

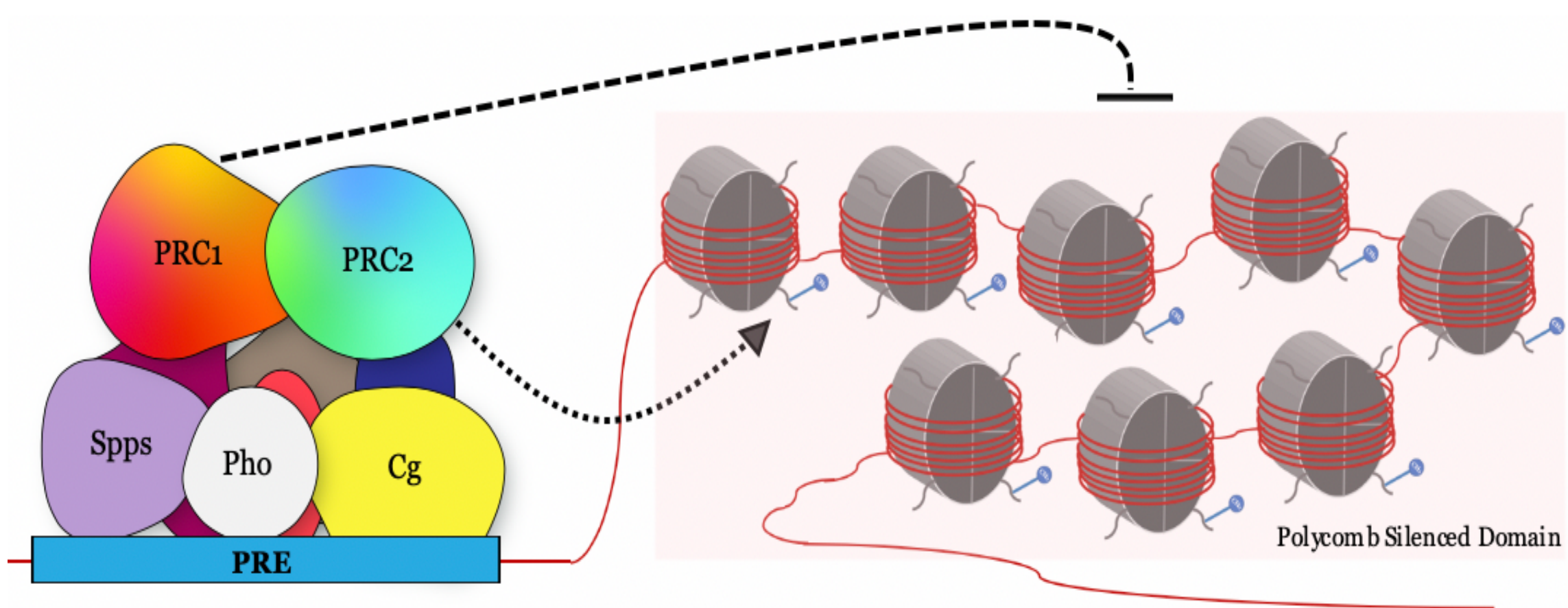
# Analyzing the Function of PcG Bound DNA Fragments Outside of H3K27me3 Domains

