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Computation in Gene Networks

Searching for a new way to produce a computational device, Asa Ben-Hur (Stanford) and Hava Siegelmann (Amherst) have developed a model which shows that the functioning of a model gene network---genes acting as a computer "program" and the gene products in a cell (protein levels) acting as the "memory"---is comparable in expressive power to the workings of a Turing machine, the generic idealized computer. They compare a hypothetical analog gene-network computer to standard digital computers and suggest that chemical reactions can be used to implement Boolean logic and neural networks. (***Chaos (http://ojps.aip.org/chaos/)*** , March 2004.)