

RICHARD J. ACTON

Professional Interests:

- Academic Software Development
- Reproducible Computational Analysis
- Ageing Biology
- Epigenetics

EMPLOYMENT

present
|
2020

CECAD

Post-Doctoral Researcher & Bioinformatician (Schumacher Lab / Bioinformatics Core)

📍 Cologne Excellence Cluster on Cellular Stress Responses in Aging Associated Diseases: Cologne, North Rhine-Westphalia, DE

PI Prof. Dr. Björn Schumacher bjoern.schumacher@uni-koeln.de

interim facility manager (present - 2021-06) Prof. Dr. Andreas Beyer
andreas.beyer@uni-koeln.de

facility manager (2021-06 -) Prof. Dr. Alexander Dilthey
Alexander.Dilthey@med.uni-duesseldorf.de



EDUCATION

2020
|
2016-09

MRC PhD Studentship

Epigenomics of Human Ageing

📍 University of Southampton

Including examination of changes in tRNA gene methylation with Age and performing EWAS for Bone health outcomes.

Supervisor: Dr. Chris Bell c.bell@qmul.ac.uk

2016-07
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2015-09

MSc - Bioinformatics and Systems biology (Distinction)

Project: Differential Expression of circRNAs in daf-2 and daf-2/16 mutant *C. elegans* Neurons.

📍 Birkbeck University of London

Supervisor: Irilena Nobeli i.nobeli@mail.cryst.bbk.ac.uk

CONTACT INFO

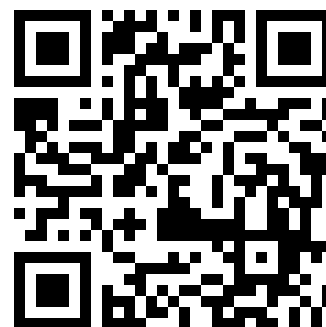
✉ richardjacton@pm.me

🐙 github.com/richardjacton

🆔 0000-0002-2574-9611

📅 **DOB:** 1992-10-30

🌐 **POB:** Scotland – UK



2015-07
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2011-09

MSci - Biochemistry and Genetics (1st Hons)

Undergraduate Degree

📍 University of Nottingham

Research Projects During this period:

- **2015** CRISPR based KO and screens of B methylase in the N6-methyladenine RNA modification system in Arabidopsis. (*Supervisor: Dr. Rupert Fray* rupert.fray@nottingham.ac.uk)
- **2014** BBSRC REP Summer project (See [Grants](#)).
- **2013** Interactions of PilZ proteins of the Cyclic-dimeric-3' → 5'-Guanosine Mono Phosphate (c-di-GMP) signalling system in Bdellovibrio bacteriovorus. (*Supervisor: Prof. Liz Sockett* liz.sockett@nottingham.ac.uk)
- **2012** Summer project Identifying possible chlamydial effector protein genes and expressing in Human cell lines (*Supervisor: Dr. Alan Huett* Alan.Huett@nottingham.ac.uk)

2011-07
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2009-09

A-levels

Further education

📍 The Sixth Form College Farnborough

Subject	Grade
Biology (A2)	A
Chemistry (A2)	A
Physics (A2)	A
Maths (A2)	B
Economics (AS)	A
General Studies (A2)	B

2009-07
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2005-09

GCSEs

Secondary School

📍 Frensham Heights School

Subject	Grade
Double Science	(A*)A*
Maths	A*
ICT	A*
French	A*
Photography	A*
Design Tech(RM)	A*
Art and Design 3D	A*
Geography	A*
English	A
English Literature	B

(Photography taken as an extra-curricular in 2007, French taken 1 year early in 2008)

🖥️ Programming & Bioinformatic Skills*

R	●●●●●
nextflow	●●○○○
Perl5	●●○○○
Bash	●●○○○
Python	●○○○○
SQL	●○○○○
HTML/CSS/javascript	●○○○○
PHP	●○○○○
Linux Use	●●●●○

Proficient with **git** for source control. Automated unit testing and continuous integration for R packages. Shiny app development for interactive data exploration and visualisation. Experience with the R **targets** pipeline management tool.

Use of HPC Clusters, Experience with SLURM, PBS/TORQUE schedulers & R HPC backends such as **future.batchtools**.

Familiar with the use of containerisation technologies such as docker and singularity for reproducible computational environments.

