THE UNIVERSITY OF BRITISH COLUMBIA

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POSTDOCTORAL FELLOW POSITION
STEM CELL BIOENGINEERING LAB
UNIVERSITY OF BRITISH COLUMBIA

Seeking one Postdoctoral Fellow or Research Associate to work on **NEXT GENERATION CELL THERAPY PROCESS ENGINEERING**

Research Program Overview

One position is available in the Zandstra Stem Cell Bioengineering laboratory (https://stemcellbioengineering.ca/), in the School of Biomedical Engineering, affiliated with the Michael Smith Laboratories, at the University of British Columbia's main Vancouver campus. The successful candidate will be expected to investigate the use of stem cells, including pluripotent stem cells (PSC), to develop manufacturing platforms to grow blood stem and progenitor cells towards T-cell progenitors and other differentiated blood cells (e.g. natural killer cells) using bioprocess engineering strategies. Experience that matches our goals and efforts in the automation and feedback-controlled sensor space is of particular interest. Our well-funded multidisciplinary program integrates researchers in stem cell biology, biological computation, microfabrication, developmental biology, process engineering and cell therapy, with the goal of developing new cell-based therapeutics to treat disease. The incumbent would be expected to take leadership roles in connection to our fundamental stem cell engineering work on cell and tissue manufacturing strategies, working both on new projects and in collaboration with industry to accelerate our efforts to manufacture therapeutically relevant blood cells from stem cells.

Qualifications

PhD required. Background in bioengineering and process engineering required, with a focus on bioreactor technology and cell therapies.

Seeking a creative individual who can integrate bioengineering, genomic and developmental biology strategies on projects focusing on blood and/or pluripotent stem cell differentiation to blood lineages using bioreactor systems. The ability to further integrate with related projects in the lab involving synthetic biology and computational biology, artificial intelligence, and automation technologies is desirable. Ideal candidates must have experience in some or all of the below:

- Bioreactor design and operation - essential
- Cell therapy applications – essential
- Process engineering
- Blood systems and/or developmental biology
- Mammalian cell and molecular biology
- Stem cell biology

- Flow cytometry
- Computational biology
- Automation
- AI

Individuals must also:

- Work well in a goal-oriented team environment
- Have a proven track record of research accomplishments (i.e. publication record)
- Possess excellent communication skills – both verbal and written
- Have the ability to work independently and organize own workload
- Have the ability to design and analyze experiments, keep meticulous records of experiments and data, report on research progress and outcomes openly, and review methodologies in response to feedback &
- Have the ability to update knowledge in their specialized area and implement relevant technologies to advance the project.

Project overview

Bioreactor-led processes for blood cell production at scale

To transform bench-top stem cell biology research into commercially viable bio-manufacturing practices, we are focusing on the core engineering principles of bioreactor design, feedback control, automation and scale-up, and mathematical modeling. We use a variety of bioreactor designs e.g. development of suspension bioreactors for PSC or closed-system bioreactors for feedback regulated growth of blood stem cells. Our foundational work in PSC-derived mesoderm and blood development complements our leadership in establishing new technologies to accelerate the therapeutic use of human umbilical cord blood (UCB) derived blood stem cells. We pioneered strategies for the production of these cells in automated feedback-controlled bioreactors, which we moved forward into clinical trials with key collaborators. Our ability to efficiently generate adult stem cell and PSC-derived blood progenitor cells opens exceptional opportunities to generate functional differentiated cell types. We recently demonstrated that progenitor T-cells can be generated in a defined artificial thymic niche. This project will work to combine PSC and blood stem cell engineering and bioreactor expansion strategies with our in-house platforms to grow blood cells at scale.

Other considerations

The Zandstra laboratory is situated on UBC Vancouver campus in the Biomedical Research Centre and is also affiliated with the Michael Smith Laboratories. Aspects of this project may be performed in part as a collaboration with an industry partner.

This position is available from July 1st, 2019 and will be a based on a one-year renewable contract, extendable depending on funding availability. Salary will be commensurate with qualifications and experience. Candidates are strongly encouraged to apply for competitive fellowship awards.

A letter of application, accompanied by a detailed curriculum vitae including a list of publications, and contact details for 3 references, should be sent by email to:

Professor Peter Zandstra
zandstra.lab@ubc.ca

Please include "Bioreactor PDF search" in the e-mail subject line. Applications will remain open until the position is filled. Review of applications will begin immediately and continue until the position is filled. We will contact you only if invited for an interview.

Equity and diversity are essential to academic excellence. An open and diverse community fosters the inclusion of voices that have been underrepresented or discouraged. We encourage applications from members of groups that have been marginalized on any grounds enumerated under the B.C. Human Rights Code, including sex, sexual orientation, gender identity or expression, racialization, disability, political belief, religion, marital or family status, age, and/or status as a First Nation, Metis, Inuit, or Indigenous person. All qualified candidates are encouraged to apply; however, Canadians and permanent residents will be given priority.