

Dionne Argyropoulos

PHD

Infecton and Global Health Division, Walter & Eliza Hall Institute

she/her | +61 411 394 914 | argyropoulos.d@wehi.edu.au | 0000-0002-8068-0215 | clSfd8kAAAAJ | dionnecargy | dionnecargy

About Me

I am a molecular epidemiologist and population geneticist currently positioned at WEHI (Walter and Eliza Hall Institute). Dionne's avid interest in genetics, evolution and coding led me to apply these approaches to studies of infectious diseases, such as *Plasmodium falciparum* malaria in my Masters of Science and PhD, to *P. vivax* malaria and various microbes in my current first post-doc position. The research topics of interest include drug or antimicrobial resistance, spatiotemporal trends, epidemiological statistics, statistical modelling and machine learning techniques, data wrangling and visualisation. My work has involved international collaborations in East and West Africa, North and South America and Southeast Asia, as well as supervision and support of students, with various opportunities for knowledge exchange and capacity-building in coding and genetic epidemiology. Being an active member of the R-Ladies Melbourne community, and the current President (from 2024), has led to the development of practical content (workshops and the website) and has motivated me to learn and develop new techniques. Throughout my research projects, I developed a deep interest in coding and have even generated this CV using R/Quarto!

Current Position

Walter and Eliza Hall Institute of Medical Research (WEHI)

Melbourne, AU

RESEARCH OFFICER

2024-current

- Post-doctoral researcher with a focus on machine learning and advanced epidemiological methods.

Education

University of Melbourne

Melbourne, AU

DOCTOR OF PHILOSOPHY - MEDICINE, DENTISTRY AND HEALTH SCIENCES

2020-24

- Recipient of the Research Training Program Scholarship (Stipend and Fee Offset, 2020-2024) awarded to high-achieving domestic research students with a full fee offset and living allowance.
- My thesis, "The genetic epidemiology of the *Plasmodium falciparum* malaria in high burden settings in Africa", focussed primarily on molecular epidemiology and population genetics.
- I compared existing and developed new methods optimised for low-density and multiclonal datasets found in asymptomatic infections in high-transmission settings in Africa.
- I analysed the effect of various malaria control interventions on the population genetics of asymptomatic *Plasmodium falciparum* infections in an area of high seasonal malaria transmission in Ghana.

University of Melbourne

Melbourne, AU

MASTER OF SCIENCE (BIOSCIENCES)

2018-19

- Coursework and Research Project.
- My thesis was entitled "Understanding the effects of perturbations on the population genetics of asymptomatic *Plasmodium falciparum* infections in an area of high seasonal malaria transmission in Ghana".
- I identified minimal variation in putatively neutral microsatellite genetic diversity between seasons and following a vector control intervention.
- Graduated with Distinctions and Honours in First Class

University of Melbourne

Melbourne, AU

BACHELOR OF SCIENCE

2015-17

- Major in Genetics, with supplementary courses in Biochemistry and Molecular Biology, Evolution and Ecology, Reproductive Biology and Demographics.
- Graduated with Honours in First, Second and Third Class.

Publications

Measuring changes in *Plasmodium falciparum* census population size in response to sequential malaria control interventions

eLife

TIEDJE, K. E., ZHAN, Q., RUYBAL-PÉSANTEZ, S., TONKIN-HILL, G., HE, Q., TAN, M. H., ARGYROPOULOS, D. C., DEED, S. L., GHANSAH, A., BANGRE, O., ODURO, A. R., KORAM, K. A., PASCUAL, M. & DAY, K. P.

2023

Performance of SNP barcodes to determine genetic diversity and population structure of *Plasmodium falciparum* in Africa

Frontiers in Genetics

ARGYROPOULOS, D. C., TAN, M. H., ADOBOR, C., MENSAH, B., LABBÉ, F., TIEDJE, K. E., KORAM, K. A., GHANSAH, A. & DAY, K. P.

2023

Comparison of molecular surveillance methods to assess changes in the population genetics of *Plasmodium falciparum* in high transmission

GHANSAH, A., TIEDJE, K. E., ARGYROPOULOS, D. C., ONWONA, C. O., DEED, S. L., LABBÉ, F., ODURO, A. R., KORAM, K. A., PASCUAL, M. & DAY, K. P.

Frontiers in Parasitology

2023

Neutral vs. non-neutral genetic footprints of *Plasmodium falciparum* multiclinal infections

LABBÉ, F., HE, Q., ZHAN, Q., TIEDJE, K. E., ARGYROPOULOS, D. C., TAN, M. H., GHANSAH, A., DAY, K. P. & PASCUAL, M.

