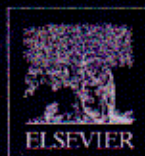


Systems Biology is a vigorous and expanding discipline. In many ways it is a successor to genomics and unprecedented in its combination of biology with many other sciences, from physics to ecology, from mathematics to medicine, and from philosophy to chemistry. Because it is at the interface of so many different scientific disciplines, the philosophical foundations of Systems Biology are either a mixture of the foundations of all contributing disciplines, or they comprise entirely new foundations emerging from the nonlinear interactions of all those disciplines. In addition, studying the philosophical foundations of Systems Biology may resolve a longer standing issue, i.e. the extent to which Systems Biology is entitled to its own scientific foundation rather than being dominated by existing philosophies.

Systems Biology offers a separation from the more classical molecular biosciences such as genetics, molecular biology, and enzymology. This, therefore, calls for a philosophical analysis of the principles underlying Systems Biology thinking and research.

The topics discussed are: (i) Research programs of systems biology, (ii) Theory and models, and (iii) Organization in biological systems.

Written by top, well-known scientists in both Systems Biology and the Philosophy of Science, this is a valuable reference for computational biologists, molecular biologists, cellular biologists, systems biologists and bioinformaticians, as well as for philosophers of science and biology.



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