UNIVERSITY OF MARYLAND, BALTIMORE COUNTY
Department of Chemical, Biochemical and Environmental Engineering • Garcia Lab • Cell-Free Synthetic Biology

Postdoctoral Research Associate

High-Throughput Assay Development for Intrinsically Disordered Proteins

Location: Garcia Lab, University of Maryland, Baltimore County (UMBC)
Term: Two-year funded appointment, with possibility of extension
Salary: Commensurate with experience and NIH postdoctoral scale, with full university benefits
Scope: Part of a multi-university collaborative effort

ABOUT THE ROLE

The Garcia Lab at UMBC specializes in high-throughput synthetic biology. We are seeking a Postdoctoral Research Associate to lead a project performing high-throughput assay development in order to develop predictive models for the folding behavior of intrinsically disordered proteins (IDPs).

This project centers on the sequence–structure–function relationships of IDPs. IDPs use different types of sequence-encoded grammars, and these are often tied to complex pathologies that lead to human disease. This grammar, in turn, makes it difficult for modern tools to understand and model IDP behavior.

The successful candidate will help shape the direction of the research and will use in vitro biochemical studies to characterize the emergent properties of IDPs with different molecular grammars, interfacing with trainees, staff scientists, and collaborators in a highly collaborative, interdisciplinary environment that will support their career development.

COMPENSATION & TERMS

- Salary commensurate with experience, consistent with NIH postdoctoral pay scale
- Full UMBC benefits package: health, dental, and vision coverage, retirement contributions, and paid leave
- Two-year funded appointment with possibility of extension contingent on funding and performance
- Support for conference travel, publication, and professional development

EDUCATION & EXPERIENCE

- PhD (completed or near completion) in protein engineering, synthetic biology, biochemistry, molecular biology, bioengineering, or a related field
- A track record of first-author peer-reviewed publications
- Demonstrated ability to design, execute, and interpret independent research

COMPUTATIONAL & COLLABORATIVE STRENGTHS

Decent experience with machine learning models for experimental design and analysis, and comfort working within large, collaborative teams, would be highly valuable in this role.

- Applying machine learning models to guide experimental design and interpret assay results

- Scripting for data parsing, QC, analysis, and modeling (Python or R)
- Experience integrating experimental data with structured, queryable databases
- A collaborative mindset and proven ability to coordinate across multiple labs and institutions

RESEARCH RESPONSIBILITIES

- Lead independent research projects on intrinsically disordered proteins
- Develop and run high-throughput biochemical assays
- Express, purify, and characterize proteins
- Build and maintain databases tracking constructs, extracts, and assay results
- Exchange data and protocols with collaborating labs
- Prepare reporting documents with a quick turnaround for funding agencies
- Publish results and present at conferences
- Mentor and train students and technicians

COMPLIANCE & SAFETY

- BSL-1/BSL-2 practices; IBC and institutional biosafety training
- Chemical hygiene, waste handling, and where applicable GLP/GMP documentation practices

SOFT SKILLS

- Meticulous record-keeping and attention to detail
- Communicates clearly with scientists, students, and computational staff
- Comfortable leading multiple projects and researchers with competing timelines
- Comfortable with occasional shift or weekend coverage for time-sensitive runs

PHYSICAL REQUIREMENTS

- Extended pipetting and standing; lifting up to ~25 lbs; cold room and biosafety cabinet work

USEFUL, BUT NOT REQUIRED

- Experience with cell-free protein synthesis (TXTL) systems
- Familiarity with acoustic dispensers (Echo), plate sealers/peelers, centrifuges, and thermocyclers
- Ability to run, troubleshoot, and modify existing automation methods; script authoring is a plus

ABOUT BALTIMORE & UMBC

UMBC is an R1 research university located just outside Baltimore, Maryland, within the vibrant Baltimore–Washington research corridor. The region offers a dense network of academic, government, and biotech institutions, a rich cultural scene, and an accessible cost of living, making it an excellent place to build both a research program and a life outside the lab.

UMBC is an Affirmative Action/Equal Opportunity Employer.