

Tuesday, March 26th at 12:00 p.m.

Room 700, Fairchild Hall

Pizza will be served at 11:45 a.m. outside 700 Fairchild

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Fencing in Heterochromatin

The spreading of heterochromatin leads to the silencing of genes within its path, and boundary elements have evolved to confine heterochromatin spreading. In fission yeast, heterochromatin at centromeres I and III is flanked by inverted repeats termed IRCs, which are required for proper boundary functions. However, the mechanisms by which IRCs prevent heterochromatin spreading are not well understood. Here, we identified a BET family double bromodomain protein Bof1 as a factor required for proper boundary function at IRCs. Bof1 is enriched at IRCs and its localization depends on the boundary protein Epe1. The bromodomains of Bof1 recognize acetylated histone H4 tails and antagonize Sir2-mediated histone deacetylation to prevent heterochromatin spreading. Moreover, artificial targeting of Bof1 to an ectopic heterochromatin site establishes a functional boundary in a bromodomain-dependent manner. Thus, our results illustrate a novel mechanism of establishing chromosome boundaries at specific DNA sequences through the recruitment of a factor that protects euchromatic histone modification.