Aisha Rahman

Postdoctoral Research Associate

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Summary

Postdoctoral research associate in biochemistry with nearly 5 years of postdoctoral work on enzyme engineering. Pairs molecular biology and protein purification at the bench with machine learning and statistical analysis in Python, R and MATLAB, with 8 peer-reviewed papers.

Experience

Postdoctoral Research Associate

01/2022 - Present

Brazos Institute of Biomedical Research Houston, TX

Protein engineering lab developing enzymes for plant biomass breakdown.

- **Produce and purify 150+ enzyme variants a year, measuring enzyme kinetics with plate-reader assays.**
- **Train machine learning models in Python on 12,000 sequence-activity records, raising screening hit rates from 4% to 19%.**
- **Perform statistical analysis of kinetics data in R and maintain the lab's shared MATLAB fitting scripts.**
- **Supervise 3 graduate students and wrote the methods and preliminary data for 2 funded grant renewals.**

Graduate Research Assistant

08/2016 - 12/2021

Tippecanoe University, Department of Biochemistry West Lafayette, IN

Doctoral research on metal-dependent enzymes.

- **Characterized 3 metalloenzymes using biochemistry and spectroscopy methods, leading to 2 first-author papers.**
- **Cloned and mutated genes with PCR and Gibson assembly, building a library of 300 site-directed mutants.**
- **Presented findings at 4 national conferences and wrote the lab's standard protein purification protocol.**

Education

Doctor of Philosophy (Ph.D.)

12/2021

Tippecanoe University West Lafayette, IN

Biochemistry

Publications

Learned sequence-activity models speed the engineering of thermostable cellulases

09/2024

Rahman A, Castellano D, Pruitt LM. ACS Catalysis.

Zinc coordination controls substrate selection in a bacterial amidohydrolase

04/2021

Rahman A, Kowalczyk T, Neary B. Biochemistry.

Skills

- **Biochemistry**
- **Molecular Biology**
- **Protein Purification**
- **Enzyme Kinetics**
- **PCR**
- **Machine Learning**
- **Python**
- **R**
- **MATLAB**
- **Statistical Analysis**