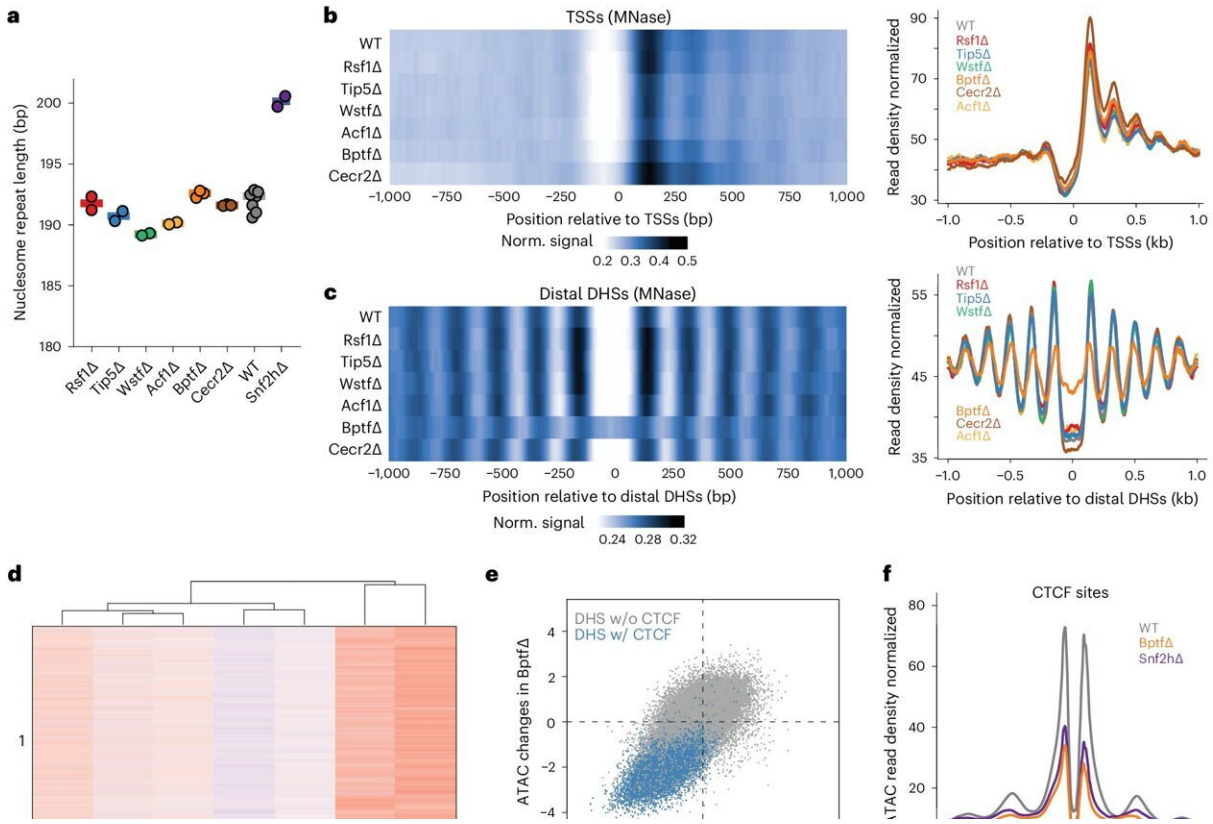
Video: Homing in on the role of chromatin organization in gene regulation

September 4 2024



Genome-wide nucleosome position and accessibility profiling identifies subcomplex-specific chromatin functions. Credit: *Nature Genetics* (2024). DOI: 10.1038/s41588-024-01767-x

Chromatin is a structure in the cell nucleus that helps pack DNA tightly by wrapping it around proteins called histones. These DNA-protein

units, called nucleosomes, control how genes are turned on or off by allowing or blocking DNA access to factors that regulate gene activity. Large protein complexes called chromatin remodelers help move nucleosomes to make DNA accessible to these factors.

Now, FMI researchers found that a component of a specific family of chromatin remodelers is important for placing nucleosomes in the right spots to keep certain areas of the DNA open.

In this video, Francesca Masoni—a Ph.D. student in the Schübeler group—tells us about her recent research, which was done in collaboration with Mario Iurlaro, a former postdoc with Schübeler and published in *Nature Genetics*.

Masoni and her colleagues studied a family of chromatin remodelers called ISWI and found that an ISWI subcomplex, called NURF, is crucial for maintaining specific boundaries in the genome by positioning nucleosomes correctly. Without NURF, these boundaries are disrupted, affecting gene regulation.

More information: Mario Iurlaro et al, Systematic assessment of ISWI subunits shows that NURF creates local accessibility for CTCF, *Nature Genetics* (2024). DOI: 10.1038/s41588-024-01767-x

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