Universität Basel

Research Project

High-throughput multiplexed microfluidics for antimicrobial drug discovery

Project funded by own resources

Project title High-throughput multiplexed microfluidics for antimicrobial drug discovery
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Co-Investigator(s) Julou, Thomas ;
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Organisation / Research unit
Departement Biozentrum / Bioinformatics (van Nimwegen)
Project start 01.12.2018
Probable end 30.11.2023
Status Completed
This project ist part of the PhD program of the SNI Swiss Nanoscience Institute. The project is a collaboration between the van Nimwegen research group at the Biozentrum and the Laboratory forăMicro- and Nanotechnology at the PSI. The wet lab of the van Nimwegen group, led by Dr. Thomas Julou, is at theăforefront of method development for quantitatively tracking bacteria at the single-cell level in dynamically controlledăenvironmental conditions (Kaiser, et al. 2018), whereas the PSI group focuses on microfabrication and prototyping.ăThe main goal of the project is to develop a new method for high-throughput quantification of the effects of
antimicrobial compounds on single cells as a function of their physiological state. In the first phase of the project theăstudent will develop new microfluic designs that allow arrays of strains and treatments to be assayed in parallel,ăbuilding on existing prototypes that have already been developed in the van Nimwegen lab (e.g. the figure shows theăresponse of a lineage of single E. coli cells to a sudden exposure to ceftriaxone). These designs will involveăfabrication of channels with sub-micrometer dimensions and thus the use of electron beam lithography. Theăfabrication will be carried out at the PSI where, besides optical UV lithography, high resolution e-beam direct writingătools are available for defining high aspect ratio micro- and nanometer structures of arbitrary shape (Vila-Comamala,ăet al. 2011).

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University funds
Other funds

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Specify cooperation partners

ID	Kreditinhaber	Kooperationspartner	Institution	Laufzeit - von	Laufzeit - bis
4661062	van Nimwegen, Erik	Guzenko, Vitaliy (Group Leader Nanotechnology)	PSI Paul Scherrer Institute	01.12.2018	31.12.2023