**SUPPLEMENTAL FIGURE LEGENDS**

Supplemental Figure 1. A-C. RT-qPCR analyses of *IL-6* (B), *SOCS3* (C), and *CXCL2* (D) gene expression in adipose tissues from non-obese PCOS subjects (n=4) vs. BMI-matched controls (n=4). Data are presented as ΔCts. RT-qPCR was performed in samples that were not used for the microarray experiments (independent validation). D-F. RT-qPCR analyses of *DHRS9* (B), *FADS1* (C), and *UCHL1* (D) gene expression in adipose tissues from non-obese PCOS subjects (n=4) vs. matched controls (n=4). Data are presented as ΔCts. RT-qPCR was performed in samples that were not used for the microarray experiments (independent validation). G-I. RT-qPCR analyses of *DKK2* (B), *FOSB* (C), and *JUN* (D) gene expression in adipose tissues from non-obese PCOS subjects (n=4-5) vs. matched controls (n=4). Data are presented as ΔCts. RT-qPCR was performed in samples that were not used for the microarray experiments (independent validation).

Supplemental Figure 2. Principal Component Analysis (PCA) visualized global gene expression profiles and sample distributions, and demonstrated that both groups could be separated using only one-dimensional level (PC=1; 71.6%), with a 76.8% variance based on global gene expression profiles, between three non-obese PCOS (blue) and four BMI-matched controls (red).

Supplemental Figure 3. Schematic representation of how inflammation, lipid metabolism and Wnt signaling pathways could contribute to the insulin resistance in non-obese PCOS adipose tissue (solid lines). Moreover, the insulin resistance present in non-obese PCOS patients could in turn affect the inflammatory response, lipid metabolism and Wnt signaling pathways (dotted lines).
Supplemental Figure 1

PCA Mapping (71.6%)

CT
PCOS

PC # 1 (76.8%)
Supplemental Figure 2

- **A**: IL6, p<0.04, n=4, control: □, PCOS: ▲
- **B**: SOCS3, p<0.02, n=4, control: ■, PCOS: ◆
- **C**: CXCL2, p<0.02, n=4, control: □, PCOS: ▲
- **D**: DHRS9, p<0.04, n=4, control: □, PCOS: ▲
- **E**: FADS1, p<0.04, n=4, control: ■, PCOS: ◆
- **F**: UCHL1, p<0.04, n=4, control: □, PCOS: ▲
- **G**: DKK2, p<0.001, n=4, control: □, PCOS: ▲
- **H**: FOSB, p<0.001, n=5, control: ■, PCOS: ◆
- **I**: JUN, p<0.05, n=5, control: □, PCOS: ▲
Supplemental Figure 3

Changes in Lipid Metabolism (DHRS9, FADS1, LIPE, SCD1)

Changes in Inflammatory Cytokines/Chemokines (IL-6, CXCL2, SOCS3) IL-6 as anti-inflammatory Factor?

Changes in Adipogenesis

Changes in Wnt signaling (sFRP, Dkk, FOSB, JUN)

LEAN PCOS

Insulin Resistance

Changes in Adipogenesis

Changes in Lipid Metabolism (DHRS9, FADS1, LIPE, SCD1)