A post-doctoral position is available in the laboratory of Dr. Stephanie Protze. The Protze lab is located in downtown Toronto and affiliated with the McEwen Stem Cell Institute at the University Health Network and the Department of Molecular Genetics at the University of Toronto. We study development and diseases of the human heart with a specific focus on the cardiac conduction system that regulates the heartbeat. We are using pluripotent stem cells, single cell transcriptomics, and electrophysiology assays to study heart development and diseases in a petri-dish. We also explore the application of the stem cell-derived conduction system cells as biological pacemakers in cell therapy approaches to treat heart rhythm disorders.

We offer
- A welcoming, dynamic, international team with cross-disciplinary expertise in pluripotent stem cell biology, developmental biology, cardiac electrophysiology and synthetic biology
- The opportunity to work at the forefront of stem cell research with a focus towards clinical translation
- The opportunity to interact with a wide network of international collaborators
- The opportunity to join Toronto’s Medicine by Design community
- The ability to interact with our industry partners

We seek
A driven, motivated postdoctoral fellow for a recently funded, collaborative project that aims at combining synthetic biology approaches with stem cell research and cell therapies for the heart.

Fusion of Cell Therapy with Synthetic Biology to Improve Cell Grafts

The postdoctoral fellow will:
- Perform genome-wide CRISPR screens to identify genes that increase hypoxia resistance during cell engraftment
- Test different synthetic biology circuits to activate these genes. These circuits will be developed by our synthetic biology collaborators from the Garton lab (University of Toronto)
- Differentiate human pluripotent stem cell lines into ventricular and pacemaker cardiomyocytes
- Genetically engineer pluripotent stem cell lines to carry synthetic circuits for testing in vitro and in vivo

Required qualifications
The candidate should have:
- a PHD or a MD degree
- Expertise in molecular biology techniques (RT-qPCR, cloning, western blot)
- Expertise in genetic engineering using the CRISPR-Cas system
- Effective organizational, time management, prioritization and problem-solving skills
- Strong verbal and written communications skills
- Ability to effectively work as part of a team

The following would be considered valuable assets:
- Background in cardiovascular research
- Background in computational analysis (R programming language)
- Experience culturing and differentiating human pluripotent stem cells
- Experience in flow cytometry

How to apply
If you are interested in the position, please email a cover letter and your CV highlighting the skills you would be bringing to this project to: stephanie.protze@uhnresearch.ca