

Supplemental material

TABLE S1 Jaccard's similarity coefficients between any two samples.

TABLE S2 Abundances of all orders in each sample. The abundance is presented in terms of percentages of the total sequences in a sample.

TABLE S3 Abundances of all families in each sample. The abundance is presented in terms of percentages of the total sequences in a sample.

TABLE S4 Rare families within each sample

TABLE S5 Abundances of all genera in each sample. The abundance is presented in terms of percentages of the total sequences in a sample.

Table S6 Rare genera within each sample.

Figure S1 Rarefaction curves of 14 activated sludge samples at cutoff levels of 3% (a) and 5% (b). The rarefaction curve, plotting the number of observed OTUs as a function of the number of sequences, was computed using RDP Pyrosequencing Pipeline Rarefaction tool.

Figure S2 Detrended correspondence analysis (DCA) for 14 activated sludge samples.

Figure S3 FIG 2 Heat map of the 38 core orders in each sample. The core orders were the ones that were commonly shared by all activated sludge samples. The color intensity in each cell shows the percentage of an order in a sample.

Figure S4 Heat map of the 46 core families in each sample. The core families were the ones that were commonly shared by all activated sludge samples. The color intensity in each cell shows the percentage of a family in a sample.

TABLE S1 Jaccard's similarity coefficients between any two samples.

| WWTP | A1 | A2 | B | C | D1 | D2 | E1 | E2 | F | G1 | G2 | H | I |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| A2 | 0.55 | | | | | | | | | | | | |
| B | 0.51 | 0.53 | | | | | | | | | | | |
| C | 0.52 | 0.53 | 0.52 | | | | | | | | | | |
| D1 | 0.34 | 0.35 | 0.34 | 0.34 | | | | | | | | | |
| D2 | 0.30 | 0.30 | 0.29 | 0.30 | 0.47 | | | | | | | | |
| E1 | 0.33 | 0.37 | 0.33 | 0.35 | 0.31 | 0.38 | | | | | | | |
| E2 | 0.35 | 0.36 | 0.35 | 0.36 | 0.30 | 0.32 | 0.48 | | | | | | |
| F | 0.25 | 0.25 | 0.25 | 0.24 | 0.28 | 0.22 | 0.28 | 0.24 | | | | | |
| G1 | 0.38 | 0.39 | 0.39 | 0.39 | 0.49 | 0.32 | 0.32 | 0.35 | 0.27 | | | | |
| G2 | 0.30 | 0.29 | 0.30 | 0.30 | 0.33 | 0.21 | 0.21 | 0.21 | 0.26 | 0.44 | | | |
| H | 0.30 | 0.29 | 0.31 | 0.31 | 0.37 | 0.23 | 0.20 | 0.22 | 0.25 | 0.38 | 0.46 | | |
| I | 0.32 | 0.35 | 0.35 | 0.33 | 0.35 | 0.29 | 0.29 | 0.26 | 0.27 | 0.38 | 0.40 | 0.41 | |
| J | 0.23 | 0.22 | 0.24 | 0.23 | 0.29 | 0.21 | 0.28 | 0.24 | 0.26 | 0.29 | 0.33 | 0.37 | 0.35 |

TABLE S2 Abundances of all orders in each sample. The abundance is presented in terms of percentages of the total sequences in a sample.

| WWTP | A1 | A2 | B | C | D1 | D2 | E1 | E2 | F | G1 | G2 | H | I | J |
|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|
| Fusobacteriales | 0.26 | 0.16 | 0.16 | 0.30 | 0.68 | 0.96 | 0.07 | 0.01 | 0.05 | 0.02 | 0.04 | 0.12 | 0.08 | 0.10 |
| Caldisericales | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 |
| Acidimicrobiales | 0.05 | 0.03 | 0.16 | 0.06 | 0.04 | 0.06 | 0.54 | 0.15 | 0.16 | 0.66 | 0.66 | 0.64 | 0.59 | 0.62 |
| Rubrobaetales | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| Solirubrobaetales | 0.03 | 0.00 | 0.02 | 0.02 | 0.00 | 0.07 | 0.00 | 0.06 | 0.19 | 0.33 | 0.43 | 0.35 | 0.33 | 0.40 |
| Actinomycetales | 0.20 | 0.25 | 0.48 | 0.21 | 0.21 | 0.17 | 0.19 | 0.15 | 0.12 | 0.20 | 0.52 | 0.42 | 0.44 | 0.42 |
| Bifidobacteriales | 0.12 | 0.37 | 0.32 | 0.34 | 0.03 | 0.20 | 0.29 | 0.07 | 0.21 | 0.02 | 0.04 | 0.07 | 0.11 | 0.23 |
| Coriobacteriales | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.01 | 0.01 |
| Spirochaetales | 0.95 | 0.16 | 0.73 | 0.98 | 0.61 | 0.87 | 0.58 | 0.04 | 0.12 | 0.09 | 0.14 | 0.12 | 0.11 | 0.29 |
| Bacteroidales | 2.78 | 0.53 | 1.15 | 2.56 | 3.12 | 0.67 | 1.04 | 0.43 | 0.40 | 0.65 | 1.79 | 1.77 | 1.73 | 2.29 |
| Sphingobacteriales | 37.79 | 11.76 | 17.23 | 39.84 | 41.52 | 15.01 | 11.51 | 65.48 | 14.29 | 9.54 | 18.52 | 18.03 | 17.61 | 18.90 |
| Flavobacteriales | 7.74 | 2.17 | 2.29 | 5.08 | 4.01 | 1.76 | 1.99 | 1.35 | 1.28 | 0.30 | 1.51 | 1.33 | 1.39 | 1.44 |
| Campylobacteriales | 0.49 | 0.00 | 0.09 | 0.52 | 0.21 | 0.26 | 0.03 | 0.01 | 0.00 | 0.00 | 0.06 | 0.01 | 0.03 | 0.03 |
| Syntrophobacteriales | 0.03 | 0.03 | 0.02 | 0.00 | 0.01 | 0.02 | 0.07 | 0.05 | 0.05 | 0.07 | 0.01 | 0.10 | 0.11 | 0.09 |
| Desulfovibrionales | 0.19 | 0.03 | 0.18 | 0.11 | 0.21 | 0.11 | 0.07 | 0.00 | 0.02 | 0.18 | 0.08 | 0.03 | 0.04 | 0.03 |
| Bdellovibrionales | 0.56 | 0.96 | 0.41 | 0.63 | 0.28 | 0.71 | 0.12 | 0.05 | 0.28 | 0.09 | 0.23 | 0.25 | 0.23 | 0.22 |
| Desulfuromonadales | 0.07 | 0.06 | 0.16 | 0.09 | 0.07 | 0.02 | 0.12 | 0.00 | 0.09 | 0.04 | 0.03 | 0.01 | 0.04 | 0.01 |
| Desulfobacteriales | 0.20 | 0.06 | 0.55 | 0.18 | 0.23 | 0.45 | 0.19 | 0.04 | 0.26 | 0.15 | 0.23 | 0.25 | 0.18 | 0.24 |
| Myxococcales | 3.48 | 2.54 | 4.12 | 5.18 | 3.03 | 9.50 | 5.57 | 0.86 | 2.12 | 4.95 | 2.01 | 1.97 | 1.51 | 1.93 |
| Nitrosomonadales | 0.41 | 1.40 | 0.44 | 0.08 | 0.00 | 0.22 | 0.27 | 0.07 | 1.47 | 0.09 | 0.43 | 0.48 | 0.41 | 0.29 |
| Burkholderiales | 2.40 | 4.40 | 6.92 | 4.15 | 4.43 | 7.94 | 14.42 | 4.49 | 6.91 | 7.94 | 3.96 | 4.72 | 3.71 | 2.61 |
| Hydrogenophilales | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.33 | 0.04 | 0.08 | 0.03 | 0.06 | 0.01 |
| Methylophilales | 0.00 | 0.00 | 0.00 | 0.56 | 0.11 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | 0.16 | 0.18 | 0.01 |
| Neisseriales | 0.20 | 0.31 | 0.34 | 0.02 | 0.07 | 0.09 | 0.49 | 0.14 | 2.68 | 0.37 | 0.28 | 0.45 | 0.14 | 0.12 |

| | | | | | | | | | | | | | | |
|------------------------|------|-------|------|------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| Ignavibacteriales | 0.05 | 1.05 | 0.09 | 0.27 | 0.33 | 0.06 | 0.89 | 0.07 | 3.49 | 1.73 | 0.59 | 0.41 | 0.48 | 0.69 |
| Holophagales | 0.10 | 0.00 | 0.09 | 0.00 | 0.04 | 0.07 | 0.03 | 0.09 | 0.35 | 0.09 | 0.01 | 0.01 | 0.04 | 0.07 |
| Natranaerobiales | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| Clostridiales | 3.51 | 1.05 | 2.52 | 1.49 | 1.23 | 1.86 | 4.43 | 0.53 | 1.56 | 0.46 | 9.19 | 9.80 | 9.46 | 11.47 |
| Thermoanaerobacterales | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.03 | 0.01 |
| Lactobacillales | 0.67 | 0.28 | 0.89 | 0.34 | 2.27 | 0.63 | 0.43 | 0.30 | 0.47 | 2.88 | 0.96 | 0.87 | 0.89 | 0.94 |
| Bacillales | 0.72 | 1.24 | 0.66 | 0.63 | 0.42 | 0.19 | 0.26 | 0.52 | 3.44 | 2.75 | 1.43 | 1.33 | 1.40 | 1.55 |
| Erysipelotrichales | 0.09 | 0.00 | 0.02 | 0.06 | 0.00 | 0.02 | 0.00 | 0.01 | 0.02 | 0.04 | 0.00 | 0.03 | 0.06 | 0.07 |
| Deinococcales | 0.00 | 0.03 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.01 | 0.01 | 0.03 | 0.03 |
| Thermales | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 |
| Synergistales | 0.19 | 0.09 | 0.34 | 0.11 | 0.16 | 0.15 | 0.19 | 0.11 | 0.09 | 0.15 | 0.72 | 0.84 | 0.88 | 1.11 |
| Puniceicoccales | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.01 |
| Opitutales | 0.43 | 1.67 | 0.41 | 0.90 | 0.31 | 0.67 | 0.27 | 0.02 | 0.07 | 0.02 | 0.07 | 0.04 | 0.14 | 0.12 |
| Verrucomicrobiales | 1.52 | 10.48 | 3.85 | 8.36 | 10.21 | 11.62 | 7.47 | 0.22 | 8.59 | 1.51 | 1.82 | 2.20 | 2.23 | 2.22 |
| Planctomycetales | 2.46 | 11.29 | 3.34 | 2.26 | 1.05 | 1.43 | 1.29 | 1.08 | 10.14 | 8.53 | 2.64 | 3.04 | 2.56 | 2.94 |
| Phycisphaerales | 0.00 | 1.49 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 | 0.28 | 0.15 | 0.04 | 0.03 | 0.01 | 0.04 |
| Victivallales | 0.03 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 | 0.00 |
| Anaerolineales | 3.22 | 0.71 | 8.18 | 7.97 | 3.72 | 8.52 | 11.53 | 4.67 | 4.40 | 21.22 | 27.10 | 23.49 | 28.11 | 26.77 |
| Sphaerobacterales | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.01 |
| Caldilineales | 0.29 | 0.65 | 1.15 | 0.95 | 1.74 | 0.33 | 0.32 | 0.22 | 0.86 | 2.95 | 1.09 | 1.22 | 1.17 | 1.61 |
| Chlamydiales | 0.97 | 1.46 | 0.55 | 0.61 | 0.30 | 0.74 | 0.49 | 0.15 | 3.51 | 2.03 | 0.56 | 0.83 | 0.59 | 0.59 |
| Methanobacteriales | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 |
| Methanosarcinales | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.01 | 0.07 | 0.06 |
| Methanomicrobiales | 0.09 | 0.09 | 0.07 | 0.05 | 0.01 | 0.06 | 0.03 | 0.04 | 0.07 | 0.20 | 0.22 | 0.33 | 0.56 | 0.52 |

