bars/circles) and control littermates (white bars/circles) on HFHC diet were weighed (A). Blood was drawn and assessed for total cholesterol (B), HDL cholesterol (C) and triglycerides (D). Values are means +/- SEM, N=6-7, * p<0.05