High-throughput, next-generation sequencing (NGS) technologies are capable of producing a huge amount of sequence data in a relatively short time and have revolutionized genome research in recent years. The powerful and flexible nature of NGS has made it an indispensable tool for a broad spectrum of biological sciences and NGS technologies have transformed scientific research in many fields.

Written by experts from around the world, this book explores the most recent advances in NGS instrumentation and data analysis. The book begins with a comprehensive description of current NGS platforms, their sequencing chemistries, instrument specifications, and general workflows and procedures. A separate chapter is dedicated to low-quantity, single molecule sequencing technology. Further chapters explore the application of NGS technologies in various fields including polymorphism detection, sRNA research, rare variant detection, large variant detection, exome sequencing, plant development studies, microbial metagenomics, and studies on the human microbiome.

Practical and cutting-edge, this volume represents an excellent collection of chapters to aid all scientists who wish to apply these innovative research tools.

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