TABLE S3 Abundances of all families in each sample. The abundance is presented in terms of percentages of the total sequences in a sample.

| WWTP | A1 | A2 | B | C | D1 | D2 | E1 | E2 | F | G1 | G2 | H | I | J |
|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Leptotrichiaceae | 0.17 | 0.00 | 0.16 | 0.21 | 0.79 | 0.96 | 0.08 | 0.00 | 0.03 | 0.00 | 0.05 | 0.10 | 0.10 | 0.10 |
| Fusobacteriaceae | 0.15 | 0.19 | 0.03 | 0.18 | 0.07 | 0.15 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 | 0.02 |
| Caldiseriaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Acidimicrobinae_incertae_sedis | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.12 | 0.04 | 0.05 | 0.20 | 0.05 | 0.05 | 0.06 | 0.14 |
| Acidimicrobiaceae | 0.02 | 0.00 | 0.11 | 0.02 | 0.04 | 0.04 | 0.14 | 0.07 | 0.03 | 0.29 | 0.23 | 0.21 | 0.05 | 0.17 |
| Iamiaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 |
| Rubroacteraceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Conexibacteraceae | 0.04 | 0.00 | 0.00 | 0.02 | 0.00 | 0.09 | 0.00 | 0.06 | 0.11 | 0.04 | 0.29 | 0.24 | 0.26 | 0.29 |
| Solirubroacteraceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.02 | 0.03 | 0.03 | 0.06 | 0.10 |
| Pseudonocardiaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Intrasporangiaceae | 0.00 | 0.00 | 0.08 | 0.02 | 0.07 | 0.00 | 0.02 | 0.04 | 0.00 | 0.02 | 0.11 | 0.02 | 0.03 | 0.02 |
| Micrococcaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Beutenbergiaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Dermabacteraceae | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 |
| Microbacteriaceae | 0.00 | 0.04 | 0.03 | 0.00 | 0.00 | 0.02 | 0.02 | 0.03 | 0.00 | 0.00 | 0.00 | 0.02 | 0.06 | 0.02 |
| Sanguibacteraceae | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Sporichthyaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Geodermatophilaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Nakamurellaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Actinomycetaceae | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.03 | 0.00 | 0.03 | 0.03 |
| Nocardiaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 |
| Mycobacteriaceae | 0.00 | 0.00 | 0.00 | 0.10 | 0.04 | 0.02 | 0.00 | 0.00 | 0.03 | 0.09 | 0.07 | 0.02 | 0.08 | 0.03 |
| Corynebacteriaceae | 0.00 | 0.04 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 |
| Nocardioidaceae | 0.15 | 0.04 | 0.27 | 0.02 | 0.04 | 0.13 | 0.04 | 0.04 | 0.05 | 0.00 | 0.23 | 0.16 | 0.14 | 0.17 |

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|----------------------|-------|------|------|-------|-------|------|------|-------|-------|------|-------|-------|------|------|
| Micromonosporaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Bifidobacteriaceae | 0.15 | 0.47 | 0.38 | 0.43 | 0.04 | 0.24 | 0.33 | 0.09 | 0.25 | 0.02 | 0.05 | 0.09 | 0.13 | 0.28 |
| Coriobacteriaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 |
| Spirochaetaceae | 0.04 | 0.00 | 0.03 | 0.00 | 0.04 | 0.06 | 0.08 | 0.00 | 0.03 | 0.00 | 0.02 | 0.00 | 0.02 | 0.03 |
| Leptospiraceae | 1.11 | 0.19 | 0.85 | 1.25 | 0.76 | 0.94 | 0.53 | 0.04 | 0.11 | 0.11 | 0.15 | 0.12 | 0.11 | 0.31 |
| Rikenellaceae | 0.04 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.02 | 0.02 | 0.00 | 0.02 | 0.02 |
| Marinilabiaceae | 0.21 | 0.04 | 0.03 | 0.06 | 0.15 | 0.04 | 0.08 | 0.00 | 0.05 | 0.00 | 0.03 | 0.03 | 0.03 | 0.02 |
| Prevotellaceae | 0.38 | 0.00 | 0.30 | 0.06 | 0.61 | 0.11 | 0.06 | 0.01 | 0.00 | 0.04 | 0.03 | 0.05 | 0.03 | 0.00 |
| Bacteroidaceae | 0.55 | 0.08 | 0.16 | 0.98 | 0.70 | 0.09 | 0.08 | 0.04 | 0.03 | 0.11 | 0.08 | 0.00 | 0.05 | 0.10 |
| Porphyromonadaceae | 1.70 | 0.47 | 0.47 | 1.99 | 2.23 | 0.47 | 0.90 | 0.37 | 0.33 | 0.20 | 1.16 | 1.06 | 1.04 | 1.49 |
| Saprosiraceae | 2.58 | 0.62 | 2.94 | 19.60 | 10.54 | 4.05 | 1.81 | 3.77 | 0.82 | 0.53 | 2.67 | 2.23 | 2.51 | 3.01 |
| Cyclobacteriaceae | 0.00 | 0.00 | 0.03 | 0.02 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Rhodothermaceae | 0.02 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 |
| Cytophagaceae | 0.10 | 0.43 | 0.25 | 0.76 | 0.13 | 0.09 | 0.00 | 0.01 | 0.03 | 0.00 | 0.03 | 0.03 | 0.05 | 0.02 |
| Flammeovirgaceae | 0.99 | 1.01 | 0.16 | 0.06 | 0.09 | 0.00 | 0.00 | 0.12 | 0.41 | 0.24 | 0.03 | 0.09 | 0.08 | 0.12 |
| Sphingobacteriaceae | 0.61 | 0.58 | 0.55 | 0.59 | 1.75 | 0.09 | 0.08 | 0.06 | 0.03 | 0.13 | 0.07 | 0.03 | 0.13 | 0.14 |
| Chitinophagaceae | 27.85 | 7.70 | 7.19 | 12.63 | 17.64 | 8.77 | 6.08 | 59.26 | 11.03 | 2.37 | 11.60 | 11.62 | 9.94 | 9.72 |
| Cryomorphaceae | 3.15 | 0.70 | 0.63 | 2.73 | 1.92 | 1.01 | 0.94 | 0.70 | 0.60 | 0.15 | 0.59 | 0.58 | 0.40 | 0.33 |
| Flavobacteriaceae | 4.85 | 1.21 | 1.46 | 0.43 | 1.70 | 0.43 | 0.16 | 0.12 | 0.11 | 0.09 | 0.77 | 0.56 | 0.67 | 0.93 |
| Helicobacteraceae | 0.08 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Campylobacteraceae | 0.52 | 0.00 | 0.11 | 0.57 | 0.28 | 0.30 | 0.04 | 0.01 | 0.00 | 0.00 | 0.07 | 0.02 | 0.03 | 0.02 |
| Syntrophaceae | 0.04 | 0.00 | 0.03 | 0.00 | 0.02 | 0.02 | 0.08 | 0.06 | 0.05 | 0.09 | 0.00 | 0.07 | 0.10 | 0.10 |
| Syntrophobacteraceae | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.05 | 0.03 | 0.00 |
| Desulfomicrobiaceae | 0.21 | 0.04 | 0.19 | 0.06 | 0.07 | 0.04 | 0.06 | 0.00 | 0.03 | 0.09 | 0.05 | 0.02 | 0.02 | 0.00 |
| Desulfovibrionaceae | 0.02 | 0.00 | 0.03 | 0.04 | 0.20 | 0.09 | 0.02 | 0.00 | 0.00 | 0.11 | 0.02 | 0.02 | 0.03 | 0.03 |
| Bdellovibrionaceae | 0.67 | 1.13 | 0.22 | 0.64 | 0.33 | 0.36 | 0.14 | 0.06 | 0.22 | 0.11 | 0.28 | 0.28 | 0.27 | 0.22 |

| | | | | | | | | | | | | | | |
|--------------------------------|------|-------|-------|------|------|-------|-------|------|------|------|------|------|------|------|
| Bacteriovoraceae | 0.02 | 0.08 | 0.27 | 0.16 | 0.04 | 0.45 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.02 | 0.00 | 0.03 |
| Desulfuromonadaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 |
| Geobacteraceae | 0.08 | 0.08 | 0.19 | 0.12 | 0.07 | 0.02 | 0.14 | 0.00 | 0.11 | 0.04 | 0.00 | 0.00 | 0.02 | 0.02 |
| Syntrophorhabdaceae | 0.23 | 0.00 | 0.11 | 0.00 | 0.02 | 0.02 | 0.12 | 0.00 | 0.08 | 0.07 | 2.17 | 2.33 | 3.05 | 3.30 |
| Desulfobulbaceae | 0.19 | 0.04 | 0.47 | 0.18 | 0.29 | 0.45 | 0.12 | 0.01 | 0.14 | 0.09 | 0.24 | 0.26 | 0.16 | 0.26 |
| Desulfobacteraceae | 0.06 | 0.04 | 0.19 | 0.06 | 0.00 | 0.06 | 0.10 | 0.03 | 0.14 | 0.09 | 0.03 | 0.03 | 0.05 | 0.03 |
| Cystobacteraceae | 0.25 | 0.31 | 0.69 | 0.45 | 0.11 | 0.34 | 0.20 | 0.09 | 0.27 | 2.53 | 0.20 | 0.24 | 0.13 | 0.29 |
| Myxococcaceae | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.09 | 0.02 | 0.03 | 0.02 | 0.00 |
| Kofleriaceae | 0.02 | 0.04 | 0.03 | 0.02 | 0.04 | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| Nannocystaceae | 0.08 | 0.35 | 0.19 | 0.61 | 1.60 | 0.88 | 0.79 | 0.04 | 0.00 | 0.00 | 0.52 | 0.40 | 0.32 | 0.12 |
| Haliangiaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.06 | 0.00 | 0.00 | 0.02 | 0.00 | 0.05 | 0.06 | 0.02 |
| Phaselicystidaceae | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.15 | 0.00 | 0.00 | 0.00 | 0.02 |
| Polyangiaceae | 0.90 | 1.13 | 0.69 | 2.03 | 0.66 | 2.06 | 1.77 | 0.12 | 0.46 | 1.10 | 0.36 | 0.47 | 0.34 | 0.40 |
| Nitrosomonadaceae | 0.50 | 1.75 | 0.52 | 0.10 | 0.00 | 0.26 | 0.31 | 0.09 | 1.72 | 0.11 | 0.51 | 0.56 | 0.48 | 0.35 |
| Burkholderiales_incertae_sedis | 1.34 | 0.89 | 2.64 | 1.42 | 1.58 | 3.34 | 4.56 | 1.01 | 1.47 | 2.06 | 1.16 | 1.24 | 0.96 | 0.80 |
| Sutterellaceae | 0.00 | 0.00 | 0.03 | 0.04 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Burkholderiaceae | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Alcaligenaceae | 0.13 | 0.12 | 0.33 | 0.04 | 0.07 | 0.09 | 0.12 | 0.15 | 0.22 | 0.11 | 0.10 | 0.14 | 0.16 | 0.10 |
| Oxalobacteraceae | 0.02 | 0.23 | 0.00 | 0.02 | 0.11 | 0.06 | 0.06 | 0.03 | 0.05 | 0.02 | 0.02 | 0.00 | 0.05 | 0.02 |
| Comamonadaceae | 0.82 | 2.60 | 3.43 | 2.17 | 2.80 | 4.61 | 9.09 | 2.92 | 3.57 | 2.68 | 2.09 | 2.84 | 2.12 | 1.28 |
| Hydrogenophilaceae | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.38 | 0.04 | 0.10 | 0.03 | 0.06 | 0.02 |
| Methylophilaceae | 0.00 | 0.00 | 0.00 | 0.72 | 0.15 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.26 | 0.19 | 0.21 | 0.02 |
| Neisseriaceae | 0.25 | 0.39 | 0.41 | 0.02 | 0.09 | 0.11 | 0.57 | 0.16 | 3.13 | 0.44 | 0.33 | 0.54 | 0.16 | 0.14 |
| Rhodocyclaceae | 8.71 | 11.04 | 11.34 | 2.93 | 6.51 | 16.27 | 13.89 | 3.16 | 7.08 | 6.06 | 4.30 | 5.37 | 3.76 | 2.34 |
| Bradyrhizobiaceae | 1.97 | 1.09 | 2.11 | 0.57 | 0.33 | 0.73 | 0.31 | 0.61 | 1.99 | 1.19 | 2.35 | 1.85 | 2.07 | 2.08 |
| Rhizobiaceae | 0.04 | 0.04 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.07 | 0.08 | 0.18 | 0.11 | 0.07 | 0.13 | 0.09 |

