



Arnie Charbonneau Cancer Institute

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Professor of Medicine, Endocrinology and Metabolism

Chair Provincial Endocrine Tumour Team

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Master/PhD Student Wanted

Project:

Molecular diagnostics of thyroid cancer and stratification of patients with advanced thyroid cancer for translational therapies

Project description

Thyroid nodules can be identified in >50% of the general population. Thyroid cancer prevalence is increasing and will be diagnosed in 9.2 and 25 / 100.000 male and female Canadians in 2021 respectively.

Our lab (<https://paschkeeszlingerlab.com>) has devised a MassArray-based molecular test for the diagnosis of indeterminate thyroid nodules. This test was introduced in Alberta as a routine reflex test for thyroid nodules with indeterminate fine needle aspiration biopsies. We also use whole exome sequencing, different targeted NGS panels, RNA expression profiling and MassArray panels to stratify thyroid cancer patients with metastases for new emerging cutting-edge therapies to enable re-expression of the iodine symporter in these tumours to re-enable radioiodine (RAI) therapy for metastatic thyroid cancers or to enable treatment with other off label drugs. These new treatment options lead to better treatment responses and less side effects than the only current pCODR approved drug for RAI resistant thyroid cancer.

The master/PhD student will further improve our current MassArray panel for the diagnosis of indeterminate fine needle aspiration biopsies. Furthermore, in collaboration with core units, she/he will comprehensively analyse mutation and gene expression profiles of thyroid cancer samples by MassArray panels, targeted NGS, and by RNAseq, respectively. The combination of driver mutation detection together with the identification of specific gene expression patterns will enable the selection of specific kinase inhibitors for the treatment of these patients with much better oncologic outcomes and less adverse events.

How to apply:

Applicants interested in the above project and in bioinformatics analysis should send a short description of research interests, experience and a CV directly to ralf.paschke@ucalgary.ca

The student will be enrolled through Graduate Student Education in the Cumming School of Medicine, in either the Medical Science program with cancer biology specialization (<https://cumming.ucalgary.ca/gse/about/programs/biochemistry-and-molecular-biology>) or the Biochemistry and Molecular Biology program (<https://cumming.ucalgary.ca/gse/about/programs/medical-sciences>).

Supervisors:

Dr. Ralf Paschke, Chair Provincial Endocrine Tumour Team, Departments of Medicine, Oncology, Biochemistry and Molecular Biology, and Pathology and Laboratory Medicine, and Arnie Charbonneau Cancer Institute, Cumming School of Medicine, University of Calgary

Dr. Markus Eszlinger, Research Associate Professor, Department of Oncology, and Arnie Charbonneau Cancer Institute, Cumming School of Medicine, University of Calgary