Next-Generation Sequencing Data Analysis

Xinkun Wang

Next-Generation Sequencing Data Analysis

Xinkun Wang

Next-Generation Sequencing Data Analysis Xinkun Wang

A Practical Guide to the Highly Dynamic Area of Massively Parallel Sequencing

The development of genome and transcriptome sequencing technologies has led to a paradigm shift in life science research and disease diagnosis and prevention. Scientists are now able to see how human diseases and phenotypic changes are connected to DNA mutation, polymorphism, genome structure, and epigenomic abnormality. **Next-Generation Sequencing Data Analysis** shows how next-generation sequencing (NGS) technologies are applied to transform nearly all aspects of biological research.

The book walks readers through the multiple stages of NGS data generation and analysis in an easy-to-follow fashion. It covers every step in each stage, from the planning stage of experimental design, sample processing, sequencing strategy formulation, the early stage of base calling, reads quality check and data preprocessing to the intermediate stage of mapping reads to a reference genome and normalization to more advanced stages specific to each application. All major applications of NGS are covered, including:

- RNA-seq: mRNA-seq and small RNA-seq
- Genotyping and variant discovery through genome re-sequencing
- *De novo* genome assembly
- ChIP-seq to study DNA–protein interaction
- Methylated DNA sequencing on epigenetic regulation
- Metagenome analysis through community genome shotgun sequencing

Before detailing the analytic steps for each of these applications, the book presents the ins and outs of the most widely used NGS platforms, with side-by-side comparisons of key technical aspects. This helps practitioners decide which platform to use for a particular project. The book also offers a perspective on the development of DNA sequencing technologies, from Sanger to future-generation sequencing technologies.

The book discusses concepts and principles that underlie each analytic step, along with software tools for implementation. It highlights key features of the tools while omitting tedious details to provide an easy-to-follow guide for practitioners in life sciences, bioinformatics, and biostatistics. In addition, references to detailed descriptions of the tools are given for further reading if needed. The accompanying website for the book provides step-by-step, real-world examples of how to apply the tools covered in the text to research projects. All the tools are freely available to academic users.

⬇ **Download** Next-Generation Sequencing Data Analysis ...pdf

📄 **Read Online** Next-Generation Sequencing Data Analysis ...pdf

Download and Read Free Online Next-Generation Sequencing Data Analysis Xinkun Wang

---

From reader reviews:

Pamela Brock:

This book untitled Next-Generation Sequencing Data Analysis to be one of several books that best seller in this year, that is because when you read this book you can get a lot of benefit upon it. You will easily to buy this specific book in the book retail outlet or you can order it through online. The publisher in this book sells the e-book too. It makes you quicker to read this book, because you can read this book in your Smartphone. So there is no reason to you personally to past this book from your list.

Jerry Osbourne:

Reading a publication tends to be new life style in this particular era globalization. With reading through you can get a lot of information which will give you benefit in your life. Together with book everyone in this world could share their idea. Textbooks can also inspire a lot of people. A lot of author can inspire their particular reader with their story or their experience. Not only the storyplot that share in the publications. But also they write about the information about something that you need case in point. How to get the good score toefl, or how to teach children, there are many kinds of book which exist now. The authors on earth always try to improve their talent in writing, they also doing some research before they write for their book. One of them is this Next-Generation Sequencing Data Analysis.

Rick Maldonado:

A lot of people always spent their particular free time to vacation or maybe go to the outside with them family or their friend. Were you aware? Many a lot of people spent many people free time just watching TV, as well as playing video games all day long. In order to try to find a new activity that is look different you can read some sort of book. It is really fun for you personally. If you enjoy the book that you simply read you can spent the entire day to reading a book. The book Next-Generation Sequencing Data Analysis it is very good to read. There are a lot of folks that recommended this book. These were enjoying reading this book. Should you did not have enough space to create this book you can buy the particular e-book. You can m0ore easily to read this book from the smart phone. The price is not to cover but this book provides high quality.

Jeannette Villalobos:

Do you have something that you like such as book? The reserve lovers usually prefer to opt for book like comic, limited story and the biggest one is novel. Now, why not striving Next-Generation Sequencing Data Analysis that give your entertainment preference will be satisfied simply by reading this book. Reading habit all over the world can be said as the means for people to know world a great deal better then how they react in the direction of the world. It can't be claimed constantly that reading habit only for the geeky man but for all of you who wants to be success person. So , for every you who want to start looking at as your good habit, it is possible to pick Next-Generation Sequencing Data Analysis become your own personal starter.

Download and Read Online Next-Generation Sequencing Data Analysis Xinkun Wang #0UL5Z3EM29T

Read Next-Generation Sequencing Data Analysis by Xinkun Wang for online ebook

Next-Generation Sequencing Data Analysis by Xinkun Wang Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Next-Generation Sequencing Data Analysis by Xinkun Wang books to read online.

Online Next-Generation Sequencing Data Analysis by Xinkun Wang ebook PDF download

Next-Generation Sequencing Data Analysis by Xinkun Wang Doc

Next-Generation Sequencing Data Analysis by Xinkun Wang Mobipocket

Next-Generation Sequencing Data Analysis by Xinkun Wang EPub