

# Could the Dynamics of a Gene Network Identify the Genes that cause a Complex Disease

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## **ABSTRACT:**

Over the past half-century, several dynamical systems (systems that change with respect to time) have been constructed to model the temporal changes in a genetic network - any such attempt must make assumptions that simplify certain (hopefully irrelevant) details in order to avoid complications in the construction. Thus, the necessity for simplification has produced an eclectic variety of models that differ not only by their mathematical structures but also by their level of construction. We will discuss several of these models, their dynamical behaviors, and possibly some applications. Finally, we will use one of discussed models to give a hypothetical gene network which shows, by example, how understanding the dynamical behaviors of a network could help to identify the casual genes of a complex disease.