Degree project on biosensor development at IMBIM, Uppsala University

Background
Therapeutic drug monitoring (TDM) is aimed at measuring the concentration of a drug (for example an antibiotic) during treatment to allow adjustment of the dose as to avoid toxicity (overdosing) or poor therapeutic effect (underdosing) in the patient. For antibiotics, there is great need for TDM and the methods used today are based on immunoassays (which at present are only available for a few drugs, e.g. vancomycin and aminoglycosides) or masspectrometry/HPLC (which is slow and expensive). We are developing a new biosensor assay that allows measurements of free (which are the most relevant) concentrations of antibiotics in blood of a treated patient.

Project goal
The aim of the project is to improve a biosensor assay to measure antibiotic levels in the blood of patients during treatment. We want to establish proof-of-concept for this new method, determine accuracy and reproducibility, reduce the assay time, and develop the assay such that it can be used for several different antibiotics.

Work description
The work will be performed at the Biomedical Center in Uppsala and will involve laboratory work such as bacterial genetics and protocol optimization. The method uses bacterial growth and image analysis to quantify the antibiotic concentrations.

We are mainly looking for applicants studying at the Biomedicine Program or similar.

Time
The project will take place during the fall semester of 2017.

Interested?
Please contact researcher Erik Gullberg.
e-mail: erik.gullberg@imbim.uu.se

PI for the project is Professor Dan I. Andersson.
e-mail: dan.andersson@imbim.uu.se