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|--------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Methylocystaceae | 0.08 | 0.04 | 0.27 | 0.00 | 0.07 | 0.04 | 0.04 | 0.18 | 0.14 | 0.18 | 0.23 | 0.31 | 0.40 | 0.26 |
| Beijerinckiaceae | 0.00 | 0.04 | 0.08 | 0.06 | 0.02 | 0.04 | 0.02 | 0.04 | 0.08 | 0.15 | 0.07 | 0.10 | 0.08 | 0.19 |
| Phyllobacteriaceae | 0.08 | 0.12 | 0.03 | 0.00 | 0.13 | 0.02 | 0.02 | 0.01 | 0.16 | 0.07 | 0.08 | 0.05 | 0.02 | 0.03 |
| Rhodobiaceae | 0.04 | 0.19 | 0.00 | 0.02 | 0.02 | 0.02 | 0.10 | 0.10 | 0.11 | 0.11 | 0.24 | 0.26 | 0.27 | 0.28 |
| Brucellaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Rhizobiales_incertae_sedis | 0.02 | 0.08 | 0.03 | 0.00 | 0.02 | 0.06 | 0.02 | 0.01 | 0.11 | 0.13 | 0.03 | 0.03 | 0.03 | 0.09 |
| Xanthobacteraceae | 0.00 | 0.19 | 0.22 | 0.16 | 0.00 | 0.11 | 0.02 | 0.04 | 0.08 | 0.02 | 0.29 | 0.12 | 0.14 | 0.05 |
| Methylobacteriaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Hyphomicrobiaceae | 2.18 | 0.54 | 4.34 | 2.05 | 0.79 | 0.49 | 0.73 | 1.74 | 2.23 | 6.65 | 6.24 | 6.15 | 6.02 | 5.05 |
| Aurantimonadaceae | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Parvularculaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 |
| Hyphomonadaceae | 0.04 | 0.04 | 0.03 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.07 | 0.07 | 0.03 | 0.00 | 0.00 |
| Caulobacteraceae | 0.90 | 0.70 | 1.81 | 0.72 | 1.09 | 0.66 | 0.24 | 1.16 | 1.09 | 0.77 | 0.51 | 0.64 | 0.55 | 0.40 |
| Anaplasmataceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rickettsiaceae | 0.23 | 0.04 | 0.11 | 0.16 | 0.26 | 0.00 | 0.02 | 0.00 | 0.11 | 0.24 | 0.00 | 0.02 | 0.05 | 0.03 |
| Sphingomonadaceae | 3.61 | 0.78 | 4.75 | 0.45 | 2.88 | 0.86 | 0.49 | 2.01 | 2.67 | 8.23 | 2.10 | 2.68 | 2.54 | 2.35 |
| Erythrobacteraceae | 0.02 | 0.00 | 0.05 | 0.02 | 0.00 | 0.00 | 0.00 | 0.04 | 0.05 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 |
| Rhodospirillaceae | 0.63 | 7.12 | 0.82 | 0.82 | 0.17 | 0.17 | 0.69 | 0.07 | 1.44 | 1.27 | 0.41 | 0.54 | 0.40 | 0.17 |
| Acetobacteraceae | 0.78 | 2.76 | 1.59 | 0.90 | 0.15 | 1.11 | 0.41 | 0.37 | 3.54 | 1.93 | 0.55 | 0.71 | 0.39 | 0.35 |
| Rhodobacteraceae | 2.16 | 1.13 | 5.13 | 1.25 | 1.66 | 2.02 | 0.73 | 2.38 | 1.42 | 1.67 | 2.75 | 3.28 | 3.08 | 2.61 |
| Pseudomonadales_incertae_sedis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 |
| Moraxellaceae | 1.66 | 1.28 | 3.93 | 3.77 | 1.99 | 2.34 | 2.20 | 0.25 | 0.25 | 0.11 | 0.77 | 0.52 | 0.61 | 1.12 |
| Pseudomonadaceae | 0.06 | 0.08 | 0.05 | 0.06 | 0.07 | 0.34 | 0.10 | 0.03 | 0.08 | 0.04 | 0.08 | 0.05 | 0.02 | 0.05 |
| Chromatiaceae | 0.00 | 0.12 | 0.16 | 0.06 | 0.02 | 0.04 | 0.45 | 0.10 | 0.46 | 0.04 | 0.18 | 0.21 | 0.11 | 0.09 |
| Ectothiorhodospiraceae | 0.00 | 0.00 | 0.03 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.05 | 0.00 | 0.00 |
| Halothiobacillaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |

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|------------------------------|------|------|------|------|------|-------|-------|------|------|------|------|------|------|------|
| Hahellaceae | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.02 | 0.00 | 0.00 | 0.00 |
| Oceanospirillaceae | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.02 |
| Legionellaceae | 0.06 | 0.31 | 0.08 | 0.16 | 0.24 | 0.84 | 0.10 | 0.03 | 0.08 | 0.07 | 0.07 | 0.10 | 0.06 | 0.05 |
| Coxiellaceae | 0.44 | 0.12 | 0.38 | 0.02 | 0.02 | 0.09 | 0.08 | 0.01 | 1.53 | 0.07 | 0.11 | 0.31 | 0.16 | 0.12 |
| Enterobacteriaceae | 0.02 | 0.00 | 0.08 | 0.02 | 0.07 | 0.04 | 0.04 | 0.06 | 0.16 | 0.02 | 0.02 | 0.05 | 0.02 | 0.02 |
| Sinobacteraceae | 0.00 | 0.08 | 0.11 | 0.10 | 0.02 | 0.02 | 0.14 | 0.06 | 1.80 | 0.77 | 0.20 | 0.33 | 0.27 | 0.12 |
| Xanthomonadaceae | 6.47 | 6.92 | 8.43 | 2.01 | 6.87 | 12.01 | 16.76 | 7.98 | 4.03 | 1.38 | 2.26 | 2.30 | 2.10 | 2.16 |
| Aeromonadaceae | 0.02 | 0.04 | 0.27 | 0.00 | 0.07 | 0.04 | 0.12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.05 | 0.00 |
| Succinivibrionaceae | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Alteromonadaceae | 0.04 | 0.04 | 0.03 | 0.57 | 0.11 | 0.00 | 0.16 | 0.00 | 0.27 | 0.00 | 0.02 | 0.05 | 0.00 | 0.05 |
| Methylococcaceae | 0.76 | 0.04 | 0.22 | 0.64 | 0.07 | 0.04 | 0.10 | 0.19 | 1.53 | 0.55 | 0.15 | 0.30 | 0.21 | 0.22 |
| Thiotrichales_incertae_sedis | 0.02 | 0.00 | 0.00 | 0.21 | 0.02 | 0.00 | 0.00 | 0.01 | 0.03 | 0.00 | 0.03 | 0.03 | 0.08 | 0.02 |
| Thiotrichaceae | 0.00 | 0.04 | 0.03 | 0.23 | 0.07 | 0.00 | 0.02 | 0.01 | 0.11 | 0.02 | 0.00 | 0.07 | 0.06 | 0.07 |
| Family II | 0.08 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 |
| Family XIII | 0.04 | 0.00 | 0.03 | 0.04 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Family XI | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Family IV | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Chloroplast | 0.36 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.02 | 0.05 |
| Chthonomonadaceae | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Armatimonadaceae | 0.08 | 0.04 | 0.11 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.03 | 0.09 | 0.03 | 0.00 | 0.02 | 0.05 |
| Thermotogaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.02 | 0.00 | 0.02 | 0.02 | 0.02 |
| Nitrospiraceae | 0.10 | 0.39 | 0.03 | 0.02 | 0.00 | 0.04 | 0.10 | 0.00 | 0.03 | 0.13 | 0.07 | 0.12 | 0.11 | 0.12 |
| Gemmatimonadaceae | 0.29 | 3.15 | 0.80 | 0.21 | 0.11 | 0.51 | 1.30 | 0.01 | 0.14 | 0.15 | 0.11 | 0.26 | 0.29 | 0.19 |
| Ignavibacteriaceae | 0.06 | 1.32 | 0.11 | 0.35 | 0.42 | 0.06 | 1.02 | 0.09 | 4.08 | 2.06 | 0.70 | 0.49 | 0.56 | 0.83 |
| Holophagaceae | 0.13 | 0.00 | 0.11 | 0.00 | 0.06 | 0.09 | 0.04 | 0.10 | 0.41 | 0.11 | 0.02 | 0.02 | 0.05 | 0.09 |
| Natranaerobiaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |

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|-----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Clostridiales_incertae_sedis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.02 | 0.00 | 0.02 |
| Clostridiales_Incertae Sedis XII | 0.57 | 0.16 | 0.14 | 0.06 | 0.07 | 0.02 | 0.02 | 0.00 | 0.03 | 0.02 | 0.18 | 0.07 | 0.14 | 0.10 |
| Peptococcaceae 1 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.07 | 0.06 | 0.03 |
| Clostridiales_Incertae Sedis XIII | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 | 0.03 | 0.02 | 0.05 |
| Peptococcaceae 2 | 0.00 | 0.04 | 0.03 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 | 0.02 | 0.21 | 0.42 | 0.58 | 0.43 |
| Clostridiaceae 4 | 0.02 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Veillonellaceae | 0.08 | 0.00 | 0.05 | 0.08 | 0.18 | 0.13 | 0.16 | 0.04 | 0.14 | 0.04 | 0.08 | 0.12 | 0.06 | 0.19 |
| Clostridiaceae 1 | 0.08 | 0.08 | 0.03 | 0.02 | 0.04 | 0.04 | 0.04 | 0.00 | 0.11 | 0.02 | 0.31 | 0.19 | 0.35 | 0.19 |
| Lachnospiraceae | 0.17 | 0.04 | 0.27 | 0.20 | 0.28 | 0.21 | 0.75 | 0.10 | 0.05 | 0.02 | 0.20 | 0.07 | 0.11 | 0.16 |
| Clostridiaceae 2 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.08 | 0.05 | 0.03 | 0.00 |
| Clostridiales_Incertae Sedis XI | 0.36 | 0.00 | 0.11 | 0.02 | 0.00 | 0.06 | 0.02 | 0.00 | 0.03 | 0.00 | 0.72 | 0.66 | 0.82 | 1.30 |
| Syntrophomonadaceae | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.28 | 0.28 | 0.47 | 0.52 |
| Ruminococcaceae | 1.36 | 0.08 | 0.82 | 0.33 | 0.53 | 0.62 | 2.54 | 0.16 | 0.27 | 0.07 | 0.60 | 0.58 | 0.53 | 0.93 |
| Incertae Sedis XI | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| Eubacteriaceae | 0.06 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.11 | 0.16 | 0.14 | 0.22 |
| Peptostreptococcaceae | 0.38 | 0.12 | 0.33 | 0.49 | 0.11 | 0.11 | 0.28 | 0.00 | 0.25 | 0.09 | 1.84 | 1.57 | 1.82 | 2.44 |
| Gracilibacteraceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 |
| Thermodesulfofiaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 |
| Thermoanaerobacteraceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 |
| Streptococcaceae | 0.23 | 0.16 | 0.22 | 0.23 | 2.69 | 0.49 | 0.12 | 0.13 | 0.11 | 0.79 | 0.11 | 0.14 | 0.22 | 0.16 |
| Aerococcaceae | 0.02 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 | 0.02 | 0.02 | 0.02 | 0.00 |
| Leuconostocaceae | 0.02 | 0.00 | 0.00 | 0.00 | 0.04 | 0.02 | 0.00 | 0.00 | 0.03 | 0.00 | 0.03 | 0.03 | 0.00 | 0.03 |
| Carnobacteriaceae | 0.50 | 0.16 | 0.77 | 0.16 | 0.18 | 0.19 | 0.33 | 0.19 | 0.33 | 2.59 | 0.90 | 0.80 | 0.71 | 0.81 |
| Lactobacillaceae | 0.04 | 0.04 | 0.05 | 0.04 | 0.04 | 0.02 | 0.02 | 0.01 | 0.05 | 0.04 | 0.05 | 0.02 | 0.08 | 0.10 |
| Bacillaceae 1 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pasteuriaceae | 0.88 | 1.48 | 0.80 | 0.80 | 0.55 | 0.21 | 0.28 | 0.57 | 4.03 | 3.21 | 1.60 | 1.45 | 1.59 | 1.75 |

