

# Gavin G. Rutledge

## Personal Information

### Personal Information

Date of Birth: 17.05.1991

Place of Birth: Luxembourg

Nationality: British/Luxembourgish

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### Contact Information

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## Education

2014-2018 **Ph.D. Biological Sciences**, *University of Cambridge*.

- Thesis Title: *Comparative Genomics and Epidemiological Modelling of Plasmodium ovale and Plasmodium malariae infections*
- Supervisors: Prof. Dominic Kwiatkowski, Dr. Matthew Berriman & Dr. Thomas Otto
- External Supervisor: Dr. Colin Russell
- 3rd Rotation Title: *Developing Selective Whole Genome Amplification Strategies for Plasmodium vivax*
- Supervisors: Prof. Dominic Kwiatkowski & Dr. Julian Rayner
- 2nd Rotation Title: *A Host-Parasite Gene Network Analysis of Malaria Infection*
- Supervisors: Dr. Adam Reid & Dr. Matthew Berriman
- Featured on the cover of the university-wide magazine, Bluesci (May 2015).
- 1st Rotation Title: *Investigating Vector Integration Efficiencies in Plasmodium berghei*
- Supervisors: Dr. Julian Rayner & Dr. Oliver Billker

2012-2013 **M.Sc. Quantitative Biology**, *Imperial College London*, *Distinction*.

- Thesis Title: *Detailed Analysis of DNA Sequence Variation in Mosquito Populations*
- Supervisor: Prof. Austin Burt
- Also awarded Diploma of Imperial College (DIC)

2012-2013 **M.A. English: 1850-Present**, *King's College London*, *Merit*.

- Thesis Title: *Malaria: The Representation of Tropical Diseases in Literature during the Colonial Era*
- Supervisor: Prof. Neil Vickers

2009-2012 **B.Sc.(Hons.) Biology and English**, *University of Keele*, *1st Class*.

- Thesis Title: *A Review of the Potential Medicinal Benefits of the Artemisia Genus*
- Supervisor: Dr. Anthony Polwart

## Other Research Experience

Aug-Sep 2014 **Visiting Researcher**, *Beijing Genomics Institute (BGI)*, Shenzhen.

- Research Topic: *Metagenomics study analysing gene abundance data from human gut microbiota to identify gene correlations with disease.*
- Supervisors: Dr. Qiang Feng & Dr. Huijue Jia

Nov-Dec 2013 **Research Assistant**, *Imperial College London*.

- Research Topic: *Further analyses of Anopheles gambiae DNA sequences to distinguish between retained ancestral polymorphisms and on-going gene flow.*
- Supervisor: Prof. Austin Burt

Jun-Aug 2010 **Lab Intern**, *Centre de Recherche Public Santé*, Luxembourg.

- Research Topic: *Investigated the function of the LIM domain encoding gene WLM2a in the development and growth of the pollen tube in Arabidopsis*
- Supervisor: Dr. Monika Dieterle

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## Awards

- Sep 2013 **William Harvey Prize**, *Imperial College London*.  
• Prize for the best student in *Quantitative Biology*
- Jun 2012 **Society of Biology Top Student Award**, *University of Keele*.  
• Award for the best *Biology graduate*
- May 2012 **1st Place in Santander Entrepreneurship Awards**, *University of Keele*.  
• Award for the most *innovative and promising business plan*
- May 2010 **Mary Campion Award**, *University of Keele*.  
• Award for the most *diligent first-year student in the faculty of natural sciences*

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## Publications

- 2017 **G. G. Rutledge**, & C. V. Ariani, *Finding the needle in the haystack*, *Nat Rev Microbiol* 15(3):136, doi:10.1038/nrmicro.2017.7.
- 2017 **G. G. Rutledge**, U. Boehme, M. Sanders, A. J. Reid, J. A. Cotton, O. Maiga-Ascofare, A. A. Djimde, T. O. Apinjoh, L. Amenga-Etego, M. Manske, J. W. Barnwell, F. Renaud, B. Ollomo, F. Prugnolle, N. M. Anstey, S. Auburn, R. N. Price, J. S. McCarthy, D. P. Kwiatkowski, C. I. Newbold, M. Berriman & T. D. Otto, *Plasmodium malariae and P. ovale genomes provide insights into malaria parasite evolution*, *Nature*, doi:10.1038/nature21038.
- 2017 **G. G. Rutledge**, & T. D. Otto, *Last parasite standing*, *Nat Rev Microbiol* 15(1):4, doi:10.1038/nrmicro.2016.181.
- 2016 S. O. Oyola, C. V. Ariani, W. L. Hamilton, M. Kekre, L. N. Amenga-Etego, A. Ghansah, **G. G. Rutledge**, S. Redmond, M. Manske, D. Jyothi, T. D. Otto, C. I. Newbold, M. Berriman & D. P. Kwiatkowski, *Whole genome sequencing of Plasmodium falciparum from dried blood spots using selective whole genome amplification*, *Malar J* 15(1):597, doi:10.1186/s12936-016-1641-7.

