

- free-ranging black bears (*Ursus americanus*), Quebec, Canada. *Emerg Infect Dis.* 2023;29:2145–9. <https://doi.org/10.3201/eid2910.230548>
10. Elsmo EJ, Wünschmann A, Beckmen KB, Broughton-Neiswanger LE, Buckles EL, Ellis J, et al. Highly pathogenic avian influenza A(H5N1) virus clade 2.3.4.4b infections in wild terrestrial mammals, United States, 2022. *Emerg Infect Dis.* 2023;29:2451–60. <https://doi.org/10.3201/eid2912.230464>
 11. Alkie TN, Cox S, Embury-Hyatt C, Stevens B, Pople N, Pybus MJ, et al. Characterization of neurotropic HPAI H5N1 viruses with novel genome constellations and mammalian adaptive mutations in free-living mesocarnivores in Canada. *Emerg Microbes Infect.* 2023;12:2186608. <https://doi.org/10.1080/22221751.2023.2186608>
 12. Bordes L, Vreman S, Heutink R, Roose M, Venema S, Pritz-Verschuren SBE, et al. Highly pathogenic avian influenza H5N1 virus infections in wild red foxes (*Vulpes vulpes*) show neurotropism and adaptive virus mutations. *Microbiol Spectr.* 2023;11:e0286722. <https://doi.org/10.1128/spectrum.02867-22>
 13. Sillman SJ, Drozd M, Loy D, Harris SP. Naturally occurring highly pathogenic avian influenza virus H5N1 clade 2.3.4.4b infection in three domestic cats in North America during 2023. *J Comp Pathol.* 2023;205:17–23. <https://doi.org/10.1016/j.jcpa.2023.07.001>
 14. Anthony SJ, St Leger JA, Puglianes K, Ip HS, Chan JM, Carpenter ZW, et al. Emergence of fatal avian influenza in New England harbor seals. *mBio.* 2012;3:e00166–12. <https://doi.org/10.1128/mBio.00166-12>
 15. Youk S, Torchetti MK, Lantz K, Lenoche JB, Killian ML, Leyson C, et al. H5N1 highly pathogenic avian influenza clade 2.3.4.4b in wild and domestic birds: introductions into the United States and reassortments, December 2021–April 2022. *Virology.* 2023;587:109860. <https://doi.org/10.1016/j.virol.2023.109860>

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etymologia

Microbiota [mī''-krō-bī'-ō-'tə], microbiome [mī''-krō-bī'-ōm]

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From the Greek micro- (small) and -bios (life), microbiota was coined in the late 19th Century to denote the microorganisms residing in a specific environment. During the 20th Century, microbiota became more specifically associated with the microorganisms inhabiting the human body. Today, the term encompasses the collective genetic material of microorganisms, spanning viruses, archaea, bacteria, and fungi, and the intricate ecosystems of microorganisms, including commensal, symbiotic, and pathogenic ones, that exist within or on the human body or other environmental niches. Exploring microbiota and its implications in various aspects has rapidly gained momentum as a dynamic field of research.

The term microbiome was defined by Whipps and colleagues in 1988 as the collective genomes of microorganisms. However, Joshua Lederberg (Figure), a US molecular biologist, played a pivotal role in coining the term as we know it today. His journey from a precocious young scientist to a Nobel laureate and advocate for ethical science reflects the interconnectedness of language, curiosity, and scientific discovery. Lederberg's fascination with science

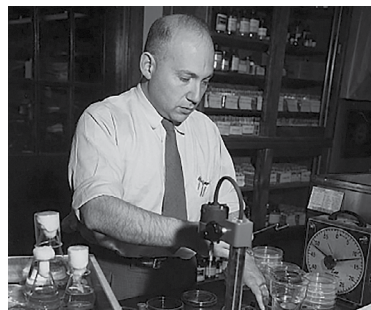


Figure. Molecular biologist and Nobel laureate Joshua Lederberg in his laboratory in Wisconsin, 1958. Dr. Lederberg played a pivotal role in coining the term microbiome as we know it today. Public domain image from the National Library of Medicine.

also extended to writing science fiction, using the genre to explore complex scientific concepts through imaginative storytelling. In fact, microbiome is a combination of microbe and biome (bi- [life] + -ome [mass]) to describe the microbial ecosystem, which encompasses not only genomes but also the broader microbial environment. Microbiome, born from the fusion of linguistic roots and a thirst for knowledge, continues to shape our understanding of the microbial world and its profound impact on human health and biology.

Sources

1. Dorland's illustrated medical dictionary. 32nd ed. Philadelphia: Elsevier Saunders; 2012.
2. Berg G, Rybakova D, Fischer D, Cernava T, Vergès MC, Charles T, et al. Microbiome definition re-visited: old concepts and new challenges. *Microbiome.* 2020;8:103. <https://doi.org/10.1186/s40168-020-00875-0>
3. Lederberg J, McCray AT. 'Ome sweet 'omics—a genealogical treasury of words. *Scientist.* 2001;15:8–9.
4. Liu X. Microbiome. *Yale J Biol Med.* 2016;89:275–6.
5. Marchesi JR, Ravel J. The vocabulary of microbiome research: a proposal. *Microbiome.* 2015;3:31. <https://doi.org/10.1186/s40168-015-0094-5>

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