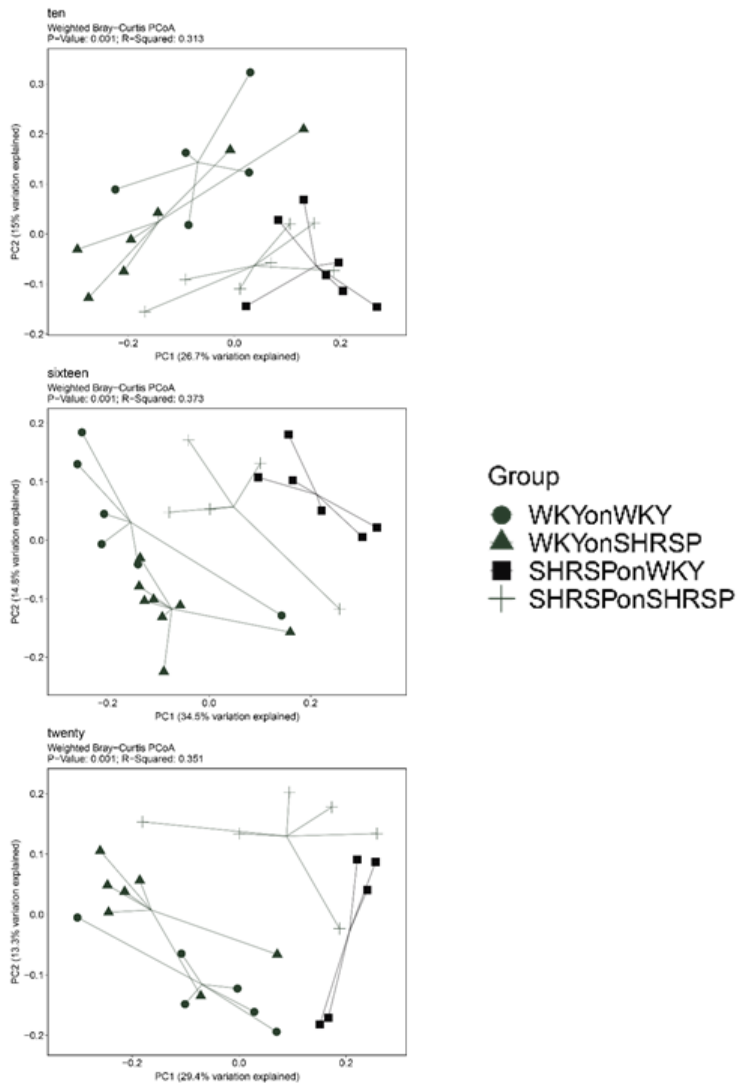
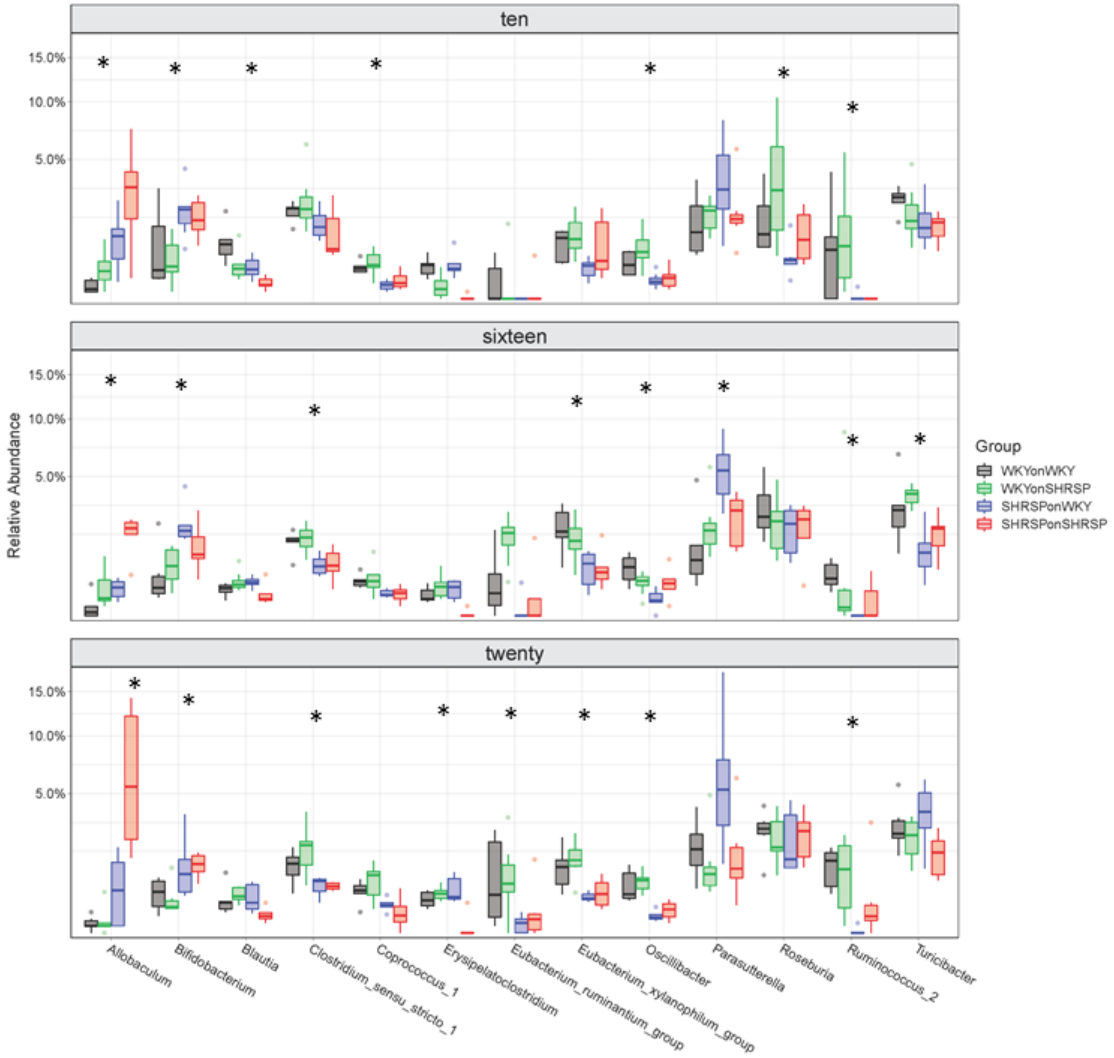
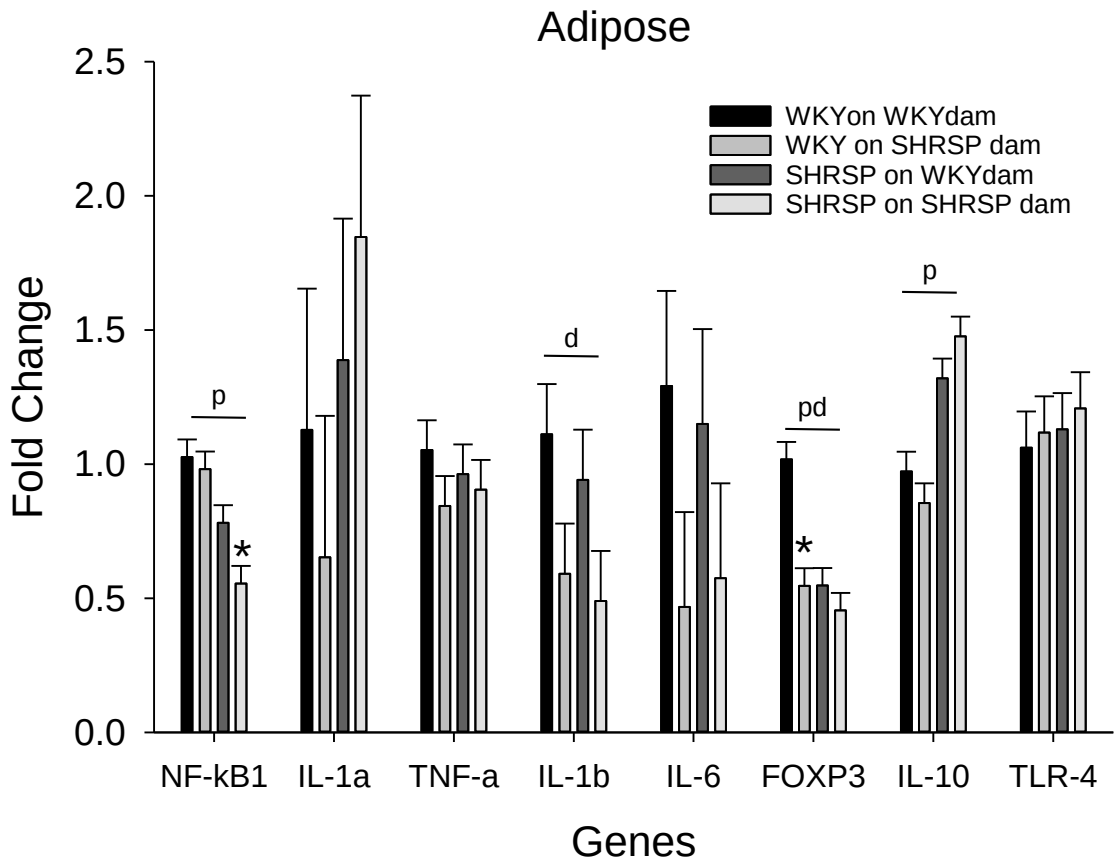


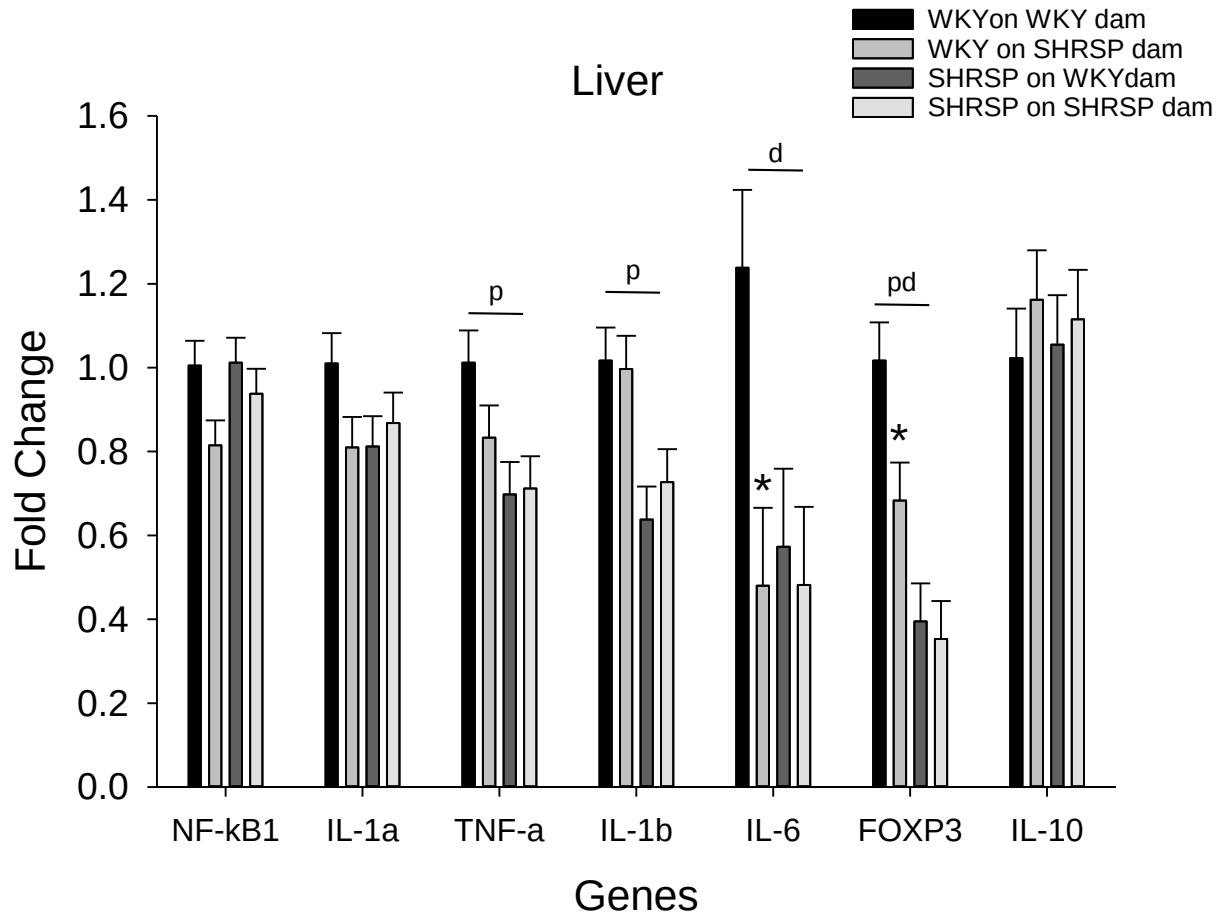
Supplemental Figure I. Weighted Bray-Curtis PCoA plots for fecal microbiota in feces from rats in the cross fostering study at ages of 10, 16, and 20 weeks (5-7 per group; P=0.001 for each PCoA, PERMANOVA test).



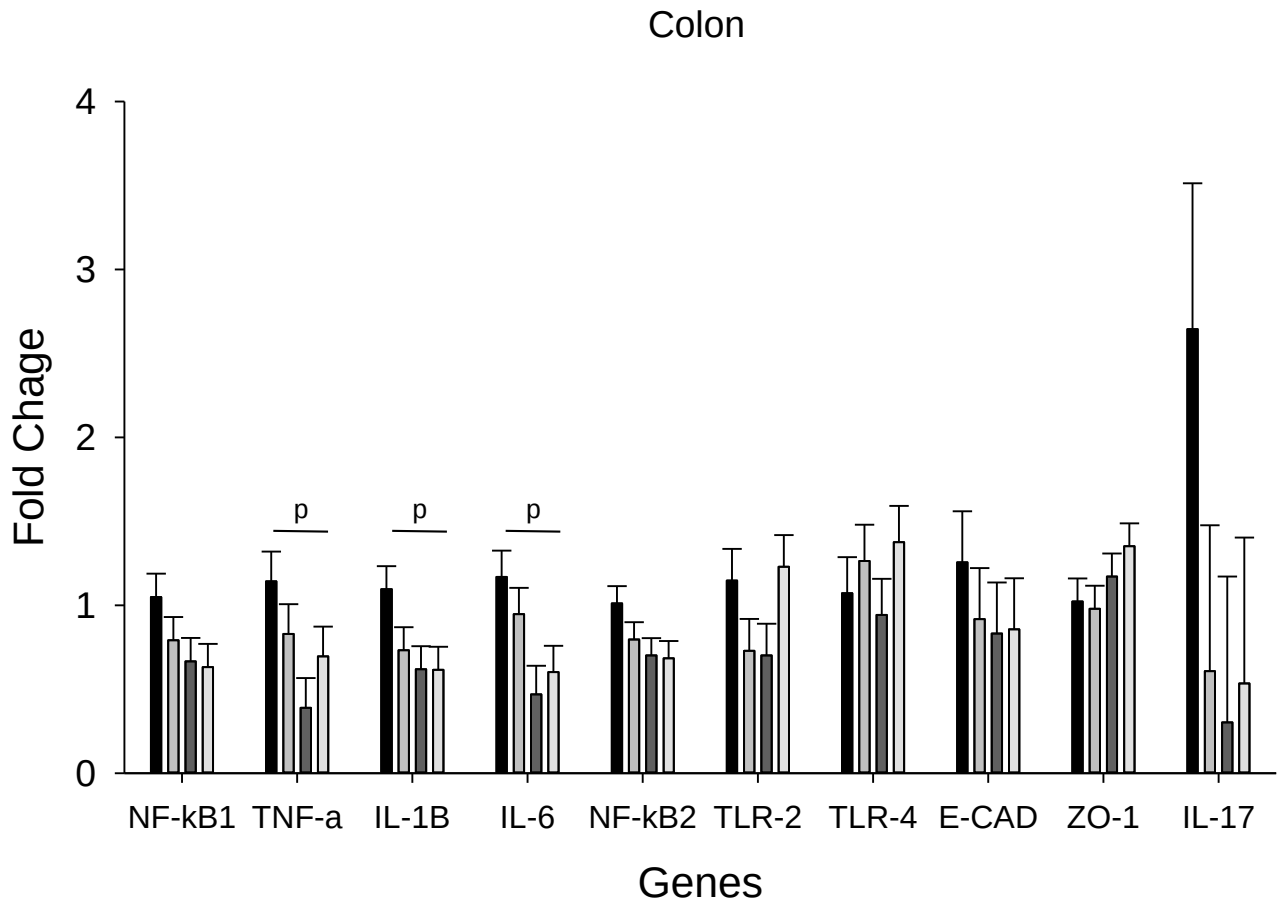
