

Ashley D. Otter

BSc. (Hons.)

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About

Highly motivated and determined individual, passionate for microbiology, with particular focus on molecular microbiology and diagnostics of rare/emerging pathogens. Technically competent in a range of molecular laboratory methods gained through research scientist position within the Rare & Imported Pathogen Laboratory of PHE. Expertise in RT-qPCR assay development, molecular biology, cloning and bioinformatic analyses.

Possess excellent organisational skills with a proven ability to prioritise work and meet deadlines. Excellent communication and presentation skills developed through participation at laboratory meetings and numerous national and international conferences.

Education

Royal Veterinary College, University of London

Centre for Emerging, Endemic & Exotic Diseases Oct 2015 – Aug 2018

PhD thesis entitled: “Understanding the role of *Rv1255c*, a TetR regulator within the RD13 region” under the supervision of Dr. Sharon Kendall. Skills gained include molecular microbiology, transcriptomics, molecular biology and working under containment level 3 conditions with *M. tuberculosis* and *M. bovis*.

Cardiff University

School of Biosciences & Medicine Oct. 2011 – July 2015

Awarded with a 1st Class Honours B.Sc. in Microbiology with Professional Training Year. Dissertation project under the supervision of Prof. Eshwar Mahenthiralingam entitled: “Establishment of a *G. mellonella* model for phage therapy against *Burkholderia dolosa*”.

Crosskeys College

Advanced Levels Oct. 2009 – July 2011

Subjects studied included Biology (A), Chemistry (B) and ICT (B)

Scientific skills

Containment level 3:

- *M. tuberculosis*
- *B. anthracis*
- *Y. pestis*
- Rift Valley Fever
- West Nile virus
- Zika

Bioinformatics/sequencing:

- Read assembly
- Phylogenetics
- SNP base calling and analysis
- TraDiS analysis
- Annotation pipelines
- MinION and Illumina
- Bioinformatic primer/probe reviews

Genomics:

- PCR, RT-PCR, qPCR
- RNA-Seq analysis

Proteomics:

- Western blotting
- SDS-PAGE
- Protein purification
- EMSAs

Other:

- Flow cytometry
- Fluorescent microscopy
- Mammalian cell culture
- ELISAs
- Working to GLP and UKAS standards

Research Positions

Research Scientist

March 2019 – Present

Public Health England, Porton Down

Diagnostics & Genomics for Rare & Imported Pathogens Laboratory

Research scientist involved in research, evaluation and validation of new molecular diagnostics for a wide range of ACDP 2, 3 and 4 pathogens including viral haemorrhagic fevers (Pan-filovirus, CCHF, Lassa), arboviruses (Zika, Rift Valley Fever, WNV) and high pathogenicity bacteria (*B. anthracis*, *Y. pestis*, *Brucella*). Routine work at CL3 to culture wide range of ACDP 3 pathogens, as well as a member of the on-call viral haemorrhagic fever diagnostic service.

Research Scientist

August 2018 – March 2019

Microgenetics Ltd.

Research and Development

Research position involved in research of new diagnostic areas for the SwiftDetect test, including water, biodefense and food. Directly involved in automation of the SwiftDetect test using open source automatic pipettors and adapted labware. Additionally, involved liaising with collaborative partners as well as attendance at molecular and diagnostic conferences to generate new collaborative links.

PhD Student

October 2015 – August 2018

Royal Veterinary College, University of London

Kendall Lab, Centre for Emerging, Endemic and Exotic Diseases

PhD focussing on determining the role of an uncharacterised TetR regulator in *M. tuberculosis*. Involved routine culture of *M. tuberculosis* & *M. bovis* at CL3, conforming to SAPO safety regulations. Wide experience in molecular biology techniques such as recombination-based mutagenesis, qPCR, EMSAs, cloning, protein expression/purification & GFP reporter assays. Additional work including bioinformatic analysis of >5,000 *M. tuberculosis* strains to identify modern & ancient specific SNPs in regulatory elements.

Research Assistant

June 2015 – September 2015

Training Year Student

September 2013 – September 2014

Cardiff University

Anthrax research group, School of Pharmacy & Pharmaceutical Sciences

Professional Training Year (Sept. 2013 – Sept. 2014) in which practical and working knowledge of techniques including cloning, PCR, proteomics and ELISAs. Involved with numerous internal and external collaborators including NATO, Dstl and Battelle. Returned for short employment (June 2015 – Sept. 2015) to complete phage decontamination work.

