



Postdoctoral Fellow in Single-Cell Microbial Genomics and/or Functional Screening

The Lan Lab at the Institute of Biomedical Engineering at the University of Toronto is seeking a highly motivated and creative postdoctoral scholar to use new ultrahigh-throughput single-cell sequencing and functional screening technologies to explore microbial heterogeneity in gut microbiomes. Building on our expertise in microbial single-cell analysis, we aim to understand microbiome function by investigating strain-level and intra-strain heterogeneity. This is a completely new approach to microbiome analysis and is an excellent opportunity to develop creative, high-impact projects at the interface of microbiology, genomics, and engineering.

We are especially interested in candidates with strong microbiology, microbial genomics, bacterial genetics, microbial ecology, anaerobic culturing, sequencing, bioinformatics, or high-throughput assay experience. Prior experience with droplet microfluidics is welcome but not required.

Project description:

The candidate will use newly developed single-cell technologies to generate large-scale single-cell data for human gut microbiomes and conduct analysis to establish genome-function relationships. Hypotheses generated will be confirmed using *in vitro* and *in vivo* models, culminating in new insights into strain-level function, microbial heterogeneity, antimicrobial resistance, and host-microbiome interactions.

Responsibilities include tackling research problems, mentoring students, using microfluidics devices, handling microbiome samples, constructing sequencing libraries, developing new bioinformatics analysis pipelines, and disseminating findings through publications and presentations.

Opportunities for training and development:

The Lan Lab is a highly interdisciplinary environment with researchers of all career stages in microbiology, synthetic biology, microfluidics, and genomics. The postdoc will have the opportunity to lead first-author publications, develop independent project directions, mentor trainees, build collaborations across U of T and affiliated hospitals, and receive support for fellowship applications and future academic or industry career development.

Required qualifications:

Applicants should have a Ph.D. in microbiology, bioengineering, bioinformatics, genomics, molecular biology, microbial ecology, or a related discipline by the start date. Strong candidates will have demonstrated expertise in at least one of the following areas: microbiology, microbial genomics, sequencing, molecular biology, bioinformatics, bacterial genetics, microbial ecology, or high-throughput assays. Candidates should demonstrate strong communication skills, evidence of independent research productivity, and enthusiasm for working in an interdisciplinary environment.

Preferred qualifications:

- Experience with high-throughput assays
- Knowledge of anaerobic culturing or microbiome sample handling.
- Familiarity with droplet microfluidics.



Institute of Biomedical Engineering
UNIVERSITY OF TORONTO

Appointment details:

- Start Date: September 2026 (flexible)
- Duration: 1-year full-time appointment with renewal based-on satisfactory performance.
- Salary: \$60,000 plus benefits
- More information about postdoctoral positions can be found here:
<https://postdoc.sgs.utoronto.ca/>

To apply:

Applicants should email microbialmicrofluidics@gmail.com with the subject line “Prospective Postdoc” with:

- (1) a cover letter describing your research background, research interests, and career goals, addressing the question: “What project direction in single-cell microbial genomics or functional microbiome screening would you be excited to develop in our lab?”
- (2) a curriculum vitae with publication list.
- (3) a first-author manuscript (published or submitted) or thesis representing your PhD work.
- (4) names and contact information of at least three references.

Applications will be accepted until the position is filled. For questions, contact the above email or visit www.lanlab.ca for additional information.

The normal hours of work are 40 hours per week for a full-time postdoctoral fellow (pro-rated for those holding a partial appointment) recognizing that the needs of the employee’s research and professional development and the needs of the supervisor’s research program may require flexibility in the performance of the employee’s duties and hours of work.

Employment as a Postdoctoral Fellow at the University of Toronto is covered by the terms of the CUPE 3902 Unit 5 Collective Agreement. This job is posted in accordance with the CUPE 3902 Unit 5 Collective Agreement.

The University of Toronto is strongly committed to diversity within its community and especially welcomes applications from racialized persons / persons of colour, women, Indigenous / Aboriginal People of North America, persons with disabilities, LGBTQ2S+ persons, and others who may contribute to the further diversification of ideas.

ENGINEERING | MEDICINE | DENTISTRY

Rosebrugh Building, 164 College Street, Room 407, Toronto, ON M5S 3G9
Tel: +1 416 978-7459 • bme.utoronto.ca