California State University, Fresno
Department of Biology Colloquium Seminar Series
presents…

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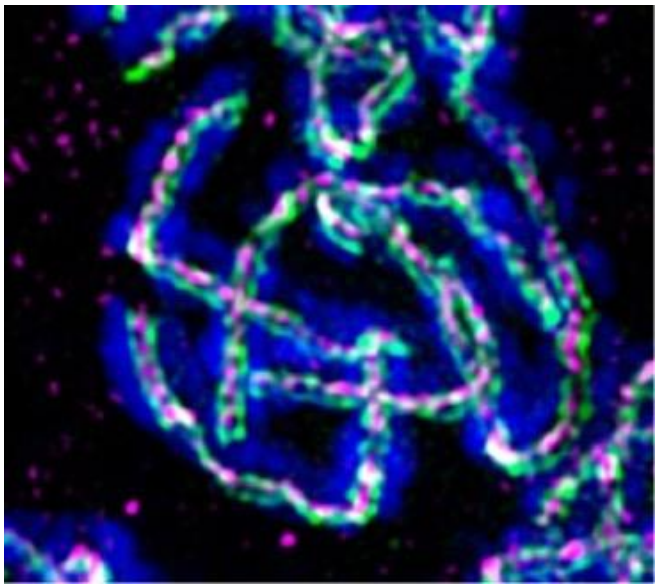
SYPrisingly separable functions of chromosome structures during egg and sperm development



Friday, April 22, 2022
3:00 – 4:00 pm

Sexually reproducing organisms faithfully transmit their genome to the next generation by forming haploid gametes through oogenesis (egg) and spermatogenesis (sperm). To ensure that each parental genome is properly inherited via these haploid gametes, cells must pair homologous chromosomes, induce DNA double-strand breaks, repair these breaks to form crossovers, and segregate the chromosomes. Notably, the mechanisms regulating these steps have sex-specific differences that influence fertility. Further, recent studies indicate the structure and/or function of meiotic chromosome structures, such as the synaptonemal complex, differs between oogenesis and spermatogenesis. The synaptonemal complex (SC) is a conserved, large, ladder-like structure between homologous chromosomes that is required in both oogenesis and spermatogenesis for the establishment of crossovers, which are required for accurate chromosome segregation. Despite the critical importance of the SC during oogenesis and spermatogenesis, the mechanisms and functions of these sex-specific differences remains unclear. Using the model system *Caenorhabditis elegans,* we found that the SC is sexually dimorphic and uncovered a novel dosage-dependent regulatory system of crossing over that controls the amount of individual SC proteins. Overall, these findings demonstrate that the SC proteins are not uniformly regulated, but instead the dosage of each protein is vital for ensuring fertility from one generation to the next.

Zoom virtual meeting:
https://fresnostate.zoom.us/j/84543877621?pwd=VmduNjFublBEV09aSUlSRmRiZFlBdz09

If you need a disability-related accommodation or wheelchair access, please contact Lindasue Garner at the Department of Biology at (559) 278-2001 or e-mail lgarner@csufresno.edu at least one week prior to the event.