

An engineer by training, I have since worked primarily as an informatician and research scientist. I currently work as a learning technologist supporting Librarians at the University of Southampton.⁷

I have contributed to research into COVID19⁵, skin sensitization to chemical allergens⁶, asthma⁷ and contagious cancer in the Tasmanian Devil⁸.

Proteomics data I have curated, deposited and I am the data controller for is deposited at the PRoteomics IDentifications Archive⁹. Whole Exome and RNAseq data I have curated, deposited and I am the data controller for is deposited at the European Genome-phenome Archive¹⁰.

View this CV online with links at
ab604.uk/cv/cv.html

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Last updated on 2024-08-11.

2005
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2004

Engineering, Science & Mathematics Foundation Year

University of Southampton

📍 Southampton, UK

- Maths and physics foundation year preparation for undergraduate study.

1994
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1992

BTEC ND Audio-Visual Production

Bournemouth & Poole College of Art & Design

📍 Bournemouth, UK

- Foundation course in film, photography, TV and radio production.



RESEARCH EXPERIENCE

2023

Research Fellow

School of Biological Sciences, University of Southampton

📍 Southampton, UK

- scRNAseq analysis of T-cell response to neutrophil exposure. Bioinformatician maternity leave cover for Medical Research Council funded project.

2023
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2018

Research Fellow

Centre for Proteomic Research/Cancer Sciences,
University of Southampton

📍 Southampton, UK

- Cancer Research UK Accelerator: this project aims to identify potential treatment targets for hard to treat cancers using multi-omics methods. In this project our focus was on oesophageal, lung and neuroendocrine cancers.

As an informatician I processed, analysed and managed data from whole exome sequencing, RNAseq, scRNAseq and proteomics.

For sequencing fastq data, my workflow comprised of a mixture of command line tools using bash scripts and R/RStudio. I followed the Broad Institute Best Practices for genomic data analysis¹⁵ and Cornell Bioinformatics Core¹⁶. For proteomics data, my workflow used Peaks Studio¹⁷, and post-process in R and RStudio.

Scripts and processed data were managed using git version control. Raw data was deposited along with processed outputs in PRoteomics IDentifications Archive¹⁸ and the European Phenome-Genome Archive¹⁹.

We also developed our method to identify treatment targets for infectious diseases from influenza and bacterial proteins. In 2020 I also worked to develop a COVID19 test using proteomics methods.

2018
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2015

Research Fellow

Centre for Proteomic Research/Cancer Sciences,
University of Southampton

📍 Southampton, UK

- Developed peptidomics methodology at the UoS for research into the role of MHC molecules in skin sensitisation to chemical allergy.

2015
|
2013

Research Fellow

Cancer Sciences, University of Southampton

📍 Southampton, UK

- MRC Centenary Fellow



TEACHING EXPERIENCE

- 2024 • **Webpage Design²⁰**
University of Southampton 📍 Southampton, UK
- I created a webpage design workshop and materials for Librarians at the University of Southampton
- 2022
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2021 • **BIOL 2013: Introduction to bioinformatics**
University of Southampton 📍 Southampton, UK
- I taught the undergraduate introduction to bioinformatics module on variant discovery using the University Galaxy Server.
- 2020
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2019 • **Coding Together²¹**
University of Southampton 📍 Southampton, UK
- I created and taught an eight week series of collaborative workshops to teach foundational R coding and data science skills based on Carpentries materials.
- 2019
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2018 • **Academic Support Tutor**
IntoUniversity Millbrook 📍 Southampton, UK
- IntoUniversity²² supports young people from disadvantaged backgrounds to attain either a university place or another chosen aspiration. I volunteered as an academic support tutor for secondary school learners.
- 2018 • **Software Carpentry**
Umeå University 📍 Umeå, Sweden
- Taught R for Reproducible Research and assisted in Command Line Basics.
- 2018 • **British Society for Proteomics 2018 Data Science Workshop²³**
University of Bradford 📍 Bradford, UK
- I created and taught a proteomics data science workshop including introduction to R, Volcano plots, heatmaps and peptide logos.
- 2017 • **Data Carpentry**
University of Southampton 📍 Southampton, UK
- Taught R for Reproducible Research and assisted in Command Line Basics and git.
- 2017 • **Data Carpentry**
University of Southampton 📍 Southampton, UK
- Taught R for Reproducible Research and assisted in introduction to SQL.
- 2017 • **Software Carpentry**
University of Southampton 📍 Southampton, UK
- Assisted with python and git for reproducible research.

I enjoy teaching foundational coding and data science skills to researchers and developing evidence-based best practices. I am especially interested in helping novices and making coding more accessible to all.



