

Project Title:

Protocol development for assays of bone and cartilage tissues from mouse knee joints

Academic Supervisors:

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Project Description:

Reproducibly extracting and measuring biomarkers from small structures (e.g. mouse knees) can be challenging. The goal of this work is to develop protocols for this challenge.

Glycosaminoglycans, collagen, DNA, and mineral content are just some of the markers used to understand biological tissue quality. In this work, we are looking to develop robust protocols for assaying bone and cartilage, and to extract biomarkers of interest for diseases like arthritis. This work will form a foundation for future research projects.

Protocol development includes:

- identification of biomarkers of interest
- investigation of available assays and measurement techniques
- identification and testing of potential solutions with mouse tissues
- evaluation of solutions for future use & development

Preference will be made for students possessing biochemistry or biological lab skills and a willingness to work with biological tissues. The student must be a keen learner, creative, possess effective written and oral communication skills in English, and have good time management skills.

Tasks

10% literature review & project planning;

20% identification of methods;

60% data collection & processing,

10% report & presentation preparation.

Suitable as either a year-long (two semester), a single semester project, or an international internship.

Keywords: biochemistry; biotechnology; tissue analysis

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