# ABSTRACT

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| **TITLE:** | Mutational Analysis of the H2B:H4 Interface of the Nucleosome |
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**ABSTRACT:** The goal for this project was to gain a better understanding of the mechanisms that allow for successful transcription of DNA when it is wrapped into nucleosomes. Previous work indicated that an interface between histones H2B and H4 can alter gene expression in yeast. We began our work by creating point mutations in H4 to alter the way it interacts with H2B at this interface. The effect of the mutations were measured using a red-white assay that causes yeast cells to produce a red pigmentation when the ADE2 gene is not expressed (i.e. silent), or a white coloration when the ADE2 gene is expressed. The four mutations we investigated behaved as expected: Bulkier changes like the H75F mutation increased ADE2 silencing while the smaller changes of T71S, Y72A, and E74D all decreased ADE2 silencing. To further confirm the results obtained during this experiment, a similar mutational analysis will be conducted for H2B, where mutants E90D, T93S, L97A, and L97F will be created and tested for their effect on ADE2 gene expression.