2005
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1996

Early life Education

Primary Schooling

📍 UK, US, UK, CH

- **2003 - 2005** École Internationale de Genève (La Grande Boissière campus), (Geneva, Switzerland)
- **2000 - 2003** Cheddington Combined School (UK)
- **1999 - 2000** Osgood Elementary (Massachusetts, USA)
- **1997-1999** Cohasset Montessori (Massachusetts, USA)
- **1996-1997** Bagshot Montessori (UK)

🧪 'Wet' Lab Skills

Now Quite Rusty Molecular cloning (Multiple Techniques), DNA and RNA extraction and purification, PCR, Acrylamide and agarose gel electrophoresis, Basic chromatographic protein purification and hanging drop vapour diffusion crystallisation, Basic cell culture with transfection, staining and light microscopy.



PUBLICATIONS & PRESENTATIONS

Publications

- **FGF21 modulates mitochondrial stress response in cardiomyocytes only under mild mitochondrial dysfunction**, *in press* Science Advances (2022)
- **Spleen tyrosine kinase mediates innate and adaptive immune crosstalk in SARS-CoV-2 mRNA vaccination**, *in press* EMBO Molecular Medicine (2022) [doi:10.1101/2021.08.18.456709](https://doi.org/10.1101/2021.08.18.456709)
- **Metabolic control of adult neural stem cell self-renewal by the mitochondrial protease YME1L**, *in press* Cell Reports (pre-print 2021) [doi:10.1101/2021.08.18.456709](https://doi.org/10.1101/2021.08.18.456709)
- **[First Author] The Genomic Loci of Specific Human tRNA Genes Exhibit Ageing-Related DNA Hypermethylation**, Nature Communications (2021) [doi:10.1038/s41467-021-22639-6](https://doi.org/10.1038/s41467-021-22639-6)
- **Obligatory and facilitative allelic variation in the DNA methylome within common disease-associated loci**, Nature Communications (2018) [doi:10.1038/s41467-017-01586-1](https://doi.org/10.1038/s41467-017-01586-1) (journal-article)
- **Cancer detection and tissue of origin determination with novel annotation and scoring of cell-free methylated DNA**, AME Medical Journal (2017) [doi:10.21037/amj.2017.08.02](https://doi.org/10.21037/amj.2017.08.02) (Comment)

Presentations

- **(2019-01-16:17 - Advances at the interface between metabolism and epigenetics)** Poster Presentation, Specific Isoacceptor and Isodecoder tRNA Genes Exhibit Increased DNA Methylation with Age.
- **(2018-11-21 - Institute of Developmental Sciences Review)** Oral Presentation, Ageing-Associated DNA Hypermethylation in tRNA genetic loci.
- **(2018-01-31:02-02 - Healthy Ageing: From Molecules to Organisms)** Lightning talk & Poster Presentation, Specific Isoacceptor and Isodecoder tRNA Genes Exhibit Increased DNA Methylation with Age.
- **(2017-11-14:17 - Epigenomics of Common Disease)** Poster Presentation – 1st Poster Prize, Specific Isoacceptor and Isodecoder tRNA Genes Exhibit Increased DNA Methylation with Age.
- **(2017-11-08 - Institute of developmental sciences open day)** Poster Presentation, Specific Isoacceptor and Isodecoder tRNA Genes Exhibit Increased DNA Methylation with Age.



CONFERENCES, MEETING & WORKSHOPS

- **2019-08-20** R Package development with Hadley Wickham (Southampton)
- **2019-08-21** Boosting your productivity using Tidiverse with Hadley Wickham (Southampton)

- **2017-11-29** QMUL, London Epigenetic Club meeting
- **2017-06-05:07** Epigenetic Epidemiology Short Course (*University of Bristol*)
- **2017-03-08:10** Clinical Epigenetics Society (CLEPSO) meeting (*Düsseldorf*)
- **2017-03-03** London Epigenetics Club / London Chromatin Club joint meeting on Epigenetics and Metabolism
- **2016-11-25** Research Data management Workshop (*Southampton*)
- **2016-11-16** Galton institute conference (*London*)
- **2016-11-01:04** Epigenomics of Common Diseases (*Cambridge*)



GRANTS

2014-08

2014-06

BBSRC – Research Experience Placement grant

Project: Deletion, 2-hybrid vector creation and crystallography of the *Bdellovibrio bacteriovorus* Bd1483 gene.

📍 Universities of Nottingham Birmingham

Supervisors: Professor Liz Sockett liz.sockett@nottingham.ac.uk, Dr. Andy Lovering a.lovering@bham.ac.uk



FOOTNOTES

Scoring system* - A subjective assessment of my own skill level. **5** is ~ daily use of the language, extensive knowledge of its ecosystem as well as deep knowledge of its structure and experience of developing production apps in that language. **1** is occasional use with heavy reliance of reference material but with at least one real world task such as creating a website or pipeline accomplished using that tool.

This resume was made with the R package [pagedown](#).

Last updated on 2022-02-17.