Research Specialist
Austin, TX

Howard Hughes Medical Institute (HHMI) is an independent, ever-evolving philanthropy that supports basic biomedical scientists and educators with the potential for transformative impact. We make long-term investments in people, not just projects, because **we believe in the power of individuals to make breakthroughs over time**. HHMI scientists have radically advanced the understanding of cells, the brain, the immune system, the development of organs, and how to treat many diseases. Founded in 1953 by aviator and industrialist Howard R. Hughes, HHMI is headquartered in Chevy Chase, Maryland, and employs more than 2,500 people across the U.S.

At HHMI, you are not just an employee – you are a part of a creative and talented team with colleagues whose expertise ranges from biomedical research to investment management, from information technology to law. We encourage collaborative and results-driven working styles and offer an adaptable environment where employees can function at their highest level. As HHMI scientists continue to push boundaries in laboratories and classrooms, you can be sure that your contributions while working at HHMI are making a difference.

We are currently looking for a highly motivated **Research Specialist** to support the lab of **Dr. Keiko Torii** at the University of Texas at Austin in Austin, Texas. The Torii lab has a long-standing interest to unravel how plant stem cells function and contribute to growth and development, with specific emphasis on signal transduction pathways and underpinning genomic/epigenomic mechanisms. In addition to harnessing chemical and synthetic biology, we are designing and building synthetic signal transduction circuits to control plant growth and development suited for a changing climate. More information about the lab can be found here: https://www.plant-stomata.org/

The successful candidate will join a team of plant biologists and characterize the biophysical and structural basis of small chemicals regulating plant stem cell proliferation and differentiation. The University of Texas at Austin, Department of Molecular Biosciences hosts groups of outstanding structural biologists operating the CryoEM (e.g. Prof. Jason MacLellan, Prof. David Taylor, Jr.) as well as a strong X-ray crystallography community (e.g. Prof. Yan Jessie Zhang, Prof. Jason MacLellan, Prof. Keatinge-Clay). The successful candidate will have the opportunity to interact with these outstanding structural biology community members and participate in cross-disciplinary collaboration. UT Austin's CryoEM Facility and UT Austin's Macromolecular Crystallography Facility are both well equipped to perform structural analysis (two CryoEMs, 300 kV Titan Krios and 200 kV Talos F200C are in the facility).

Principal Responsibilities:

- Collect, record, organize and verify the accuracy of data, specifically for biological materials; perform calculations and prepare charts, graphs and reports.
- The successful candidate will lead a project involving expression plasmid construct design, recombinant protein expression, purification through a series of column chromatography and refolding of recombinant proteins; protein crystallization and structural analysis involving X-ray crystallography or CryoEM
- Perform quantitative protein-protein and protein-small chemical interaction assays in biochemical setting; perform SDS-PAGE and Immunoblotting
- Closely work with existing postdoctoral researchers (whose main expertise are molecular genetics/cell biology/developmental biology) and closely collaborate with structural biology labs within the UT Austin Molecular Biosciences department.
- Specific duties may include chemical library (drug) screening.

- Specific dry skills may include structural analysis using standard software and protein-ligand docking simulation.
- Assist and perform maintenance and organization of recombinant proteins/E.coli, yeast strains and cell culture for recombinant protein expression.
- Configure and operate laboratory apparatus and instruments; read and record instrument data; tabulate data and keep laboratory records. Specific equipment includes FPLC column chromatography system, BLI, centrifuges, ultracentrifuge, gel electrophoresis/immunoblot apparatus, and freezers/cold chambers.
- Participate in laboratory meetings and planning sessions.
- Successful applicants can contribute to manuscript writing as a co-author and present in scientific meetings.
- Successful applicants are encouraged to collaborate with students and train them with specific skills in biochemistry/protein structural biology.

Desired Qualifications:

Education

- Ph.D. in biochemistry, biophysics, structural biology, molecular biology, or related field of science or technology.
- At least 5 years of relevant research experience.

Experience

- Preference will be given to a candidate with previous experience in walking the process of construct design, recombinant protein expression, purification, crystallization, data collection, and structural analysis. with specific experience as stated below.

  For protein-ligand binding:
  1. Experience in kinetic analysis.
  2. Experience in biophysical characterization of protein-protein or protein-ligand binding (such as ITC, SPR, FA, BLI, GCI).
  3. In vitro assay development.
  4. Adaption of the assay to HTS format.

  For structural analysis:
  1. Experienced with high-quality protein purification using FPLC (e.g. ÄKTA) or other chromatography system.
  2. Experience in crystallization.
  3. Experience with complex determination with co-crystallization and soaking.
  4. Ligand model building.

- Preference will be given for those who are able to showcase their skills in the form of peer-reviewed manuscript authorship or actual PDB repository to demonstrate the experience above.

Skills and Abilities

- Experience with standard software for structural analysis.
- Strong understanding of the underlying scientific principles of the responsibilities for this role.
- Ability to draft routine reports and keep accurate records of work performed.
- Ability to interact and effectively communicate in an academic setting.
- Ability to actively seek opportunities to increase skills and expertise.
- Ability to learn complex tasks with general instruction.
- Ability to apply and use experience to perform a variety of new techniques.

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Application Instructions

Please attach the following information in a single PDF document as part of your application:

- Résumé or CV emphasizing prior research experience and including list of publications
- Contact information for three professional references

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