

The Microbiome: Harnessing its Potential



What is the Microbiome?

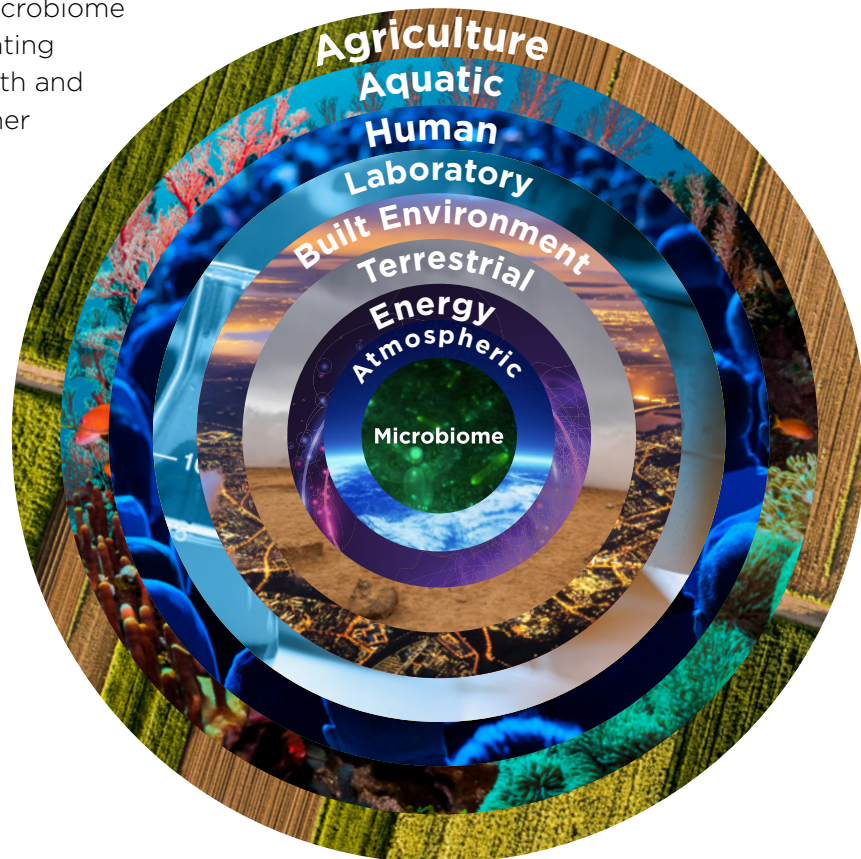
Microbiomes are communities of microorganisms, or microbes — bacteria, archaea, viruses, fungi, prions, protozoa and algae — that live on, in, and around people, plants, animals, soil, oceans and the atmosphere. Microbes touch every aspect of our lives.

Some of the most important developments in modern medicine have resulted from harnessing the power of microbes, including a vaccine against smallpox and the discovery of penicillin. Applications of microbiome research are rapidly expanding in animal and plant health, the stability of our ecosystems and our response to a changing climate.

A Microbial World

A growing body of research has shown that microbiomes play essential roles in a wide range of biological processes and functions. Microbes are crucial to every facet of human existence, including crop production, more efficient wastewater treatment, improving indoor air quality, preventing antimicrobial resistance, renewable energy and food security. While we have much to learn about how microbiomes interact and impact different ecosystems, we know that a better understanding of the microbiome creates the potential to address our most daunting global challenges including environmental health and restoration, climate change and drought. In other words, microbes and their activities are vitally important to virtually all processes on earth and the health of every human being.

ASM strongly supports investments in microbiome research, as well as in the infrastructure necessary — technology, data standardization, training and workforce — to realize the full potential of those research investments and their application.



Interagency Strategic Plan for Microbiome Research: Laying a Foundation for the Future

In 2016, the Microbiome Interagency Working Group was launched with the objective of assembling a federal strategic plan to identify and prioritize research needs across federal agencies. The resulting 5-year plan* (FY 2018-2022) represents opportunities for microbiome research collaboration across the U.S. government and the application of microbiome discoveries to address societal problems.

More than 20 federal agencies support research in which microbiomes are known to play a critical role.

	USAID	NIST/DOC	NOAA/DOC	DOD	SC/DOE	EPA	CDC/HHS	FDA/HHS	NIH/HHS	DHS	NPS/DOI	USGS/DOI	FBI/DOJ	NIJ/DOJ	NASA	NSF	SI	ARS/USDA	FS/USDA	NIFA/USDA	NRCS/USDA	VA
Agriculture	X	X	X	X	X		X	X	X					X	X	X	X	X	X	X	X	
Aquatic		X	X	X	X							X			X	X	X		X	X		
Atmosphere			X						X	X				X	X			X		X		
Built Environment	X		X		X	X			X	X		X	X	X	X					X		X
Human	X	X	X		X	X	X	X	X	X		X	X	X	X	X	X		X		X	X
Energy				X	X						X									X		
Laboratory			X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X
Terrestrial			X	X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X

What's Needed:



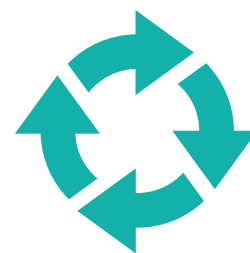
Support for better coordination of and more funding for interdisciplinary microbiome research across the federal government



Facilitation of data standardization and sharing, including through continued funding of the National Microbiome Data Collaborative



Workforce development and training in the synthesis of microbiome data and information for practical application



Continued support for a One Health approach that reflects the inherent connections between people, animals, plants, the built environment and the microbial world

For more information, please go to: www.asm.org/advocacy or email microbiome@asmusa.org