PLoS Computational Biology

2023

Indoor residual spraying with a non-pyrethroid insecticide reduces the reservoir of *Plasmodium falciparum* in a high-transmission area in northern Ghana

TIEDJE, K.E., ODURO, A.R., BANGRE, O., AMENGA-ÉTEGO, L., DADZIE, S.K., APPAWU, M.A., FREMPONG, K., ASOALA, V., RUYBAL-PÉSÁNTEZ, S., NARH, C.A., DEED, S.L., ARGYROPOULOS, D. C., GHANSAH, A., AGYEI, S.A., SEGBAYA, S., DESEWU, K., WILLIAMS, I., SIMPSON, J.A., MALM, K., PASCUAL, M., KORAM, K.A. & DAY, K.P.

PLoS Global Public Health

2022

The impact of indoor residual spraying on *Plasmodium falciparum* microsatellite variation in an area of high seasonal malaria transmission in Ghana, West Africa

ARGYROPOULOS, D. C., RUYBAL-PESÁNTEZ, S., DEED, S.L., ODURO, A.R., DADZIE, S.K., APPAWU, M.A., ASOALA, V., PASCUAL, M., KORAM, K.A., DAY, K.P. & TIEDJE, K.E.

Molecular Ecology

2021

Teaching and Supervision

Alongside the positions outlined below, I have been actively involved in the fostering collaboration with researcher officers from the Noguchi Memorial Institute for Medical Research in Ghana (2021-2023) to develop skills in R, population genetics, PCR genotyping and epidemiology. Furthermore, I have worked with the research officers at the University of Chicago, USA (2021-2023) to further expand skills in infectious disease modelling and theoretical population genetics and ecology.

Co-supervisor of undergraduate pathology research subject

DEPARTMENT OF IMMUNOLOGY AND MICROBIOLOGY

2023

- Assisted in training an undergraduate student in genomic epidemiology and population genetics, performing PCR and using R to generate statistics.

Co-supervisor of undergraduate pathology research subject

DEPARTMENT OF IMMUNOLOGY AND MICROBIOLOGY

2022

- Assisted in training an undergraduate student in genomic epidemiology, population genetics and bioinformatics, focussing on vector competence genes, developing a novel PCR and data mining from an online repository (MalariaGEN Pf6: [↗](#))

First Year Biology Assistant/Supervising Demonstrator and Tutor

FACULTY OF SCIENCE, UNIVERSITY OF MELBOURNE

2018-2021

- Laboratory assistant demonstrator, teacher and mentor for first-year Biology students at the UoM.

First and Second Year Genetics Marker

FACULTY OF SCIENCE, UNIVERSITY OF MELBOURNE

2020-2021

- Providing feedback for students and marking assessment tasks relating to various Genetics courses.

First Year Biology Marker

FACULTY OF SCIENCE, UNIVERSITY OF MELBOURNE

2021

- Providing feedback for students and marking assessment tasks relating to various First Year Biology courses.

Evolution and the Human Condition Marker

FACULTY OF SCIENCE, UNIVERSITY OF MELBOURNE

2021

- Providing feedback for students and marking assessment tasks.

VCE Biology Demonstrator

FACULTY OF SCIENCE, UNIVERSITY OF MELBOURNE

2018-2019

- Laboratory demonstrating and teaching for Year 12 VCE Biology Students.

VCE Biology Issues in Gene Technology Workshop

FACULTY OF SCIENCE, UNIVERSITY OF MELBOURNE

2019

- I ran a 1.5-hour workshop teaching Year 12 Biology students about Gene Technology in an agricultural context.

ITAS Tutor

MURRUP BARAK, UNIVERSITY OF MELBOURNE

2019

- One-on-one tutoring for university students in the Melbourne Institute of Indigenous Development.

