

Patrick R. Lennard

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Education

University of Edinburgh, Edinburgh, United Kingdom 2020-present
Universiteit Leiden, Leiden, Netherlands

Joint Doctor of Philosophy in Integrated One Health Solutions

Dissertation: Empowering antibiotics using host defence peptide to fight antimicrobial resistance in skin and respiratory infections

Supervised by Prof Julia Dorin, Prof Donald Davidson, Prof Will Wood and Dr Marc Vendrell (Edinburgh), and Dr Peter Nibbering and Prof Pieter Hiemstra (Leiden)

Université de Tours, Tours, France 2018-2020

Universitat Autònoma de Barcelona, Barcelona, Spain

University of Edinburgh, Edinburgh, United Kingdom

Erasmus Mundus Joint Master of Science in Infectious Diseases and One Health

Dissertation: Antimicrobial properties and immune modulation by mesenchymal stem/stromal cells in veterinary species

Supervised by Dr Cristina Esteves and Dr Xavier Donadeu

Grade: Distinction

University of Tasmania, Hobart, Australia 2013-2017

Bachelor of Biotechnology and Medical Research (with Honours) in Immunology

Major: Neurobiology. Minors: Chemistry, Medical Research

Dissertation: Identification and functional characterisation of Fc receptors in the Tasmanian devil (*Sarcophilus harrisii*)

Supervised by Dr Andy Flies, Dr Bruce Lyons and Prof Greg Woods

Grade: First Class Honours

Research and Work Experience

The Roslin Institute, Edinburgh, United Kingdom 2020

Title: Research Intern

Research internship for Erasmus Mundus Joint Master's Degree programme

Investigated the effect of intrauterine growth restriction on the immunomodulatory potential of porcine mesenchymal stem/stromal cells and pericytes

Tutor Hunt and Preply, Online 2018-2021

Title: Private Tutor

TutorHunt: <https://www.tutorhunt.com/users/9266207575797/>

Preply: <https://www.preply.com/en/tutor/630170/>

Tutoring high school, university, and graduate students in a range of subjects including biology, chemistry, statistics, immunology, French and Spanish

Menzies Institute for Medical Research, Hobart, Australia 2016-2018
 Title: Research Assistant 2016-2018
 Title: Undergraduate Research Opportunities Program (UROP) Intern 2016
 Developed and tested new therapeutics to augment the Tasmanian Devil Facial Tumour Disease candidate vaccine
 Constructed novel assay to characterise Tasmanian devil Fc receptors
 Supervised and instructed undergraduate and graduate students in research methods and laboratory health and safety

The Waterfront Hotel, Hobart, Australia 2013-2018
 Title: Food, Beverage and Gaming Attendant
 Provided customer service in restaurant, bar, and gaming environments of the venue, including staff supervision, daily reconciliation and venue closure

Menzies Institute for Medical Research, Hobart, Australia 2016
 Title: Research Intern
 Supervised by Dr Joy Rathjen
 Characterised the profile of reactive oxygen species in mouse embryonic stem cells
 Contributed evidence complementary to the thesis of Van T.T. Nguyen

Menzies Institute for Medical Research, Hobart, Australia 2015
 Title: Volunteer Laboratory Assistant
 Supervised by Dr Katherine Southam
 Isolated mouse mixed hippocampal neuron cultures and prepared immunocytochemistry for analysing microglial effects
 Maintained laboratory equipment and consumable stocks

Fellowships and Grants Received

IDOH Day Conference Grant, FÉRI Centre-Val de Loire	€16,000	2022
British Society for Immunology Registration Grant	€50	2021
Postgraduate Scholarship, University of Edinburgh	£83,000	2020-2024
Postgraduate Scholarship, Université de Tours	€2,000	2018
Nicolas Baudin Travel Grant, Embassy of France in Australia	€1,000	2018
The Tall Foundation Dr Eric Guiler Tasmanian Devil Scholarship, UTAS	\$7,000	2017
Student Scholarship, Nexvet Biopharma	\$2,000	2017
PowerUp Conference Travel Scholarship, GetUp Australia	\$300	2017
UROP Scholarship, UTAS	\$2,000	2016
Total funding estimate	~€117,850	

