Alistair Bailey

I am a researcher at the Centre for Proteomic Research and Cancer Sciences Unit at the University of Southampton. My research interests are in antigen processing and presentation by class I MHC molecules, data science and Omics. My role is primarily as an informatician. The project I currently work on aims to improve immunotherapy treatment for cancer patients.[1] I also contribute to research into the role of MHC molecules in skin sensitization to chemical allergens, and contagious cancer in the Tasmanian Devil. I am also a Data and Software Carpentry[2] instructor.

🎓 EDUCATION

2017 | 2017

CARPENTRIES INSTRUCTOR
Worldwide
📍 The Carpentries

- I trained as a Carpentries[3] 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 | 2016

MACHINE LEARNING
Stanford University
📍 Coursera

- 10 week online introduction to machine learning.

2015 | 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.

2005 | 2004

ENGINEERING, SCIENCE & MATHEMATICS FOUNDATION YEAR
University of Southampton
📍 Southampton, UK

- Maths and physics foundation year preparation for undergraduate study.

1994 | 1992

BTEC ND AUDIO-VISUAL PRODUCTION
Bournemouth & Poole College of Art & Design
📍 Bournemouth, UK

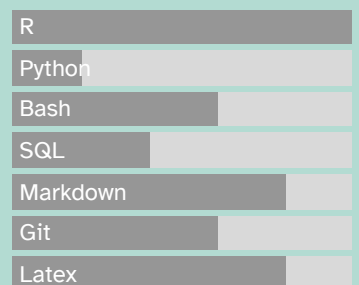- Foundation course in film, photography, TV and radio production.

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

CONTACT

- ✉ ab604@soton.ac.uk
- 🐦 alistair604
- ⭐ github.com/ab604
- 🔗 ab604.uk
- ℹ 0000-0003-0023-8679

LANGUAGE SKILLS

R	
Python	
Bash	
SQL	
Markdown	
Git	
Latex	

Made with the R package pagedown.

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

The font is Atkinson Hyperlegible

Last updated on 2022-02-10.

🖥 RESEARCH EXPERIENCE

Current
|
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 such as lung cancer using peptidomics methods.

In my role, I process, analyse and manage data from various Omics technologies, primarily whole exome sequencing, RNAseq and proteomics. Proteomics data I receive as Thermo raw data and process with Peaks Studio[4], and post-process in R and RStudio. Whole exome and transcriptomics data I receive as fastq files and I use a mixture of command line tools using bash scripts and R and RStudio. I tend to follow the Broad Institute Best Practices for genomic data analysis[5] and Cornell Bioinformatics Core[6] for transcriptomic data processing. Scripts and processed data are managed using git version control. Raw data is backed up remotely and deposited along with processed outputs public repositories such as EBI PRIDE[7] and the European Phenome-Genome Archive[8] following FAIR protocols[9]. My primary computer is a Linux Ubuntu machine, but I also use Windows.

• We have also developed our method to identify treatment targets for infectious diseases such as influenza.
• 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

🧳 INDUSTRY EXPERIENCE

2012
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2012

INTERNSHIP

Microsoft Research

📍 Cambridge, UK

• Helped develop computational model of MHC I peptide selection.

2012
|
2004

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.

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.

SATELLITE COMMUNICATIONS ENGINEER

2004
|
2000

Globecast

📍 London, UK

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

FILM AND TELEVISION POST-PRODUCTION ENGINEER

2000
|
1995

Telecine

📍 London, UK

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

TEACHING EXPERIENCE

CODING TOGETHER[10]

2020
|
2019

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.

ACADEMIC SUPPORT TUTOR

2019
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2018

IntoUniversity Millbrook

📍 Southampton, UK

- IntoUniversity[11] 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.

SOFTWARE CARPENTRY

2018
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2018

Umeå University

📍 Umeå, Sweden

- Taught R for Reproducible Research and assisted in Command Line Basics.

BRITISH SOCIETY FOR PROTEOMICS 2018 DATA SCIENCE WORKSHOP[12]

2018
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2018

University of Bradford

📍 Bradford, UK

- I created and taught a proteomics data science workshop including introduction to R, Volcano plots, heatmaps and peptide logos.

DATA CARPENTRY

2017
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2017

University of Southampton

📍 Southampton, UK

- Taught R for Reproducible Research and assisted in Command Line Basics and git.

DATA CARPENTRY

2017
|
2017

University of Southampton

📍 Southampton, UK

- Taught R for Reproducible Research and assisted in introduction to SQL.

SOFTWARE CARPENTRY

2017
|
2017

University of Southampton

📍 Southampton, UK

- Assisted with python and git for reproducible research.

I am passionate about 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.

PUBLICATIONS

2022
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2022

IMMUNOPEPTIDOMIC ANALYSIS OF INFLUENZA A VIRUS INFECTED HUMAN TISSUES IDENTIFIES INTERNAL PROTEINS AS A RICH SOURCE OF HLA LIGANDS[13]

PLoS Pathogens

- Ben Nicholas, Alistair Bailey, Karl J. Staples, Tom Wilkinson, Tim Elliott, Paul Skipp.

