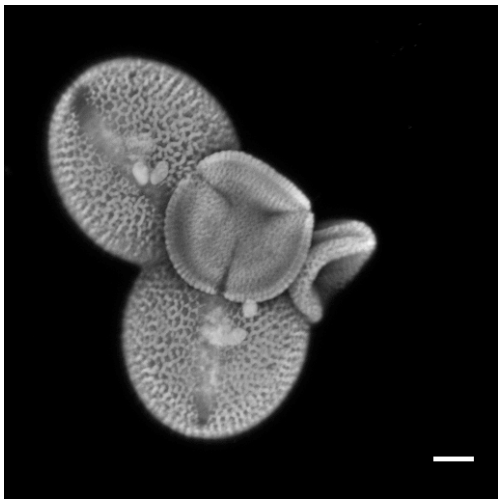
UNT SEMINAR

Presented by the Department of Biological Sciences



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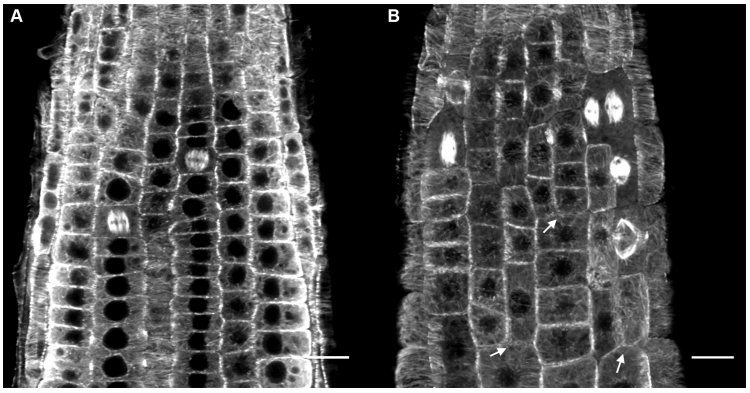

Properly segregating genetic material in mitosis and meiosis is crucial for cell survival and normal development. During cell cycle progression in mitosis, distinct molecular mechanisms ensure condensation, orientation and segregation of replicated chromosomes. The mitotic microtubule spindle array, its interaction with chromosomes via the kinetochore and the multiple components of the spindle-assembly checkpoint (SAC) guarantee that the structural and chronological orchestration of events happen normally and repetitively in actively dividing cells. The checkpoint prevents premature anaphase entry that could lead to deleterious cellular outcomes, such as cell death. Key regulatory proteins of this checkpoint interact with the kinetochore, such as the motor protein centromere-associated protein E (CENP-E). CENP-E participates in chromosomal movements from prometaphase until the formation of the metaphase plate. Moreover, interfering with CENP-E function results in mitotic problems such as misaligned chromosomes, spindle abnormalities, aneuploidy, and mitotic arrest. In animals, the removal or depletion of CENP-E leads to lethality or cancer, respectively. While SAC function is well characterized in animals and yeast, only a small number of studies in plants have focused on the structural and mechanistic aspects of cell cycle progression through mitosis. For instance while recent genomic and functional analyses have suggested conserved roles for checkpoint proteins, no report documents how or if plant CENP-Es function at the SAC. The research to be presented will focus on the role of *Arabidopsis thaliana* CENP-E in growth control and development. Novel findings suggest a broader view of CENP-E function in cells.

March 25, 2011 **2:00 PM** **ENV 130 (EESAT)**