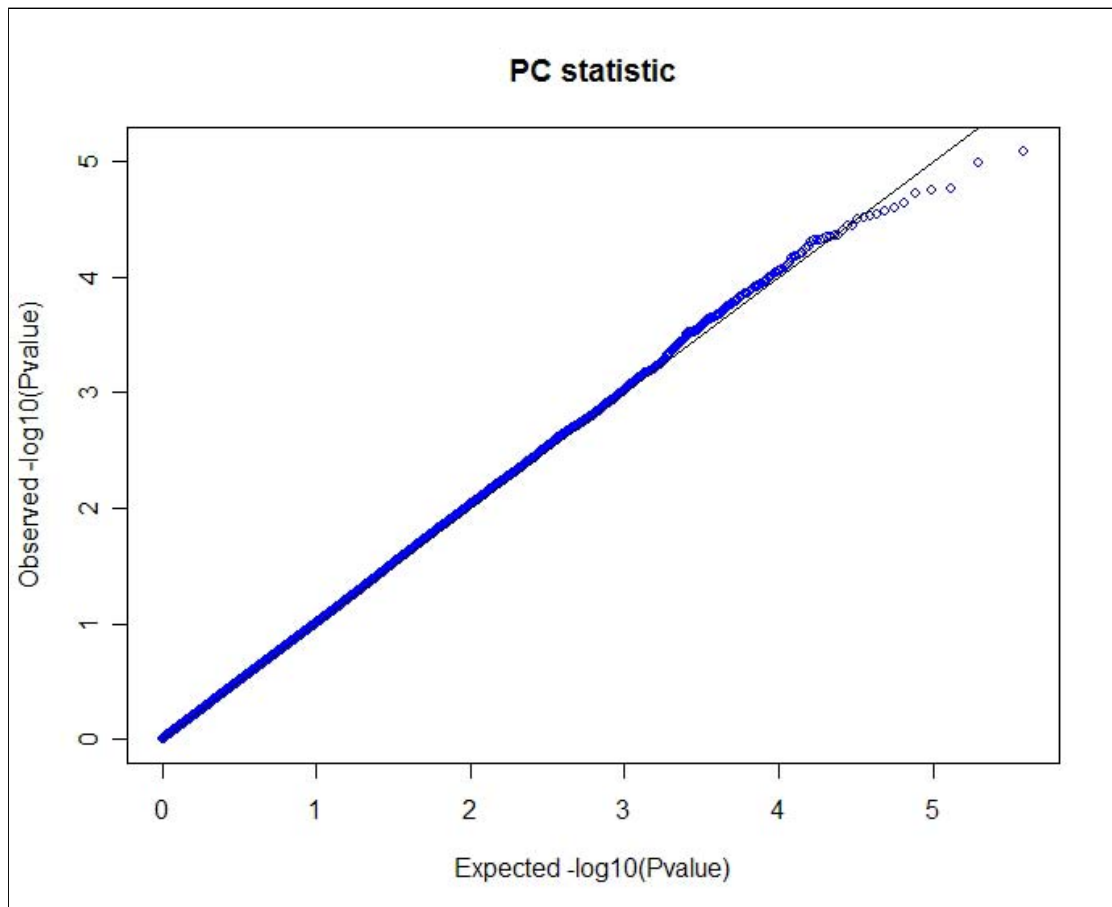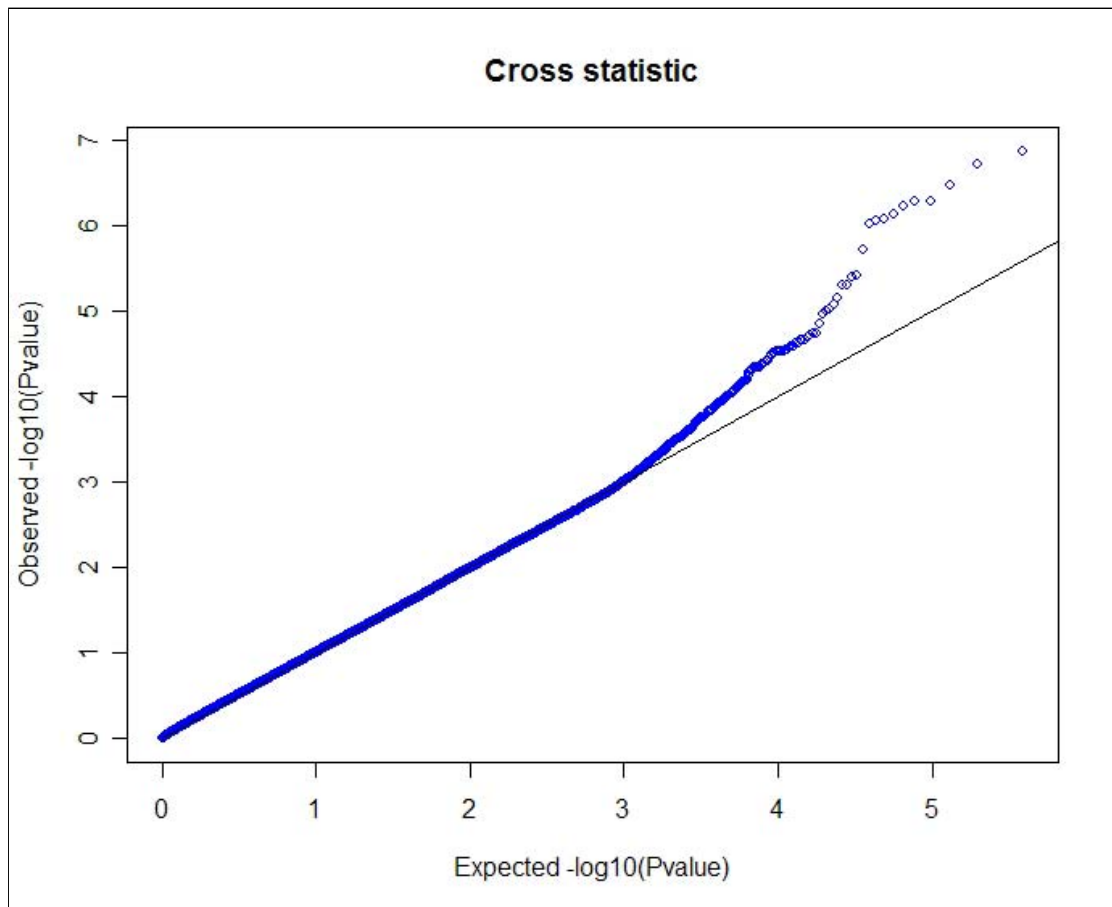**Supplemental Figure 1: Observed vs. expected -log$_{10}$(P-value)s across the genome for the p statistic.**

Supplemental Figure 2: Observed vs. expected -log$_{10}$(P-value)s across the genome for the pc statistic.

Supplemental Figure 3: Observed vs. expected -log$_{10}$(P-value)s across the genome for the *cross* statistic.