Control Coefficient Identification for Various Biological Models

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A systematic approach is proposed for the metabolic control analysis of various dynamic behaviors in biological systems. The complex kinetic models are reduced by identifying their conservation relationships and by doing time scale analysis. Subsequently, the biological systems are categorized into the following three groups: systems in the steady-states, sustained oscillations, or other non-steady states. The sensitivities are measured to calculate the corresponding control coefficients that are defined considering the characteristics of system dynamics. The proposed approach is illustrated with its application to two biological models.

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