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Supplementary information

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Guidelines for preventing and reporting contamination in low-biomass microbiome studies

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Supplementary Information

Methods. Individuals were identified as potential contributors to this Consensus Statement by conducting an informal literature search of papers published over the past 15 years that focused on applying molecular methods, namely marker gene sequencing and metagenomic sequencing, to the study of low biomass microbial systems. From this list of individuals, we then selected potential contributors to span a range of career stages, nationalities, disciplines, and focal systems. All individuals that responded to the initial request were then invited to be co-authors on this manuscript. All co-authors reviewed and commented on the manuscript with their specific suggestions incorporated into this Consensus Statement. All co-authors have formally agreed to the content and recommendations presented here.

Supplementary Table 1. Data used to generate Figure 1. Typical prokaryotic cell concentrations in various environments (measured using cultivation-independent methods), the sample volumes or weights commonly used for DNA extractions, and the corresponding numbers of prokaryotic cells we would expect to be captured with marker gene or metagenomic sequencing-based analyses. We note that there can be considerable variability in cell numbers across samples collected from a given environment and this variability is not summarized here.

Environment	Average # of prokaryotic cells	Units	Sample volumes/weights typically used for DNA extractions	Typical numbers of prokaryotic cells analyzed
Ocean water (epipelagic, 0-200m)[88]	7.85E+05	cells/mL	1 L	7.85E+08
Ocean water (mesopelagic, 200-1000m)[88]	1.94E+05	cells/mL	1 L	1.94E+08
Ocean water (bathypelagic, 1000-4000m)[88]	5.90E+04	cells/mL	1 L	5.90E+07
Hypersaline saltern ponds[89]	3.00E+06	cells/mL	1 mL	3.00E+06
Subseafloor sediments (top meter)[90]	1.00E+07	cells/cm^3	1 cm^3	1.00E+07
Subseafloor sediments (below 1 m)[90]	1.00E+04	cells/cm^3	1 cm^3	1.00E+04
Freshwater (lakes/rivers)[91]	1.00E+06	cells/mL	1 L	1.00E+09
Groundwater[92]	5.00E+05	cells/mL	1 L	5.00E+08
Household Drinking Water[93]	5.00E+04	cells/mL	1 L	5.00E+07
Cattle Rumen[91]	2.10E+10	cells/g	1 g	2.10E+10
Human Colon[94]	1.00E+11	cells/mL	1 mL	1.00E+11
Human Saliva[95]	1.00E+07	cells/mL	1 mL	1.00E+07
Plant Leaf Surfaces[96]	5.00E+06	cells/cm^2	10 cm^2	5.00E+07
Soil (rhizosphere)[97]	1.00E+11	cells/cm^3	1 cm^3	1.00E+11
Soil (non-arid, 0-1m)[91]	1.00E+09	cells/g	1 g	1.00E+09

Soil (non-arid, below 1m)[91]	1.00E+08	cells/g	1 g	1.00E+08
Hyper-Arid Antarctic Soil[14]	2.00E+03	cells/g	1 g	2.00E+03
Near-Surface Atmosphere[98]	1.00E+05	cells/m^3	1 m^3	1.00E+05

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