1. PROJECT

Title: Fluorogenic biosensor immobilisation within surface modified fluoropolymer microdevices for rapid smartphone antibiotic susceptibility testing

Dates: September 2018 - February 2021

Funding organisation: EPSRC

Grant no.: EP/R022410/1

2. DATASET

Title: Dataset associated with 'Exploiting Open Source 3D printer architecture for laboratory robotics to automate high-throughput time-lapse imaging for analytical microbiology'

Description: This dataset is for data analysis associated with the article 'Exploiting Open Source 3D printer architecture for laboratory robotics to automate high-throughput time-lapse imaging for analytical microbiology'. It contains the raw images and Excel analysis of microtitre plates (MTP) and

microcapillary film (MCF) for milk matrix experiments, POLIR quantification, and first experiment testing fluorescence on POLIR.

Exploiting Open Source 3D printer architecture for laboratory robotics to automate high-throughput time-lapse imaging for analytical microbiology'

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Organisation(s): University of Reading

Rights-holder(s): University of Reading

3. TERMS OF USE

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4. CONTENTS

File listing

NOTE - All images are saved as JPGs and quantitation is kept as Excel files.

figure_data:spreadsheet containing summary data extracted from images for each figure

positional¬_accuracy: Contains lp/mm for z-height of the camera and the position of USAF 1951 target in field of view in mm used to calculate the positional accuracy during long run times of the POLIR.

colony_formation: Raw images obtained from the POLIR of E.coli colony growth on LB agar plates supplemented with 0.1 mg/mL TTC. These images were used to show the smallest size of a colony that the POLIR can detect.

staphylococcus_motility: Images obtained by the POLIR of motility test of S. Aureus.

escherichia_coli_motility: Images obtained by the POLIR of motility test of E. coli.

milk_matrix : contains all images obtained for POLIR for analysis of bacterial growth in increasing concentrations of milk with and without the presence of Gentamicin. Also includes Excel files of absorbance.

fluorescence_curve: Images obtained by POLIR for demonstrating bacterial growth curve in microtitre plate and microcapillary film for fluorescence

mastitis_growth_curves: Images obtained by the POLIR for each of the mastitis isolates presented in the text.

5. METHOD and PROCESSING

All images in this dataset are the original images obtained by the POLIR and have not been altered. For analysis of absorbance, RGB images are split and studied in the blue channel. For red fluorescence images they are split and studied in the red channel. MCF images are processed in MatLab and MTP images are processed in ImageJ.

Exploiting Open Source 3D printer architecture for laboratory robotics to automate high-throughput time-lapse imaging for analytical microbiology. Sarah Needs, Tai The Diep, Stephanie P Bull, Alexander Edwards (in preparation, 2019)