

Lauren Carrington
BSc. (Hons). Ph.D.

PERSONAL INFORMATION

Personal Details

Name: Lauren B. Carrington
Date of Birth: 25 July 1983
Nationality: Australian
Mobile Phone: +84 77 999 1294
Personal Email: lbcarrington@gmail.com

Professional Details

Position: **Research Fellow**
Employer: **The University of Oxford**
Nuffield Department of Medicine
Oxford, UNITED KINGDOM
Seconded to: **Oxford University Clinical Research Unit (OUCRU)**
Wellcome Trust Major Overseas Programme
Hospital for Tropical Diseases
764 Võ Văn Kiệt
Ward 1, District 5
Ho Chi Minh City
VIETNAM
Work Email: lcarrington@oucru.org

EDUCATION

Doctor of Philosophy (Evolutionary Biology), **January 2007 – January 2010**

Institution: University of Melbourne, AUSTRALIA
Supervisors: Prof. Ary A. Hoffmann, Dr. Andrew R. Weeks
Thesis title: Evolution of *Wolbachia-Drosophila* interactions and implications for *Wolbachia*-based biocontrol
Thesis passed: 22 March 2010
Graduation ceremony: 16 December 2010

Honours Degree of Bachelor of Science (Genetics), **February 2006 – November 2006**

Institution: Monash University, AUSTRALIA
Supervisor: Assoc. Prof. Stephen W. McKechnie
Final Grade: High Distinction
Thesis title: Thermal tolerance variation in *Drosophila*: Assessing the role of protein synthesis and the *hsr-omega* gene

Bachelor of Science (Genetics), **March 2002 – June 2005**

Institution: Monash University, AUSTRALIA
Final Year average: High Distinction

PROFESSIONAL EXPERIENCE (Post-PhD)

2018 (August) – present

Position: **Research Fellow**
Institution: University of Oxford, Oxford, UNITED KINGDOM
Seconded to: Oxford University Clinical Research Unit, Ho Chi Minh City, VIETNAM
Supervisor: Prof. Cameron P. Simmons

2017 (August) – 2018 (August)

Position: **Research Fellow (Grade II)**
Institution: University of Melbourne, Melbourne, AUSTRALIA
Seconded to: Oxford University Clinical Research Unit, Ho Chi Minh City, VIETNAM
Supervisor: Prof. Cameron P. Simmons

2013 (February) – 2017 (August)

Position: **Research Fellow (Grade I)**
Institution: University of Melbourne, Melbourne, AUSTRALIA
Seconded to: Oxford University Clinical Research Unit, Ho Chi Minh City, VIETNAM
Supervisor: Prof. Cameron P. Simmons

2010 (January) – 2012 (December)

Position: **Post-doctoral Researcher**
Institution: University of California Davis, Davis CA, USA
Supervisor: Prof. Thomas W. Scott

2010 (July – August)

Position: **Scientific Visitor**
Institution: Institut Pasteur, Paris, FRANCE
Collaborator: Dr. Louis Lambrechts

HONOURS & AWARDS

- 2016 – OUCRU Public Engagement seed award, Oxford University Clinical Research Unit
Value: **\$5,000 (USD)**
- 2013 – International postdoctoral fellowship, AXA Research Foundation - *regretfully declined*
Value: **€120,000 (EUR)** over 24 months
- 2009 – Genetics Department Travelling Scholarship, University of Melbourne
Value: **\$1,500 (AUD)**
- 2008 – Postgraduate Overseas Research Experience Scholarship, University of Melbourne
Value: **\$3,500 (AUD)**
- 2007 to 2010 – Ph.D. Scholarship, University of Melbourne
Value: **\$67,500 (AUD)** over 36 months
- 2007 – Golden Key International Honour Society, admission year: 2007

SERVICES TO THE COMMUNITY & MEMBERSHIPS

PhD Examinations

- Open University (UK)
 - Student: Phan Hai Trieu, submitted 2018

Services

- *Ad-hoc* reviewer for:
 - American Journal of Tropical Medicine and Hygiene
 - Biological Reviews
 - BMC Ecology
 - BMC Infectious Diseases
 - Dengue Bulletin
 - Ecological Applications
 - Emerging Microbes & Infections
 - International Journal of Radiation Biology
 - Journal of Vector Ecology
 - Journal of Medical Entomology
 - Memorias do Instituto Oswaldo Cruz
 - Open Access Insect Physiology
 - Parasites & Vectors
 - PLOS ONE
 - PLOS Neglected Tropical Diseases
 - Tropical Medicine and International Health