Conference Presentations

- 2024 **Genomic Epidemiology of Malaria** (Talk/Poster): International forum for malaria scientists, clinicians, and public health professionals working at the interface of genome science and technology, epidemiology and statistical and population genetics [↗](#).
- 2024 **Molecular Approaches to Malaria Conference** (Poster): International conference on latest developments in malaria research [↗](#).
- 2023 **Malaria in Melbourne Conference** (Poster): Australian biennial conference of all aspects of malaria research [↗](#).
- 2023 **International Congress of Genetics** (Poster): The international genetics community came together to share ideas and the latest research under the overarching theme: Genetics and Genomics: Linking Life and Society [↗](#).
- 2022 **Peter Doherty Institute/POSIIM Graduate Research Conference** (Talk): Conference for all students in the department to showcase work. 10-minute oral presentation.
- 2022 **MDHS Graduate Research Conference** (Talk): Conference on latest developments in MDHS faculty at UoM. 15-minute oral presentation to faculty.
- 2021 **DMI Graduate Research Symposium** (Talk): Conference for all students in DMI-Doherty PhD program. I presented a five-minute talk on PhD outcomes.
- 2021 **Malaria in Melbourne Conference** (Talk/Poster): Australian biennial conference of all aspects of malaria research. Presented three-minute short talk and poster [↗](#).
- 2021 **Victorian Infection and Immunity Network Young Investigator Symposium** (Talk): VIIN conference for post-graduate students, post-doctorate fellows and research assistants. 10-minute talk.
- 2020 **Molecular Approaches to Malaria Conference** (Poster): International conference on latest developments in malaria research [↗](#).
- 2019 **Malaria in Melbourne Conference** (Talk/Poster): Australian biennial conference of all aspects of malaria research. Offered for 15-minute talk, presented poster on MSc research. [↗](#).
- 2019 **Victorian Infection and Immunity Network Young Investigator Symposium** (Poster): VIIN conference for post-graduate students, post-doctorate fellows and research assistants. Presented a poster on MSc research [↗](#).
- 2019 **Stockholm International Youth Science Seminar Panel Speaker** (Panel/Poster): One of three students in one-hour panel on the topic "The Scientific Process" with moderator Anna Wetterbom, the CEO of the Young Academy of Sweden. Panel was broadcast online to an international audience (Facebook, YouTube). Presented poster on MSc research to high school students.
- 2019 **Victorian Biodiversity Conference** (Poster): Annual scientific conference focussed on highlighting biodiversity-related research and management projects based in Victoria, AU. Presented poster on MSc research [↗](#).
- 2018 **BioSciences Post-Graduate Symposium** (Talk): Students and staff of the School of BioSciences showcased their research undertaken.

Skills

Data Analysis: Population Genetics, Epidemiology

Laboratory: PCR Development/PCR, DBS cutting, DNA Extraction, Gel Extraction

Programming: Advanced R, Quarto, Rmarkdown, Git/GitHub, Beginner (LaTeX, Python, Bash), Intermediate (Linux/Command-Line)

Soft-Skills: Science communication, Coaching and Mentoring, Team member, Organised

Software: Mac OSX Platform, Microsoft Office, BOTTLENECK, GeneMarker

Web: GitHub Pages, BLAST, R Shiny

Digital tools

I have also developed a complex R Shiny web application to support *Plasmodium vivax* surveillance efforts.

PvSeroApp

D ARGYROPOULOS

2025

- The PvSeroApp Shiny web application streamlines the data processing of the multi-antigen Luminex-based Plasmodium vivax serological data and applies the machine learning classification algorithm to identify individuals with recent exposure to P. vivax. [↗](#) "Click to see my GitHub!"

Awards and Funding

- 2024 **Graduate Researcher Conference Support Program** (The University of Melbourne): Awarded A\$1,500 to attend the Genetic Epidemiology of Malaria conference.
- 2024 **Major Bartlett University Scholarship** (The University of Melbourne): Awarded A\$2,000 to attend the Genetic Epidemiology of Malaria conference [↗](#)
- 2021 **Malaria in Melbourne (MiM) Short Talk Prize** (Malaria in Melbourne (MiM) Conference): Selected to attend Infection and Immunology conference in Lorne 2022.
- 2019 **In2Science Invitation to Speak about Experience** (In2Science): The only invited mentor to discuss my experience in the In2Science program over various years and engaging with students in STEM topics. [↗](#)
- 2019 **In2Science Nomination for Impact Mentor Award** (In2Science): Nominated as one of the five mentors in Victoria to have demonstrated a significant positive impact on engaging with students in STEM. [↗](#)
- 2019 **Leaders in Communities Award (LiCA)** (The University of Melbourne): Awarded after completing over 20 hours of volunteer work during my Master of Science degree. [↗](#)
- 2019 **Student Ambassador Leadership Program** (The University of Melbourne): Selected as a Student Ambassador for the Faculty of Science. [↗](#)
- 2019 **Stockholm International Youth Science Seminar Representative** (The University of Melbourne): Selected as the only Australian student to represent the UoM. 25 countries selected one student to attend Nobel Prize Week events (including Ceremony and Banquet) and speak about their research. [↗](#)
- 2019 **Communication for Research Scientists Three Minute Thesis (3MT) Runner-Up** (The University of Melbourne): Entire cohort for this subject (150) presented a 3MT on their research, with the intention of communicating to a general science audience.
- 2018 **BioSciences Post-Graduate Symposium 10-minute talk Runner Up** (The University of Melbourne): All PhD students, Masters, Honours students and staff of the School of BioSciences shared their research. I came second of 45 participants.
- 2018 **In2Science Role Model Mentor Award Finalist** (In2Science): Of 276 mentors around Victoria in 2018, 4 were finalists: one mentor per university in the program. I was the UoM finalist.

