DEPARTMENT OF BIOLOGY | UNIVERSITY of WASHINGTON

Faculty Search
Biology Seminar

Speaker: **Amy Shyer**

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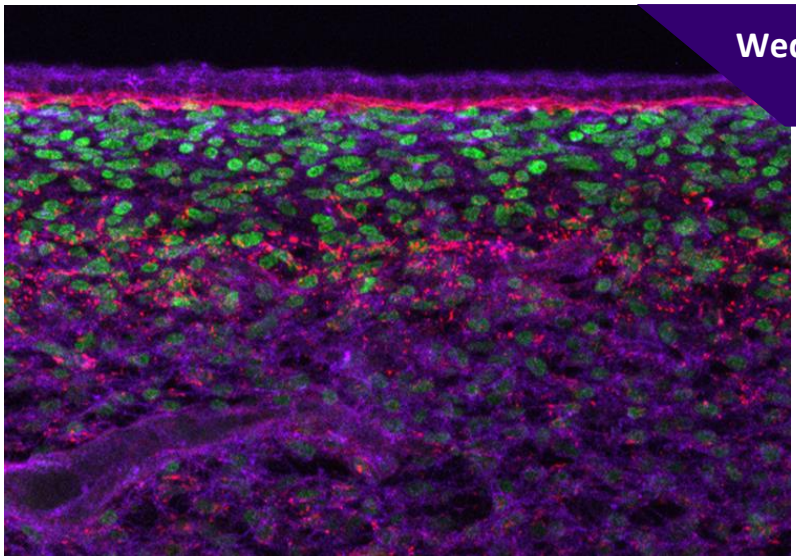
Cellular self-organization initiates skin form and fate



Wednesday, March 07, 2018 | 12:00pm
HCK 132 Refreshments at 11:45am

As an embryonic organ matures into its differentiated morphology, it must coordinate the activation of appropriate gene expression programs with changes in tissue architecture. In the avian skin, such a morphological transformation occurs during follicle initiation, when a uniform bilayer develops spaced aggregates of progenitor cells with an activated follicle gene expression program. Despite decades of study, the initiating trigger for follicles, often assumed to be of molecular nature, had remained elusive. In stark contrast to molecularly driven models, we find that follicle initiation is the result of self-organizing cellular processes. Importantly, there is no molecular pre-patterning event that instructs the emergence of follicle structure. Instead, cellular contractility is responsible for spontaneously reshaping dermal progenitors into follicle aggregates. This physical impulse also triggers a mechanosensitive protein, β-catenin, which then goes on to activate the follicle gene expression program in aggregated cells. While focused on the avian skin, this work illustrates the power of viewing organogenesis as a cellular process propelled by mechanical forces. Going forward, I plan to develop this perspective further by using it to frame morphological changes in other organs as well as across evolutionary time-scales.

Seminar Speaker Host: Sharlene Santana