UNIVERSITÉ DE SHERBROOKE

Project title – DNA-based biosensors for the detection of molecules in complex matrices and in the body.

Date – Earliest July 2021 / Latest October 2021

Candidate profile – Ph.D. in Chemistry/Engineering/Biochemistry granted in the last 5 years. Strong written and oral communication skills are required with previous experience in team work.

Project description – The group is currently seeking a motivated candidate to work on a multidisciplinary research project at the interface of Chemistry, Engineering and Biochemistry. The project consists in the development of portable and wearable devices interfaced with electrochemical aptamer-based biosensors to monitor molecules directly in the body and in complex matrices. The candidate must have past experience in synthetic biology, aptamer selection and biophysical characterization using solution-based techniques (fluorescence, UV-vis, calorimetry). Prior experience of biosensor development and electrochemistry would be an asset but not necessary. Training will leave you with hands-on experience and ready to take on your next challenge or opportunity, with highly marketable skills in Analytical Chemistry, Bioanalysis, Biotechnologies, Pharmaceutical Chemistry or Materials Chemistry.

Research group description – Research will be conducted under the mentorship of professor Philippe Dauphin Ducharme (http://ebiosensors.recherche.usherbrooke.ca) in the Chemistry department or at the Pharmacology institute of the Université de Sherbrooke (Québec), Canada. The Université de Sherbrooke hosts over 36000 students yearly and is located ~1h30 South-East of Montreal in the beautiful region of Cantons de l'Est. This area offers some of the best outdoor activities (cycling, hiking, skiing, etc.) so that you can maintain a healthy work-life balance. As a result, and according to Maclean's, Université de Sherbrooke's student satisfaction has been ranking at the top among all Canadian institutions for the last five years among all other Canadian institutions. The Chemistry department is well known for the high premium put on teaching and mentoring by the professors while offering readily available state-of-the-art infrastructure (potentiostats, magnetic resonance imaging, fluorimeter, calorimeter, circular dichroism, NMR, LC-MS, etc.). It is in this context that Prof.'s Dauphin Ducharme's research group uses electrochemistry to investigate the interface of biomolecule-modified electrodes in the hopes of developing biosensors. These are notably based on DNA and allow to measure the concentrations of molecules in complex matrices and directly in the body to develop new tools for diagnostics and precision medicine (see recent publications: *Anal. Chem.* **2020** *20* 14063–14068; *ACS Sensors* **2019** *4* 2832-2837; *J. Am. Chem. Soc.* **2019** *141* 1304-1311; *J. Am. Chem. Soc.* **2017** *139* 11207-11213).

Funding – 1 year (with the possibility for an extension for a second year according to the availability of funds)

To apply please send your CV, a motivation letter and information of at least 2 references) to Philippe Dauphin Ducharme (philippe.dauphin.ducharme@usherbrooke.ca) by **May 15th 2021**. Review of applications will start as they are received and continue until the position is filled. The University of Sherbrooke is strongly committed to diversity in its community and encourages applications from underrepresented minorities in sciences who will contribute to the diversification of ideas.