METADATA

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Abstract

The book “Genomes: Structure, Function, and Applications” explains what genomes are and why they are important. It begins with the discovery of the DNA structure and moves on to modern technologies that allow us to “read” and study entire genomes. It presents the main sequencing methods, from the earliest techniques to the faster and more accurate ones used today (NGS). It refers to model organisms, such as yeast and mice, and explains what we have learned from them, while giving special attention to the human genome. The book analyzes how scientists compare genomes of different organisms to understand evolution and similarities between species, and it also discusses functional genomics. Epigenetic mechanisms are also examined, as well as how they relate to diseases and the environment. Furthermore, the applications of genomics in medicine are presented, such as personalized therapy and pharmacogenomics, which help develop more targeted and effective treatments. Finally, the book addresses population genomics for species conservation and genetic identification through environmental DNA analysis for biodiversity studies.

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