Supplemental Figure II. Relative abundance of genera in feces from rats in the cross fostering study sampled at 10, 16, and 20 weeks of age. Mann-Whitney U test demonstrates that there is statistical significance among the 4 groups (* $P<0.05$).



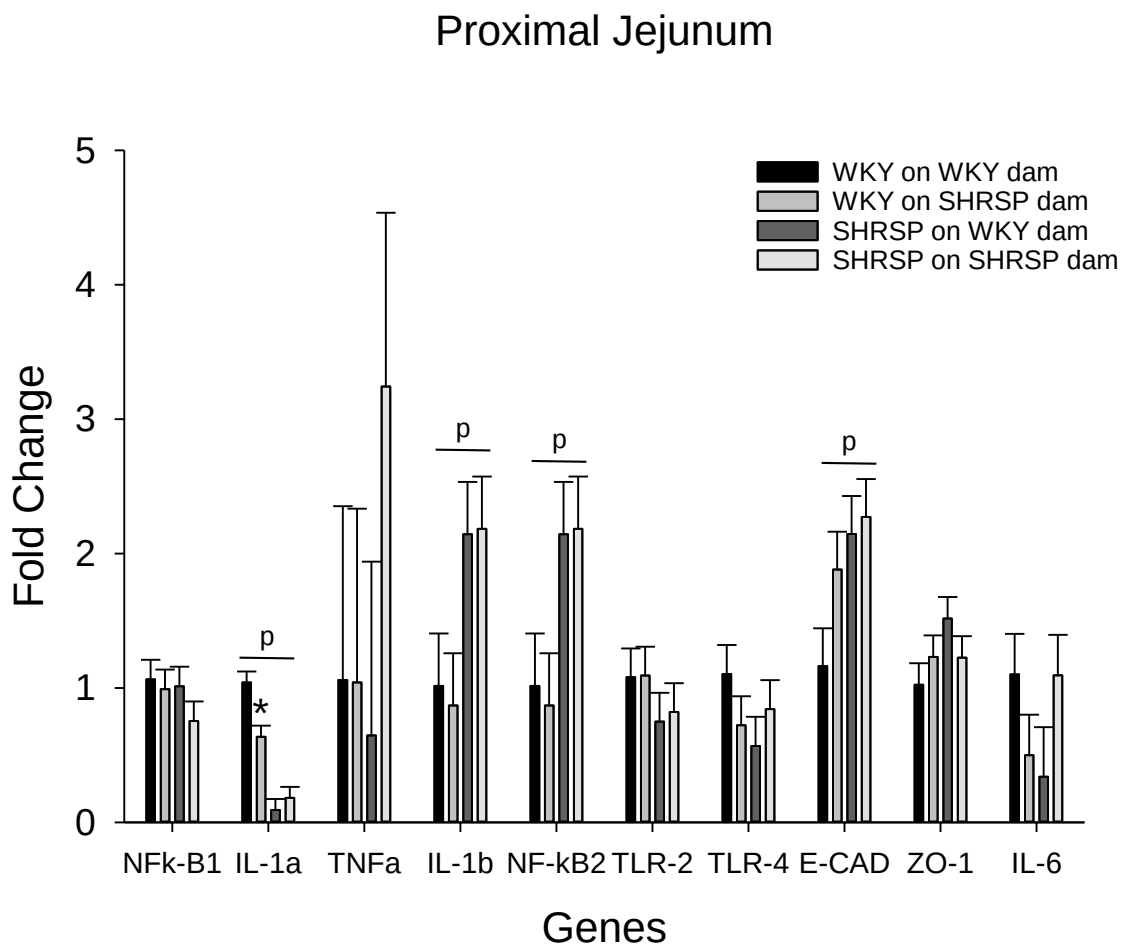
Supplemental Figure III. Fold change in message in adipose tissue (compared to WKYonWKY) for the four groups of rats in the cross fostering study. Data was analyzed using 2 way ANOVA with post-hoc Holm-Sidak test where appropriate. Significant main effect ($P<0.05$) for offspring (p), dam (d), or both offspring and dam (pd) ($N=6$ per group) demonstrating that the offspring alone and the fostering dam alone significantly altered the message independent of other variables. There was a significant interaction between offspring strain and Foster dam for FOXP3 ($P = 0.009$). * $P<0.05$ compared to WKY dam of the same rat strain (Holm-Sidak).



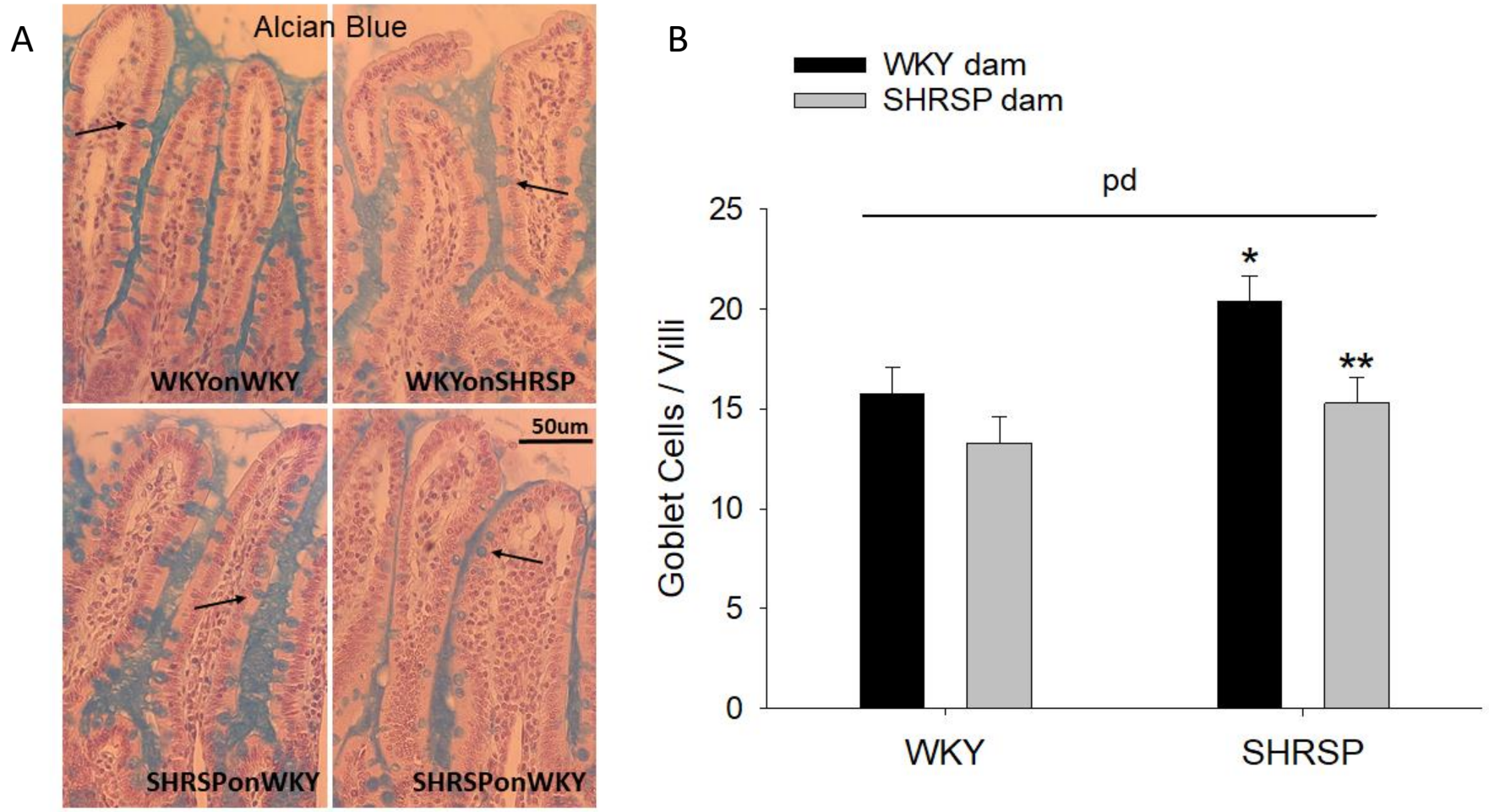