2021
|
2021

THE DIFFERENTIATION STATE OF THE SCHWANN CELL PROGENITOR DRIVES PHENOTYPIC VARIATION BETWEEN TWO CONTAGIOUS CANCERS[14]

PLOS Pathogens

- Rachel S. Owen, Sri H. Ramarathinam, Alistair Bailey, Annalisa Gastaldello, Kathryn Hussey, Paul J. Skipp, Anthony W. Purcell, Hannah V. Siddle

2021
|
2021

CHARACTERIZATION OF THE CLASS I MHC PEPTIDOME RESULTING FROM DNCB EXPOSURE OF HACAT CELLS[15]

Toxicological Sciences

- Alistair Bailey, Ben Nicholas, Rachel Darley, Erika Parkinson, Ying Teo, Maja Aleksic, Gavin Maxwell, Tim Elliott, Michael Ardern-Jones, Paul Skipp.

2021
|
2021

THE IMMUNOPEPTIDOMES OF TWO TRANSMISSIBLE CANCERS AND THEIR HOST HAVE A COMMON, DOMINANT PEPTIDE MOTIF[16]

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
|
2019

DYNAMICALLY DRIVEN ALLOSTERY IN MHC PROTEINS: PEPTIDE-DEPENDENT TUNING OF CLASS I MHC GLOBAL FLEXIBILITY[17]

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
|
2017

DIRECT EVIDENCE FOR CONFORMATIONAL DYNAMICS IN MAJOR HISTOCOMPATIBILITY COMPLEX CLASS I MOLECULES[18]

JBC

- Andy van Hateren, Malcolm Anderson, Alistair Bailey, Jörn M. Werner, Paul Skipp, Tim Elliott.

2017
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2017

RECENT ADVANCES IN MAJOR HISTOCOMPATIBILITY COMPLEX CLASS I ANTIGEN PRESENTATION: PLASTIC MHC MOLECULES AND TAPBPR MEDIATED QUALITY CONTROL[19]

F1000 Research

- Andy van Hateren, Alistair Bailey, Tim Elliott.

2015
|
2015

SELECTOR FUNCTION OF MHC I MOLECULES IS DETERMINED BY PROTEIN PLASTICITY[20]

Scientific Reports

- Alistair Bailey, Neil Dalchau, Rachel Carter, Stephen Emmott, Andrew Phillips, Jörn M. Werner, Tim Elliott

2014
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2014

TWO POLYMORPHISMS FACILITATE DIFFERENCES IN PLASTICITY BETWEEN TWO CHICKEN MAJOR HISTOCOMPATIBILITY COMPLEX CLASS I PROTEINS[21]

PLoS One

- Alistair Bailey, Andy van Hateren, Tim Elliott, Jörn M. Werner.

2013
|
2013

A MECHANISTIC BASIS FOR THE CO-EVOLUTION OF CHICKEN TAPASIN AND MAJOR HISTOCOMPATIBILITY COMPLEX CLASS I PROTEINS[22]

JBC

- Andy van Hateren, Rachel Carter, Alistair Bailey, Nasia Kontouli, Anthony P. Williams, Jim Kaufman, Tim Elliott.

2010
|
2010

THE CELL BIOLOGY OF MAJOR HISTOCOMPATIBILITY COMPLEX CLASS I ASSEMBLY: TOWARDS A MOLECULAR UNDERSTANDING[23]

Tissue Antigens

- A. Van Hateren, E. James, A. Bailey, A. Phillips, N. Dalchau, T. Elliott

🔗 LINKS

1. https://www.cancerresearchuk.org/funding-for-researchers/accelerator-award/portfolio-funded-projects-outputs
2. https://carpentries.org/
3. https://carpentries.org/
4. https://www.bioinfor.com/peaks-studio/
5. https://gatk.broadinstitute.org/hc/en-us
6. https://abc.med.cornell.edu/
7. https://www.ebi.ac.uk/pride/
8. https://ega-archive.org/
9. https://www.go-fair.org/fair-principles/
10. https://ab604.github.io/docs/coding-together-2019/
11. https://intouniversity.org/
12. https://ab604.github.io/docs/bspr_workshop_2018/index.html

13. https://doi.org/10.1371/journal.ppat.1009894
14. https://journals.plos.org/plospathogens/article?id=10.1371/journal.ppat.1010033
15. https://doi.org/10.1093/toxsci/kfaa184
16. https://doi.org/10.1111/imm.13307
17. https://doi.org/10.3389/fimmu.2019.00966
18. https://doi.org/10.1074/jbc.M117.809624
19. https://doi.org/10.12688/f1000research.10474.1
20. https://doi.org/10.1038/srep14928
21. https://doi.org/10.1371/journal.pone.0089657
22. https://doi.org/10.1074/jbc.M113.474031
23. https://doi.org/10.1111/j.1399-0039.2010.01550.x