Memberships

- 2009 to 2012 – European Society for Evolutionary Biology
- 2011 to present – American Society for Tropical Medicine and Hygiene
Subgroup committee member of:
 - American Committee on Arthropod-borne viruses (AVAC)
 - American Committee of Medical Entomology (ACME)
 - ASTMH Committee on Global Health
- 2013 – Entomological Society of America

LANGUAGES

- English – Native speaker
- French – Intermediate
- Vietnamese – Upper Beginner
- Spanish – Beginner

SUMMARY OF SKILLSETS & EXPERIENCES

Research experience:

- Working in a clinical environment in a low-middle income country (LMIC)
- Development and submission of fellowship applications and small grant applications
- Design, implementation, coordination, analysis and publication of empirical research
- Development of study protocols for observational entomological, epidemiological and clinical studies (in the lab, community, and hospital)
- Preparation and submission of scientific manuscripts for leading international peer-reviewed journals
- Preparation of human ethics research submissions to multiple international IRBs/ethics committees
- Managing complex databases and coordination of data across multiple overlapping projects
- Monitoring adherence to approved protocols and ethics requirements for hospital- and community-based studies
- Liaising with partners in local public health organisations and institutions, to strengthen networks
- Presentation of project plans, research outcomes and future directions to a wide range of academic audiences and stake holders, locally, nationally and internationally
- Development and coordination of research projects with local, national and international partners
- Development and delivery of training materials for project-specific study staff.

Project management experience:

- Ensure research output meets mid-project milestones and end-of-project deadlines
- Organisation and prioritisation of tasks and staff activities for multiple overlapping projects
- Ability to work to, and manage tight time-frames and budget constraints
- Develop and negotiating budgets for project agreements with local partners
- Monitor day-to-day operations of hospital- and community-based studies
- Managing a best-practice entomology laboratory performing overlapping projects, 6 full time staff

Administrative responsibilities:

- Chair of the OUCRU Health and Safety Committee (December 2015 – August 2018)
 - Promoting a positive attitude towards Health and Safety within the Unit
 - Reviewing annual Safety training material
 - Pro-actively identify potential issues with biosafety and biosecurity, and collaborating with the Laboratory Management and Estates teams to improve workflow and building infrastructure
 - Investigating and following up on occupational incidents in the laboratory and office space
 - Consulting with other experts and advising the best course of action during incidents
 - Reporting to the Unit Director as required about necessary improvements within the Unit
 - Coordinating management actions taken after external audits of health and safety practices
- Acting Group Head of OUCRU's Dengue group (3 months, 2017)
- Co-Founder and co-chair of the OUCRU Postdoctoral Society (June 2017 – December 2018)
- Assisting the Laboratory Management group to conduct of annual audits of the Entomology/Insectary facility
 - Ensuring compliance with UK and Vietnamese safety standards
 - Following up on actions required after internal audits
- Coordinating and overseeing the review and approval the Standard Operating Procedure system Dengue group, within OUCRU (70+ SOPs, with complete 2-yearly review)
- Overseeing all aspects of clinical research administration, including planning meetings, progress meetings, budgets, and communication between hospital and laboratory teams

- Preparation of reports to funders, stake holders and ethics committees within the UK, Australia and Vietnam in compliance with requirements of ethics boards, scientific committees and funders
- Developing job descriptions, advertising, interviewing, recruiting and training new Entomology staff and Molecular Diagnostics staff
- Performing annual performance reviews for ten staff (including Research Assistants, Technicians and PhD students)

Technical skills/experiences:

- Working in BioSafety Level (BSL)-2, BSL-3 and BSL-3+ laboratory environments
- A broad range of biological, molecular and virological assays
 - DNA and RNA extractions, conventional PCR, quantitative PCR and sequencing
 - Immunofluorescence assays, plaque assays, neutralisation assays
 - Cloning and sequencing
 - Cell culture and virus propagation
- Statistics: a working knowledge and ability to implement of a range of statistical analyses to quantitative/qualitative data
 - Time-to-event analyses (eg: Kaplan-Meier)
 - Multinomial/logistic regressions
 - ANOVA, T-tests, X^2 tests, post-hoc analyses, etc
- Computer literacy:
 - Highly proficient with using Microsoft Office products
 - Capacity to work with multiple statistical interfaces such as R Studio, SPSS, JMP

STUDENT & STAFF SUPERVISION
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Oxford University Clinical Research Unit:

- Primary PhD Supervisor of one student enrolled at Oxford University (2016 – 2019).
 - Training in scientific method; critical thinking; scientific writing practices (literature reviews, scientific manuscripts, reports); development of study protocols, experimental designs and SOPs
 - Ensuring student meets all university requirements for reporting, conducting and preparation for viva, examinations etc
- Mentorship for multiple students from undergraduate, Masters and PhD level
- Direct line of reports for eleven Technicians and Research assistants
 - Six Research Assistants in the Entomology lab
 - Three Research Assistants + one technician in the Molecular Diagnostics group
 - One Research Assistant performing study coordination

University of California Davis:

- Supervision, training and mentorship for four undergraduate students in summer projects (2009)
- Direct line of reports for of two technicians (one for 9 months, the other for 18 months) to assist in the conducting long-term experiments in the laboratory (2010-2012)

COURSES & TRAINING

Academic Development

- Oxford University Clinical Research Unit
 - Qualitative Research Methods (3-day course) – 2016
 - Introduction to Biostatistics (5-day course) – 2014
 - Introduction to Epidemiology (2-day course) – 2014

Research Conduct

- Oxford University Clinical Research Unit
 - Good Clinical Practice (NIH Approved) – 2013, 2016,
- University of California Davis
 - Responsible Conduct of Research (NSF Approved) – 2011
 - Ethical Values and Conduct – 2012
 - Compliance and Conflict of Interest for Researchers – 2012

Human Resources Management

- Oxford University Clinical Research Unit
 - “Making a Difference” – 2-yr Leadership development programme 2016-2017
- University of Melbourne
 - New Supervisor Workshop (required for formal student supervision) – 2013
 - Promoting Positive Workplace Behaviours – 2013, 2015, 2017
- University Of Oxford
 - Unconscious Bias – 2017
 - Challenging Behaviours – 2019
 - Equality and Diversity – 2019
 - Information Security – 2019

Safety and Security

- Oxford University Clinical Research Unit
 - Personal Protective Equipment – 2013
 - Biological Safety – 2013
- University of Melbourne
 - Chemical Safety – 2007, 2008, 2009, 2013
 - Gas Safety – 2007, 2008, 2009, 2013
 - Personal Protective Equipment – 2009, 2013
- University of California Davis
 - US DOT Hazardous Materials Transportation: 49CFR Regulated Medical Waste – 2012
 - Biological Safety and Medical Waste Management – 2010, 2011, 2012
 - Fume hood training – 2010
 - Safe use of Biological Safety Cabinets – 2010
 - Chemical Laboratory Safety – 2010
- Pasteur Institute, Paris
 - Hygiène Sécurité Environnement (in English) – 2010
 - Biosécurité P3 (in English) – 2010

Summary of peer-reviewed published work:

- Commentaries/reviews = 2
- Research publications = 15
 - First-author publications = 10
 - Senior author publications = 1

Metrics (Google Scholar)

- Citations = 1068
- H-index = 13
- I10-index = 13

Publications:

Commentaries/reviews:

1. **Carrington, L. B.**, Wills, B. (2018). Lessons from history: viral surveillance in 1940's East Africa. *Transactions of the Royal Society of Tropical Medicine and Hygiene*. 47: 13-48.
2. **Carrington, L. B.**, Simmons, C. P. (2014). Human to mosquito transmission of dengue viruses. *Frontiers in Immunology*. 5: 290.

Original science publications:

1. **Carrington, L. B.**, Tran, N. B. C., Le, N. T. H., Luong, T. H. T., Nguyen, T. T., Nguyen, T. P., Nguyen, V. V. C., Nguyen, T. C. H., Vu, T. T., Vo, T. L., Le, T. D., Vu, T. V., Nguyen, T. G., Luu, Q. H., Dang, D. A., Hurst, T. P., O'Neill, S. L., Tran, T. V., Duong T. H. K., Nguyen, M. N., Wolbers, M., Wills, B. Simmons, C. P. (2018). Field- and clinically derived estimates of Wolbachia-mediated blocking of dengue virus transmission potential in *Aedes aegypti* mosquitoes. *Proceedings of the National Academy of Sciences USA*. 115(2): 361-366.
2. Nguyen, M. N., Whitehorn, J. S., Luong T. H. T., Nguyen, T. T., Thong, M. X., Huy, V. X., Nguyen. T. C. H., Nguyen, T. H. L., Nguyen, H. L, Dong, T. H. T., Nguyen, V. V. C., Wolbers, M., Wills, B., Simmons, C. P., **Carrington, L. B.** (2016). Physicians, primary caregivers and topical repellent; all under-utilised tools in stopping dengue transmission in affected households. *PLOS Neglected Tropical Diseases*. 10(5): e0004667.
3. Joubert, D. A.,* Walker. T.,* **Carrington, L. B.**,* De Bruyne, J. T., Duong T. H. K., Le, T. H. N., Nguyen, V. V. C. Iturbe-Ormaetxe, I., Simmons, C. P., O'Neill, S. L. (2016). Establishment of a Wolbachia super infection in *Aedes aegypti* mosquitoes as a potential approach for future resistance management. *PLOS Pathogens*. 12(2): e1005434. (*co-first authorship)
4. Whitehorn, J. Kien, D. T., Nguyen, N. M., Nguyen, H. L., Kyrylos, P. P., **Carrington, L. B.**, Bich Tran, C. N., Quyen, N. T., Thi, L. V., Thi, D. L., Truong, N. T., Luong, T. T., Nguyen, C. V., Wills, B., Wolbers, M., Simmons, C. P. (2015). Comparative susceptibility of *Aedes albopictus* and *Aedes aegypti* to dengue virus infection following human viremic blood feeding: implications for public health. *Journal of Infectious Diseases*. 212(8): 1182-1190.
5. **Carrington, L. B.**, Nguyen, H. L. Nguyen, N. M., Duong, T. H. K., Vu, T. T., Nguyen T. G., Vu T., N., Le, T. D., Vo T. L., Tran, N. C., Simmons, C. P. (2015). Naturally-acquired dengue infections do not reduce

