**POSTDOCTORAL FELLOW POSITION**

**ZANDSTRA STEM CELL BIOENGINEERING LAB**

**UNIVERSITY OF BRITISH COLUMBIA**

Seeking one Postdoctoral Fellow to work on **Bioprocess engineering for human stem cell derived therapeutics.**

Responsibilities

The successful candidate will be expected to investigate the use of stem cells, including pluripotent stem cells (PSC), to develop clinically translatable platforms to **engineer blood stem cell and differentiated blood cell (including T-cell) scale-up, scale-out, and graft composition, using bioprocess engineering strategies.** Particular non-exhaustive areas of current focus include automation of process development in multi-step differentiation programs, adaptation of current differentiation protocols to scalable technologies, and novel strategies for the identification, control and tracking of target cell profiles form the blood-forming system. Experience that matches our goals and efforts in the bioprocess design, 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 blood cell-based therapeutics to treat disease. The incumbent would be would be expected to take a leadership role in connection to our fundamental stem cell engineering work on cell and tissue manufacturing strategies, primarily working on our ongoing collaboration(s) with industry to accelerate our efforts to manufacture therapeutically relevant blood cells from stem cells, and to develop new projects in this area.

Qualifications

* Competitive candidates must hold a PhD and have obtained it within the last 5 years, by the time of their appointment. Background in bioengineering and/or process engineering required, with a focus on cellular-therapy approaches, using relevant high-throughput automated systems and/or bioreactor technology.
* The successful candidate will be a creative individual who can integrate bioengineering, and developmental biology-based design strategies on projects focusing on blood and/or pluripotent stem cell differentiation to blood lineages using high-throughput analysis and/or 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.
* Has a proven track-record of research accomplishments (i.e. publication record).
* Works well in a goal-oriented team environment.
* Understands and is willing to implement a Quality by Design framework.
* Possesses excellent communication skills – both verbal and written
* Has the ability to work independently and organize their own workload.
* Works collaboratively with our industry partner(s) within the structure of a Sponsored Research Agreement to meet time-sensitive goals.
* Has the ability to design and analyze experiments, keeps meticulous records of experiments and data, reports on research progress and outcomes openly, and reviews methodologies in response to feedback.
* Has the ability to update knowledge in their specialized area and implements relevant technologies to advance the project.

The successful candidate must also have experience in some or all of the below:

* Bioengineering methods (e.g. factorial Design of Experiments, bioprocess, Quality by Design)
* High-throughput and/or automated cell culture methods
* Bioreactor design and operation
* Cell therapy applications
* Process engineering
* Blood systems and/or developmental biology
* Mammalian cell and molecular biology
* Stem cell biology
* Flow cytometry
* Computational biology
* Laboratory automation
* Artificial Intelligence methods

**Example project overviews**

1. **High-throughput automated bioengineering of human blood stem cell culture for clinical therapy.** Successful outcomes from this project will translate into supporting ongoing clinical trials aimed at improving blood stem cell transplantation outcomes for patients suffering from blood malignancies. We anticipate that an engineered blood stem cell graft can be tuned to meet the clinical needs of specific diseases in a precise manner. To achieve this, we are developing and utilizing a high-throughput, automated platform capable of preparing and analyzing large numbers of culture conditions in a programmable manner, combined with modeling our cell population outputs with the goal of being able to predict output composition as a function of input molecular stimulation conditions.
2. **Bioreactor-based processes for blood cell production at scale.** Pluripotent stem cellsare a renewable source of cells for cellular therapies. Taking advantage of this cell type requires adapting current plate-based smaller scale production strategies to scalable and controllable suspension or continuous cultures. This project will work to combine PSC and blood stem cell engineering and bioreactor expansion strategies with our in-house platforms to grow blood cell products 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 the project may be performed in collaboration with industry partner(s).

This position is available from April 1st, 2021 and will be a based on a one-year renewable contract, extendable depending on funding availability and performance. Salary will be commensurate with qualifications and experience. Candidates are strongly encouraged to apply for competitive fellowship awards.

How to Apply

Candidates should provide a letter of application, accompanied by a detailed curriculum vitae including a list of publications, and contact details for 3 references, and a cover letter describing past achievements and future research interests.

Please email applications to Professor Peter Zandstra ([zandstra.lab@ubc.ca](mailto:zandstra.lab@ubc.ca)) with the

subject line “Blood stem cell therapy PDF search”. Please indicate in your cover letter how you became aware of the position.

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.*