

S021 Information integration in signaling networks
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The ability to perceive and respond to information in their environment is one of the most ubiquitous properties of cellular organisms. It is crucial for a cell to react to changes or signals in its environment. This becomes apparent in many situations such as the search for nutrients, the detection of potentially harmful external conditions and in cell-cell communication as it is required for any multicellular organism. Even though there is a huge selection of perceivable signals the underlying mechanisms are surprisingly alike, which suggests that they are highly conserved in the course of evolution.

We provide a brief overview over mechanisms of pathway insulation and signal integration with a focus on signaling systems in the budding yeast *S. cerevisiae*. We then revisit contributions of mathematical models to the quantification of crosstalk and hypothesis-building in the area, and exemplify some of the issues in a novel mathematical model of the yeast pheromone, filamentous growth and HOG pathways.