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ANALYSIS OF A GENE EXPRESSION MODEL

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ABSTRACT

We study a mathematical model of gene transcription and protein synthesis with negative feedback. We consider a system of equations taking into account the number of active binding sites, the way in which dimers bind to DNA and time delay in translation process. For a simplified model that consist of three ordinary differential equations with time delay we derive conditions for stability of the positive steady state and for the existence of the Hopf bifurcation. We compare obtained results with classical model proposed by Monk in 2003.

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