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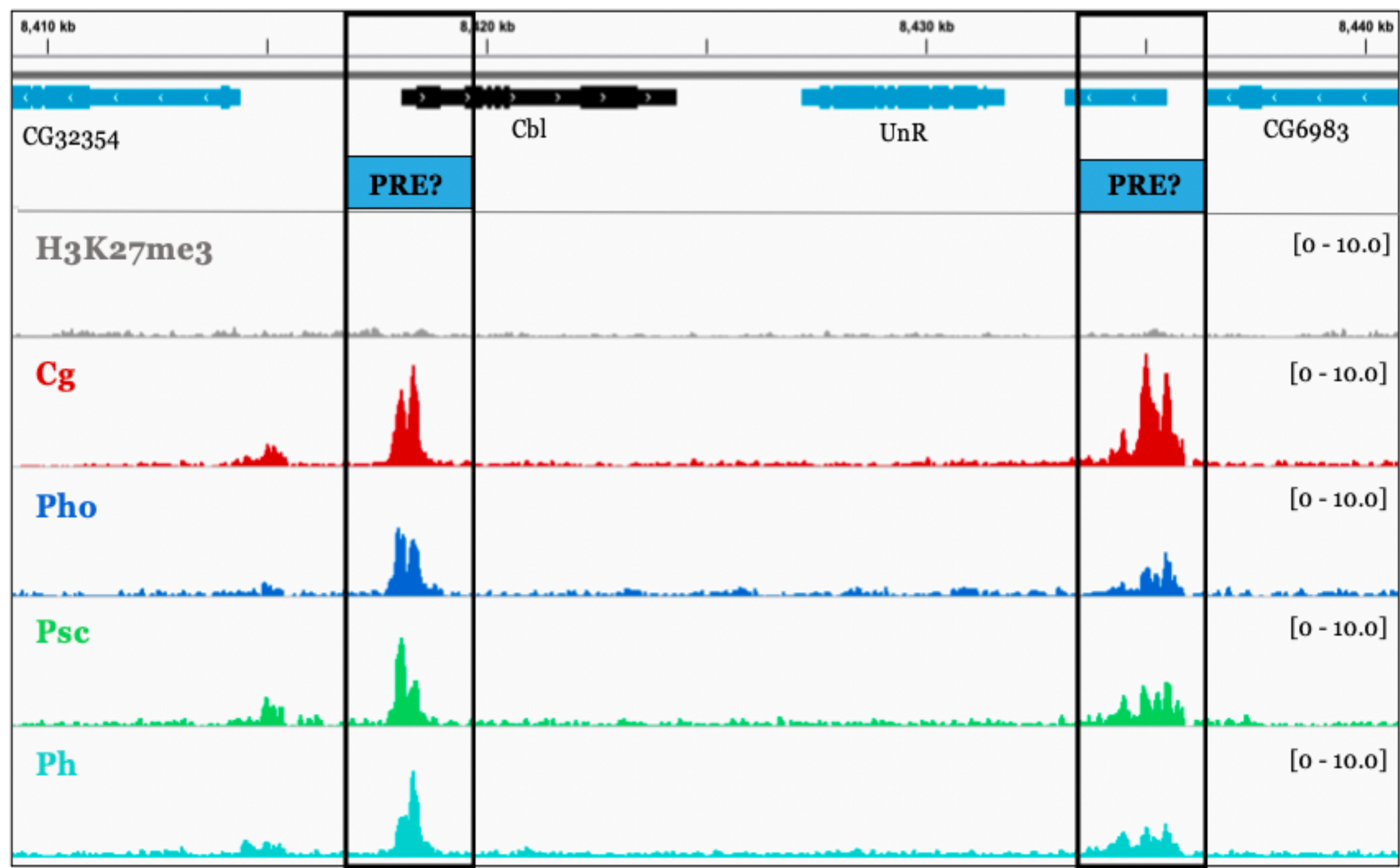
## Introduction

- Polycomb group (PcG) proteins play a vital role in maintaining developmental genes in a silenced state
- In *Drosophila melanogaster*, the Polycomb system works in complexes to create silenced domains through the addition of H3K27me3



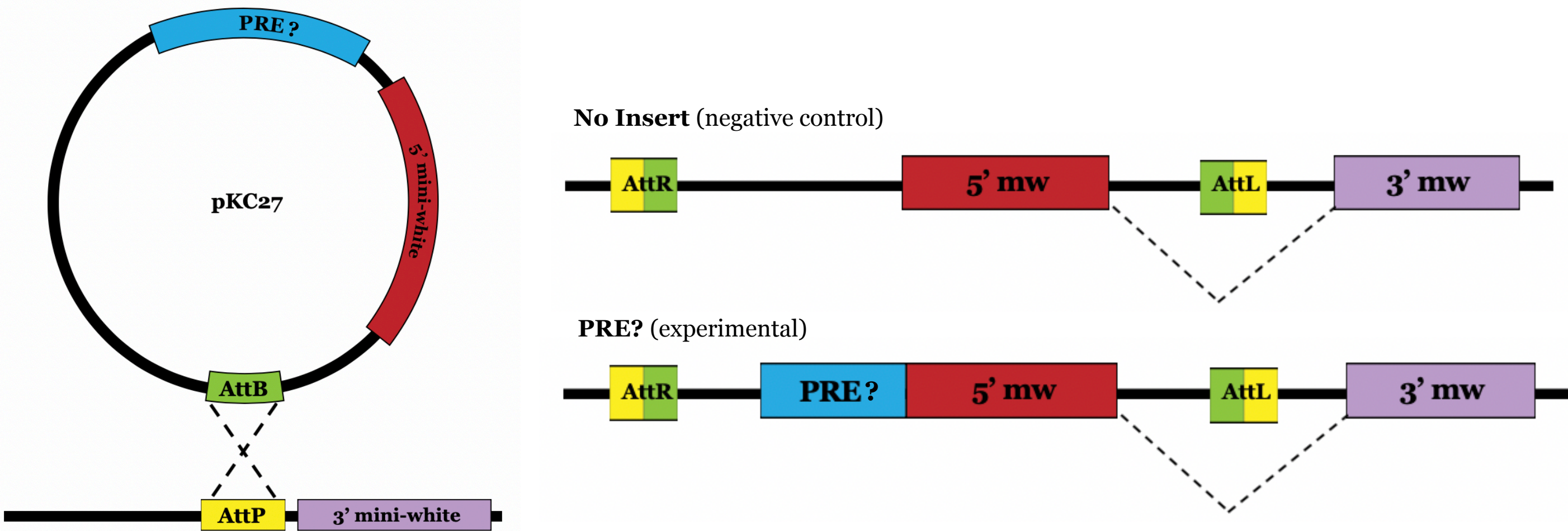
**Figure 1:** Polycomb repressive complexes are recruited to PREs by multiple PcG proteins and maintain silenced domains through the addition of H3K27me3.

