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Robust cell type proportioning by a noisy oscillator

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Cell fate decisions are tightly controlled to ensure robust and reproducible pattern during development. However, there is growing evidence that cell heterogeneity increase the spectrum of differentiation capabilities of cells in a uniform environment. This is seen in examples including the immune system, hES cells, and ‘salt and pepper’ lineage decisions in the mouse blastocyst and slime mould *Dictyostelium*. Despite this, our understanding of how heterogeneity can be harnessed to result in robust cell fate proportioning is still very poor. To address this, we study *Dictyostelium* patterning using single cell RNA-seq, live cell imaging, cell fate mapping, mathematical modeling and functional genomics. Our studies reveal a novel system in which a noisy cell fate oscillator can generate robust cell type proportioning because noise in oscillator dynamics is coupled directly to changes in signal responsiveness.

学外の方の聴講歓迎・申込不要・参加無料

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