**Supplementary Table 1.** All identified clusters with the average value of |log2(fold change)| in different growth conditions

**Supplementary Table 2.** The list of coexpressed genes including potential TFs in each cluster, annotated by COG categories, GO terms, KEGG Orthology with predicted operon number

**Supplementary Table 3.** The list of coexpressed genes from *M.alcaliphilum* 20ZR including potential TFs with their orthologs from *M.buryatense* 5GB1

**Supplementary Table 4**. Ratio of genes under the control of a each regulator in each cluster to the cluster size

**Supplementary Table 5.** Reproduction of GCN-based clusters in GRN

**Supplementary Table 6.** The average operon completeness for each cluster

**Supplementary Table 7.** Differential gene expression results in three growth conditions

*Legend for each Supplementary Table is represented left of the spreadsheet except Supplementary Table 1.*