



2nd Multicellular Autonomy seminar

Building a functional heart – from a simple epithelium to 3D topological meshwork

May 20th (Fri), 2022 | 5:00 PM – 6:30 PM (Japan Time)

Online Zoom seminar



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Heart is the first functional organ in a developing embryo. One critical step during vertebrate heart development is trabeculation, which is crucial for heart function. During trabeculation, the myocardial wall transforms from a single-layered epithelium into a complex topological structure consisting of two distinct cell fates – outer compact layer and inner trabecular layer cardiomyocytes (CMs). We have recently shown that local differences in the mechanical properties of CMs trigger this morphological symmetry breaking. CMs with higher mechanical tension delaminate stochastically to seed the trabecular layer and this spatial segregation is also sufficient to induce their differential fate. Eventually, these single trabecular cells grow into multicellular ridges, which remodel to form macroscopic topological trabecular meshwork thereby thickening the myocardial wall. How a developing heart acquires these crucial anatomical structures remains unknown. By taking a systems level multiscale approach, my lab aims to resolve how a primitive myocardial wall transforms from a simple epithelium into a 3D intricate functional tissue. In this seminar, I will be discussing some of our previous and current findings explaining how morphological complexity is built up during cardiac trabeculation.

Priya R, et. al., *Nature* 588 (7836), 130-134 (2020)

Registration (free), due date 5/19 (limited to the first 300 attendees)

<https://forms.gle/cLnpVeTp26ZPosEm6>

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