



Supplementary Figure S11. Clustering benchmarks of MetaDecoder under different contig length thresholds. MetaDecoder with default length threshold (2.5 Kb) and 1 Kb (MetaDecoder1000) were applied on all real-world samples (*i.e.*, two samples from high-CO₂ cold-water geyser, 24 HMP samples and 145 samples from a cohort of T2D study), respectively. Cluster number (completeness ≥ 0.90) of each sample was shown at two contamination levels. Significance was determined using the Wilcoxon matched-pairs signed rank test.