Tissue Engineering & BioImaging Lab

Postdoctoral Fellow (PDF)

[Tissue Engineering / Biomaterials]

POSITION OVERVIEW

Faculty Supervisor: Dr. Leila Mostaço-Guidolin
Faculty / Department: Faculty of Engineering and Design/Systems and Computer Engineering
Postdoc Appointment Term: 1 year, with potential renewal for up to 3 years based on progress.
Appointment Start Date: September 2025 (flexible)

We are looking for someone…

…highly motivated to join our group as a postdoctoral fellow, to focus on **developing *in vitro* models to mimic airways and contribute to our quest to understand tissue remodelling in asthma** (and other chronic respiratory diseases).

The Project

Fibrotic diseases impose a significant burden—costing approximately $93 billion annually on the Canadian healthcare system—and yet no therapeutic has successfully reversed fibrosis. Our groundbreaking project seeks to pioneer a transformative approach: preventing tissue scarring by elucidating the dynamic interplay between matrix composition, tissue structure, and cellular reprogramming in the aging lung. We are looking for an experienced and visionary research leader to spearhead this transdisciplinary initiative that integrates tissue engineering, advanced imaging, bioinformatics, and microfluidic technologies.

As part of the Tissue Engineering and Applied Materials (TEAM) Hub, your primary mentors will be Drs. Leila Mostaço-Guidolin and Edana Cassol, but will have collaborative opportunities with all members of the Hub and benefit from the collective expertise.

Your Role

You will develop multicellular bioengineered models that replicate fibroblasts interactions with macrophages and epithelial cells. Using 3D bioprinting, molecular assays, and advanced imaging, you will assess immune dynamics in health and disease. Your work will help validate these models as potential testing bed for therapeutics and discover fundamental mechanisms driving fibrosis. Your responsibilities include:

- Design 3D tissue-engineered models using bioprinters and novel bioinks.
- Characterize models with cell sorting, RNA sequencing, ELISAs, and imaging techniques.
- Introduce perturbations to simulate disease conditions.
- Publish research findings and present at conferences.
- Mentor graduate and undergraduate students.
- Contribute to grant proposals and ethics applications.

Qualifications Required

As a PDF, you are ambitious, enthusiastic and a creative scientist. You are a team player devoted to research and education. You also have:

- a PhD degree in (bio-) engineering, (bio-) physics, biological sciences, or related field (within the last 5 yers;
- Hands-on experience with 3D bioengineered models (e.g., organoids, bioprinted tissues, organ-on-chip, co-culture systems).
- Strong background in cell culture, immunology, and molecular biology techniques (e.g., RNA sequencing, gene editing, Western blot, PCR).
- Independence and self-driven.
- Ability to analyze complex data.
- Excellent communication and teamwork skills. The successful candidate will need to be able to consult on experiments with researchers from multiple disciplines including engineering, physics, and biology.

Bonus skills, not required, but a plus:

- Knowledge of biofabrication and bioinks (Collagen, GELMA, PEGDA, Matrigel, etc.).
- Familiarity with microfluidics bioprinting.
- Knowledge of advanced microscopy techniques and their operation, including super-resolution imaging (Airyscan), total internal reflection microscopy, fluorescence correlation spectroscopy and two photon imaging.
- Knowledge of image analysis techniques and methods for image quantification.
- Knowledge of Raman spectroscopy and Atomic Force Microscopy.

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We offer

The selected candidate will work with a high degree of independence and will be expected to set priorities under broad directives and in concert with the principal investigators. The PDF will be expected to take a leadership role in the laboratory under the supervision of Drs Mostaço-Guidolin and Cassol. This position will provide the candidate with a high level of exposure to biotechnology. The PDF will be expected to provide supervision and guidance to undergraduate and graduate students as required.

This is a unique position in an international environment with a pleasant and open working atmosphere. We offer a competitive gross annual salary, dependent of your expertise. You are going to work at one of the greenest and most innovative campus in Canada, and at a university that has been chosen as one of the National Capital Region's Top Employer.

Do you want to apply?

Please submit a single PDF package to Dr. Mostaço-Guidolin (**leila at sce.carleton.ca)**, containing:

- A cover letter briefly stating why you are interested in working with us, and what you hope to gain from this experience (e.g. research experience, collaboration with industry or other departments, developing a particular skill, etc.). Please keep it to a maximum of 2 pages.
- CV showing academic and/or industry experience;

Please refer to reference code **PDF-T.ENG** during correspondence about this position. Applications will be reviewed as they are received. If this ad is still posted, it means we are still looking for our new team member. Although we are eager to have you starting with us as soon as possible, the target start date is flexible. We thank you in advance for applying; only if you are selected for an interview you will be contacted.

Equal Opportunities

The TEB Lab is home of people with very different backgrounds and skills, who inspire and motivate each other. We want every talent to feel at home in our group and be offered the same career opportunities. We strongly encourage applications from people who are underrepresented at Carleton University and at the TEAM Hub. For more information please visit the Carleton's Equity, Diversity and Inclusion Action Plan page.

The TEB Lab together with Carleton University is committed to fostering diversity within its community as a source of excellence, cultural enrichment, and social strength. We welcome those who would contribute to the further diversification of our group including, but not limited to: women; visible minorities; First Nations, Inuit and Métis peoples; persons with disabilities; and persons of any sexual orientation, gender identity and/or expression. Furthermore, we understand that career paths vary and interruptions will not prejudice the assessment process. Accessibility is a university strategic priority and applicants selected for an interview who require accommodations are invited to contact the us as soon as possible to ensure that appropriate arrangements may be made.