MSc-project for students in Biomedical Engineering, DTU/KU

Title:

Imaging of chemical microenvironment of pathogenic biofilms

Description:

Biofilms are much more tolerant to antibiotics than planktonic bacteria due to factors such as physical protection and slow growth-rates caused by diffusion limitation of metabolic substrates due to high bacterial- and immune cell activity. A more detailed understanding of the chemical microenvironment, and thus resource availability, around pathogenic biofilms could lead to faster and easier diagnostics and provide tools for the development of novel treatment strategies.

In this project, the student will work on developing methods for high resolution imaging of chemical species using indicator dyes of e.g. pH and O_2 to investigate heterogeneities in chemical landscapes on a microscale to elucidate interactions between chemical microenvironment and growth rates of pathogenic bacteria.

Required qualifications:

The student should be familiar with basic laboratory techniques, such as pipetting and reagent preparation. In addition, the student should be able to work independently and be intrigued by technical challenges and method development.

Responsible institution:

University of Copenhagen

Contact information:

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Allowed no of students per report (1-2):

1

KU supervisor:

Postdoc Mads Lichtenberg
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