



Life Sciences Seminar

Cell migration in gut homeostasis and cancer invasion - role of microenvironment

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The entire intestinal epithelium is renewed every week due to cell division in the crypts coupled with cell migration towards the villi and loss of cells by apoptosis at the tip of villi. However, the mechanism responsible for the migration of intestinal cells remains largely unknown. Using transgenic animals, ex vivo gut slice cultures and theoretical modeling, we found that in the crypts, epithelial cells move passively as a consequence of the pushing force generated by dividing cells. However, along the villi, cells move actively using actomyosin-rich basal cellular protrusions. In the second part of the talk I will talk about the role of tumor microenvironment in the tumor progression. It is made of extracellular matrix (ECM), blood vessels, immune cells and cancer-associated fibroblasts (CAFs). Besides biochemical signals, mechanical forces from microenvironment also play a role in tumor progression. CAFs have enhanced contractility and capacity to synthesize, deposit and crosslink ECM making stroma stiffer. Thus, by accumulating around the tumor, they could provide a physical barrier constraining tumor expansion. However, it has been shown that by exerting mechanical forces on the ECM, CAFs also enhance tumor invasion. These antagonistic roles of forces produced by CAFs in tumor progression will be discussed.

Wednesday, February 6, 2019 04:00pm - 05:30pm

Mondi Seminar Room 3, Central Building



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