

An engineer by training, I have since worked primarily as an informatician and research scientist. I am currently a Research Fellow in Microfluidic Hydrogen-Deuterium Exchange at the University of Southampton.¹

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.



CONTACT

ab604.uk

 0000-0003-0023-8679

 github.com/ab604

☁ @ab604.uk

Year	Qualification / Program	Institution	Location	Details
2017	CARPENTRIES INSTRUCTOR	Worldwide	The Carpentries	I trained as a Carpentries ¹⁴ instructor as part of their volunteer led mission to increase global capacity in essential data and computational skills for conducting efficient, open, and reproducible research.
2016	MACHINE LEARNING	Stanford University	Coursera	10 week online introduction to machine learning.
2015	DATA SCIENCE SPECIALIZATION	John Hopkins University	Coursera	12 month online set of courses on data science using R, git and command line tools.
2013 2008	PHD, IMMUNOLOGY	Cancer Sciences, University of Southampton	Southampton, UK	Thesis: Relating the structure, function and dynamics of the MHC Class I antigen presenting molecule.
2008 2005	BENG, CIVIL ENGINEERING	University of Southampton	Southampton, UK	First Class Honours in Civil Engineering.

Tool	Percentage
R	100%
Bash	85%
Markdown	85%
Latex	85%
Git	65%
Python	40%
SQL	15%

Made with the R package
pagedown.

The source code is available on github.com/ab604/abailey-cv.

The fonts are Inter and Permanent Marker

Last updated on 2025-05-13.

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

2025

RESEARCH FELLOW

Cancer Sciences, University of Southampton

📍 Southampton, UK

- Research Fellow in Microfluidic HDX

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
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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
- **BIO1 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.

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.

- 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.

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 EGAS00001005957
- **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 EGAS00001006722
- **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 EGAS00001005499

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

GESOPHAGEAL ADENOCARCINOMA GLOBAL PROTEOMES, UNRELEASED PENDING PUBLICATION

- Proteomics data: PRIDE Project ID PXD054428



INDUSTRY EXPERIENCE

2012

INTERNSHIP

Microsoft Research

📍 Cambridge, UK

- Helped develop computational model of MHC I peptide selection.

2012

FREELANCE SATELLITE COMMUNICATIONS ENGINEER

Globecast

📍 London, UK

- 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.

2004

SATELLITE COMMUNICATIONS ENGINEER

Globecast

📍 London, UK

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

2000

FILM AND TELEVISION POST-PRODUCTION ENGINEER

Telecine

📍 London, UK

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

1995



PUBLICATIONS

2025

EVIDENCE OF FOCUSING THE MHC CLASS I IMMUNOPEPTIDOME BY TAPASIN³⁰

Frontiers in Immunology

- Rachel Darley, Patricia T. Illing, Patrick Duriez, Alistair Bailey, Anthony W. Purcell, Andy van Hateren, Tim Elliott.

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.

- 2025 ● **COMPARATIVE ANALYSIS OF PROTEIN EXPRESSION BETWEEN OESOPHAGEAL ADENOCARCINOMA AND NORMAL ADJACENT TISSUE³¹**
PLOS One
- Ben Nicholas, Alistair Bailey , Katy J. McCann, Robert C. Walker, Peter Johnson, Tim Elliott, Tim J. Underwood, Paul Skipp
- 2025 ● **COMPARATIVE ANALYSIS OF TRANSCRIPTOMIC AND PROTEOMIC EXPRESSION BETWEEN TWO NON-SMALL CELL LUNG CANCER SUBTYPES³²**
Journal of Proteome Research
- Ben Nicholas, Alistair Bailey, Katy J McCann, Peter Johnson, Tim Elliott, Christian Ottensmeier and Paul Skipp
- 2024 ● **PROTEOGENOMICS GUIDED IDENTIFICATION OF FUNCTIONAL NEOANTIGENS IN NON-SMALL CELL LUNG CANCER³³**
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 USE³⁴**
Clinical Chemistry and Laboratory Medicine
- Jenny Hällqvist, Benjamin I. Nicholas, Alistair Bailey et al.
- 2022 ● **IDENTIFICATION OF NEOANTIGENS IN ESOPHAGEAL ADENOCARCINOMA³⁵**
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 DYSFUNCTION³⁶**
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 LIGANDS³⁷**
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 CANCERS⁵⁷**
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 CELLS⁵¹**
Toxicological Sciences
- Alistair Bailey, Ben Nicholas, Rachel Darley, Erika Parkinson, Ying Teo, Maja Aleksic, Gavin Maxwell, Tim Elliott, Michael Ardern-Jones, Paul Skipp.
- 2021 ● **THE IMMUNOPEPTIDOMES OF TWO TRANSMISSIBLE CANCERS AND THEIR HOST HAVE A COMMON, DOMINANT PEPTIDE MOTIF⁴⁰**
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 FLEXIBILITY⁴¹**
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 MOLECULES⁴²**
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 TAPBP-MEDIATED QUALITY CONTROL⁴³**
F1000 Research
- Andy van Hateren, Alistair Bailey, Tim Elliott.
- 2015 ● **SELECTOR FUNCTION OF MHC I MOLECULES IS DETERMINED BY PROTEIN PLASTICITY⁴⁴**
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 PROTEINS¹⁵**
 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 PROTEINS¹⁶**
 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 UNDERSTANDING¹⁷**
 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.bioinfor.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. 10.3389/fimmu.2025.1563789
31. 10.1371/journal.pone.0318572
32. <https://doi.org/10.1021/acs.jproteome.4c00773>
33. <https://doi.org/10.1101/2024.05.30.596609>
34. <https://doi.org/10.1515/cclm-2022-1000>
35. <https://doi.org/10.1111/imm.13578>
36. <https://doi.org/10.1111/cea.14197>
37. <https://doi.org/10.1371/journal.ppat.1009894>
38. <https://journals.plos.org/plospathogens/article?id=10.1371/journal.ppat.1010033>
39. <https://doi.org/10.1093/toxsci/kfaa184>
40. <https://doi.org/10.1111/imm.13307>
41. <https://doi.org/10.3389/fimmu.2019.00966>
42. <https://doi.org/10.1074/jbc.M117.809624>
43. <https://doi.org/10.12688/f1000research.10474.1>
44. <https://doi.org/10.1038/srep14928>
45. <https://doi.org/10.1371/journal.pone.0089657>
46. <https://doi.org/10.1074/jbc.M113.474031>
47. <https://doi.org/10.1111/j.1399-0039.2010.01550.x>