Kathryn C. Morrison

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Profile

Outgoing and detail-oriented scientist with hands-on experience in research and applications of molecular biology and genetic engineering, including 3+ years of experience in CRISPR plasmid design and cloning. M.S. in Biotechnology (Bioinformatics concentration) at Johns Hopkins University. Skilled in computational tools and biological data analysis that complements wet lab expertise. Known for being collaborative, adaptable, and driven.

Education

M.S. Biotechnology (concentration in Bioinformatics)	Johns Hopkins University	December 2025
B.S. Molecular, Cell & Developmental Biology	University of California, Santa Cruz	June 2022

Skills

Bioinformatics & Data Analysis:	Python, R, SQL, Protein Structure Prediction, Variant Effect Prediction & Interpretation, Bioinformatics Databases, DNA Sequencing & Analysis, Data Visualization
Genetic Engineering:	CRISPR/Cas9 Plasmid Design, HDR Cloning, Recombinant DNA Technology, Advanced Laboratory Procedures
Leadership & Operations:	Supervisory Experience, Collaboration, Protocol Development & Optimization, Quality Control

Experience

Santa Cruz Biotechnology — **Research Associate | May 2021 – December 2024**

- Improved plasmid production success rate by 8% through the development of high-efficiency competent cells and the optimization of PCR annealing and extension protocols.
- Designed and cloned homology-directed repair (HDR) plasmids for CRISPR gene editing and executed validation experiments to ensure high specificity and efficiency.
- Analyzed Sanger sequencing data using 4Peaks and Excel to validate constructs and ensure QC standards.
- Collaborated with cross-functional teams to troubleshoot experimental hurdles and refine laboratory protocols.
- Authored comprehensive technical reports and maintained detailed experimental records to support data transparency during team meetings.
- Led training and mentorship for junior staff members and streamlined the onboarding process for new hires.

Pacific Edge Climbing Gym — **Youth Programs Instructor | June 2022 – August 2024**

- Developed original class curricula and training frameworks tailored for teenage students to enhance skill acquisition.
- Facilitated instructor feedback sessions to evaluate student progress and implement strategies for improving climber safety and satisfaction.
- Instructed students on climbing fundamentals, safety protocols, and technical maneuvers within a welcoming, high-energy environment.

Back Office People — **Clerical Assistant | January 2017 – April 2018**

- Managed client relationships through professional correspondence, resolving inquiries via phone and email to sustain high satisfaction.
- Modified the organizational filing system for physical records, improving the accessibility of client receipts and documents.
- Executed data entry and document formatting within internal databases, ensuring accuracy in client file maintenance and research.

Projects

Poke a Protein - Spatial Protein Explorer

- Developed an interactive XR tool for 3D visualization of residue-level features in predicted and experimental protein structures for virtual reality (VR) and desktop environment.

HDR-Fix-Align

- Engineered a web-based front-end tool using Python for streamlined pairwise sequence alignment visualization.

RYR1 Protein: Structural & Functional Analysis

- Utilized predictive computational tools and analyzed large-scale biological datasets to determine the impact of mutations and post-translational modifications on protein-protein interactions.
- Conducted homology modeling and structural alignment to predict secondary and tertiary structure of RYR1 protein.