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|-----------------------------------|------|-------|------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|-------|
| Staphylococcaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 |
| Thermoactinomycetaceae 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 |
| Bacillales_Incertae Sedis XI | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Erysipelotrichaceae | 0.10 | 0.00 | 0.03 | 0.08 | 0.00 | 0.02 | 0.00 | 0.01 | 0.03 | 0.04 | 0.00 | 0.03 | 0.06 | 0.09 |
| Deinococcaceae | 0.00 | 0.04 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.02 | 0.00 | 0.03 | 0.03 |
| Trueperaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Thermaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.02 | 0.00 | 0.03 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Synergistaceae | 0.23 | 0.12 | 0.41 | 0.14 | 0.20 | 0.17 | 0.22 | 0.13 | 0.11 | 0.18 | 0.85 | 1.01 | 1.03 | 1.33 |
| Puniceicoccaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.02 |
| Opitutaceae | 0.52 | 2.10 | 0.49 | 1.15 | 0.41 | 0.77 | 0.31 | 0.03 | 0.08 | 0.02 | 0.08 | 0.05 | 0.16 | 0.14 |
| Verrucomicrobiaceae | 1.85 | 13.14 | 4.59 | 10.68 | 13.27 | 13.42 | 8.58 | 0.27 | 9.97 | 1.78 | 2.12 | 2.63 | 2.57 | 2.65 |
| Planctomycetaceae | 3.02 | 14.15 | 4.01 | 2.89 | 1.36 | 1.65 | 1.50 | 1.31 | 11.87 | 10.14 | 3.13 | 3.66 | 2.99 | 3.53 |
| Phycisphaeraceae | 0.00 | 1.87 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 | 0.33 | 0.18 | 0.05 | 0.03 | 0.02 | 0.05 |
| Victivallaceae | 0.04 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 |
| Anaerolineaceae | 3.97 | 0.89 | 9.80 | 10.21 | 4.85 | 9.84 | 13.32 | 5.64 | 5.15 | 25.25 | 32.11 | 28.26 | 32.82 | 32.18 |
| Sphaerobacteraceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 |
| Caldilineaceae | 0.36 | 0.82 | 1.37 | 1.21 | 2.27 | 0.39 | 0.37 | 0.27 | 1.01 | 3.51 | 1.29 | 1.46 | 1.37 | 1.94 |
| Parachlamydiaceae | 0.88 | 0.97 | 0.47 | 0.74 | 0.35 | 0.75 | 0.39 | 0.12 | 1.80 | 2.02 | 0.37 | 0.73 | 0.42 | 0.50 |
| Simkaniaceae | 0.21 | 0.31 | 0.11 | 0.00 | 0.04 | 0.00 | 0.02 | 0.00 | 0.25 | 0.09 | 0.03 | 0.03 | 0.10 | 0.07 |
| Methanobacteriaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 |
| Methanosaetaceae | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.02 | 0.08 | 0.07 |
| Methanospirillaceae | 0.08 | 0.08 | 0.05 | 0.06 | 0.00 | 0.02 | 0.04 | 0.00 | 0.08 | 0.07 | 0.03 | 0.05 | 0.13 | 0.12 |
| Methanomicrobiaceae | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.20 | 0.28 | 0.47 | 0.45 |
| Methanocorpusculaceae | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Methanomicrobiales_incertae_sedis | 0.02 | 0.00 | 0.03 | 0.00 | 0.00 | 0.02 | 0.00 | 0.04 | 0.00 | 0.15 | 0.03 | 0.02 | 0.06 | 0.05 |

TABLE S4 Rare families within each sample

| WWTP | Rare families |
|------|---|
| A1 | <i>Rubrobacteraceae, Natranaerobiaceae</i> |
| A2 | <i>Micrococcaceae, Nakamurellaceae, Halothiobacillaceae, Trueperaceae</i> |
| C | <i>Caldiseriaceae, Pseudonocardiaceae</i> |
| D1 | Family IV |
| D2 | <i>Sporichthyaceae, Bacillales_Incertae, Sedis XI</i> |
| E1 | <i>Micromonosporaceae</i> |
| F | <i>Aurantimonadaceae</i> |
| G1 | <i>Sanguibacteraceae, Succinivibrionaceae</i> |
| H | <i>Methanocorpusculaceae</i> |
| I | <i>Beutenbergiaceae, Geodermatophilaceae, Anaplasmataceae, Family XI</i> |

TABLE S5 Abundances of all genera in each sample. The abundance is presented in terms of percentages of the total sequences in a sample.

| WWTP | A1 | A2 | B | C | D1 | D2 | E1 | E2 | F | G1 | G2 | H | I | J |
|----------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| BRC1_genera_incertae_sedis | 0.02 | 0.18 | 0.05 | 0.02 | 0.02 | 0.00 | 0.10 | 0.00 | 0.04 | 0.02 | 0.02 | 0.00 | 0.02 | 0.02 |
| OD1_genera_incertae_sedis | 1.82 | 0.88 | 0.74 | 1.60 | 0.95 | 0.32 | 0.66 | 0.09 | 0.31 | 0.92 | 0.33 | 0.50 | 0.23 | 0.43 |
| Streptobacillus | 0.00 | 0.00 | 0.03 | 0.00 | 0.05 | 0.03 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 |
| Sneathia | 0.08 | 0.00 | 0.08 | 0.16 | 0.56 | 0.68 | 0.05 | 0.00 | 0.02 | 0.00 | 0.07 | 0.09 | 0.06 | 0.07 |
| Clostridium XIX | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| Cetobacterium | 0.02 | 0.05 | 0.03 | 0.21 | 0.10 | 0.19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.02 |
| Fusobacterium | 0.08 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Propionigenium | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Caldisericum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Aciditerrimonas | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.15 | 0.06 | 0.04 | 0.20 | 0.07 | 0.07 | 0.08 | 0.18 |
| Illumatobacter | 0.00 | 0.00 | 0.11 | 0.02 | 0.05 | 0.05 | 0.13 | 0.07 | 0.02 | 0.18 | 0.29 | 0.23 | 0.06 | 0.18 |
| Ferrimicrobium | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 | 0.02 |
| Iamia | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 |
| Rubroacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Conexibacter | 0.04 | 0.00 | 0.00 | 0.02 | 0.00 | 0.11 | 0.00 | 0.07 | 0.09 | 0.04 | 0.40 | 0.32 | 0.34 | 0.38 |
| Solirubroacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.02 | 0.04 | 0.05 | 0.08 | 0.14 |
| Pseudonocardia | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Humihabitans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Knoellia | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Fodinibacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ornithinibacter | 0.00 | 0.00 | 0.00 | 0.02 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 |
| Serinibacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Devriesea | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 |
| Herbiconiux | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |

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|---------------------------|------|------|------|-------|------|------|------|------|------|------|------|------|------|------|
| Cryobacterium | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Leucobacter | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| Sanguibacter | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Sporichthya | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Saxeibacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Actinomyces | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 |
| Actinobaculum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.02 | 0.02 |
| Rhodococcus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Gordonia | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 |
| Mycobacterium | 0.00 | 0.00 | 0.00 | 0.12 | 0.05 | 0.03 | 0.00 | 0.00 | 0.02 | 0.09 | 0.09 | 0.02 | 0.11 | 0.05 |
| Corynebacterium | 0.00 | 0.03 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| Nocardioides | 0.06 | 0.00 | 0.05 | 0.02 | 0.02 | 0.03 | 0.00 | 0.02 | 0.00 | 0.00 | 0.07 | 0.11 | 0.08 | 0.05 |
| Aeromicrobium | 0.00 | 0.00 | 0.03 | 0.00 | 0.02 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.02 | 0.02 |
| Marmoricola | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pimelobacter | 0.02 | 0.00 | 0.05 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 |
| Bifidobacterium | 0.15 | 0.30 | 0.38 | 0.51 | 0.05 | 0.30 | 0.43 | 0.11 | 0.20 | 0.02 | 0.07 | 0.11 | 0.17 | 0.36 |
| Paraeggerthella | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Asaccharobacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| TM7_genera_incertae_sedis | 0.61 | 0.03 | 0.08 | 0.35 | 0.56 | 0.46 | 0.20 | 0.24 | 0.07 | 1.54 | 0.16 | 0.34 | 0.15 | 0.09 |
| Treponema | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.05 |
| Leptospira | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Turneriella | 1.11 | 0.13 | 0.85 | 1.44 | 0.98 | 1.13 | 0.68 | 0.06 | 0.09 | 0.11 | 0.20 | 0.16 | 0.15 | 0.38 |
| Leptonema | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Marinifilum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ohtaekwangia | 0.90 | 0.50 | 0.16 | 10.85 | 3.10 | 1.27 | 0.68 | 0.11 | 0.09 | 0.20 | 0.45 | 0.61 | 0.38 | 0.18 |
| Prolixibacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |

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|-------------------|------|------|------|-------|------|------|------|------|------|------|------|------|------|------|
| Alistipes | 0.04 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 |
| Alkaliflexus | 0.17 | 0.03 | 0.03 | 0.07 | 0.15 | 0.05 | 0.10 | 0.00 | 0.02 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 |
| Marinilabilia | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Prevotella | 0.35 | 0.00 | 0.30 | 0.07 | 0.78 | 0.11 | 0.08 | 0.02 | 0.00 | 0.04 | 0.04 | 0.07 | 0.02 | 0.00 |
| Xylanibacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Paraprevotella | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Bacteroides | 0.54 | 0.05 | 0.16 | 1.16 | 0.93 | 0.11 | 0.10 | 0.06 | 0.02 | 0.11 | 0.11 | 0.00 | 0.04 | 0.14 |
| Anaerorhabdus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Proteiniphilum | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.13 | 0.11 | 0.04 | 0.07 |
| Paludibacter | 0.42 | 0.00 | 0.11 | 0.44 | 1.03 | 0.30 | 0.76 | 0.24 | 0.20 | 0.02 | 0.04 | 0.14 | 0.04 | 0.09 |
| Tannerella | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Butyricimonas | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Dysgonomonas | 0.02 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Barnesiella | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| Parabacteroides | 0.94 | 0.23 | 0.27 | 1.44 | 1.42 | 0.16 | 0.23 | 0.07 | 0.04 | 0.11 | 0.09 | 0.16 | 0.00 | 0.05 |
| Petrimonas | 0.02 | 0.00 | 0.03 | 0.00 | 0.02 | 0.03 | 0.00 | 0.02 | 0.02 | 0.00 | 1.22 | 0.79 | 1.21 | 1.61 |
| Odoribacter | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lewinella | 1.23 | 0.15 | 1.13 | 3.31 | 3.15 | 0.81 | 0.68 | 2.92 | 0.40 | 0.09 | 1.05 | 0.65 | 0.91 | 1.11 |
| Haliscomenobacter | 0.88 | 0.23 | 1.10 | 15.64 | 2.64 | 1.97 | 0.63 | 0.39 | 0.13 | 0.31 | 1.00 | 0.88 | 1.10 | 1.63 |
| Salisaeta | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 |
| Leadbetterella | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Meniscus | 0.00 | 0.00 | 0.11 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.04 | 0.02 |
| Cytophaga | 0.04 | 0.15 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Flectobacillus | 0.02 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Larkinella | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Runella | 0.00 | 0.05 | 0.05 | 0.81 | 0.10 | 0.08 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |

