Harris Orthopaedics Laboratory
Massachusetts General Hospital
55 Fruit Street, GRJ 1131
Boston, Massachusetts 02114-2696
www.harrisortholab.org

Biomedical Engineering Position in Translational Research (Entry Level)

Harris Orthopaedics Laboratory

General Overview

The pioneering efforts of the Harris Orthopaedics Laboratory have positively impacted the quality of life of millions of patients through innovation and evidence-based medicine since its inception in 1969. The mission of the laboratory is to improve patient outcomes through materials science and clinical research with an emphasis on orthopaedic applications.

Harris Orthopaedics Laboratory is focused on the development of polymeric and hybrid materials for applications in orthopaedics. We are seeking a highly motivated individual for an entry-level research position to support our translational research program in implantable biomaterial development, starting in June 2020 or earlier. This position is ideal for new engineering graduates interested in the medical application of basic research and is a great opportunity for those who want to gain some experience before continuing their education in graduate or medical school.

Responsibilities include, but are not limited to, the following activities:

Specific technical functions:

- Laboratory formulation including preparation of macromers, polymers, polymer blends, polymeric consolidation
- Modification of polymers including outside services such as radiation processing
- Characterization of polymers on-site and off-site at available facilities in Boston including drug elution, mechanical and fatigue testing, wear testing, thermal and structural characterization
- May include bacterial culture studies on processed UHMWPE materials using various assays
- May include support for pre-clinical testing including preparing tissue specimens for post-surgical analysis and characterization of retrieved implants
- May include data processing of material structure data such as gait analysis and micro-computed tomography image analysis

General laboratory functions:

- Assembly, operation, maintaining operation protocols, scheduling management and some maintenance of assigned equipment
- Ordering supplies and keeping track of related inventory
- Maintaining clean equipment, glassware and laboratory space
- Working alongside other research technicians, MD students, PhD students and post-doctoral fellows

Administrative/reporting functions:

- Organizing and accurately maintaining written records of procedures and data
- Generating and compiling experimental information/results in graphs, charts, and reports.
- Preparing written and/or verbal reports for supervisor and/or senior research personnel.
- Collaborating with team members and supervisor(s) in developing research methodologies and research objectives
- Collaborating with team members and supervisor(s) in writing and editing material for publication; opportunity for authorship in publications

Skills/Abilities/Qualifications

- Must have BS. Non-engineering degrees will ONLY be considered with relevant experience.
- Must have at least one non-course based laboratory research experience, such as a summer internship or research assistantship.
- Coursework and/or internship experience in polymeric materials a plus.
- Coursework and/or laboratory experience with bacterial culture methods or animals a plus.
- Robust written and oral communication skills, attention to detail, and strong organizational skills are all expected. Independence, self-motivation, and a willingness to learn new skills are also vital for succeeding in this position.
- Must have solid, practical skills in Microsoft Office applications. Demonstrated proficiency in Matlab is a plus.

This position requires strong academic performance (minimum 3.2 GPA is preferred). The ideal candidate will also have had prior research experience. Preference will be given to a candidate planning to matriculate at medical or graduate school in 2022.

How to Apply

Please submit your resume, cover letter, and your unofficial transcript to Shannon Hugard, shugard@mgh.harvard.edu by February 29, 2020. We will start reviewing the applications as we receive them. Earlier applicants will receive priority.

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Translational Research Intern Position at the Harris Orthopaedics Laboratory

General Overview

The pioneering efforts of the Harris Orthopaedics Laboratory (HOL) www.harrisortholab.org have positively impacted the quality of life of many millions of patients through innovation and evidence-based medicine since its inception in 1969. The mission of the laboratory is to improve patient outcomes through materials science and clinical research in orthopaedics.

A twelve to thirteen-week Research Intern position with a stipend is available from June to August 2020. The internship will include an introduction to material formulation and testing of drug delivery devices in orthopaedic applications such as joint arthroplasty, trauma and spine. Interns will have the opportunity to be exposed to the translational research environment through interaction with other members of the Harris Laboratory and gain insight into design of medical devices, pre-clinical testing of safety and efficacy and clinical follow-up research of implanted materials. Upon successful completion of the internship, the intern may be considered for the full-time research technician position that is planned for June 2021.

Depending on the specific project, responsibilities will include some of the following activities:

- Laboratory formulation including preparation of polymers, blends of polymers, photo and thermal polymerization, polymeric consolidation
- Characterization of polymers on-site and off-site at available facilities in Boston including elution testing, mechanical, fatigue testing and structural characterization
- May include support for pre-clinical testing including preparing tissue and blood specimens for post-surgical material analysis and characterization of retrieved implants
- May include data processing for gait analysis or characterization of structural material properties
- May include working with bacterial cultures in a BL2 setting

General laboratory functions:

- Assembly, operation, maintaining operation protocols, and some maintenance of used equipment
- Maintaining clean equipment, glassware and laboratory space
- Working alongside research technologists, MD students, PhD students and post-doctoral fellows

Administrative/reporting functions:

- Organizing and accurately maintaining written records of procedures and data
- Generating and compiling experimental information/results in graphs, charts, and reports
- Preparing written and/or verbal reports for supervisor and/or senior research personnel

Skills/Abilities/Qualifications

- The ideal candidate will be a rising senior on the pre-med track, majoring preferably in Chemical/Biomedical Engineering who has demonstrated strong academic performance (minimum 3.3 GPA is preferred). Preference will be given to a candidate planning to matriculate at medical or graduate school in 2023.
- Coursework and/or internship experience in polymeric materials a plus.
- Robust written and oral communication skills, attention to detail, and strong organizational skills are all expected. Independence, self-motivation, and a willingness to learn new skills are also vital for succeeding in this position.

How to Apply

Please submit your resume, cover letter, and your unofficial transcript to Shannon Hugard, shugard@mgh.harvard.edu by February 29, 2020. We will start reviewing the applications as we receive them. Earlier applicants will receive priority.