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Patterning the embryo: cooperation and competition

Abstract:

During embryonic development equivalent cells self-organize and form ordered and robust patterns of gene expression. One example is the periodic pattern of hair cells surrounded by supporting cells that arises during vertebrate inner ear development.

A minimal gene regulatory circuit that involves nonlinear dynamics has been proposed to drive this patterning process. Yet, experimental data indicate that another gene regulatory circuit, with an antagonistic function, participates as well.

In this talk we will address how the periodic pattern can arise from these two antagonistic gene regulatory circuits. Our theoretical results show that patterning is the result of cooperation between the antagonistic circuits and that this cooperation stems from competition for common resources. We support these conclusions with experimental data.

Date: March 6, 2014

Place: Room C1/028

Time: 12:00

