Food Microbiology and Food Safety

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Food Microbiology and Food Safety Series

The Food Microbiology and Food Safety series is published in conjunction with the International Association for Food Protection, a non-profit association for food safety professionals. Dedicated to the life-long educational needs of its Members, IAFP provides an information network through its two scientific journals (Food Protection Trends and Journal of Food Protection), its educational Annual Meeting, international meetings and symposia, and interaction between food safety professionals.

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Preface

While the first two complete bacterial genome sequences were published in 1995 and whole genome sequencing (WGS) has since changed the landscape of microbiology, this technique had long been a privilege of sequencing centers and mainly served the purpose of scientific research. The applied use of WGS, for example, in the field of food safety and public health, had been prohibitive due to its high cost, lengthy procedure, and technical challenges in data analysis.

Recent advances in so-called next-generation sequencing (NGS) technologies have transformed the once centralized resource into a viable and practical tool for microbial identification and characterization, which is becoming increasingly accessible to individual laboratories around the world. The democratization of WGS has opened new avenues for studying, tracking, and controlling foodborne pathogens, which, as reflected in this book, is most evident in public health surveillance and outbreak investigation of foodborne infectious diseases.

By providing a timely summary of recent proceedings, case studies, opinions, and trends, we hope that this book will present to food safety and public health professionals a snapshot of the emerging and fast-developing field of applied genomics of foodborne pathogens. It is of course impossible to exhaustively summarize all aspects of this field. And like any book on the topics of genomics and bioinformatics, it is challenging to keep up with the latest developments due to the fast-evolving nature of the technologies and disciplines. In this sense, this book would best serve as a guide and a stepping stone to a large and increasing body of literature, many of which are works from contributors of this book.

We are deeply grateful to our contributors who are frontline practitioners, leading subject matter experts, and critical players in the exciting endeavor of transforming public health microbiology with WGS.
We greatly appreciate the vision, support, cooperation, and tolerance of the staff of Springer Nature—in particular our executive editor Susan Safren and our project coordinator Michael Koy, who managed the entire project and made this book possible.

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