

## **Master's Thesis Opportunity: Continuous Ketone Monitoring – An Emerging Digital Biomarker**

### **Background and Research Goal of the Thesis**

Continuous ketone monitoring (CKM) offers the potential for accurate, real-time ketone level tracking, particularly beneficial for managing type 1 diabetes (particularly when using adjunctive SGLT2 inhibitors) and other indications such application of ketogenic diets. Ketones produced during ketosis or ketoacidosis are water soluble ketones, namely, acetoacetate,  $\beta$ -hydroxybutyrate (BHB), and the spontaneous breakdown product of acetoacetate, which is acetone. BHB is the primary ketone body that indicates the onset and resolution of a ketoacidosis and is used for clinical monitoring. This master thesis aims to evaluate the performance and clinical application of CKM sensor against point of care BHB meters for capillary testing and the gold standard method relying on LC-MS/MS. You will analyze data from patients with type 1 diabetes and other clinical populations of interest.

### **Tasks and Learning Outcomes**

- Gain expertise in **the physiology of ketone bodies and their importance from a clinical/medical perspective**
- **Participate in human physiological experiments** within an interdisciplinary team.
- Contribute to sample acquisition by **interacting with patient populations**
- Perform a **method comparison analysis** evaluating the performance of a novel CKM sensor, deviations from POC devices and gold standard LC-MS/MS quantification

### **Candidate Profile**

We seek a motivated student with:

- Strong interest in **metabolic physiology** and clinical research
- Curiosity about **novel real-time continuous metabolite sensing** methods using **wearable technologies**
- Enthusiasm for **human translational research** and collaborative teamwork.
- Basic proficiency in R or Matlab (or willingness to learn).

### **Contact details**

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