John Wesley Powell Student Research Conference

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Apr 14th, 9:00 AM - 10:00 AM

Histone Modification Patterns Across the X Centromere Reflect Genomic Environment

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Kristen Kopf, '08 and Beth A. Sullivan, Faculty Advisor, "Histone Modification Patterns Across the X Centromere Reflect Genomic Environment" (April 14, 2007). *John Wesley Powell Student Research Conference.* Paper 31.
http://digitalcommons.iwu.edu/jwprc/2007/posters/31

Poster Presentation P49

HISTONE MODIFICATION PATTERNS ACROSS THE X CENTROMERE REFLECT GENOMIC ENVIRONMENT

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Centromeres, the primary point of constriction on chromosomes, are essential for proper chromosome segregation during meiosis and mitosis. Due to their large sizes and repetitive DNA content, centromere regions have been excluded from genome projects. However, being such fundamental functional elements that are epigenetically regulated, we want to understand their genomic organization and the relationship between underlying DNA sequence and chromatin and protein organization. In collaboration with a colleague at NHGRI, we are using chromatin immunoprecipitation-PCR (ChIP-PCR) to generate epigenomic profiles that overlay histone modifications onto the centromeric-pericentromeric genomic assemblies from human-mouse hybrid chromosomes. Our findings indicate that centromeric chromatin organization is regulated via epigenetic factors rather than wholly DNA sequence. This information is being used to identify genomic features that structurally, and potentially functionally, separate the centromere from the rest of the genome.