short-term survival of infected *Aedes aegypti* from Ho Chi Minh City, Vietnam. *American Journal of Tropical Medicine and Hygiene*. 92:492-496.

6. **Carrington, L. B.**, Armijos, M. V., Lambrechts, L., Scott, T. W. Fluctuations at low mean temperatures accelerate dengue virus transmission by *Aedes aegypti*. *PLOS Neglected Tropical Diseases*. 7: e2190.
7. **Carrington, L. B.**, Seifert, S. N., Armijos, M. V., Lambrechts, L., Scott, T. W. (2013). *Aedes aegypti* vector competence for DENV is reduced under large diurnal temperature fluctuations. *American Journal of Tropical Medicine and Hygiene*. 88: 689-697.
8. **Carrington, L. B.**, Armijos, M. V., Lambrechts, L., Barker, C. M., Scott, T. W. (2013). Effects of fluctuating daily temperatures at critical thermal extremes on *Aedes aegypti*. *PLoS ONE*. 8: e58824.
9. **Carrington, L. B.**, Seifert, S. N., Willits, N. H., Lambrechts, L. Scott, T. W. (2013). Large diurnal temperature fluctuations negatively influence *Aedes aegypti* (Diptera: Culicidae) life history traits. *Journal of Medical Entomology*. 50: 43-51.
10. Lambrechts, L., Paaijmans, K. P., Fansiri, T., **Carrington, L. B.**, Kramer, L. D., Thomas, M. B., Scott, T. W. (2011). Impact of daily temperature fluctuations on dengue virus transmission by *Aedes aegypti*. *Proceedings of the National Academy of Sciences USA*. 108: 7460-7465.
11. **Carrington, L. B.**, Lipkowitz, J. R., Hoffmann, A. A., Turelli, M. (2011). A re-examination of *Wolbachia*-induced cytoplasmic incompatibility in California *Drosophila simulans*. *PLoS ONE*. 6: e22565.
12. **Carrington, L. B.**, Hoffmann, A. A., Weeks, A. R. (2010). Monitoring long-term changes following *Wolbachia* introduction into a novel host: the *Wolbachia* popcorn infection in *Drosophila simulans*. *Proceedings of the Royal Society – B*. 277: 2059-2068.
13. **Carrington, L. B.**, Leslie, J., Weeks, A. R., Hoffmann, A. A. (2009). The Popcorn *Wolbachia* infection of *Drosophila melanogaster*: can selection alter *Wolbachia* longevity effects? *Evolution* 63: 2648-2657.
14. Johnson, T. K., **Carrington, L. B.**, Hallas, R. J., McKechnie, S. W. (2009). Protein synthesis rates in *Drosophila* associate with levels of the *hsp-omega* nuclear transcript. *Cell Stress and Chaperones* 14: 569-577.
15. Johnson, T. K., Cockerell, F. E., **Carrington, L. B.**, Rako, L., Hoffmann, A. A., McKechnie, S. W. (2009). The capacity of *Drosophila* to heat harden associates with low rates of heat-shocked protein synthesis. *Journal of Thermal Biology* 34: 327-331.