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|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Myroides | 1.06 | 0.00 | 0.27 | 0.00 | 0.05 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.11 | 0.05 | 0.04 | 0.02 |
| Wolinella | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Sulfurovum | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Sulfuricurvum | 0.06 | 0.00 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Campylobacter | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Arcobacter | 0.50 | 0.00 | 0.11 | 0.67 | 0.37 | 0.38 | 0.05 | 0.00 | 0.00 | 0.00 | 0.09 | 0.02 | 0.04 | 0.02 |
| Desulfomonile | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 |
| Smithella | 0.02 | 0.00 | 0.03 | 0.00 | 0.02 | 0.00 | 0.08 | 0.06 | 0.00 | 0.09 | 0.00 | 0.02 | 0.08 | 0.07 |
| Desulfobacca | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Syntrophus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.02 | 0.05 |
| Syntrophobacter | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.07 | 0.04 | 0.00 |
| Desulfomicrobium | 0.21 | 0.03 | 0.19 | 0.07 | 0.10 | 0.05 | 0.08 | 0.00 | 0.02 | 0.09 | 0.07 | 0.02 | 0.02 | 0.00 |
| Bilophila | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Desulfovibrio | 0.02 | 0.00 | 0.00 | 0.05 | 0.24 | 0.08 | 0.03 | 0.00 | 0.00 | 0.11 | 0.02 | 0.02 | 0.04 | 0.05 |
| Bdellovibrio | 0.61 | 0.73 | 0.22 | 0.74 | 0.44 | 0.46 | 0.18 | 0.07 | 0.18 | 0.11 | 0.38 | 0.36 | 0.36 | 0.29 |
| Vampirovibrio | 0.06 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Peredibacter | 0.02 | 0.03 | 0.11 | 0.07 | 0.02 | 0.41 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 |
| Bacteriovorax | 0.00 | 0.03 | 0.11 | 0.09 | 0.00 | 0.11 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Pelobacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Geobacter | 0.08 | 0.05 | 0.19 | 0.14 | 0.10 | 0.03 | 0.18 | 0.00 | 0.09 | 0.04 | 0.00 | 0.00 | 0.02 | 0.02 |
| Syntrophorhabdus | 0.23 | 0.00 | 0.11 | 0.00 | 0.02 | 0.03 | 0.15 | 0.00 | 0.07 | 0.07 | 2.96 | 3.02 | 4.02 | 4.32 |
| Desulfobulbus | 0.19 | 0.03 | 0.41 | 0.19 | 0.39 | 0.57 | 0.10 | 0.02 | 0.11 | 0.09 | 0.33 | 0.32 | 0.21 | 0.34 |
| Desulfocapsa | 0.00 | 0.00 | 0.05 | 0.02 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Desulfonema | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.04 | 0.00 | 0.02 | 0.02 | 0.02 |
| Desulfobacter | 0.02 | 0.03 | 0.05 | 0.05 | 0.00 | 0.05 | 0.08 | 0.02 | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | 0.02 |
| Desulforegula | 0.02 | 0.00 | 0.08 | 0.02 | 0.00 | 0.03 | 0.03 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 |

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|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Desulfatirhabdium | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Cystobacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hyalangium | 0.04 | 0.13 | 0.00 | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Anaeromyxobacter | 0.19 | 0.03 | 0.63 | 0.12 | 0.10 | 0.08 | 0.08 | 0.11 | 0.13 | 2.23 | 0.22 | 0.29 | 0.13 | 0.32 |
| Pyxidicoccus | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Kofleria | 0.02 | 0.03 | 0.03 | 0.02 | 0.05 | 0.03 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| Nannocystis | 0.06 | 0.08 | 0.08 | 0.53 | 1.20 | 0.62 | 0.51 | 0.04 | 0.00 | 0.00 | 0.38 | 0.27 | 0.15 | 0.07 |
| Plesiocystis | 0.00 | 0.03 | 0.00 | 0.00 | 0.07 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 |
| Haliangium | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.08 | 0.00 | 0.00 | 0.02 | 0.00 | 0.07 | 0.08 | 0.02 |
| Phaselicystis | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.02 |
| Chondromyces | 0.38 | 0.30 | 0.33 | 0.30 | 0.15 | 0.14 | 0.35 | 0.02 | 0.04 | 0.45 | 0.18 | 0.20 | 0.11 | 0.09 |
| Sorangium | 0.00 | 0.00 | 0.03 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Byssovorax | 0.40 | 0.15 | 0.19 | 1.97 | 0.59 | 1.81 | 1.49 | 0.07 | 0.07 | 0.31 | 0.18 | 0.25 | 0.21 | 0.23 |
| Nitrosomonas | 0.27 | 0.43 | 0.22 | 0.05 | 0.00 | 0.22 | 0.08 | 0.09 | 0.20 | 0.04 | 0.24 | 0.29 | 0.13 | 0.18 |
| Nitrosospira | 0.15 | 0.00 | 0.25 | 0.05 | 0.00 | 0.00 | 0.03 | 0.02 | 0.07 | 0.04 | 0.11 | 0.14 | 0.15 | 0.16 |
| Leptothrix | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Paucibacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Tepidimonas | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.05 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Piscinibacter | 0.42 | 0.03 | 0.38 | 0.00 | 0.05 | 0.05 | 0.30 | 0.30 | 0.40 | 0.45 | 0.27 | 0.36 | 0.25 | 0.18 |
| Aquabacterium | 0.50 | 0.25 | 1.13 | 1.07 | 1.17 | 3.35 | 4.45 | 0.13 | 0.25 | 0.07 | 0.69 | 0.56 | 0.42 | 0.29 |
| Aquincola | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Rubrivivax | 0.02 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.02 | 0.02 | 0.07 | 0.00 | 0.02 | 0.00 | 0.02 |
| Sphaerotilus | 0.00 | 0.13 | 0.03 | 0.09 | 0.00 | 0.03 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Thiomonas | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 |
| Inhella | 0.04 | 0.00 | 0.00 | 0.05 | 0.07 | 0.16 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 | 0.02 |
| Thiobacter | 0.02 | 0.03 | 0.05 | 0.16 | 0.02 | 0.00 | 0.13 | 0.07 | 0.04 | 0.18 | 0.02 | 0.05 | 0.02 | 0.05 |

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|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Diaphorobacter | 0.02 | 0.00 | 0.33 | 0.12 | 0.02 | 0.19 | 0.51 | 0.41 | 0.07 | 0.16 | 0.18 | 0.34 | 0.19 | 0.29 |
| Acidovorax | 0.00 | 0.00 | 0.19 | 0.02 | 0.15 | 0.05 | 0.30 | 0.04 | 0.09 | 0.04 | 0.18 | 0.18 | 0.21 | 0.00 |
| Pseudacidovorax | 0.13 | 0.00 | 0.03 | 0.00 | 0.00 | 0.03 | 0.10 | 0.00 | 0.07 | 0.00 | 0.02 | 0.00 | 0.06 | 0.00 |
| Malikia | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rhodoferax | 0.00 | 0.03 | 0.08 | 0.00 | 0.05 | 0.14 | 0.08 | 0.00 | 0.00 | 0.00 | 0.04 | 0.02 | 0.00 | 0.02 |
| Xenophilus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hydrogenophaga | 0.00 | 0.10 | 0.00 | 0.02 | 0.10 | 0.00 | 0.03 | 0.06 | 0.02 | 0.02 | 0.07 | 0.09 | 0.04 | 0.02 |
| Macromonas | 0.00 | 0.08 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Variovorax | 0.00 | 0.00 | 0.08 | 0.07 | 0.73 | 0.05 | 0.30 | 0.00 | 0.11 | 0.04 | 0.07 | 0.07 | 0.06 | 0.09 |
| Limnohabitans | 0.06 | 0.03 | 0.19 | 0.09 | 0.10 | 0.14 | 0.30 | 0.00 | 0.16 | 0.07 | 0.07 | 0.07 | 0.04 | 0.00 |
| Polaromonas | 0.00 | 0.00 | 0.00 | 0.02 | 0.05 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Sulfuricella | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Tepidiphilus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Thiobacillus | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.27 | 0.04 | 0.11 | 0.05 | 0.08 | 0.02 |
| Methylotenera | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.02 | 0.00 | 0.00 |
| Methylophilus | 0.00 | 0.00 | 0.00 | 0.70 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.29 | 0.20 | 0.25 | 0.02 |
| Formivibrio | 0.02 | 0.03 | 0.11 | 0.00 | 0.02 | 0.03 | 0.15 | 0.07 | 0.47 | 0.04 | 0.07 | 0.20 | 0.02 | 0.07 |
| Laribacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Aquaspirillum | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Gulbenkiania | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Uruburuella | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Vogesella | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Methyloversatilis | 0.23 | 0.00 | 0.14 | 0.56 | 0.05 | 0.00 | 0.08 | 0.02 | 0.00 | 0.00 | 0.02 | 0.07 | 0.04 | 0.00 |
| Dechloromonas | 2.05 | 2.33 | 1.26 | 0.19 | 1.39 | 1.78 | 4.27 | 0.41 | 1.48 | 0.51 | 0.82 | 0.93 | 0.68 | 0.36 |
| Sterolibacterium | 0.02 | 0.03 | 0.14 | 0.02 | 0.00 | 0.00 | 0.03 | 0.06 | 0.11 | 0.74 | 0.09 | 0.20 | 0.06 | 0.05 |
| Georgfuchsia | 0.02 | 0.00 | 0.03 | 0.00 | 0.00 | 0.03 | 0.30 | 0.02 | 0.16 | 0.09 | 0.07 | 0.00 | 0.00 | 0.00 |

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|--------------------|------|------|------|------|------|-------|------|------|------|------|------|------|------|------|
| Ferribacterium | 0.50 | 0.00 | 0.03 | 0.00 | 0.02 | 4.78 | 0.00 | 0.02 | 0.00 | 0.00 | 0.09 | 0.09 | 0.08 | 0.00 |
| Shinella | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 |
| Thauera | 0.46 | 0.20 | 1.02 | 1.44 | 0.73 | 0.86 | 4.20 | 0.35 | 0.36 | 2.72 | 1.18 | 1.99 | 1.10 | 0.95 |
| Propionivibrio | 0.02 | 0.00 | 0.11 | 0.07 | 0.07 | 0.08 | 0.18 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.04 | 0.02 |
| Denitratisoma | 0.04 | 0.00 | 0.19 | 0.00 | 0.02 | 0.03 | 0.03 | 0.17 | 0.42 | 0.20 | 0.22 | 0.32 | 0.40 | 0.02 |
| Uliginosibacterium | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rhodocyclus | 0.02 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Zoogloea | 3.03 | 3.33 | 4.34 | 0.35 | 2.54 | 11.53 | 2.40 | 1.65 | 0.47 | 0.07 | 1.38 | 1.29 | 1.14 | 0.86 |
| Azoarcus | 1.17 | 0.25 | 2.01 | 0.07 | 0.02 | 0.08 | 0.38 | 0.09 | 0.09 | 0.07 | 0.27 | 0.29 | 0.08 | 0.07 |
| Azonexus | 0.00 | 0.00 | 0.00 | 0.05 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.05 | 0.06 | 0.05 |
| Azospira | 0.00 | 0.00 | 0.00 | 0.02 | 0.22 | 0.00 | 0.61 | 0.04 | 0.09 | 0.00 | 0.13 | 0.07 | 0.11 | 0.09 |
| Sulfuritalea | 0.44 | 0.25 | 0.44 | 0.19 | 0.32 | 0.68 | 1.47 | 0.04 | 0.07 | 0.02 | 0.16 | 0.14 | 0.13 | 0.02 |
| Azovibrio | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 |
| Geminicoccus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 |
| Elioraea | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.20 | 0.07 | 0.02 | 0.09 | 0.04 | 0.05 |
| Rhizomicrobium | 0.71 | 5.95 | 0.44 | 0.25 | 0.39 | 0.08 | 0.08 | 0.07 | 0.09 | 0.04 | 0.09 | 0.05 | 0.11 | 0.07 |
| Rhodopseudomonas | 0.00 | 0.00 | 0.05 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 |
| Bradyrhizobium | 0.42 | 0.03 | 0.44 | 0.00 | 0.00 | 0.24 | 0.03 | 0.09 | 0.49 | 0.69 | 0.87 | 0.86 | 0.85 | 0.86 |
| Afipia | 1.09 | 0.45 | 0.88 | 0.39 | 0.27 | 0.22 | 0.23 | 0.15 | 0.07 | 0.04 | 1.20 | 0.59 | 0.83 | 0.70 |
| Bosea | 0.04 | 0.00 | 0.05 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.04 | 0.00 | 0.02 | 0.00 | 0.02 |
| Nitrobacter | 0.15 | 0.03 | 0.30 | 0.00 | 0.02 | 0.11 | 0.05 | 0.11 | 0.31 | 0.11 | 0.20 | 0.20 | 0.17 | 0.29 |
| Agromonas | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Oligotropha | 0.02 | 0.08 | 0.05 | 0.05 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.11 | 0.09 | 0.06 | 0.05 |
| Kaistia | 0.00 | 0.03 | 0.00 | 0.00 | 0.02 | 0.03 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.00 | 0.04 | 0.00 |
| Rhizobium | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 |
| Ensifer | 0.00 | 0.00 | 0.03 | 0.02 | 0.00 | 0.00 | 0.03 | 0.07 | 0.04 | 0.09 | 0.11 | 0.07 | 0.11 | 0.09 |

