

SUPPLEMENTAL FIGURE LEGENDS

Figure S1. Experimental design. Animals exposed to high fat after 8 weeks are shown in black; animals consistently fed low fat diet are shown in blue. Females are displayed as circles; males are shown as triangles.

Figure S2. Distribution of variances. Shown are the gene-specific variance distributions for factor effects, the full set of interaction terms and residual error. A linear mixed-effects ANOVA was used to calculate gene-specific variance estimates using the REML algorithm.

Figure S3. Three-dimensional scatterplot of selected eigengenes. ANOVA variance components (Figure S1) were analyzed by singular value decomposition (SVD). The percentage of the total variation in the data explained by a given eigengene is given in parentheses. EG 1 represents variation between sexes, while EG 2 and EG 3 relate to variation between strains and diets, respectively. Gene scores, representing the SVD transformed \log_2 gene expression values, are shown as light blue circles. Genes with significant scores ($p < 0.001$) are shown in black as gene symbols. Loadings for the three significant eigengenes range from the origin (0,0,0) to the value in 3d space. Gene scores and loadings are weighted by the percent variance explained.

Figure S4. Cholesterol biosynthesis pathway. Genes involved in the cholesterol biosynthesis pathway are shown. The fold change values given in parentheses correspond to the average fold change across strains and sexes. All genes are repressed with high fat feeding.

Figure S5. Diet-Induced Changes in Gene Expression. Significant gene expression differences (FDR < 0.01) were calculated from ANOVA-based tests for differences due to main effect of diet (gray), two-way interactions between diet and strain (red) and three-way interactions between diet, strain and sex (blue). The estimated proportion of true null genes (π_0) is indicated for each test. Top biological process gene ontology classes for each test are indicated, with the total number of significant GO classes returned given in parentheses.