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A large reaction-diffusion model for cell polarization in yeast

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Abstract

Cell polarization is fundamental to cellular processes such as differentiation, migration, and development. We consider a large reaction-diffusion model for cell polarization driven by a pheromone gradient in mating yeast. The system has 35 parameters in total, and many can be only crudely estimated. This leads to uncertainty in the model. In this work, we utilize parameter sensitivity analysis to understand the effects of the parameters on the behavior of the system.