

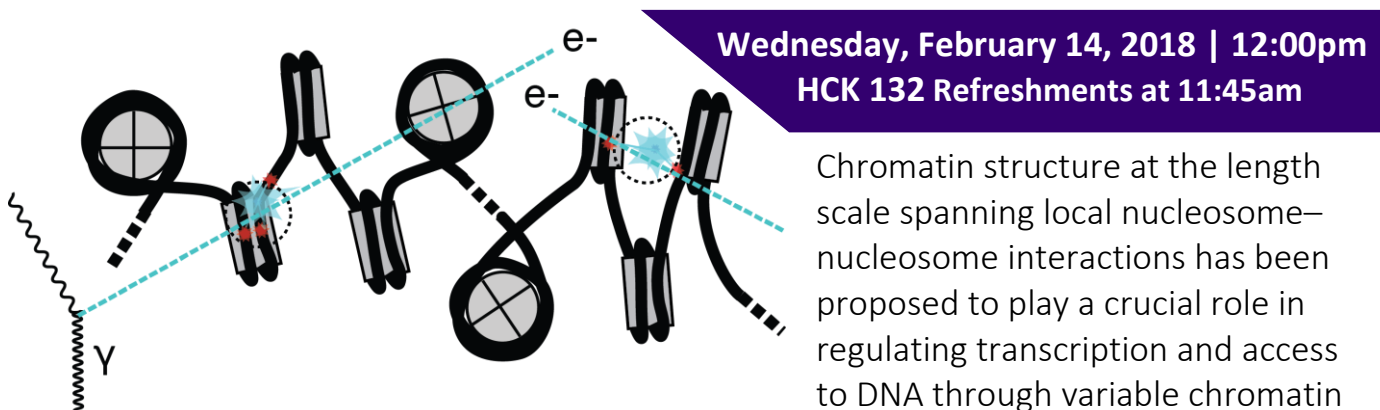
Faculty Search Biology Seminar

Speaker: **Viviana Risca**

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Bridging the chromatin structure gap: Sequence-resolved local nucleosome contacts in intact cells



Chromatin structure at the length scale spanning local nucleosome–nucleosome interactions has been proposed to play a crucial role in regulating transcription and access to DNA through variable chromatin compaction. However, it remains poorly understood as compared with the structure of single nucleosomes or with long-range chromosome interactions. This seminar will discuss a new method for mapping chromatin structure in human cells at the 1–3 nucleosome (50–500 bp) scale, obtained using ionizing radiation-induced spatially correlated cleavage of DNA with sequencing (RICC-seq). Analysis of RICC-seq data reveals that DNA fragments characteristic of DNA-DNA contacts between alternating nucleosomes are enriched in transcriptionally repressed genome regions marked by histone H3 lysine 9 trimethylation. These results support a model of chromatin architecture consisting of fibers with local zig-zag order and variable longitudinal compaction that correlates with changes in histone modifications.