

Parameter estimation of biochemical reaction networks by variational calculus

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An accurate identification of dynamic model is essential task for an analysis of complex biological system. Unfortunately kinetic parameters of biological reactions are inexact in many case, parameter estimation using experimental data is strongly required. The objective function for parameter estimation relates differences between model prediction and experimental data, this optimization problem is formulated as calculating the parameter set to minimize functional and can be solved by method of variational calculus. In this work, an algorithm for parameter estimation was proposed with variational calculus approach and tested with some biological reactions.