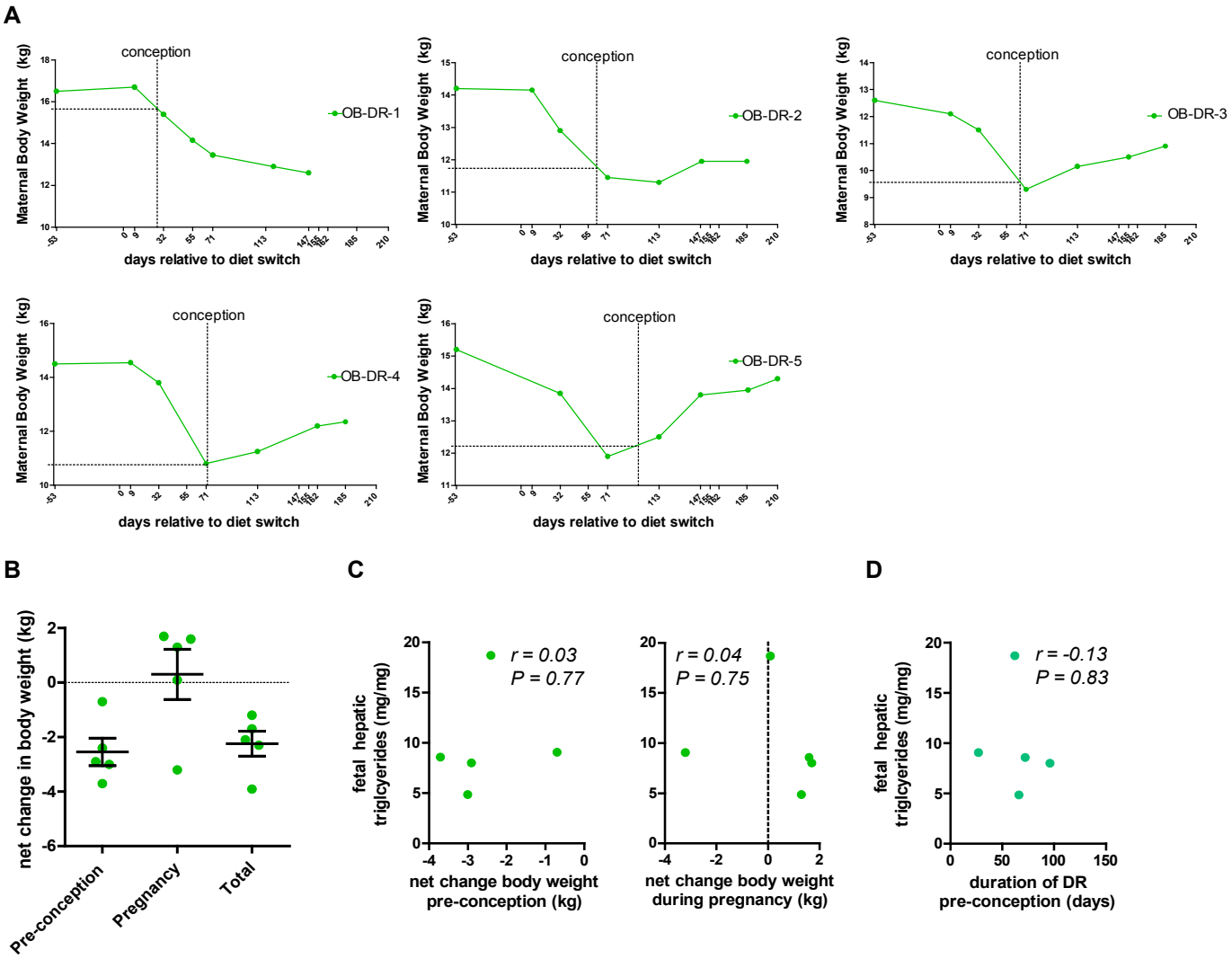
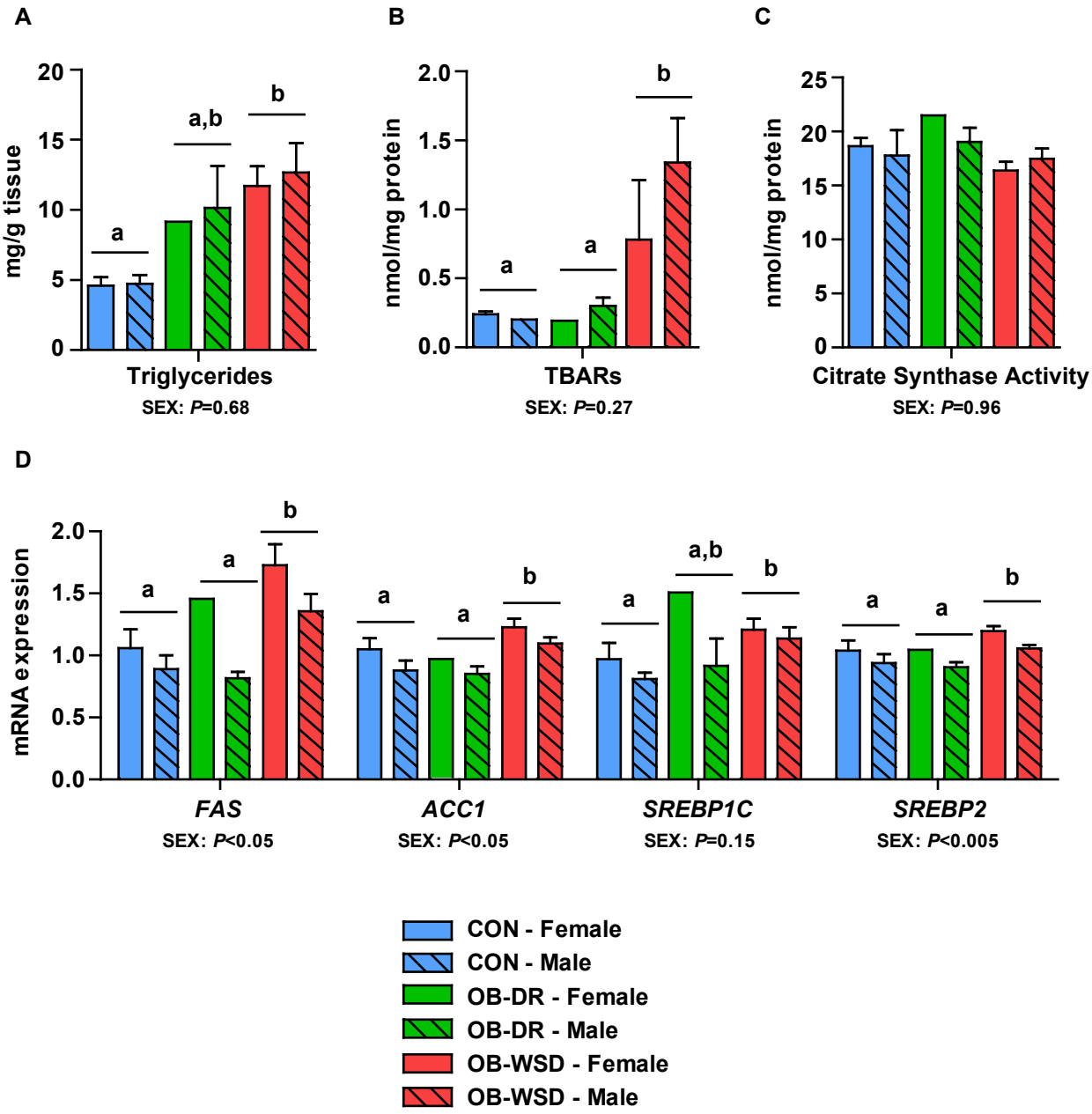
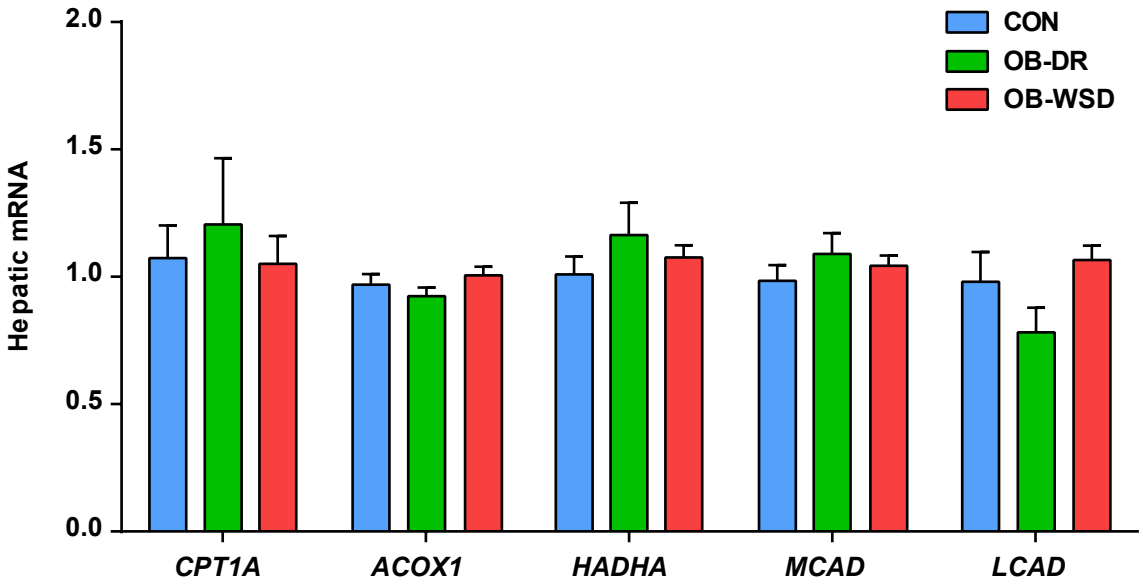


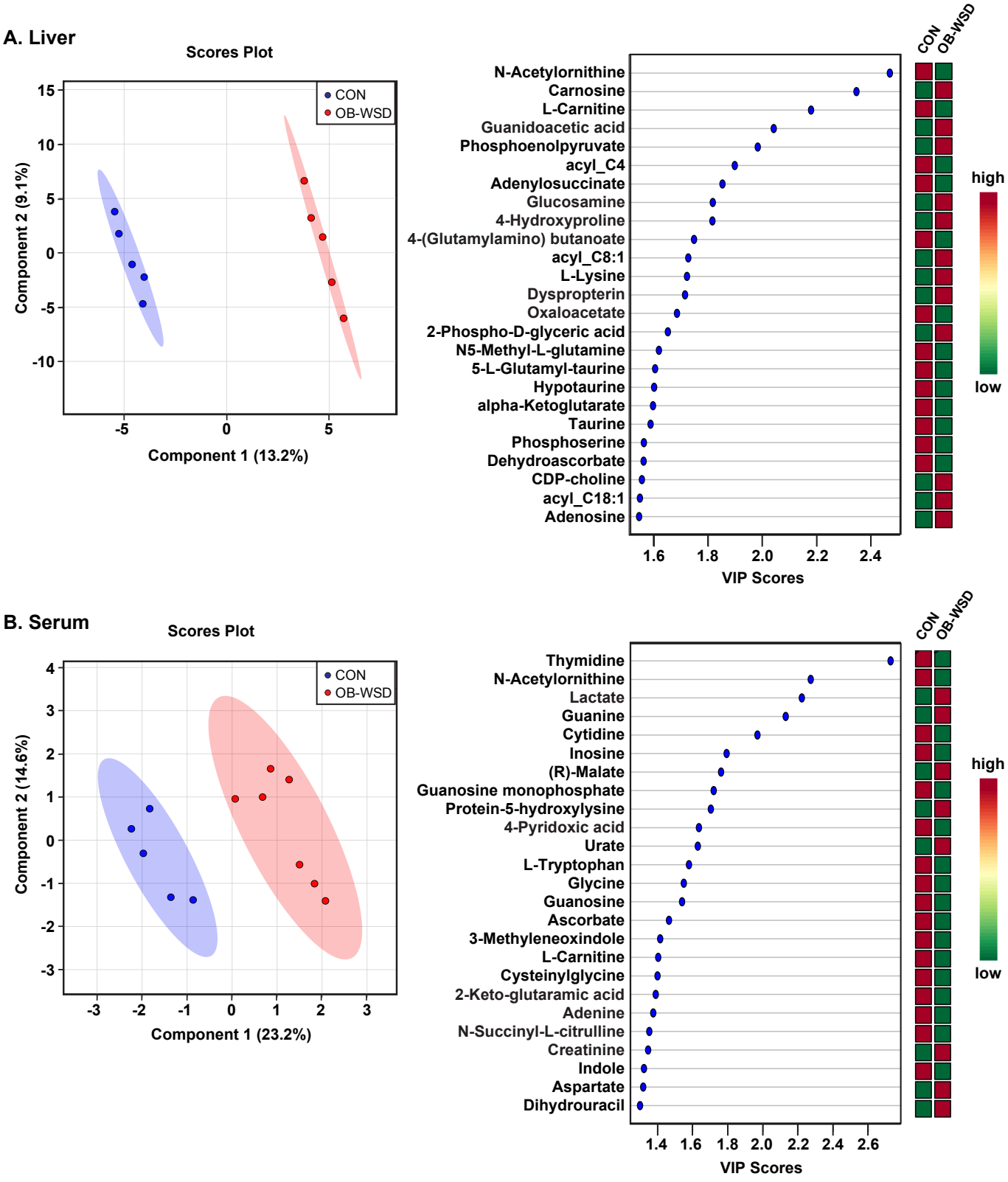
Supplementary Figure 1: Duration of maternal diet switching and effect on body weight in OB-DR mothers. (A) Body weight was measured when mothers were obese and on the WSD (day -53) before starting diet reversal (day 0) and then at multiple times as indicated during the pre-conception period and pregnancy. Conception is indicated with vertical dashed line and body weight at this time was estimated (horizontal dashed line). (B) The net change in body weight was calculated for the pre-conception period (= estimated weight at conception – day -53 weight), pregnancy period (= final pregnancy weight – estimated weight at conception), and total period (= final pregnancy weight – day -53 weight). (C) No relationship between the net change in maternal body weight during pre-conception or pregnancy with fetal hepatic triglycerides was observed. (D) No relationship between the duration of time in the diet reversal (DR) pre-conception with fetal hepatic triglycerides was observed. Data shown for 5 OB-DR mothers.



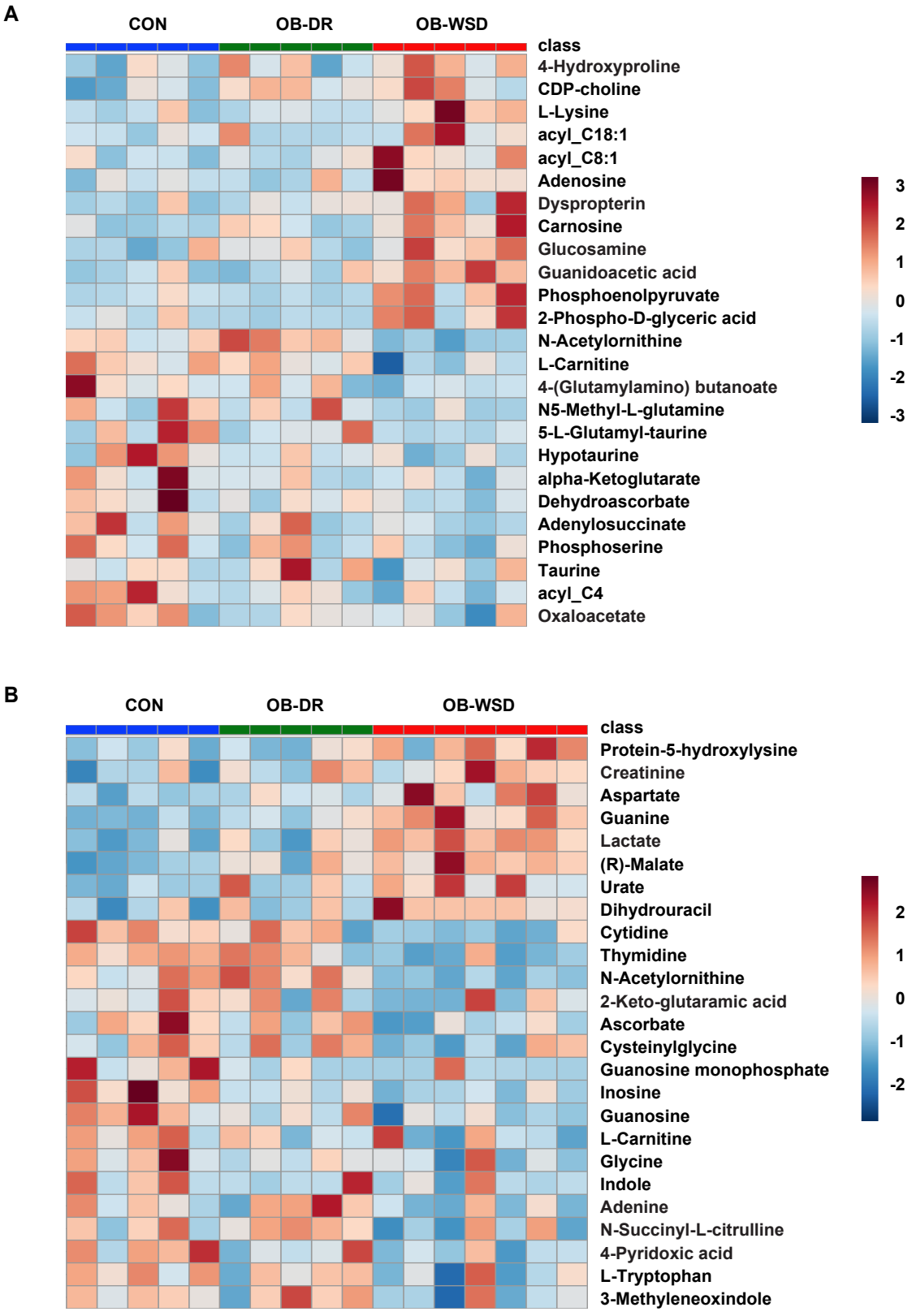
Supplementary Figure 2: Effect of fetal sex on fetal hepatic lipid accumulation, oxidative stress, citrate synthase activity, and lipogenic gene expression. (A) Liver triglyceride concentrations measured in fetuses from CON (blue bars), OB-DR (green bars) and OB-WSD (red bars) mothers. n = 11 CON-Female (F), 10 CON-Male (M), 1 OB-DR-F, 4 OB-DR-M, 16 OB-WSD-F, 22 OB-WSD-M. (B) Lipid peroxidation measured by TBARS as