Genome Sciences Seminar

Wednesday, 10.16.19 | 3:30 | Foege Auditorium

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"Pairing and patterning between meiotic chromosomes"

Our group investigates chromosome organization and dynamics. We focus on meiosis, the specialized cell division process that gives rise to reproductive cells such as sperm, eggs, pollen, and spores. Meiotic errors underlie many human birth defects such as Down Syndrome, and also contribute to human infertility, especially in older women. Successful meiosis requires a unique series of chromosome interactions: each chromosome must pair with its homologous partner, and these paired chromosomes then exchange genetic information through homologous recombination. Crossover recombination gives rise to genetic diversity, and also creates physical links between chromosomes that enable them to segregate away from each other. We investigate these mechanisms using the nematode Caenorhabditis elegans as our primary model organism. This experimental system has enormous experimental advantages, including rapid and powerful genetics, robust genome editing, outstanding cytology, and the opportunity to directly observe meiosis through in vivo imaging. We are also studying the evolution and plasticity of meiosis by comparing these events in C. elegans to other nematodes, such as Pristionchus pacificus.

https://mcb.berkeley.edu/labs/dernburg/