Leadership, Service & Community Engagement

Women in STEM: Inspiring the Next Generation of Girls in STEM

VESKI

Mentor

2025

- Mentor for two students at a high school; I supervised and taught them about malaria and public health. They wrote a project about this work.

R-Ladies Melbourne

R-LADIES MELBOURNE INC

President

2024-2026

- Key administrator and leader in organising events and liaising with speakers, committee and group.

It Takes A Spark STEM

R-LADIES MELBOURNE INC

Speaker

2023/2024

- Co-Speaker and Co-creator of Material for 80-minute Problem Solver Session [↗](#) "Become A Disease Detective: Solve An Outbreak" [↗](#)

Careers in Data Science and Statistics Panel

R-LADIES MELBOURNE INC

Speaker

2024

- Moderator of Panel discussing careers in data science and statistics, focussing on R and coding languages.

R-Ladies Melbourne

R-LADIES MELBOURNE INC

Vice President

2023-2024

- Administrator and assistant to president to organise events and liaising with speakers, committee and group.

R-Ladies Melbourne

R-LADIES MELBOURNE INC

Committee Member

2023

- Frequent attendee of all meetings and events.

Postgraduate Society in Immunology and Microbiology (POSSIIM)

THE DOHERTY INSTITUTE FOR INFECTION AND IMMUNITY (DOHERTY INSTITUTE)

Committee Member

2021

- Student society planning and organising events. Frequent attendee of all meetings and events.

In2Science Mentoring

IN2SCIENCE

- University volunteers mentor and help teach a metropolitan classroom or regional Victorian students online via Zoom. I have done both.

Mentor

2018-2019

Faculty of Science

UNIVERSITY OF MELBOURNE

- A select cohort of students with a passion for studying science were chosen to represent the Faculty at events.

Student Ambassador

2019

Work Experience Programme

BIO21 INSTITUTE

- Two-hour activity on malaria research: 1-hour presentation and 1-hour practical investigation teaching malaria detection methods.

Speaker

2018/2019

Future Leaders for Sustainability

HOBSONS BAY CITY COUNCIL

- Presentation to Year 8/9s from three schools in Hobson's Bay Area about my journey as a student and research.

Speaker

2019

Open House Melbourne

BIO21 INSTITUTE

- Weekend where all buildings in Melbourne are showcased to the public. I represented the Bio21 Institute.

Speaker

2019

Science: Day 1 Host, Faculty of Science

UNIVERSITY OF MELBOURNE

- Led a tour around the UoM and spoke to new Science students.

Host

2019

Work Experience Panel Speaker

UNIVERSITY OF MELBOURNE

- Asked to speak about my experiences as a UoM student and the path I took to get to be a MSc student.

Speaker

2019

Graduate Study Expo, Faculty of Science

UNIVERSITY OF MELBOURNE

- Stood with the Faculty of Science. Spoke to undergraduate and prospective graduate students about pathways in the Faculty.

Speaker

2019

Ecolinc Women in STEM Speed-Dating

ECOLINC

- Travelled to Bacchus Marsh (regional Victoria) to 'speed-date' with girls in Years 9/10 and encourage passion for STEM.

Speaker

2019

Volunteering Expo, Faculty of Science/In2Science

UNIVERSITY OF MELBOURNE

- On behalf of In2Science and the Science Ambassadors, I helped get other students to volunteer for the Faculty.

Speaker

2019

The Science Experience: Group Leader, Faculty of Science

UNIVERSITY OF MELBOURNE

- Year 8-11 program at UoM to teach about the different fields of science. I led a group of 10 students.

