

JOB ADVERTISEMENT

LOCATION: **Waterloo, ON**

SCHOOL/DEPARTMENT: **University of Waterloo, Faculty of Engineering, Department of Electrical and Computer Engineering**

POSITION TITLE: **Postdoctoral Fellow (PDF)**

Job Description

The prospective candidate will be working on developing a minimally invasive microneedle-based electrochemical biosensor for real-time, continuous, and enzymatic measurement of diabetes biomarkers, such as glucose and ketone bodies. This biosensor will be integrated with hydrogel-based microneedles for minimally invasive extraction of interstitial fluid. The developed platform will be eventually applied to diabetic rats and minipigs for continuous measurement of glucose and ketone bodies. The applicant will have access to world class facilities in micro/nanofabrication, surface characterization, fluorescence and electron microscopy, electrochemical workstation, etc. at the University of Waterloo.

Areas of Responsibility / Scope of Research

The PDF will lead designing, testing, and optimizing of an electrochemical enzyme-based biosensor for continuous and real-time measurement. Interested applicants are encouraged to read the following papers to better understand the scope of the project.

[1]. Teymourian, H. et al. Microneedle-Based Detection of Ketone Bodies along with Glucose and Lactate: Toward Real-Time Continuous Interstitial Fluid Monitoring of Diabetic Ketosis and Ketoacidosis. *Anal. Chem* 2, 2291-2300 (2020).

Qualifications:

- The PDF must hold a PhD in engineering (chemical, biomedical, material, and mechanical or similar) or science (chemistry, biochemistry or similar).
- Expertise in enzyme-based electrochemical biosensing, surface and bio-functionalization, micro/nanofabrication, and biochemistry are required.
- Expertise in polymer chemistry is desired.
- Having high quality publications.
- Exceptional problem solving and critical thinking skills.
- Strong verbal and written communication skills and the ability to communicate effectively in meetings to deliver and report on project progress.
- Strong leadership, management skills, and the ability to work independently within a multidisciplinary research lab.

Application:

- Interested and qualified applicants are encouraged to send their CV and contact information for +2 referees to Professor Poudineh at mahla.poudineh@uwaterloo.ca
- Expected start date: May 2022.