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|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Methylocystis | 0.08 | 0.00 | 0.22 | 0.00 | 0.02 | 0.05 | 0.00 | 0.20 | 0.07 | 0.09 | 0.27 | 0.29 | 0.42 | 0.32 |
| Methylopila | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.00 |
| Hansschlegelia | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Methylocapsa | 0.00 | 0.00 | 0.05 | 0.05 | 0.02 | 0.03 | 0.00 | 0.00 | 0.04 | 0.04 | 0.02 | 0.02 | 0.02 | 0.02 |
| Methylocella | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.02 | 0.04 | 0.00 |
| Chelatococcus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 |
| Methylovirgula | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Mesorhizobium | 0.02 | 0.00 | 0.03 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.11 | 0.07 | 0.02 | 0.05 | 0.00 | 0.02 |
| Aminobacter | 0.06 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Anderseniella | 0.04 | 0.10 | 0.00 | 0.02 | 0.02 | 0.00 | 0.13 | 0.13 | 0.04 | 0.09 | 0.27 | 0.23 | 0.34 | 0.32 |
| Brucella | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ochrobactrum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Bauldia | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.05 |
| Amorphus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 0.04 | 0.02 |
| Vasilyevaea | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.08 | 0.03 | 0.00 | 0.07 | 0.02 | 0.02 | 0.02 | 0.00 | 0.02 |
| Xanthobacter | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pseudolabrys | 0.00 | 0.13 | 0.19 | 0.16 | 0.00 | 0.08 | 0.03 | 0.02 | 0.07 | 0.02 | 0.38 | 0.14 | 0.19 | 0.07 |
| Methylobacterium | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Hyphomicrobium | 0.96 | 0.10 | 1.65 | 1.69 | 0.17 | 0.08 | 0.23 | 1.06 | 0.74 | 3.73 | 3.89 | 3.43 | 4.30 | 2.96 |
| Rhodoplanes | 0.02 | 0.03 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Gemmiger | 0.00 | 0.00 | 0.03 | 0.02 | 0.02 | 0.00 | 0.13 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 | 0.02 |
| Filomicrobium | 0.29 | 0.03 | 0.58 | 0.02 | 0.00 | 0.00 | 0.05 | 0.48 | 0.42 | 1.56 | 0.60 | 0.59 | 0.40 | 0.68 |
| Devosia | 0.17 | 0.05 | 0.30 | 0.21 | 0.32 | 0.35 | 0.45 | 0.06 | 0.09 | 0.13 | 0.16 | 0.16 | 0.11 | 0.16 |
| Blastochloris | 0.02 | 0.03 | 0.05 | 0.07 | 0.02 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 | 0.02 | 0.09 | 0.06 | 0.07 |
| Pedomicrobium | 0.40 | 0.03 | 0.74 | 0.16 | 0.42 | 0.11 | 0.05 | 0.04 | 0.02 | 0.09 | 1.78 | 1.67 | 1.35 | 1.18 |
| Parvularcula | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 |

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|--------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Hyphomonas | 0.04 | 0.03 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.07 | 0.05 | 0.00 | 0.00 |
| Caulobacter | 0.00 | 0.03 | 0.05 | 0.07 | 0.17 | 0.14 | 0.18 | 0.04 | 0.00 | 0.00 | 0.04 | 0.02 | 0.00 | 0.00 |
| Brevundimonas | 0.42 | 0.03 | 0.91 | 0.58 | 0.88 | 0.22 | 0.00 | 0.80 | 0.56 | 0.27 | 0.22 | 0.36 | 0.25 | 0.20 |
| Phenyllobacterium | 0.48 | 0.40 | 0.85 | 0.19 | 0.37 | 0.46 | 0.13 | 0.59 | 0.31 | 0.51 | 0.42 | 0.45 | 0.47 | 0.32 |
| Anaplasma | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rickettsia | 0.15 | 0.03 | 0.03 | 0.07 | 0.12 | 0.00 | 0.03 | 0.00 | 0.07 | 0.16 | 0.00 | 0.02 | 0.04 | 0.02 |
| Orientia | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Blastomonas | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.07 | 0.00 | 0.00 |
| Sandaracinobacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Sphingomonas | 1.27 | 0.05 | 1.07 | 0.30 | 0.68 | 0.16 | 0.03 | 1.13 | 0.34 | 2.10 | 1.20 | 1.24 | 1.44 | 1.20 |
| Sphingopyxis | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.07 | 0.02 | 0.06 | 0.02 |
| Novosphingobium | 0.08 | 0.00 | 0.85 | 0.02 | 0.07 | 0.00 | 0.18 | 0.31 | 0.89 | 1.23 | 0.47 | 0.63 | 0.61 | 0.45 |
| Sandarakinorhabdus | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Sphingosinicella | 0.00 | 0.00 | 0.11 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | 0.47 | 0.04 | 0.11 | 0.08 | 0.14 |
| Sphingobium | 0.02 | 0.03 | 0.16 | 0.07 | 1.56 | 0.03 | 0.05 | 0.09 | 0.11 | 0.56 | 0.09 | 0.20 | 0.08 | 0.11 |
| Altererythrobacter | 0.02 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 |
| Erythrobacter | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Croceicoccus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 |
| Dongia | 0.04 | 0.28 | 0.00 | 0.12 | 0.02 | 0.19 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 |
| Tistlia | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 |
| Pelagibius | 0.04 | 0.05 | 0.05 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Nisaea | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Skermanella | 0.00 | 0.88 | 0.00 | 0.05 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Defluviicoccus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 |
| Inquilinus | 0.02 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 |
| Fodinicurvata | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.16 | 0.00 | 0.09 | 0.02 | 0.02 |

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|-------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Tistrella | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 |
| Insolitispirillum | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Acidiphilium | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Stella | 0.04 | 0.13 | 0.00 | 0.02 | 0.02 | 0.00 | 0.10 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.02 |
| Acidisoma | 0.00 | 0.08 | 0.00 | 0.05 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| Rhodopila | 0.04 | 0.05 | 0.03 | 0.05 | 0.00 | 0.30 | 0.00 | 0.06 | 0.07 | 0.00 | 0.02 | 0.05 | 0.02 | 0.00 |
| Roseomonas | 0.06 | 0.65 | 0.71 | 0.46 | 0.00 | 0.70 | 0.23 | 0.24 | 2.44 | 1.56 | 0.56 | 0.56 | 0.40 | 0.34 |
| Acidicaldus | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Maribius | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Albidovulum | 0.06 | 0.00 | 0.08 | 0.02 | 0.02 | 0.00 | 0.00 | 0.17 | 0.02 | 0.02 | 0.07 | 0.25 | 0.23 | 0.05 |
| Rhodobacter | 0.33 | 0.00 | 1.24 | 0.46 | 0.46 | 0.05 | 0.30 | 0.63 | 0.13 | 0.25 | 1.05 | 0.97 | 1.21 | 1.02 |
| Haematobacter | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.02 | 0.00 | 0.00 | 0.02 | 0.00 |
| Pontibaca | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Paracoccus | 0.21 | 0.00 | 0.69 | 0.07 | 0.12 | 0.08 | 0.13 | 0.44 | 0.22 | 0.78 | 0.60 | 0.84 | 0.68 | 0.70 |
| Salipiger | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Gemmobacter | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.02 | 0.02 | 0.00 | 0.05 | 0.00 | 0.00 |
| Catellibacterium | 0.77 | 0.03 | 1.07 | 0.28 | 0.54 | 0.49 | 0.10 | 0.26 | 0.04 | 0.25 | 0.65 | 0.56 | 0.68 | 0.97 |
| Amaricoccus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Salinihabitans | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Arenicella | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Thiohalomonas | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Thiopfundum | 0.02 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Dasania | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 |
| Perlucidibaca | 0.04 | 0.05 | 0.05 | 0.12 | 0.02 | 0.03 | 0.03 | 0.04 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.05 |
| Acinetobacter | 0.50 | 0.28 | 0.71 | 1.09 | 1.51 | 1.67 | 0.51 | 0.00 | 0.09 | 0.00 | 0.80 | 0.47 | 0.68 | 1.20 |
| Enhydrobacter | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.08 | 0.08 | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.05 |

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|---------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Lysobacter | 0.25 | 0.08 | 0.38 | 0.32 | 0.05 | 0.05 | 1.21 | 0.28 | 0.09 | 0.02 | 0.27 | 0.29 | 0.21 | 0.27 |
| Xylella | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fulvimonas | 0.31 | 0.10 | 1.26 | 0.02 | 0.17 | 0.54 | 0.71 | 0.22 | 0.02 | 0.04 | 0.09 | 0.07 | 0.04 | 0.11 |
| Aquimonas | 0.00 | 0.03 | 0.03 | 0.07 | 0.02 | 0.00 | 0.13 | 0.02 | 0.04 | 0.00 | 0.11 | 0.02 | 0.04 | 0.00 |
| Thermomonas | 0.00 | 0.00 | 0.11 | 0.00 | 0.00 | 0.00 | 0.08 | 0.20 | 0.07 | 0.02 | 0.07 | 0.09 | 0.00 | 0.05 |
| Stenotrophomonas | 0.08 | 0.00 | 0.08 | 0.02 | 0.07 | 0.05 | 0.08 | 0.35 | 0.29 | 0.09 | 0.04 | 0.02 | 0.08 | 0.07 |
| Pseudoxanthomonas | 0.00 | 0.00 | 0.05 | 0.00 | 0.02 | 0.03 | 0.05 | 0.00 | 0.00 | 0.00 | 0.07 | 0.05 | 0.04 | 0.07 |
| Arenimonas | 0.02 | 0.45 | 0.05 | 0.05 | 0.12 | 0.65 | 1.64 | 0.07 | 0.09 | 0.58 | 0.27 | 0.23 | 0.04 | 0.09 |
| Aeromonas | 0.02 | 0.03 | 0.19 | 0.00 | 0.05 | 0.05 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.04 | 0.00 |
| Tolomonas | 0.00 | 0.00 | 0.05 | 0.00 | 0.05 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Succinivibrio | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Haliaea | 0.04 | 0.03 | 0.03 | 0.67 | 0.15 | 0.00 | 0.20 | 0.00 | 0.20 | 0.00 | 0.02 | 0.07 | 0.00 | 0.07 |
| Methylocaldum | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.16 | 0.02 | 0.00 | 0.04 | 0.02 |
| Methylosarcina | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Methylomonas | 0.63 | 0.00 | 0.08 | 0.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.02 | 0.05 | 0.00 | 0.02 |
| Methylobacter | 0.02 | 0.00 | 0.03 | 0.63 | 0.00 | 0.03 | 0.05 | 0.00 | 0.00 | 0.02 | 0.04 | 0.05 | 0.00 | 0.00 |
| Methylococcus | 0.06 | 0.03 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.34 | 0.29 | 0.02 | 0.11 | 0.19 | 0.16 |
| Caedibacter | 0.02 | 0.00 | 0.00 | 0.25 | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.04 | 0.05 | 0.11 | 0.02 |
| Thiothrix | 0.00 | 0.03 | 0.03 | 0.28 | 0.10 | 0.00 | 0.03 | 0.02 | 0.09 | 0.02 | 0.00 | 0.09 | 0.08 | 0.09 |
| GpIIa | 0.08 | 0.00 | 0.16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 |
| GpXIII | 0.04 | 0.00 | 0.03 | 0.05 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| GpXI | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| GpIV | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Bacillariophyta | 0.33 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.07 |
| Streptophyta | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Armatimonadetes_gp5 | 0.58 | 0.10 | 0.38 | 0.02 | 0.10 | 0.14 | 0.25 | 0.67 | 0.98 | 0.42 | 0.36 | 0.43 | 0.28 | 0.57 |

