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Professional Summary

I am a doctoral student with a strong interest in study microbial infections and their environmental interactions. Highlights of my research involve working with BSL2 bacterial pathogens, *in vitro* manipulation of gut models and genome sequencing.

Education

- Oct 2017 **Ph.D in Molecular Microbiology**, *University of Warwick, United Kingdom*
to March 2022 ○ Midlands Integrative Biosciences Training Partnership Doctoral Training Program
- Sept 2016 **M.Sc in Infection and Immunity**, *University of Leicester, United Kingdom*
to Sept 2017 ○ Distinction awarded (71%)
- Sept 2013 **BSc. in Medical Microbiology**, *University of Leicester, United Kingdom*
to June 2016 ○ Upper Second Class Honors awarded (68%)

Publications

Hassall, B. J., **Cheng, K. J. J.**, Unnikrishnan, M., 2021. Dissecting individual pathogen-commensal interactions within a multi-species gut microbial community. *mSphere*, 6, e00013-21. DOI:10.1128/mSphere.00013-21

Frost, R. L., **Cheng, K. J. J.**, Unnikrishnan, M., 2021. *Clostridioides difficile* biofilms: a mechanism of persistence in the gut? *PlosPath Perls*, DOI:10.1371/journal.ppat.1009348

Nale, Y. J., Chutia, M., **Cheng K. J. J.**, Clokie, R. J. M., 2020. Refining the *Galleria mellonella* Model by Using Stress Markers Genes to Assess *Clostridioides difficile* Infection and Recuperation during Phage Therapy. *Microorganisms*, 8(9), 1306. DOI:10.3390/microorganisms8091306

Research Experience and Projects

- Jul 2018 **Ph.D Research Project, with Dr Unnikrishnan**
to Sept 2021 Project Title: Investigating the molecular mechanisms in *C. difficile* colonisation.
- General microbiology work with an assortment of anaerobic BSL2 bacterium.
 - Constructed a Transposon Directed Insertion Site (TraDIS) library in *C. difficile* BI/NAP1/027 strain R20291.
 - Examined colonisation using an *in vitro* two-compartmental gut epithelium model.
 - Genome sequencing and analysis.

- Apr 2020 **SARS-CoV-2 Genome Sequencing, as part of COG-UK**
 to Jun 2020
 - Assisted in the organisation and development of the SARS-CoV-2 Sequencing Lab setup at University Hospital Coventry and Warwickshire.
 - Whole genome sequencing of clinical pre-prepared RNA samples; both Illumina and Nanopore sequencing technology was used.
- Jan 2018 **MIBTP-sponsored Mini-research project, with Professor Clokie**
 to Mar 2018 Project Title: Determining the Effects of Phage Therapy on *C. difficile*. Colonisation in *Galleria mellonella*
 - General microbiology work with bacteriophage and BSL2 bacterial pathogens.
 - Development and assessment of an infection-remedial model in *G. mellonella*.
- Jan 2017 **M.Sc Research Project, with Professor Clokie**
 to June 2017 Project Title: Engineering Therapeutic Phages for *C. difficile* Infection.
 - Phylogenetic analysis of *C. difficile* bacteriophages.
 - Utilized molecular cloning methods to generate mutant bacteriophages.

Scientific and Technical Skills

- **Microbiology:** Proficiency in general molecular microbiology techniques, use of anaerobic cabinets and microscopy (widefield and confocal).
- **Tissue Culture:** Mammalian cell culture of epithelial cells.
- **Bacterial Experience:** Culturing and handling of BSL1 and BSL2 bacteria; *Clostridioides difficile*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Mycobacterium bovis* BCG and *smegmatis*.
- **Sequencing:** DNA extraction, preparation of library samples, QC analysis and sequencing techniques (Illumina and Nanopore).
- **Data Analysis:** Knowledge of programming languages; Commandline and R for genome and statistical analysis. Image analysis in ImageJ.
- **Other Software Proficiencies:** \LaTeX , Prism and Agilent 2100 Expert.

Scientific Awards

- Aug 2021 QBP Wellcome Institutional Strategic Support Fund (ISSF) award
 Aug 2021 Warwick's SLS PGR Symposium - Top 5 Seminar Presentations
 Aug 2020 Medical and Life Sciences Research Fund Grant.
 Apr 2018 MIBTP Symposium - Runner-up Poster Prize.

Teaching Experience

- Oct 2018 **Lab Demonstrator**
 to Nov 2019 Demonstrating to undergraduate students in *clinical microbiology* and *signalling in health and diseases*.
- Apr 2018 **Workshop Co-ordinator and Technician**
 to Jul 2018 Internship at Phages for Global Health, providing assistance in the organisation of the Second East African Phage Workshop at Pwani University in Kilifi, Kenya. Job description included; restructuring the teaching syllabus, arranging the transportation of participants and scientific equipment, demonstrating bacteriophage techniques, preparing materials and reagents throughout the workshop.