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## Teaching Experience

- Oct 2016 **Teaching Assistant**, *Wellcome Trust Sanger Institute*.  
• Demonstrated on the 'Genome Assembly' module of the 'Introduction to NGS' Wellcome Trust advanced course.
- Apr 2016 **Teaching Assistant**, *Wellcome Trust Sanger Institute*.  
• Demonstrated on the 'Genome Assembly' module of the 'Introduction to NGS' Wellcome Trust advanced course.
- Oct 2015 **Teaching Assistant**, *Wellcome Trust Sanger Institute*.  
• Demonstrated on the 'Genome Assembly' module of the 'Introduction to NGS' Wellcome Trust advanced course.
- Jan-Sep 2014 **Biology Teacher**, *Lycée Technique Michel Lucius*.  
• Taught secondary school level biology for 16 hours per week.
- Oct 2013 **Demonstrator**, *Imperial College London*.  
• Demonstrated on the 'Introduction to R' postgraduate course for 20 hours.
- 2009-2012 **Private Tutor**, *University of Keele*.  
• Taught undergraduate level Biology and academic English for approximately 240 hours.

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## Other Work Experience

- Apr 2013-Pres. **Director**, *Company Consultants (UK) Limited*, Cambridge, UK.  
• Set up the company with the intention of building a company formation and management firm, principally UK and Hong Kong companies.  
• Using contacts with agents in Luxembourg, UK, and Hong Kong, the company now has an annual turnover of £150,000.00

- May-Jul 2014 **Part-Time Intern**, *International Corporate Services*, Luxembourg.  
 • Was given responsibility of all UK and Hong Kong companies.  
 • Was taught company law, tax auditing, and accounting using Quickbooks.
- Jul-Aug 2008 **Summer Intern**, *Grant Thornton*, Luxembourg.  
 • Responsible for all the invoicing of the off-shore companies.  
 • Was taught basic accounting, company consulting, and company formation.

## IT Skills

- Programming R, Perl, Unix Shell Scripting, VBA
- Tools SAMtools, BWA, BCFtools, Picard Toolbox, Minitab, LaTeX, XPP, GIS, WinBUGS, Gephi, Artemis, ACT, Velvet, MaSURCA, HGAP
- Miscellaneous Windows, Office, Linux, MacOS X

## Languages

- English **Native**
- Luxembourgish **Native**
- French **Fluent** *A2 Higher Level French, International School of Luxembourg, 2009*
- German **Fluent** *Advanced Placement German, International School of Luxembourg, 2008*
- Mandarin **Conversational** *Intermediate Mandarin Chinese 2, University of Cambridge, 2015*  
*Intermediate Mandarin Chinese, Imperial College London, 2013*  
*Short Term Chinese Study: Pre-Intermediate, Beijing University, 2011*

## Talks

- 10 Jan 2017 **Speaker**, *Informatics & Genomics Meeting*, Wellcome Trust Genome Campus.  
 • *Genomic Characterisation of Recrudescence Plasmodium malariae after Treatment with Artemether-Lumefantrine*
- 20 Oct 2016 **Departmental Speaker**, *Parasites and Vectors Seminar*, Wellcome Trust Sanger Institute.  
 • *Genomic Characterisation of Recrudescence Plasmodium malariae after Treatment with Artemether-Lumefantrine*
- 19 May 2016 **Speaker**, *BioMalPar XII*, EMBL Heidelberg.  
 • *Completing the set of human malaria reference genomes: Plasmodium malariae and Plasmodium ovale*  
 • **Award for Best Talk**
- 10 Mar 2016 **Departmental Speaker**, *Malaria Away Day*, Wellcome Trust Sanger Institute.  
 • *The Genome Sequences of Plasmodium malariae and Plasmodium ovale*
- 24 Feb 2016 **Speaker**, *Molecular Approaches to Malaria 2016*, Lorne, Victoria.  
 • *The Genome Sequences of Plasmodium malariae and Plasmodium ovale*  
 • **Award for Best Talk**
- 10 May 2015 **Speaker**, *BioMalPar XI*, EMBL Heidelberg.  
 • *Flash Talk: A Host-Parasite Gene Network Analysis of Malaria Infection*
- 26 Mar 2015 **Departmental Speaker**, *Malaria Away Day*, Wellcome Trust Sanger Institute.  
 • *A Host-Parasite Gene Network Analysis of Malaria Infection*
- 18 Dec 2014 **Departmental Speaker**, *Thursday Malaria Meeting*, Wellcome Trust Sanger Institute.  
 • *Investigating Vector Integration Efficiencies in Plasmodium berghei*
- 05 Nov 2014 **Speaker**, *London Evolutionary Research Network Conference*, Queen Mary University.  
 • *Lightning Talk: Analysis of DNA Sequence Variation in Mosquito Populations.*  
 • **Award for Best Talk**