- Genome-wide, the majority of PcG protein binding occurs outside of H3K27me3 domains



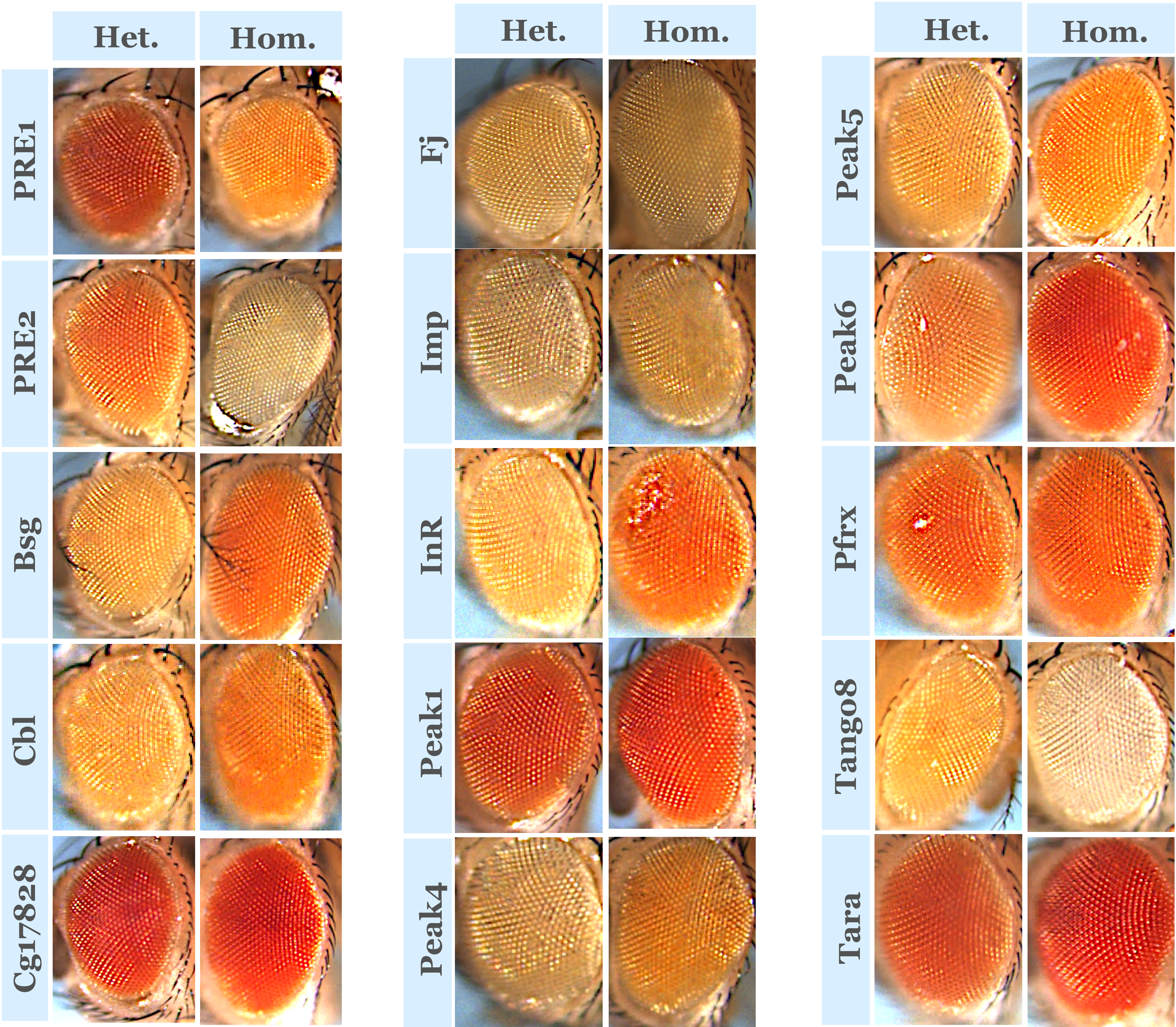
**Figure 2:** The majority of PcG protein binding occurs outside of H3K27me3 domains.

