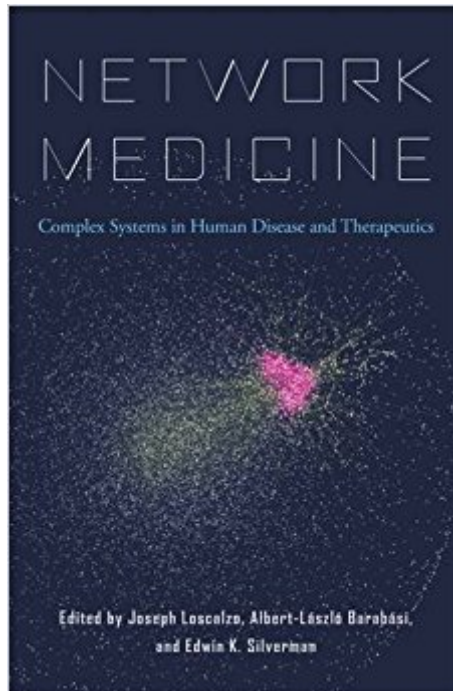The book was found

Network Medicine: Complex Systems In Human Disease And Therapeutics

Synopsis

Big data, genomics, and quantitative approaches to network-based analysis are combining to advance the frontiers of medicine as never before. Network Medicine introduces this rapidly evolving field of medical research, which promises to revolutionize the diagnosis and treatment of human diseases. With contributions from leading experts that highlight the necessity of a team-based approach in network medicine, this definitive volume provides readers with a state-of-the-art synthesis of the progress being made and the challenges that remain.Medical researchers have long sought to identify single molecular defects that cause diseases, with the goal of developing silver-bullet therapies to treat them. But this paradigm overlooks the inherent complexity of human diseases and has often led to treatments that are inadequate or fraught with adverse side effects. Rather than trying to force disease pathogenesis into a reductionist model, network medicine embraces the complexity of multiple influences on disease and relies on many different types of networks: from the cellular-molecular level of protein-protein interactions to correlational studies of gene expression in biological samples. The authors offer a systematic approach to understanding complex diseases while explaining network medicineÃ¢â¬â„¢s unique features, including the application of modern genomics technologies, biostatistics and bioinformatics, and dynamic systems analysis of complex molecular networks in an integrative context.By developing techniques and technologies that comprehensively assess genetic variation, cellular metabolism, and protein function, network medicine is opening up new vistas for uncovering causes and identifying cures of disease.

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What will a human look like at molecular levels? The study behind the general concept of Network Medicine examines the effort to identify the blueprint and principles that will enable us to understand this complex life system at molecular levels. This book presents the state of the knowledge of network medicine and is an excellent reference for both experts in the area and general population interested in life science. (Weiniu Gan, National Heart, Lung, and Blood Institute)This book fills a gap in the literature by applying complex systems theory to the field of medicine. Such application is likely to trigger important results by promoting a very useful shift in perspective. Definitely a book to read. (Guido Caldarelli, IMT Institute for Advanced Studies Lucca)

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