- 29 Nov 2013 **Speaker**, *Mastering Ecology Symposium*, British Ecological Society.  
 • *Analysis of DNA Sequence Variation in Mosquito Populations*
- 23 Sep 2013 **Departmental Speaker**, *Monday Lunchtime Seminar*, Imperial College London.  
 • *DNA Sequence Analysis in Mosquito Populations*
- 19 Jun 2013 **Speaker**, *Computational Systems Biology Seminar*, Luxembourg Centre for Systems Biology.  
 • *Analysis of DNA Sequence Variation in Mosquito Populations*

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## Posters

- 18 Dec 2016 **Rutledge G.G.**, Marr I., Huang, G. K. L., Auburn S., Marfurt J., Sanders M., White N., Berriman M., Newbold C., Anstey N., Otto T., & Price R., *Genomic Characterisation of Recrudescence Plasmodium malariae after Treatment with Artemether-Lumefantrine*, Sanger Day, Wellcome Trust Sanger Institute.
- 21 Sep 2016 **Rutledge G.G.**, Marr I., Huang, G. K. L., Auburn S., Marfurt J., Sanders M., White N., Berriman M., Newbold C., Anstey N., Otto T., & Price R., *Characterization of an Unusual Plasmodium malariae Recrudescence*, 27th Annual Molecular Parasitology Meeting, Woods Hole.
- 10 May 2015 **Rutledge G.G.**, Reid A.J., Lin J., Sanders M., Newbold C., Langhorne J. & Berriman M. , *A Host-Parasite Gene Network Analysis of Malaria Infection*, BioMalPar XI, EMBL Heidelberg.
- 17 Apr 2015 **Rutledge G.G.**, Schwach F., Gomes A.R., Rayner J. & Billker, O., *Investigating Vector Integration Efficiencies in Plasmodium berghei*, Genetics Society, Roslin Institute.
- 23 Mar 2015 **Rutledge G.G.**, Reid A.J., Lin J., Sanders M., Newbold C., Langhorne J. & Berriman M. , *A Host-Parasite Gene Network Analysis of Malaria Infection*, 1st Year PhD Student Symposium, Wellcome Trust Sanger Institute.
- 18 Mar 2015 **Rutledge G.G.**, Reid A.J., Lin J., Sanders M., Newbold C., Langhorne J. & Berriman M. , *A Host-Parasite Gene Network Analysis of Malaria Infection*, Graduate School of Life Sciences Poster Competition, University of Cambridge **Outstanding Image Award**.
- 18 Feb 2015 **Rutledge G.G.**, Schwach F., Gomes A.R., Rayner J. & Billker, O., *Investigating Vector Integration Efficiencies in Plasmodium berghei*, EBI-Sanger-Cambridge PhD Symposium, University of Cambridge **Best Poster Award**.
- 05 Nov 2014 **Rutledge G.G.**, O'Loughlin S. & Burt A., *Analysis of DNA Sequence Variation in Mosquito Populations*, London Evolutionary Research Network Conference, Queen Mary University, London.
- 23 Oct 2014 **Rutledge G.G.**, O'Loughlin S. & Burt A., *Anopheles Gambiae: DNA Sequence Variation*, Symposium for Biological and Life Science Students, University of Cambridge, Cambridge **Outstanding Poster Award**.
- 10 Sep 2014 **Rutledge G.G.**, O'Loughlin S. & Burt A., *Analysis of DNA Sequence Variation in Mosquito Populations*, 9th International Conference of Genomics, Beijing Genomics Institute, Shenzhen **Best Poster Award**.
- 29 Nov 2013 **Rutledge G.G.**, O'Loughlin S. & Burt A., *Analysis of DNA Sequence Variation in Mosquito Populations*, Mastering Ecology Symposium, British Ecological Society, London.

