Semantic Breakthrough in Drug Discovery (Paperback)

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Morgan Claypool Publishers, United States, 2014. Paperback. Book Condition: New. 235 x 190 mm. Language: English . Brand New Book. The current drug development paradigm---sometimes expressed as, One disease, one target, one drug ---is under question, as relatively few drugs have reached the market in the last two decades. Meanwhile, the research focus of drug discovery is being placed on the study of drug action on biological systems as a whole, rather than on individual components of such systems. The vast amount of biological information about genes and proteins and their modulation by small molecules is pushing drug discovery to its next critical steps, involving the integration of chemical knowledge with these biological databases. Systematic integration of these heterogeneous datasets and the provision of algorithms to mine the integrated datasets would enable investigation of the complex mechanisms of drug action; however, traditional approaches face challenges in the representation and integration of multi-scale datasets, and in the discovery of underlying knowledge in the integrated datasets. The Semantic Web, envisioned to enable machines to understand and respond to complex human requests and to retrieve relevant, yet distributed, data, has the potential to trigger system-level chemical-biological innovations. Chem2Bio2RDF is presented as an example...

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