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|----------------------------------|-------|-------|-------|------|------|------|------|-------|-------|-------|------|------|------|------|
| Armatimonadetes_gp2 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.03 | 0.02 | 0.00 | 0.07 | 0.07 | 0.11 | 0.15 | 0.16 |
| Chthonomonas/Armatimonadetes_gp3 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Armatimonas/Armatimonadetes_gp1 | 0.08 | 0.03 | 0.11 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.02 | 0.09 | 0.04 | 0.00 | 0.02 | 0.07 |
| Kosmotoga | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Nitrospira | 0.10 | 0.25 | 0.03 | 0.02 | 0.00 | 0.05 | 0.13 | 0.00 | 0.02 | 0.13 | 0.09 | 0.16 | 0.15 | 0.16 |
| Gemmatimonas | 0.29 | 2.03 | 0.80 | 0.25 | 0.15 | 0.65 | 1.67 | 0.02 | 0.11 | 0.16 | 0.16 | 0.34 | 0.38 | 0.25 |
| Ignavibacterium | 0.06 | 0.85 | 0.11 | 0.42 | 0.56 | 0.08 | 1.31 | 0.11 | 3.35 | 2.10 | 0.96 | 0.63 | 0.74 | 1.09 |
| Gp23 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| Gp22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Gp4 | 19.39 | 28.27 | 16.95 | 1.09 | 3.62 | 2.27 | 4.30 | 10.87 | 20.78 | 19.67 | 7.41 | 9.16 | 7.58 | 7.56 |
| Bryobacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| Gp3 | 0.29 | 0.00 | 0.14 | 0.05 | 0.20 | 0.19 | 0.05 | 0.06 | 0.00 | 0.45 | 0.07 | 0.14 | 0.11 | 0.09 |
| Edaphobacter | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Gp1 | 0.00 | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Gp7 | 0.00 | 0.10 | 0.05 | 0.05 | 0.02 | 0.00 | 0.40 | 0.06 | 9.21 | 0.02 | 0.36 | 0.43 | 0.30 | 0.09 |
| Gp6 | 1.80 | 6.73 | 3.13 | 0.81 | 0.64 | 1.62 | 1.84 | 0.61 | 2.33 | 1.65 | 1.02 | 1.08 | 1.21 | 1.04 |
| Geothrix | 0.13 | 0.00 | 0.05 | 0.00 | 0.05 | 0.11 | 0.00 | 0.13 | 0.29 | 0.11 | 0.00 | 0.02 | 0.04 | 0.11 |
| Holophaga | 0.00 | 0.00 | 0.05 | 0.00 | 0.02 | 0.00 | 0.05 | 0.00 | 0.04 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 |
| Gp17 | 1.67 | 3.85 | 0.91 | 0.51 | 1.10 | 0.54 | 1.39 | 0.28 | 0.96 | 0.80 | 0.51 | 0.70 | 0.42 | 0.38 |
| Gp16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.07 | 0.05 | 0.06 | 0.09 |
| Gp10 | 0.15 | 0.33 | 1.24 | 0.58 | 0.05 | 0.00 | 1.74 | 0.31 | 1.90 | 0.60 | 0.31 | 0.36 | 0.34 | 0.23 |
| Gp18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Dethiobacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Proteiniborus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.02 | 0.00 | 0.02 |
| Guggenheimella | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.02 | 0.08 | 0.07 |
| Fusibacter | 0.56 | 0.10 | 0.11 | 0.07 | 0.10 | 0.03 | 0.03 | 0.00 | 0.02 | 0.00 | 0.16 | 0.05 | 0.08 | 0.07 |

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| Blautia | 0.08 | 0.00 | 0.03 | 0.14 | 0.07 | 0.05 | 0.15 | 0.02 | 0.00 | 0.00 | 0.13 | 0.02 | 0.08 | 0.07 |
| Clostridium XIVb | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.05 | 0.04 | 0.02 |
| Howardella | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Parasporobacterium | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hespellia | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Roseburia | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.23 | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Coprococcus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Lactonifactor | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Butyrivibrio | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Anaerostipes | 0.02 | 0.03 | 0.00 | 0.00 | 0.00 | 0.03 | 0.05 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.02 | 0.00 |
| Lachnospiraceae_incertae_sedis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Natronincola | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.02 | 0.00 |
| Anoxynatronum | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Tindallia | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Alkaliphilus | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Parvimonas | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Gallicola | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.02 | 0.02 | 0.00 |
| Soehngenia | 0.10 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.05 | 0.04 | 0.07 |
| Tissierella | 0.02 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Sedimentibacter | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.03 | 0.00 | 0.02 | 0.00 | 0.76 | 0.77 | 1.02 | 1.56 |
| Sporanaerobacter | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Tepidimicrobium | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Peptoniphilus | 0.06 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Anaerococcus | 0.08 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 |
| Syntrophomonas | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.29 | 0.29 | 0.59 | 0.61 |
| Faecalibacterium | 0.10 | 0.00 | 0.03 | 0.02 | 0.05 | 0.03 | 0.15 | 0.04 | 0.02 | 0.00 | 0.04 | 0.00 | 0.00 | 0.02 |

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|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Acetivibrio | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Butyricicoccus | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 |
| Clostridium III | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.02 | 0.00 | 0.04 | 0.07 | 0.11 | 0.02 |
| Ethanoligenens | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hydrogenoanaerobacterium | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Ruminococcus | 0.13 | 0.00 | 0.00 | 0.09 | 0.05 | 0.05 | 0.30 | 0.06 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 |
| Oscillibacter | 0.08 | 0.00 | 0.05 | 0.00 | 0.05 | 0.05 | 0.05 | 0.00 | 0.02 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 |
| Clostridium IV | 0.13 | 0.00 | 0.05 | 0.05 | 0.05 | 0.03 | 0.03 | 0.02 | 0.00 | 0.00 | 0.02 | 0.07 | 0.00 | 0.02 |
| Flavonifractor | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.05 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Papillibacter | 0.04 | 0.00 | 0.03 | 0.00 | 0.05 | 0.00 | 0.30 | 0.00 | 0.02 | 0.02 | 0.04 | 0.05 | 0.06 | 0.02 |
| Anaerotruncus | 0.06 | 0.03 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Sporobacter | 0.06 | 0.00 | 0.08 | 0.00 | 0.07 | 0.08 | 0.51 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 |
| Saccharofermentans | 0.06 | 0.03 | 0.16 | 0.07 | 0.12 | 0.16 | 0.40 | 0.02 | 0.00 | 0.02 | 0.42 | 0.27 | 0.28 | 0.68 |
| Clostridium XII | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| Eubacterium | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.07 | 0.08 | 0.11 |
| Pseudoramibacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.05 | 0.00 | 0.02 |
| Acetobacterium | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.04 | 0.02 | 0.06 | 0.05 |
| Anaerofustis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.07 | 0.04 | 0.11 |
| Tepidibacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 |
| Peptostreptococcus | 0.06 | 0.00 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Proteocatella | 0.10 | 0.03 | 0.08 | 0.42 | 0.02 | 0.05 | 0.03 | 0.00 | 0.00 | 0.00 | 0.16 | 0.14 | 0.11 | 0.11 |
| Sporacetigenium | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.05 |
| Acetoanaerobium | 0.19 | 0.00 | 0.11 | 0.16 | 0.07 | 0.03 | 0.23 | 0.00 | 0.02 | 0.02 | 0.31 | 0.38 | 0.30 | 0.45 |
| Clostridium XI | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.03 | 0.05 | 0.00 | 0.11 | 0.04 | 1.42 | 1.04 | 1.29 | 1.88 |
| Gracilibacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Lutispora | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |

| | | | | | | | | | | | | | | |
|--------------------------------------|------|------|------|-------|-------|-------|-------|------|------|------|------|------|------|------|
| Deinobacterium | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 |
| Deinococcus | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.05 |
| Truepera | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| Meiothermus | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Thermus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Aminomonas | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.03 | 0.00 | 0.04 | 0.02 | 0.02 | 0.02 | 0.09 | 0.00 | 0.02 |
| Pyramidobacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Aminobacterium | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.02 | 0.02 | 0.00 | 0.04 | 0.02 | 0.04 | 0.11 |
| Synergistes | 0.04 | 0.00 | 0.11 | 0.00 | 0.05 | 0.03 | 0.05 | 0.00 | 0.00 | 0.00 | 0.93 | 0.77 | 0.89 | 0.93 |
| Cloacibacillus | 0.17 | 0.08 | 0.19 | 0.14 | 0.20 | 0.14 | 0.15 | 0.09 | 0.02 | 0.11 | 0.16 | 0.23 | 0.17 | 0.36 |
| WS3_genera_incertae_sedis | 0.19 | 0.40 | 0.30 | 0.00 | 0.00 | 0.08 | 0.45 | 0.00 | 0.04 | 0.02 | 0.18 | 0.27 | 0.11 | 0.18 |
| Subdivision5_genera_incertae_sedis | 0.00 | 0.10 | 0.05 | 0.02 | 0.07 | 0.03 | 0.20 | 0.00 | 0.02 | 0.00 | 0.16 | 0.23 | 0.15 | 0.20 |
| Spartobacteria_genera_incertae_sedis | 0.02 | 0.53 | 0.00 | 0.21 | 0.10 | 0.11 | 0.56 | 0.04 | 1.25 | 0.11 | 0.16 | 0.14 | 0.11 | 0.05 |
| Xiphinematobacter | 0.02 | 0.00 | 0.00 | 0.12 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 |
| Cerasicoccus | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Opitutus | 0.52 | 1.33 | 0.47 | 1.27 | 0.51 | 0.92 | 0.40 | 0.02 | 0.07 | 0.02 | 0.09 | 0.07 | 0.13 | 0.16 |
| Alterococcus | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 |
| Luteolibacter | 0.00 | 0.05 | 0.00 | 0.00 | 0.02 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 |
| Verrucomicrobium | 0.10 | 1.58 | 0.19 | 0.02 | 0.05 | 0.05 | 0.05 | 0.00 | 6.93 | 1.47 | 0.33 | 0.56 | 0.44 | 0.61 |
| Prostheco bacter | 1.63 | 6.73 | 4.29 | 12.58 | 17.34 | 16.69 | 10.72 | 0.30 | 0.69 | 0.13 | 2.29 | 2.55 | 2.71 | 2.47 |
| Subdivision3_genera_incertae_sedis | 8.93 | 7.31 | 5.27 | 5.10 | 4.03 | 4.24 | 4.02 | 0.15 | 3.98 | 1.45 | 1.56 | 1.44 | 1.61 | 1.40 |
| Schlesneria | 0.04 | 0.75 | 0.00 | 0.07 | 0.00 | 0.08 | 0.00 | 0.00 | 0.04 | 0.00 | 0.07 | 0.07 | 0.11 | 0.07 |
| Planctomyces | 0.27 | 0.45 | 0.38 | 0.51 | 0.07 | 0.05 | 0.33 | 0.13 | 0.40 | 0.22 | 0.60 | 0.59 | 0.28 | 0.48 |
| Gemmata | 0.17 | 0.63 | 0.44 | 0.07 | 0.02 | 0.95 | 0.18 | 0.11 | 0.38 | 0.51 | 0.33 | 0.29 | 0.17 | 0.25 |
| Rhodopirellula | 0.00 | 0.03 | 0.00 | 0.02 | 0.02 | 0.00 | 0.05 | 0.02 | 0.07 | 0.04 | 0.02 | 0.07 | 0.00 | 0.02 |
| Blastopirellula | 0.17 | 2.08 | 0.11 | 0.21 | 0.27 | 0.03 | 0.05 | 0.19 | 1.86 | 5.11 | 0.89 | 0.59 | 0.78 | 0.91 |

