

KIRTHIKA G - Science Research Intern

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Overview

I worked as a Science Research Intern at Centered for Engineered Therapeutics Brigham and Women's Hospital – Harvard Medical School, Boston contributing to orthopedic research, analytical method development, and day-to-day laboratory operations. My role included supporting two key research projects, participating in bi-weekly team meetings, presenting findings, and collaborating with cross-functional research teams.

Key Projects

1. HPLC Method Development for a Test Drug

- Developed an optimized HPLC method for analyzing a test drug molecule.
- Prepared SOPs prior to each experiment, outlining method strategy, trial design, and safety steps.
- Coordinated with senior researchers to troubleshoot chromatographic issues and refine detection parameters.

2. Orthopedic Bone Cement Comparison Study

- Conducted a comparative evaluation between laboratory-prepared bone cement and commercial bone cement.
- Performed a 24-hour hands-on experiment involving mixing, setting time evaluation, and physical property comparison.
- Gained in-depth understanding of orthopedic biomaterials, cement preparation workflow, and performance assessment.

Laboratory Duties & Responsibilities

- Maintained Standard Operating Procedures (SOPs) for experimental workflows.
- Managed essential general lab duties, including:
 1. Preparation of DI water, PBS, 10% bleach solutions, Eppendorf tubes, and aspirating pipettes.
 2. Rinsing, labeling, and organizing autoclave-safe materials.
 3. Operating autoclave (solid vs liquid mode), handling heat-safe equipment, and stocking sterile supplies.

4. Monitoring inventory and alerting supervisors when supplies ran low.
5. Ensured proper biohazard waste handling, including double-bagging, sealing, and transporting to designated disposal areas.

Cross-Functional Collaboration

- Collaborated with postdocs, graduate researchers, orthopedic teams, and lab managers to support ongoing research.

- Assisted with method planning, documentation, and experimental workflow improvements.

Additional Experience

- Volunteered at Mass General Brigham's Orthopedic Retreat, assisting with event support and interacting with multidisciplinary clinical and scientific teams.

Skills Gained

- HPLC method development
- Orthopedic biomaterials (bone cement)
- SOP writing & experiment planning
- Autoclave operation & sterile workflows
- Laboratory inventory management
- Scientific communication & presentation
- Cross-functional collaboration
- Wet lab technique & safety compliance



Ortho Retreat - MGH, Boston, MA