marker of oxidative stress in fetal livers. n = 3 CON-F, 2 CON-M, 1 OB-DR-F, 4 OB-DR-M, 3 OB-WSD-F, 4 OB-WSD-M. (C) Hepatic citrate synthase activity. n = 2 CON-F, 2 CON-M, 1 OB-DR-F, 4 OB-DR-M, 4 OB-WSD-F, 9 OB-WSD-M. (D) Expression of lipogenic genes in CON, OB-DR, and OB-WSD fetal livers. n = 6 CON-F, 7 CON-M, 1 OB-DR-F, 4 OB-DR-M, 12 OB-WSD-F, 15 OB-WSD-M. A-D) Solid filled bars represent female fetuses; cross-hatched bars are male fetuses. Bars with different letters represent significant differences between maternal diet groups ($P < 0.05$). The effect of fetal sex is indicated for each variable. Data are represented as mean ± SEM.



Supplementary Figure 3: Expression of lipid oxidation genes in CON, OB-DR, and OB-WSD fetal livers. n = 13 CON, 5 OB-DR, 27 OB-WSD. Data are represented as mean ± SEM. *CPT1A* primers: forward 5'-TGAGCACGGCAAGATGAGTCGC-3', reverse 5'-AGTGTCTTTGACAGCCGGGACC-3'; *ACOX1*: forward 5'-CAGTCCCGAGAACACCCGGC-3', reverse 5'-AACGCTGGCTGCGAGTGAGG-3'; *HADHA*: forward 5'-CAGGTGCCTTGCGCCCATGA-3', reverse 5'-GTGGCGGCACCCACAGGAAA-3'; *MCAD*: forward 5'-GGAGAATGACTGAGGAGCCG-3', reverse 5'-CCAGCTACATCAGAGCCTGC-3'; *LCAD*: forward 5'-TTGGCAAAACAGTTGCCCAC-3', reverse 5'-TCATGCAGCTGGAGACAGTT-3'.



Supplementary Figure 4: Effect of maternal CON and OB-WSD on fetal liver and serum metabolome. Fetal liver and arterial serum from CON and OB-WSD maternal diet groups were subjected to global metabolomics profiling. PLS-DA was used to identify metabolites with changes in abundance that defined separation of samples between the maternal diet groups in liver (A) and serum (B). 2-dimensional scores plots are shown. Heat maps of the 25 metabolites with highest variable importance in projection (VIP) scores are shown. Metabolite names are shown on left y-axis and relative abundance of each metabolite is indicated on right y-axis.



Supplementary Figure 5: Effect of maternal OB-WSD and OB-DR on fetal liver and serum metabolome. Heat map of the 25 metabolites with the highest variable importance in projection (VIP) scores from CON (blue class), OB-DR (green class), and OB-WSD (red class) liver (A) and serum (B). Each square is representative of the levels of that metabolite for each sample. Row values are normalized for each metabolite and quantitative changes are color coded from blue (low) to red (high). Metabolite names are shown on right y-axis. n = 5 per group for liver, n = 5 CON and OB-DR and 7 OB-WSD for serum.