Visiting research student

August 2013 – September 2013

Dwr Cymru Welsh Water

Department of Water Microbiology and Testing

Industrial placement working on the development and *in situ* efficacy testing of a rapid detection of *Clostridium perfringens* in water samples.

Other skills

Teaching

- Lecturing and tutorials for undergraduates
- Demonstrating for undergraduate practicals
- Supervising various undergraduate and masters students

Statistical packages

- R, Prism and MiniTab

Computer skills

- Mac OS X, Windows & Linux
- Microsoft Office

Travel and Research Grants

Biology of Anthrax Conference Award (2014)	£300
SfAM Student Placement Scholarship (2014)	£2500
Microbiology Society Travel Grant (2016)	£300
EMBO Tuberculosis Travel Award (2017)	€250
Royal Veterinary College Conference Grant (2017)	£250
BSAC Attendance Award (2017)	£300

Research Projects

Understanding the role of *Rv1255c*, a TetR transcriptional regulator encoded within the RD13 region

Laboratory of Dr. Sharon Kendall

October 2015 – Present

Through numerous molecular biology techniques including RT-qPCR, mutagenesis, fluorescent reporters and proteomics, the function and regulon of *Rv1255c* was determined in *M. tuberculosis*.

Isolation of bacteriophages that infect *Bacillus anthracis* to develop an environmentally friendly decontamination method

Laboratory of Prof. Les Baillie

June 2015 – Present

September 2013 – September 2014

Current strategies at decontaminating land containing anthrax spores involves highly toxic chemicals, both to human and environmental health. A method of combining phages and spore germinants is currently being tested as an environmentally friendly method for decontaminating land.

Lethal Factor (LF) based capture system for blood filtration of anthrax infected individuals

Laboratory of Prof. Les Baillie

June 2014 – May 2014

Using a modified IMAC column, immobilised anthrax toxin LF was bound to the column and sera passed through, as a method to remove anthrax LF toxin. Methods included ELISAs, protein purification and Western blotting.

Other

Established 2 Twitterbots: @MycobactPapers (live and up-to date tweets of new papers on Mycobacteria) and @MicrobiologyJob (tweeting latest jobs in microbiology). Often write on blog about all things science, books and scientific methods.

Part of RVC team for 'Biotechnology YES' competition 2017.

Engaged in numerous outreach projects, through Universities as well as through STEM ambassador network, presenting scientific outreach activities and stands at places including The Royal Society, Royal Institution and Museum of Wales.

Professional Affiliations

Microbiology Society	Oct. 2013 - Present
Society for Applied Microbiology	Oct. 2013 - Present
STEM Ambassador	Sept. 2012 - Present

Oral Presentations

Understanding the role of *Rv1255c*, a TetR regulator absent from all *Mycobacterium bovis* strains.

Acid Fast Summer Conference – The Jenner Institute, Oxford University

CATs: controlling the hunger of *M. tuberculosis*?

SfAM Conference – Royal Society of Medicine, London

Investigating TetR transcriptional regulators in *M. tuberculosis*

Postgraduate Research Day – Royal Veterinary College, London

Poster Presentations

Understanding the role of a TetR regulator in econazole resistance in pathogenic mycobacteria. *British Society for Antimicrobial Chemotherapy (2017), Birmingham.*

It only takes one: Understanding nucleotide polymorphisms between human and bovine Tuberculosis. *Bioinformatics Early Career Conference (2017), University of Westminster, London.*

Understanding the role of selected TetR family of transcriptional regulators in mycobacteria. *EMBO Tuberculosis (2017), Pasteur Institute, France.*

The Enemy of My Enemy is My Friend: Anthrax Specific Bacteriophages. *Biology of Anthrax (2016), Tampa, Florida.*

Anthrax Environmental Decontamination Network. *NATO and EU Workshop on Anthrax Decontamination (2016), National Centre for Disease Control, Georgia.*

Development of a Protective Antigen Capture System Based on the N-terminal Domain of Lethal Factor. *Biology of Anthrax Conference (2014), Cardiff.*

Please see ashleyotter.co.uk for further details.

References

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