

Dynamics of the interactions between the cell cycle and stress responses in yeasts

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Candida albicans is a common fungal pathogen responsible for wide-spread infections in patients with a weakened immune system. For the development of an effective treatment it is highly important to understand how the pathogen reacts to different stresses, that it encounters in its host. Crucially, the response to the different stresses depends on the phase of the cell cycle of the fungi, e.g., the response to osmotic stress during the G1 or G2 phases is substantially different. Conversely, the stresses also cause the cell cycle to arrest at different phases.

I will discuss interactions between the cell cycle and stress responses in yeasts (*S. cerevisiae* and *C. albicans*). Based on techniques from network and dynamical systems theory, I will study how the signalling pathways control the stress response and the cell cycle.

The model will be compared to experimental data, and predictions of the model will be discussed.