Supplemental Figure IV. Fold change in message in liver (compared to WKYonWKY) for the four groups of rats in the cross fostering study. Data was analyzed using 2 way ANOVA with post-hoc Holm-Sidak test where appropriate. Significant main effect ($P<0.05$) for offspring (p), dam (d), or both offspring and dam (pd) ($N=6$ per group) demonstrating that the offspring alone and the fostering dam alone significantly altered the message independent of other variables. * $P<0.05$ compared to WKY dam of the same rat strain (Holm-Sidak).



Supplemental Figure V. Fold change in message in proximal colon (compared to WKYonWKY) for the four groups of rats in the cross fostering study. Data was analyzed using 2 way ANOVA with post-hoc Holm-Sidak test where appropriate. Significant main effect ($P<0.05$, N=6 per group) for offspring (p) demonstrating that the offspring alone significantly altered the message independent of other variables. There was a significant interaction between offspring strain and Foster dam for TLR-2 ($P = 0.021$).



Supplemental Figure VI. Fold change in message in proximal jejunum (compared to WKYonWKY) for the four groups of rats in the cross fostering study. Data was analyzed using 2 way ANOVA with post-hoc Holm-Sidak test where appropriate. Significant main effect ($P<0.05$, N=6 per group) for offspring (p) demonstrating that the offspring alone significantly altered the message independent of other variables. * $P<0.05$ compared to WKY dam of the same rat strain.



Supplemental Figure VII. (A) Alcian blue stain showing villi with goblet cells (arrows) in the 4 groups of rats in the cross fostering protocol. (B) The number of goblet cells per villi in each group in the study; data was analyzed using 2 way ANOVA. There was a main effect of offspring strain (p, P=0.026) and the strain of the dam (d, P=0.013, N=4 per group); * P<0.017 compared to WKYonWKY, **P=0.027 compared to SHRSPonWKY (2 way ANOVA with post hoc Holm-Sidak method).