McGill Biochemistry Department | Département de biochimie

BIOC 462/491 Internship Position in Industry

Summer/Fall 2024

Restrictions

Open only to Honours Students enrolled in BIOC 462/491 during the summer or fall 2024 semesters

Company

Thryv Therapeutics Inc.
500 boulevard Cartier ouest, Suite 130A
Laval, QC, H7V 5B7
https://thryvtrx.com/

Thryv Therapeutics is a clinical-stage biotechnology company pioneering a precision medicine approach to treat genetic and drug-induced Long QT Syndromes, atrial fibrillation, and treatment-resistant cancers with potent and selective inhibitors of Serum Glucocorticoid regulated Kinase (SGK). Together we share a vision to transform the lives of people with life-threatening conditions.

Title

Development of first in class SGK1 inhibitors for Long QT Syndrome (LQTS), Atrial Fibrillation (AF), and Treatment-Resistant Cancers

Project Description

Serum and glucocorticoid-regulated kinase 1 (SGK1) is a stress-induced kinase that is involved in the modulation of ion channels, cell metabolism, and maintenance of oncogenic signalling. SGK1 is not usually involved in normal cellular homeostasis, which enables its inhibition to differentially target diseased tissues. Thryv has successfully developed a portfolio of novel SGK1 inhibitors with its first one, LQT-1213, already in Phase 1b for the treatment of LQTS, and a second one, THRV-1268, planned to enter the clinic in Q2 2024 for the treatment of AF. A third SGK1 inhibitor, THRV-1257 has been cleared by the FDA to enter Phase 1 clinical studies in oncology.

The student's project will consist of carrying out experiments in the Laval laboratory using different cellular models to test the impact of SGK1 inhibition on disease-related readouts as well as exploring the mechanisms of SGK1 regulation at the transcription and post-translational level. A combination of cell culture of primary and immortalized cell lines, qPCR, proliferation, flow cytometry, Western blot and microscopy assays will be used. The results obtained will support the development of candidate biomarkers to predict patients' responses in the clinic and identify additional diseases where SGK1 inhibition could benefit patients.

Contact information

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References:

- Giannetti et al. (2023): Gene- and variant-specific efficacy of serum/glucocorticoid-regulated kinase 1 inhibition in long QT syndrome types 1 and 2. Europace: 25(5): euad094 (link to article)
- Labit et al. (2023): The SGK1 Inhibitor THRV-1257 Induces Robust Tumor Regression and Overcomes Resistance to Standard of Care Dabrafenib Plus Trametinib in a Mouse Model of Anaplastic Thyroid Cancer (ATC) with BRAF V600E Mutation. Poster presented at the American Thyroid Association (link to poster)
- Bapat et al. (2022): Genetic inhibition of serum glucocorticoid kinase 1 prevents obesity-related atrial fibrillation. JCI Insight 7(19): e160885 (link to paper)
- Kim, Maengjo et al. (2022): SGK1 Inhibition Attenuates the Action Potential Duration in Re-Engineered Heart Cell Models of Drug-Induced QT Prolongation. Heart Rhythm 20(4): 589-595 (link to paper)