The Third International Symposium on Optimization and Systems Biology (OSB'09)
Zhangjiajie, China, September 20–22, 2009

Systems Biology of Cell Signaling

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The proper growth, development, and survival of an organism require extensive and accurate communication among the cells of the organism. Hence, cells sense and react to a wide variety of stimuli, which convey information such as nutrients, harmful insults, and the state of neighboring cells. Using a systems biology approach that integrates modeling and experimentation, we study two cell signaling systems: 1) robust sensing and signal transduction during mating of yeast cells, and 2) proliferative control of cell lineages in mammalian olfactory epithelium.