RESEARCH DATA

Immunopeptidomic analysis of influenza A virus infected human tissues identifies internal proteins as a rich source of HLA ligands²⁴, Publicly released

- Proteomics data: PRIDE Project PXD022884²⁵

Identification of neoantigens in esophageal adenocarcinoma²⁶, Publicly released

- Proteomics data: PRIDE Project ID PXD031108²⁷
- WES & RNAseq data EGA Study ID EGAS000001005957

Characterization of the Class I MHC Peptidome Resulting From DNCB Exposure of HaCaT Cells²⁸, Publicly released

- Proteomics data: PRIDE Project PXD021373²⁹

Neoantigen identification in pancreatic neuroendocrine tumours, Unreleased pending publication

- Proteomics data: PRIDE Project ID PXD037449
- WES & RNAseq data EGA Study ID EGAS000001006722

Immunopeptidomics guided identification of neoantigens in non-small cell lung cancer, Unreleased pending publication

- Proteomics data: PRIDE Project ID PXD028990
- WES & RNAseq data EGA Study ID EGAS000001005499

Immunopeptidomics of a brain tumour cell line to identify HLA presented Zika, Unreleased pending publication

- Proteomics data: PRIDE Project ID PXD037627

Non-small cell lung cancer global proteomics, Unreleased pending publication

- Proteomics data: PRIDE Project ID PXD054390

Oesophageal adenocarcinoma global proteomes, Unreleased pending publication

- Proteomics data: PRIDE Project ID PXD054428

I have worked in a variety of roles ranging from engineering to research scientist. I like collaborative environments where I can learn from my peers.



INDUSTRY EXPERIENCE

- 2012
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2004

Internship

Microsoft Research

 - Helped develop computational model of MHC I peptide selection.

📍 Cambridge, UK
- 2012
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2004

Freelance Satellite Communications Engineer

Globecast

 - I continued to work as an engineer in broadcast TV from 2004 and 2012 on major events such as the Olympics and Football World Cup.

📍 London, UK
- 2004
|
2000

Satellite Communications Engineer

Globecast

 - Full time engineer working in global broadcast TV primarily on sports, news and live entertainment events.

📍 London, UK
- 2000
|
1995

Film and television post-production engineer

Telecine

 - I trained as an engineer to operate various TV & film post-production equipment.

📍 London, UK



PUBLICATIONS

- 2024

Proteogenomics guided identification of functional neoantigens in non-small cell lung cancer³⁰

bioRxiv

 - Ben Nicholas, Alistair Bailey, Katy J McCann, Oliver Wood, Eve Currall, Peter Johnson, Tim Elliott, Christian Ottensmeier, Paul Skipp
- 2022

Operation Moonshot: rapid translation of a SARS-CoV-2 targeted peptide immunoaffinity liquid chromatography-tandem mass spectrometry test from research into routine clinical use³¹

Clinical Chemistry and Laboratory Medicine

 - Jenny Hällqvist, Benjamin I. Nicholas, Alistair Bailey et al.
- 2022

Identification of neoantigens in esophageal adenocarcinoma³²

Immunology

 - Ben Nicholas, Alistair Bailey, Katy J. McCann, Oliver Wood, Robert C. Walker, Robert Parker, Nicola Ternette, Tim Elliott, Tim J. Underwood, Peter Johnson, Paul Skipp
- 2022

Analysis of cell-specific peripheral blood biomarkers in severe allergic asthma identifies innate immune dysfunction³³

Clinical & Experimental Allergy

 - Ben Nicholas, Jane Guo, Hyun-Hee Lee, Alistair Bailey, Rene de Waal Malefyt, Milenko Cicmil, Ratko Djukanovic

- 2022 ● **Immunopeptidomic analysis of influenza A virus infected human tissues identifies internal proteins as a rich source of HLA ligands³⁴**
PLoS Pathogens
- Ben Nicholas, Alistair Bailey, Karl J. Staples, Tom Wilkinson, Tim Elliott, Paul Skipp.
- 2021 ● **The differentiation state of the Schwann cell progenitor drives phenotypic variation between two contagious cancers³⁵**
PLOS Pathogens
- Rachel S. Owen, Sri H. Ramarathinam, Alistair Bailey, Annalisa Gastaldello, Kathryn Hussey, Paul J. Skipp, Anthony W. Purcell, Hannah V. Siddle
- 2021 ● **Characterization of the Class I MHC Peptidome Resulting From DNCB Exposure of HaCaT Cells³⁶**
Toxicological Sciences
- Alistair Bailey, Ben Nicholas, Rachel Darley, Erika Parkinson, Ying Teo, Maja Aleksic, Gavin Maxwell, Tim Elliott, Michael Arden-Jones, Paul Skipp.
- 2021 ● **The immunopeptidomes of two transmissible cancers and their host have a common, dominant peptide motif³⁷**
Immunology
- Annalisa Gastaldello, Sri H. Ramarathinam, Alistair Bailey, Rachel Owen, Steven Turner, N. Kontouli, Tim Elliott, Paul Skipp, Anthony W. Purcell, Hannah V. Siddle.
- 2019 ● **Dynamically Driven Allostery in MHC Proteins: Peptide-Dependent Tuning of Class I MHC Global Flexibility³⁸**
Frontiers in Immunology
- Cory M. Ayres, Esam T. Abualrous, Alistair Bailey, Christian Abraham, Lance M. Hellman, Steven A. Corcelli, Frank Noé, Tim Elliott, Brian M. Baker.
- 2017 ● **Direct evidence for conformational dynamics in major histocompatibility complex class I molecules³⁹**
JBC
- Andy van Hateren, Malcolm Anderson, Alistair Bailey, Jörn M. Werner, Paul Skipp, Tim Elliott.
- 2017 ● **Recent advances in Major Histocompatibility Complex class I antigen presentation: Plastic MHC molecules and TAPBPR mediated quality control⁴⁰**
F1000 Research
- Andy van Hateren, Alistair Bailey, Tim Elliott.
- 2015 ● **Selector function of MHC I molecules is determined by protein plasticity⁴¹**
Scientific Reports
- Alistair Bailey, Neil Dalchau, Rachel Carter, Stephen Emmott, Andrew Phillips, Jörn M. Werner, Tim Elliott