| | | | | | | | | | | | | | | |
|----------------------------|------|------|------|------|------|------|------|------|------|------|-------|------|-------|------|
| Zavarzinella | 1.67 | 1.43 | 2.42 | 0.90 | 0.17 | 0.70 | 0.53 | 0.76 | 3.76 | 2.79 | 1.07 | 1.81 | 1.19 | 1.40 |
| Singulisphaera | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.08 | 0.04 | 0.11 | 0.02 | 0.00 | 0.02 | 0.08 | 0.07 |
| Phycisphaera | 0.00 | 1.20 | 0.00 | 0.02 | 0.00 | 0.03 | 0.00 | 0.00 | 0.27 | 0.18 | 0.07 | 0.05 | 0.02 | 0.07 |
| OP11_genera_incertae_sedis | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.02 | 0.02 | 0.02 |
| Victivallis | 0.04 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 |
| Dehalogenimonas | 0.00 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| Levilinea | 0.00 | 0.00 | 0.14 | 0.00 | 0.05 | 0.00 | 0.10 | 0.04 | 0.00 | 1.34 | 3.65 | 3.63 | 5.33 | 5.00 |
| Leptolinea | 0.38 | 0.05 | 0.85 | 0.12 | 0.20 | 0.30 | 0.83 | 0.30 | 0.51 | 0.83 | 10.28 | 7.61 | 10.14 | 9.30 |
| Anaerolinea | 0.06 | 0.00 | 0.63 | 0.21 | 0.10 | 0.00 | 1.44 | 0.72 | 0.20 | 5.65 | 0.89 | 0.79 | 0.74 | 0.88 |
| Longilinea | 0.21 | 0.05 | 1.21 | 0.65 | 1.17 | 0.16 | 2.86 | 1.02 | 0.69 | 4.51 | 1.31 | 1.42 | 1.12 | 1.56 |
| Bellilinea | 0.29 | 0.00 | 0.47 | 0.07 | 0.12 | 0.14 | 1.06 | 0.52 | 0.38 | 1.92 | 0.53 | 0.54 | 0.66 | 0.43 |
| Sphaerobacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 |
| Caldilinea | 0.35 | 0.53 | 1.37 | 1.44 | 3.00 | 0.49 | 0.48 | 0.33 | 0.83 | 3.57 | 1.76 | 1.90 | 1.80 | 2.53 |
| Neochlamydia | 0.04 | 0.18 | 0.00 | 0.02 | 0.00 | 0.08 | 0.08 | 0.06 | 0.56 | 0.11 | 0.13 | 0.23 | 0.11 | 0.05 |
| Parachlamydia | 0.69 | 0.45 | 0.38 | 0.74 | 0.44 | 0.73 | 0.33 | 0.07 | 0.67 | 1.81 | 0.33 | 0.56 | 0.44 | 0.57 |
| Simkania | 0.21 | 0.20 | 0.11 | 0.00 | 0.05 | 0.00 | 0.03 | 0.00 | 0.20 | 0.09 | 0.04 | 0.05 | 0.13 | 0.09 |
| SR1_genera_incertae_sedis | 0.04 | 0.00 | 0.00 | 0.05 | 0.12 | 0.05 | 0.03 | 0.00 | 0.02 | 0.02 | 0.04 | 0.02 | 0.02 | 0.05 |
| Methanobrevibacter | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| Methanobacterium | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 |
| Methanosaeta | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.02 | 0.11 | 0.09 |
| Methanospirillum | 0.08 | 0.05 | 0.05 | 0.07 | 0.00 | 0.03 | 0.05 | 0.00 | 0.07 | 0.07 | 0.04 | 0.07 | 0.17 | 0.16 |
| Methanosphaerula | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.02 | 0.00 | 0.00 | 0.09 |
| Methanocorpusculum | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Methanoregula | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.02 | 0.00 | 0.11 | 0.02 | 0.00 | 0.00 | 0.02 |
| Methanolinea | 0.02 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.04 | 0.02 | 0.02 | 0.08 | 0.02 |

Table S6 Rare genera within each sample.

| WWTP | Genus |
|------|---|
| A1 | <i>Rubrobacter</i> , <i>Humihabitans</i> , <i>Larkinella</i> , <i>Pelobacter</i> , <i>Oligella</i> , <i>Uruburuella</i> , <i>Hansschlegelia</i> , <i>Methylovirgula</i> , <i>Gp18</i> , <i>Dethiobacter</i> , <i>Proteiniclasticum</i> , <i>Anoxynatronum</i> , <i>Alkalibacterium</i> |
| A2 | <i>Knoellia</i> , <i>Saxeibacter</i> , <i>Prolixibacter</i> , <i>Amaricoccus</i> , <i>Salinihabitans</i> , <i>Thioalkalibacter</i> , <i>Methylosarcina</i> , <i>Propionispira</i> , <i>Truepera</i> |
| B | <i>Herbiconiux</i> , <i>Anaerorhabdus</i> , <i>Hydrotalea</i> , <i>Nisaea</i> , <i>Pontibaca</i> , <i>Rheinheimera</i> , <i>Schwartzia</i> , <i>Gelria</i> , <i>Pyramidobacter</i> |
| C | <i>Caldisericum</i> , <i>Pseudonocardia</i> , <i>Cryobacterium</i> , <i>Paraeggerthella</i> , <i>Vitellibacter</i> , <i>Gp22</i> , <i>Dehalobacter</i> , <i>Parvimonas</i> , <i>Gracilibacter</i> , <i>Cerasicoccus</i> , <i>Methanobacterium</i> |
| D1 | <i>Paraprevotella</i> , <i>Wolinella</i> , <i>Campylobacter</i> , <i>Desulfatirhabdium</i> , <i>Aquaspirillum</i> , <i>Azotobacter</i> , <i>GpIV</i> , <i>Tindallia</i> , <i>Alkaliphilus</i> , <i>Peptoniphilus</i> , <i>Dolosigranulum</i> |
| D2 | <i>Propionigenium</i> , <i>Fodinibacter</i> , <i>Sporichthya</i> , <i>Rhodococcus</i> , <i>Marinifilum</i> , <i>Tannerella</i> , <i>Tepidiphilus</i> , <i>Brucella</i> , <i>Saccharococcus</i> , <i>Gemella</i> |
| E1 | <i>Soonwooa</i> , <i>Alcaligenes</i> , <i>Massilia</i> , <i>Sulfuricella</i> , <i>Gulbenkiania</i> , <i>Agromonas</i> , <i>Maribius</i> , <i>Arenicella</i> , <i>Escherichia/Shigella</i> |
| E2 | <i>Cystobacter</i> , <i>Gp23</i> , <i>Bryobacter</i> , <i>Peptococcus</i> , <i>Acidaminococcus</i> , <i>Clostridium XII</i> , <i>Marinilactibacillus</i> |
| F | <i>Odoribacter</i> , <i>Flavitalea</i> , <i>Acidiphilium</i> , <i>Thiohalomonas</i> , <i>Psychrobacter</i> , <i>Edaphobacter</i> , <i>Gp1</i> |
| G1 | <i>Sanguibacter</i> , <i>Morganella</i> , <i>Klebsiella</i> , <i>Succinivibrio</i> |
| G2 | <i>Leptonema</i> , <i>Leadbetterella</i> , <i>Marivirga</i> , <i>Nubsella</i> , <i>Sulfurovum</i> , <i>Pyxidicoccus</i> , <i>Rivibacter</i> , <i>Erythrobacter</i> , <i>Acidicaldus</i> , <i>Dokdonella</i> , <i>Hydrogenoanaerobacterium</i> <i>Butyricimonas</i> , <i>Bordetella</i> , <i>Duganella</i> , <i>Orientia</i> , <i>Sandaracinobacter</i> , <i>Salipiger</i> , |
| H | <i>Cronobacter</i> , <i>Phascolarctobacterium</i> , <i>Robinsoniella</i> , <i>Parasporobacterium</i> , <i>Pediococcus</i> |
| I | <i>Serinibacter</i> , <i>Caldimonas</i> , <i>Uliginosibacterium</i> , <i>Anaplasma</i> , <i>Pseudofulvimonas</i> , <i>GpXI</i> , <i>Clostridium XIVa</i> , <i>Howardella</i> , <i>Coprococcus</i> , <i>Lactonifactor</i> |
| J | <i>Xylanibacter</i> , <i>Empedobacter</i> , <i>Leptothrix</i> , <i>Malikia</i> , <i>Xenophilus</i> , <i>Pelosinus</i> |

Figure S1

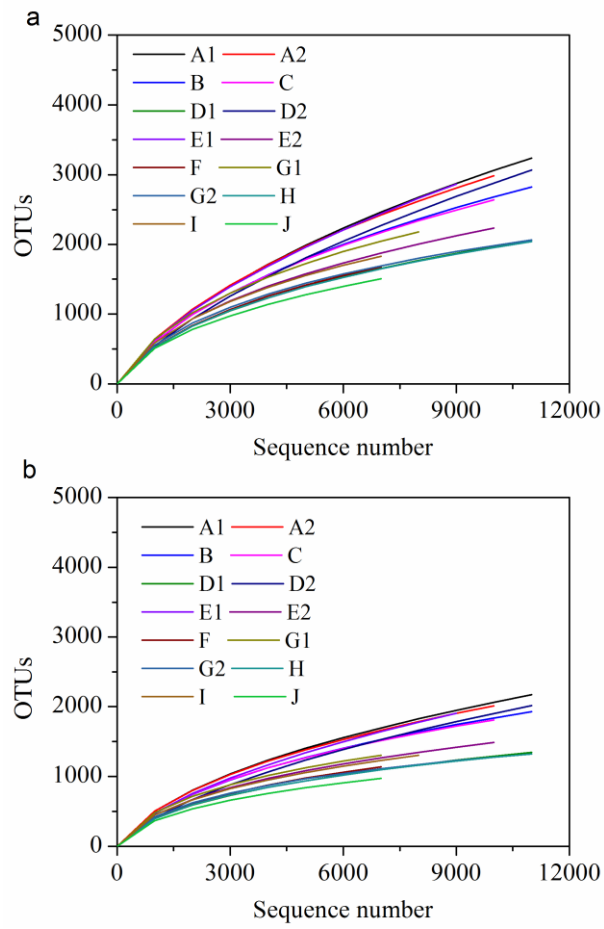


Figure S2

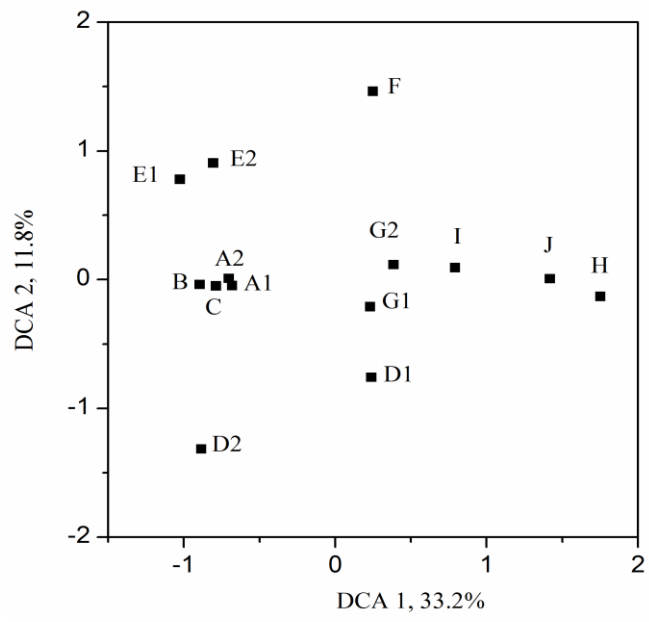


Figure S4

