**TODAYS DATE**

COMPANY NAME

COMPANY ADDRESS

COMPANY CITY AND STATE

**Dear Hiring Manager,**

I am writing to apply for the POSITION TITLE position at COMPANY NAME, as advertised on JOB WEBSITE. Currently, I am a Ph.D. Candidate advised by Dr. David Hall in the Department of Genetics at the University of Georgia, and I am defending my thesis in early July 2020.

My research in the Hall lab has focused on characterizing mutation rates and assessing factors affecting them using budding yeast as a model system. A major component of my PhD is investigating the effects of mobile genetic elements, specifically transposons, on mutations that are unrelated to transposition events. For this project, I developed 4 yeast strains that differed only in their number of transposons. I designed and carried out a 200-day mutation accumulation experiment with these 4 strains (a total of 200 yeast samples) and performed whole-genome sequencing. I analyzed these strains using bioinformatics tools and assessed the number and type of mutations present in the samples. We have found that the presence of transposons impacts the mutation rate independent of transposition events themselves.

For another chapter of my thesis, I looked at whether aneuploid yeast strains (those with a number of chromosomes that is not a multiple of the haploid state) possess an innate dosage compensation response. Through RNAseq analysis, I determined that there is no evidence for whole-chromosome dosage compensation, but some individual genes show attenuation. These findings add to our understanding of the evolution of dosage compensation mechanisms and help support the hypothesis that aneuploidy tolerance is likely a transient adaptive mechanism, not because of an innate dosage compensation response.

My Ph.D. research has fitted me with a broad toolkit of experimental, computational, and scientific skills. I have experience working with NGS methods such as RNAseq analysis and polymorphism discovery. I have established reproducible bioinformatic pipelines for both genomic and transcriptomic analysis, and I have experience coding and documenting code using Github. My benchwork has required me to work with both yeast and bacterial samples, and I have extensive experience with nucleic acid extraction and preparation – which will allow me to effectively collaborate with bench scientists. On top of these skills, I have also developed transferrable skills such as understanding of statistics, writing and presentation skills, proficiency with programming languages such as R and Unix/Linux environments, and mentorship. In addition, I have led teams of undergraduates in developing protocols and carrying out experiments. These skills and expertise align well with the mission and research at the COMPANY NAME.

Thank you for your time and consideration. Should you require any additional information or like to speak with me further about my qualifications, please contact me by phone at (352) 226-3112 or by email at hmcqueary11@gmail.com. I look forward to hearing from you soon.

Sincerely,

A close up of a logo

Description automatically generated

**Holly C. McQueary**

Ph.D. Candidate

Department of Genetics

University of Georgia