- 2014 ● **Two Polymorphisms Facilitate Differences in Plasticity between Two Chicken Major Histocompatibility Complex Class I Proteins⁴²**
PLoS One
- Alistair Bailey, Andy van Hateren, Tim Elliott, Jörn M. Werner.
- 2013 ● **A Mechanistic Basis for the Co-evolution of Chicken Tapasin and Major Histocompatibility Complex Class I Proteins⁴³**
JBC
- Andy van Hateren, Rachel Carter, Alistair Bailey, Nasia Kontouli, Anthony P. Williams, Jim Kaufman, Tim Elliott.
- 2010 ● **The cell biology of major histocompatibility complex class I assembly: towards a molecular understanding⁴⁴**
Tissue Antigens
- A. Van Hateren, E. James, A. Bailey, A. Phillips, N. Dalchau, T. Elliott

LINKS

- 1● <https://www.soton.ac.uk>
- 2● <https://www.cancerresearchuk.org/funding-for-researchers/accelerator-award/portfolio-funded-projects-outputs>
- 3● <https://doi.org/10.1111/imm.13578>
- 4● <https://doi.org/10.1371/journal.ppat.1009894>
- 5● <https://doi.org/10.1515/cclm-2022-1000>
- 6● <https://doi.org/10.1093/toxsci/kfaa184>
- 7● <https://doi.org/10.1111/cea.14197>
- 8● <https://doi.org/10.1111/imm.13307>
- 9● <https://www.ebi.ac.uk/pride/>
- 10● <https://ega-archive.org/>
- 11● <https://carpentries.org/>
- 12● <https://ab604.github.io/docs/coding-together-2019/>
- 13● <https://ab604.github.io/webpage-design/>
- 14● <https://carpentries.org/>
- 15● <https://gatk.broadinstitute.org/hc/en-us>
- 16● <https://abc.med.cornell.edu/>
- 17● <https://www.bioinform.com/peaks-studio/>
- 18● <https://www.ebi.ac.uk/pride/>
- 19● <https://ega-archive.org/>
- 20● <https://ab604.github.io/webpage-design/>
- 21● <https://ab604.github.io/docs/coding-together-2019/>
- 22● <https://intouniversity.org/>
- 23● https://ab604.github.io/docs/bspr_workshop_2018/index.html
- 24● <https://doi.org/10.1371/journal.ppat.1009894>
- 25● <https://www.ebi.ac.uk/pride/archive/projects/PXD022884>
- 26● <https://doi.org/10.1111/imm.13578>
- 27● <https://www.ebi.ac.uk/pride/archive/projects/PXD031108>
- 28● <https://doi.org/10.1093/toxsci/kfaa184>

- 29● <https://www.ebi.ac.uk/pride/archive/projects/PXD021373>
- 30● <https://doi.org/10.1101/2024.05.30.596609>
- 31● <https://doi.org/10.1515/cclm-2022-1000>
- 32● <https://doi.org/10.1111/imm.13578>
- 33● <https://doi.org/10.1111/cea.14197>
- 34● <https://doi.org/10.1371/journal.ppat.1009894>
- 35● <https://journals.plos.org/plospathogens/article?id=10.1371/journal.ppat.1010033>
- 36● <https://doi.org/10.1093/toxsci/kfaa184>
- 37● <https://doi.org/10.1111/imm.13307>
- 38● <https://doi.org/10.3389/fimmu.2019.00966>
- 39● <https://doi.org/10.1074/jbc.M117.809624>
- 40● <https://doi.org/10.12688/f1000research.10474.1>
- 41● <https://doi.org/10.1038/srep14928>
- 42● <https://doi.org/10.1371/journal.pone.0089657>
- 43● <https://doi.org/10.1074/jbc.M113.474031>
- 44● <https://doi.org/10.1111/j.1399-0039.2010.01550.x>