## Methods



**Figure 3:** The pKC27 split mini-white transgenic assay used to test PcG bound fragments for PRE function. Schematic and method adapted from Okulski et al (2011).

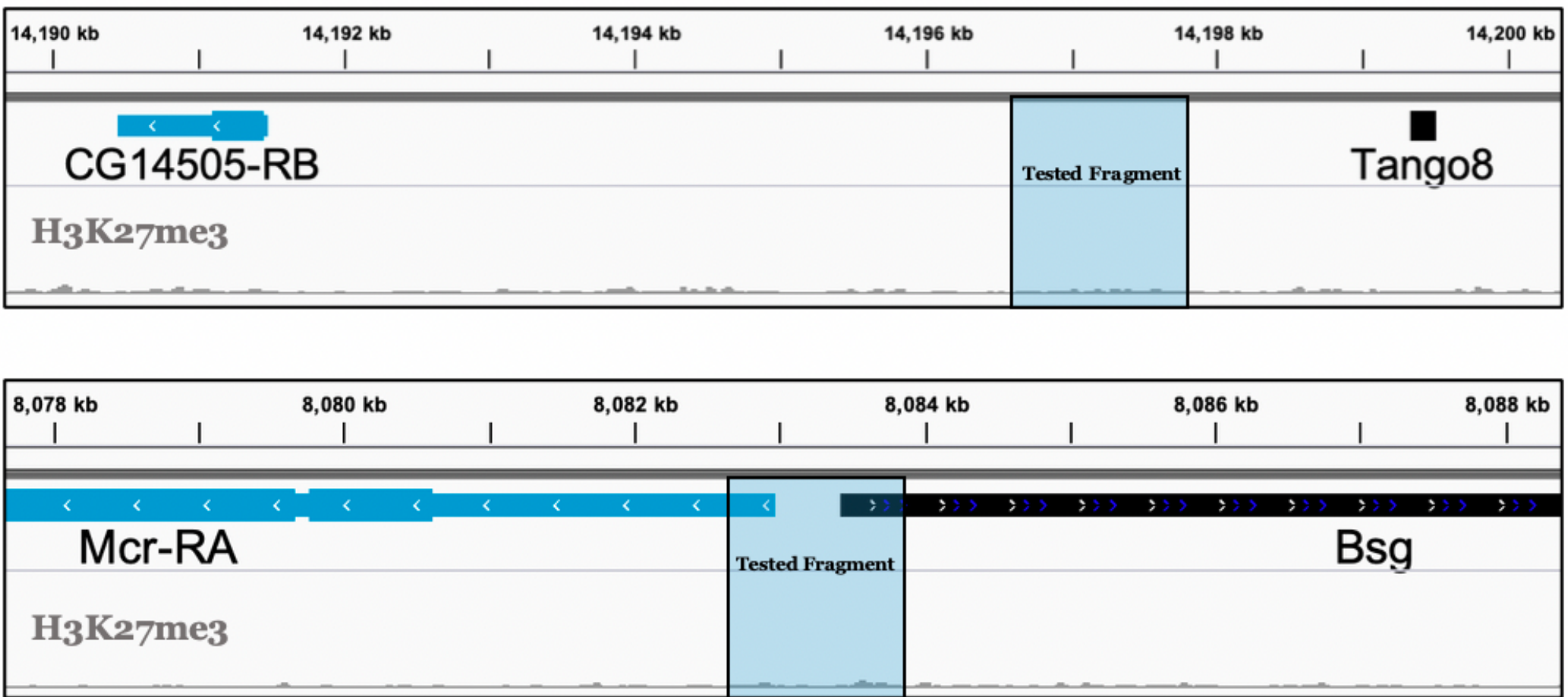
## Results



**Figure 4:** Comparison of *Drosophila melanogaster* eye color in females collected as virgins, with meconium still visible, and imaged within 8 hours of collection.

## Summary

- Only one tested fragment induced pairing sensitive silencing
- Comparisons between tested fragments offers minimal insight



	Pho	GAGA	Sp1	Dsp1	Zeste	Grh	Cg
Tango8	4	4(5)	4	3	7	1	3(8)
Bsg	4	2(7)	2	9	3	0	11(18)

**Figure 5:** Comparison of two tested fragment's loci and PcG binding motifs.

## Future Direction

- A total of 24 fragments will be tested using the described assay
- ChIP-qPCR experiments for H3K27me3 across the mw transgene may provide valuable insight

## Acknowledgements

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