INTERNATIONAL SEMINARS & CONFERENCES

Oral presentations/Invited speaker presentations

- Centre for Inference and Dynamics of Infectious Diseases, Fred Hutch Cancer Research Institute
April 2018 – Washington, USA
Seminar (invited speaker): Field- and clinically derived estimates of *Wolbachia*-mediated blocking of dengue virus transmission potential in *Aedes aegypti* mosquitoes
- Oxford Tropical Network (OTN) meeting
March 2018 – Ho Chi Minh City, VIETNAM
Oral presentation: Dengue, mosquitoes... and *Wolbachia*
- American Society of Tropical Medicine and Hygiene (ASTMH) 65th Annual Meeting
November 2016 – Philadelphia, PA, USA
Oral presentation: Refining estimates of dengue virus transmission potential in wild type and wMel-infected *Aedes aegypti*: field rearing conditions alter virus susceptibility
- Oxford Tropical Network (OTN) meeting
March 2015 – Siem Reap, CAMBODIA
Oral presentation: How effectively does *Wolbachia* inhibit dengue virus transmission in *Aedes aegypti*?
- Entomological Society of America (ESA) 61st Annual Meeting
November 2013 – Austin, TX, USA
Oral Presentation: Epidemiological risk factors: Understanding the effect of the environment on pathogen transmission by mosquitoes
- Fundação Oswaldo Cruz: Oswaldo Cruz Institute/Program for Scientific Computing
April 2012 – Rio de Janeiro, BRAZIL
Seminar (invited speaker): Capacity of *Aedes aegypti* to vector dengue under variable temperatures with temperature fluctuations
- NIH/NSF Evolution and Ecology of Infectious Diseases PI Meeting
March 2012 – University of California Berkeley, USA.
Oral Presentation: Temperature fluctuations alter *Aedes aegypti* life history traits and vectorial capacity for dengue
- Institut de Recherche pour le developpement: Maladies Infectieuses et Vecteurs Écologie, Génétique, Évolution et Contrôle (IRD: MiVEGEC) – invited seminar
January 2012 – Montpellier, FRANCE
Seminar (invited speaker): Capacity of *Aedes aegypti* to vector dengue under small and large diurnal temperature fluctuations
- Gulbenkian Instituto de Ciência – invited seminar
January 2012 – Lisbon, PORTUGAL
Seminar: Capacity of *Aedes aegypti* to vector dengue under small and large diurnal temperature fluctuations
- American Society of Tropical Medicine and Hygiene (ASTMH) 60th Annual Meeting
December 2011 – Philadelphia, PA, USA
Oral presentation: Capacity of *Aedes aegypti* to vector dengue under small and large diurnal temperature fluctuations
- European Society of Evolutionary Biology (ESEB) 12th Conference
August 2009 – Turin, ITALY.
Oral presentation: Ongoing evolution of the interaction between *Drosophila simulans* and *Wolbachia* Riverside (wRi)

Poster presentations

- **2018** – American Society of Tropical Medicine and Hygiene (ASTMH) 67rd Annual Meeting – New Orleans, LA, USA. Relative reductions in *Aedes aegypti* DENV transmission potential, mediated by multiple Wolbachia strains (wMelCS, wAlbB, & wMel).
- **2017** – American Society of Tropical Medicine and Hygiene (ASTMH) 66rd Annual Meeting – Baltimore, MD, USA. Development of a non-human primate-mosquito-dengue virus infection model.
- **2016** – Vietnam Infectious Disease Conference – Hanoi, VIETNAM. Testing the efficacy of Wolbachia as an intervention to reduce dengue virus transmission.
- **2015** – American Society of Tropical Medicine and Hygiene (ASTMH) 64rd Annual Meeting – Philadelphia, PA, USA. Effect of natural rearing conditions on the virus inhibition phenotype of Wolbachia-infected *Aedes aegypti*.
- **2014** – American Society of Tropical Medicine and Hygiene (ASTMH) 63rd Annual Meeting – New Orleans, LA, USA. Febrile dengue patients are no more attractive to *Aedes aegypti* than non-febrile, healthy volunteers.
- **2011** – European Society of Evolutionary Biology (ESEB) 13th Conference – Tübingen, GERMANY. Impact of daily temperature fluctuations on dengue virus transmission by *Aedes aegypti*
- **2011** – NIH/NSF Evolution and Ecology of Infectious Diseases PI Meeting – Madison, Wisconsin, USA. Impact of daily temperature fluctuations on dengue virus transmission by *Aedes aegypti*.
- **2008** – Grand Challenges in Global Health Project “Modifying mosquito population age structure to eliminate dengue transmission” 3rd Annual Progress Meeting – Hanoi, VIETNAM. The popcorn Wolbachia (wMelPop) infection in *Drosophila melanogaster*.