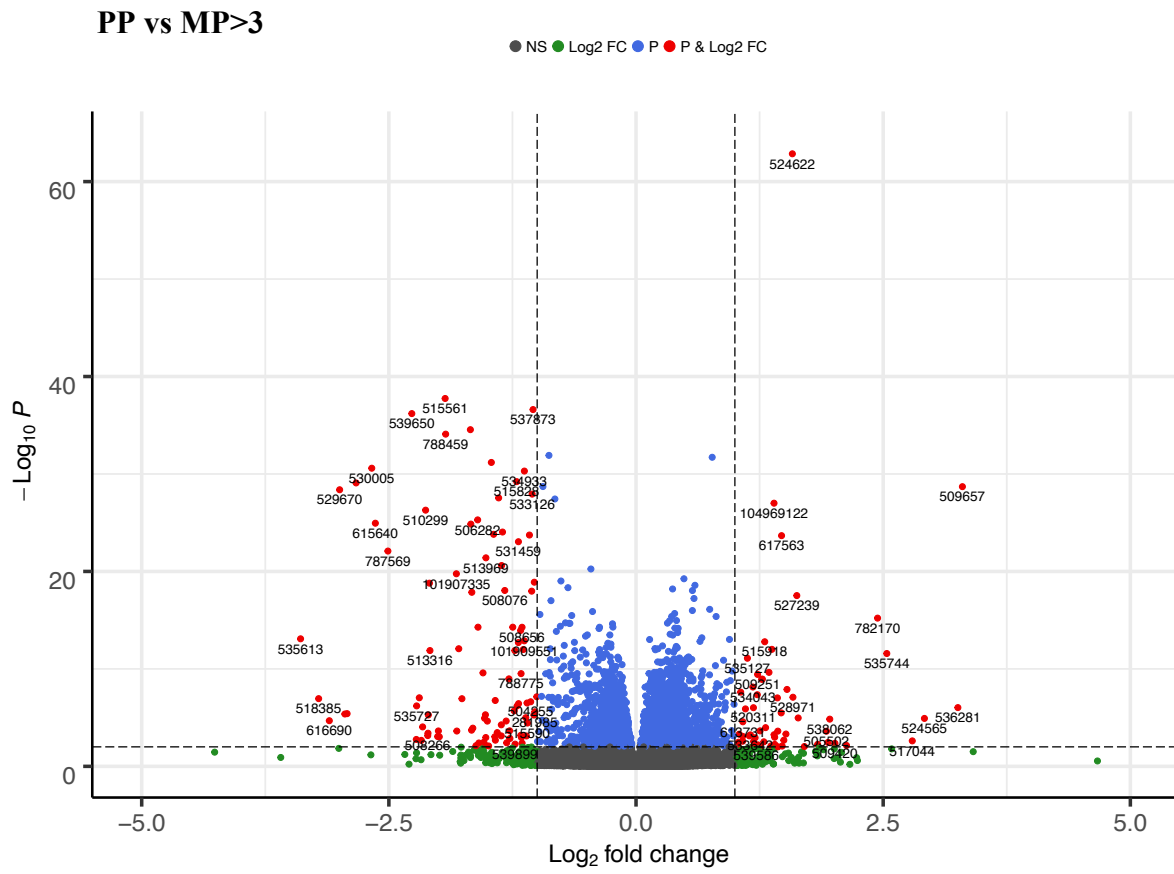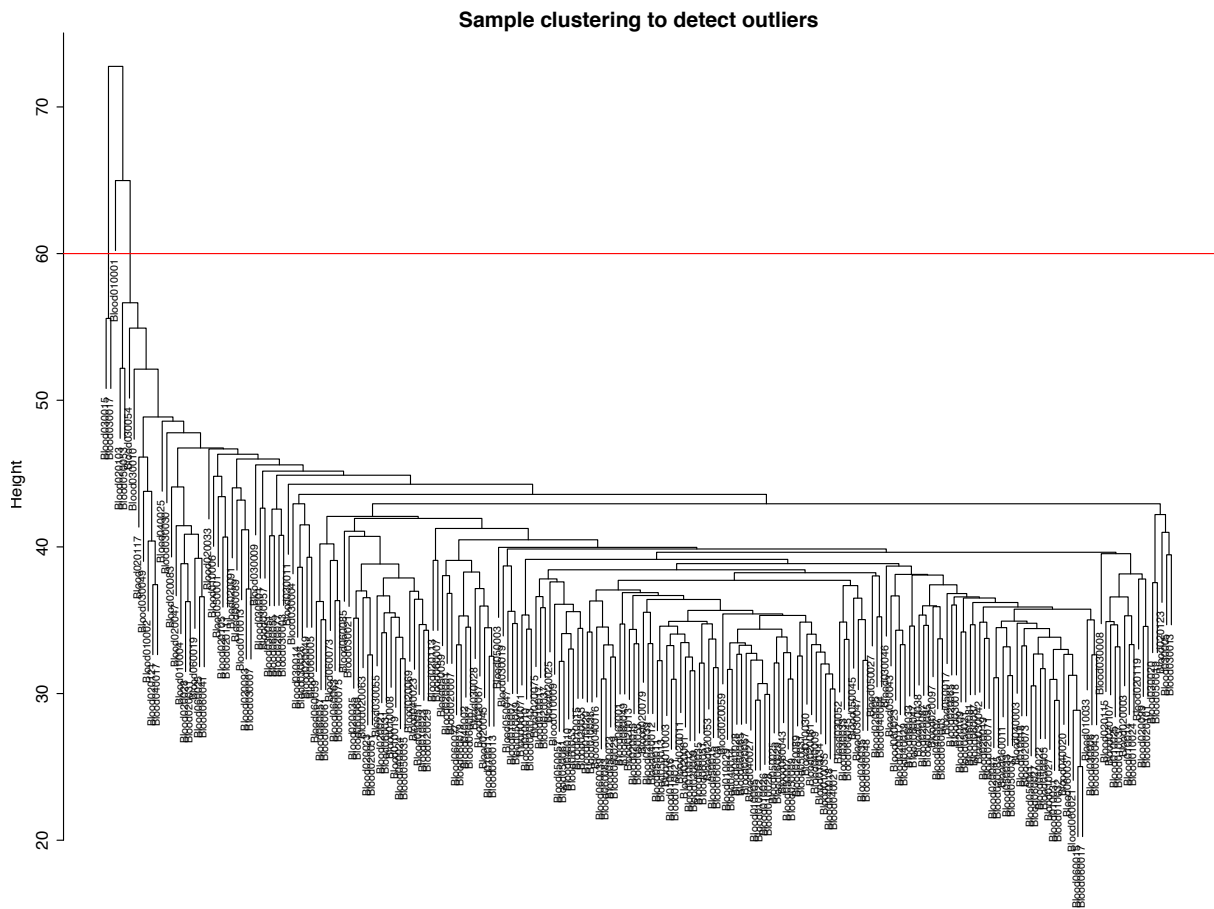**Supplementary Figure 1.** Volcano plot of differentially expressed genes (padj <0.01, LFC>1).

Supplementary Figure 2. Outlier detected by sample clustering (WGCNA).

Sample clustering to detect outliers

Supplementary Figure 3. Principal component analysis of herd effect. A) with herd effect, B)

herd effect removed