



CDB SEMINAR

Satoshi Toda

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Monday, March 12, 2018

16:00~17:00 A7F Seminar Room

Synthetic morphogenesis: Programming multi-cellular self-organization

Summary

A common theme in the self-organization of multi-cellular organisms and tissues is the use of cell-cell communication networks to control morphological properties of cells. Here we harness the modular cell-cell signaling platform called synNotch to engineer artificial genetic programs in which specific cell-cell contacts induce changes in cell morphology. Despite their simplicity, we find that these minimal intercellular programs are sufficient to drive the generation of synthetic structures with many hallmarks of natural developmental systems: template-independent self-organization into multi-layer structures, formation through sequential steps, divergence of cell types, symmetry breaking, and regeneration upon injury. I will talk about our recent results on synthetic self-organizing structures and their potentials.

Host:

Miki Ebisuya

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