1. Record Nr. UNINA9910220038803321

Autore	Adil Mardinoglu
Titolo	The Impact of Systems Medicine on Human Health and Disease
Pubbl/distr/stampa	Frontiers Media SA, 2017
Descrizione fisica	1 online resource (96 p.)
Collana	Frontiers Research Topics
Soggetti	Neurosciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia

Sommario/riassunto

Complex diseases including diabetes, neurological disorders and cancer are results from a combination of genetic, environmental and lifestyle factors, and development of new prognostic tools for the treatment of such diseases requires a deep understanding of the mechanisms underlying cell functions. With the advances in high throughput technologies, biological components of cells can be measured with a very high resolution and these data can be used for investigating whole systems properties using a network-based approach. Systems medicine provides an integrative platform for studying the interactions between the biological components of the cell using a holistic approach and generating mechanistic explanations for the emergent systems properties. This inter-disciplinary field of study allows for understanding biological processes of cells in health and disease states, gaining new insights into what drives the appearance of the disease and finally identifying proteins and metabolites implicated in human disease. Systems medicine utilizes mathematical approaches to generate models which can be employed for designing new sets of experiments and for mapping the response of the system to perturbations quantitatively. These models, as well as the developed tools, can accelerate the emergence of personalized medicine which can transform the practice of medicine and offer better targets for drug development with minimum side effects. In this Research Topic, we aim to review the recently developed tools for modeling the cell behavior in

normal and pathological states, recent advances and findings which increase our understanding of the molecular mechanisms involved in the progression of the diseases.