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## Funding

- Oct 2014-Pres. **4 Year MRC Studentship**, £100,000.00, Medical Research Council.
- Oct 2014-Pres. **4 Year Sanger Institute Studentship**, £25,000.00, Wellcome Trust Sanger Institute.

- Oct 2009-2016 **CEDIES Student Bursary**, 60,000.00€, Centre de Documentation et d'Information sur l'Enseignement Supérieur.
- Sep 2016 **Reuben-Levy Travel Fund**, £100.00, Christ's College.
- Sep 2016 **Emily & Gordon Bottomley Travel Fund**, £300.00, Christ's College.
- Jul 2016 **MRC Doctoral Training Grant**, £5000.00, Medical Research Council.
- Dec 2015 **Travel Grant**, £250.00, Cambridge Philosophical Society.
- Dec 2015 **Junior Scientist Grant**, £300.00, The Genetics Society.
- Nov 2015 **Emily & Gordon Bottomley Travel Fund**, £400.00, Christ's College.
- Nov 2015 **International Delegate Travel Award**, £1200.00, Molecular Approaches to Malaria 2016 Organising Committee.
- Oct 2015 **Reuben-Levy Travel Fund**, £200.00, Christ's College.
- Oct 2015 **Emily & Gordon Bottomley Travel Fund**, £230.00, Christ's College.
- Jun 2015 **Charles Slater Fund**, £400.00, University of Cambridge.
- Apr 2015 **Graduate Tutor Fund**, £120.00, Christ's College.
- Mar 2015 **Emily & Gordon Bottomley Travel Fund**, £250.00, Christ's College.
- Jan 2015 **Conference Grant**, £150.00, The Genetics Society.
- Dec 2014 **Monica Kornberg Memorial Fund**, £100.00, Christ's College.
- Nov 2014 **Conference Grant**, £100.00, The Genetics Society.
- Nov 2014 **Graduate Tutor Fund**, £100.00, Christ's College.
- Oct 2014 **Levy-Plumb Fund for the Humanities**, £100.00, Christ's College.
- Sep 2013 **Travel Grant**, £200.00, Imperial College London.

## Positions of Responsibility

- Mar 2015-Pres. **Graduate Society Treasurer**, *Christ's College*.
- Managing a £25,000.00 budget with a significant number of transactions.
  - Contribute to the organisation and set-up of the graduate society events.
  - Re-elected by majority vote after a successful first-year tenure.
- 2014-2015 **1st Year PhD Student Representative**, *Wellcome Trust Sanger Institute*.
- Organize all Sanger PhD students to attend compulsory meetings.
  - Organize the annual Sanger PhD Student retreat.
- Mar-Sep 2014 **OBR Ambassador**, *Oxbridge Biotech Roundtable*.
- Creating a presence for OBR in Luxembourg and contributing ideas for event topics, consulting projects, and the OBR Roundtable Review within the global OBR network.
- 2012-2013 **Course Representative for Quantitative Biology**, *Imperial College London*.
- Represented the class in course feedback sessions.
  - Wrote feedback forms and organised all class members to participate.
  - Silwood Colours awarded in recognition of outstanding services to Silwood Park Union
- 2011-2012 **Student Staff Liaison Committee Member for Biology**, *University of Keele*.
- Represented the biology undergraduate course in staff meetings.
  - Helped biology students who had academic or personal problems.

## Professional Development

- Nov 2015 **Biotechnology YES Participant**, *Syngenta, Bracknell*.
- 2014-2015 **Certificate in Entrepreneurship**, *Judge Business School, University of Cambridge*.
- 2014-2015 **Management of Innovation and Technology**, *Judge Business School, University of Cambridge*.
- Jan-Apr 2014 **Continued Teacher Training**, *Ministère de l'Éducation nationale et Formation professionnelle*.

2012-2014 **Online Courses**, *Coursera & EdX*.

June 2013 **Systems Biomedicine Summer School**, *University of Luxembourg*.

2012-2013 **MasterClasses**, *Imperial College London*.

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## Professional Memberships

2009-Present **Associate Member of the Society of Biology (AMSB)**.

2013-Present **Member of the British Ecological Society**.

2014-Present **Member of the Genetics Society**.

2014-Present **Fellow of the Cambridge Philosophical Society**.

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## Service

2016-Present **Reviewer for the following,**

- Bioinformatics
- Genome Biology
- Scientific Reports
- F1000.