Speaker/Teacher

2019

Bachelor of Science Blended Camp

BIO21 INSTITUTE

- Summer Camp with 20 Bachelor of Science students from India. I engaged students about malaria and research.

Speaker/Teacher

2018

Graduate Student Information Panel

MELBOURNE UNIVERSITY GENETICS SOCIETY

- Panel event with 5 graduate students to discuss future pathways with undergraduate students interested in Genetics.

Speaker

2018

Other Scientific Communication

Faculty of Medicine, Dentistry and Health Sciences

DOCTOR OF PHILOSOPHY RESEARCH THESIS COMPLETION SEMINAR

- Presented and ran an hour seminar on final PhD thesis research aims, published work and outcomes.

University of Melbourne, AU

2024

Malaria Seminar

MALARIA SEMINAR

- Asked to present 15-minute talk to malaria research community in Melbourne.

University of Melbourne, AU

2022

Molecular Ecology

Molecular Ecology

MOLECULAR ECOLOGY SPOTLIGHT: INTERVIEW

2021

- Featured Article and Interview in Molecular Ecology [↗](#).

Faculty of Medicine, Dentistry and Health Sciences

University of Melbourne, AU

DOCTOR OF PHILOSOPHY RESEARCH THESIS CONFIRMATION SEMINAR

2021

- Presented and ran an hour seminar on proposed PhD thesis research aims and preliminary work.

Faculty of Science

University of Melbourne, AU

COMMUNICATION FOR RESEARCH SCIENTISTS 15-MINUTE TALK

2019

- 15-minute final talk on MSc research talk, and 2,000 word manuscript.

Faculty of Science

University of Melbourne, AU

MASTER OF SCIENCE (BIOSCIENCES) RESEARCH THESIS COMPLETION SEMINAR

2019

- 15-minute oral presentation of MSc research.

Faculty of Science

University of Melbourne, AU

MASTER OF SCIENCE (BIOSCIENCES) RESEARCH THESIS PROPOSAL

2018

- 15-minute oral presentation and 3,300 word research proposal.

Faculty of Science

University of Melbourne, AU

GRADUATE SEMINAR IN ECOLOGY AND EVOLUTION

2018

- Presented and ran 3 hour seminar about habitat-specific responses to population expansions/retractions.

Additional training and professional development

- 2025 **Short Course: Understanding Machine Learning** (DataCamp)
- 2025 **Short Course: Supervised Learning in R: Classification** (DataCamp)
- 2025 **Short Course: Supervised Learning in R: Regression** (DataCamp)
- 2025 **Short Course: Modeling with tidymodels in R** (DataCamp)
- 2023 **Short Course: Data Carpentry Genomics** (Data Carpentries)
- 2023 **Short Course: Software Carpentry with Python** (Data Carpentries)
- 2021 **Workshop: Phylogenetics in Infectious Disease Epidemiology** (The Doherty Institute for Infection and Immunity (Doherty Institute))
- 2020 **UOM subject: Infectious Disease Modelling** (The University of Melbourne)
- 2020 **UOM subject: Principles of Immunology** (The University of Melbourne)
- 2020 **Certification: Melbourne Teaching Certificate for Sessional Teachers** [↗](#) (The University of Melbourne)
- 2020 **Workshop: LaTeX Beginners' Workshop** (The University of Melbourne)
- 2019 **UOM subject: Infectious Diseases Epidemiology** (The University of Melbourne)
- 2019 **UOM subject: Communication for Research Scientists** (The University of Melbourne)
- 2019 **Workshop: Public Speaking** (The University of Melbourne)
- 2019 **Workshop: Indigenous Cultural Awareness** (Murrup Barrak)
- 2019 **Workshop: Science Gallery Women in STEM** (The University of Melbourne)
- 2019 **Workshop: Spatial Analysis in R** (The University of Melbourne)
- 2019 **Workshop: Introduction to R** (The University of Melbourne)
- 2018 **UOM subject: Graduate Seminar in Ecology and Evolution** (The University of Melbourne)
- 2018 **UOM subject: Epidemiology 1** (The University of Melbourne)
- 2018 **UOM subject: Thinking and Reasoning with Data** (The University of Melbourne)
- 2018 **UOM subject: Genetic Epidemiology** (The University of Melbourne)
- 2018 **Workshop: R Markdown** (The University of Melbourne)
- 2018 **Workshop: Building R Packages** (The University of Melbourne)
- 2018 **Workshop: Linear Modeling and Bayesian Statistics in R** (The University of Melbourne)