REVIEWS

Getting to Know Your Microbiota in Health and Disease
DOI: http://dx.doi.org/10.1128/jmbe.v15i2.772


The Human Microbiota: How Microbial Communities Affect Health and Disease is an excellent resource that is perfectly timed on the heels of the vast amount of information that has been generated by the Human Microbiome Project. As outlined in the introductory chapter of this book, the Human Microbiome Project, launched in 2008, was a global effort to characterize the immense array of microorganisms living in and on the human body. This enormous endeavor involved the efforts of microbiologists (from microbial ecologists to infectious disease experts), geneticists, and computational biologists (see Fig. 1.1, p 6) among other experts from around the world including the United States, Canada, Europe, and Asia.

Some of these same experts are the authors and contributors of each chapter in this book. While you do not need to be one of these experts to appreciate the rich content that this book provides, fundamental background knowledge in microbiology, immunology, cell, and molecular biology is needed. Beyond that, this book is logically organized and the reader is guided through the advent of the Human Microbiome Project (Chapter 1), followed by methodology (Chapters 2–4); then the reader is submerged in the results of this project in subsequent chapters dedicated to the microbial niches of the human body (Chapters 5 and 9: Gastrointestinal Tract; Chapter 6: Respiratory Tract; Chapter 7: Oral Cavity; Chapter 8: Genitourinary Tract). Ironically, there is no chapter solely devoted to the Integumentary System, the largest organ system in the human body, but there is a small section on Skin Diseases and the Microbiome (p 22–23).

Within each chapter the content is further organized into sections and sub-sections with interspersed figures, graphs, charts, photographs, and flow diagrams, each of which makes the content more tangible. For example, the latter facilitates the comprehension of analytical sections (e.g. Fig. 4.1: Analysis of Metagenomic Data, p 87). The chapters on the body regions nicely provide an overview of the anatomy (e.g. Fig. 7.1: The Human Oral Cavity, p 137), followed by the microbiome data (e.g. Fig. 8.3: Vaginal Microbiota, p 179) and the implications of this data in human health and disease (e.g. Diabetes (p 153) and Obesity (p 154)). These chapters are full of vibrant photographs illustrating the interactions of the microbiome with human cells (e.g. Fig. 9.42: Biofilm Between the Villi of a Patient with Crohn’s Disease). Each chapter is completed with an acknowledgments section and an extensive reference list.

The book ends with chapters on animal models (Chapters 10 and 11) and tools (Chapters 12 and 13) to study the human microbiome. The final chapter is current and very relevant with ways to alter the microbiome with prebiotics, probiotics, and synbiotics (Chapter 14).

Altogether The Human Microbiota: How Microbial Communities Affect Health and Disease is a great resource for both faculty and students. In terms of teaching, however, this book is not recommended as a stand-alone textbook for undergraduate courses. Rather this book works well as supplementary reading material for senior-level majors courses since it is very easy to assign sections or subsections of the book. As a faculty member or graduate student, this book is an invaluable reference resource as you can easily flip through it to find indispensible sections on sample collection and data analysis of the microbiome and human diseases. This is an exciting new reference resource that will be on my bookshelf and used often.

Narveen Jandu
Ashland University, Ashland, OH
E-mail: njandu@ashland.edu