Peer-Reviewed Publications

- (4) van Gent ME, van der Reijden TJK, **Lennard PR**, de Visser AW, Schonkeren-Ravensbergen B, Dolezal N, Cordfunke RA, Drijfhout JW, Nibbering PH. (2022). Synergism between the Synthetic Antibacterial and Antibiofilm Peptide (SAAP)-148 and Halicin. *Antibiotics*, **11**, 673, DOI: [10.3390/ANTIBIOTICS11050673](https://doi.org/10.3390/ANTIBIOTICS11050673).
- (3) Wong C, Darby JM, Murphy PR, Pinfold TL, **Lennard PR**, Woods GM, Lyons AB, and Flies AS. (2020). Tasmanian devil CD28 and CTLA4 capture CD80 and CD86 from adjacent cells. *Developmental & Comparative Immunology*, **115**, 103882. DOI: [10.1101/2020.06.11.145789](https://doi.org/10.1101/2020.06.11.145789).

- (2) Flies AS, Darby JM, Murphy PR, Pinfold TL, Patchett AL and **Lennard PR**. (2020). Generation and Testing of Fluorescent Adaptable Simple Theranostic (FAST) Proteins. *Bio-protocol*, **10**, 13, e3696. DOI: [10.21769/BioProtoc.3696](https://doi.org/10.21769/BioProtoc.3696).
- (1) Flies AS, Darby JM, **Lennard PR**, Murphy PM, Ong CEB, Pinfold TL, De Luca A, Lyons AB, Woods GM and Patchett AL. (2020). A novel system to map protein interactions reveals evolutionarily conserved immune evasion pathways on transmissible cancers. *Science Advances*, **6**, eaba5031. DOI: [10.1126/sciadv.aba5031](https://doi.org/10.1126/sciadv.aba5031).

Preprints and Other Publications

- (3) **Lennard PR**, Hiemstra PS, Dorin JR, Nibbering PH. (2022). SAAP-148 Inhibits Adherence and Survival of Antibiotic-Resistant Bacteria in 3D Epithelial Models. Poster presentation. *Edinburgh Antimicrobial Resistance Forum Poster Day*.
- (2) Veseau N, Hardgrove E, Oruganti P, Lambrou A, Chakraborty S and **Lennard, PR**. (2020). A demographic analysis of students participating in One Health worldwide. DOI: [10.13140/RG.2.2.29705.80483](https://doi.org/10.13140/RG.2.2.29705.80483).
- (1) Nguyen VTT, **Lennard PR**, Charlesworth JC, Rathjen J. (2017). L-proline metabolism and the regulation of embryonic stem cell development. Abstract and poster presentation. *EMBO/EMBL Symposium: Metabolism in Time and Space: Emerging Links to Cellular and Developmental Programs*.

Signatory

- (1) Ripple WJ, Wolf C, Newsome TM, Barnard P, Moomaw WR, and 11,258 scientist signatories. (2019). World Scientists' Warning of a Climate Emergency. *BioScience*, **70**, 8–12. DOI: [10.1093/biosci/biz088](https://doi.org/10.1093/biosci/biz088).

Acknowledged In

- (4) Ong CEB, Patchett AL, Darby JM, Chen J, Liu G-S, Lyons AB, Woods GM, Flies AS. (2021). NLRC5 regulates expression of MHC-I and provides a target for anti-tumor immunity in transmissible cancers. *Journal of Cancer Research and Clinical Oncology*, **147**, 1973–1991. DOI: [10.1007/s00432-021-03601-x](https://doi.org/10.1007/s00432-021-03601-x)
- (3) Ong CEB, Lyons AB, Woods GM, Flies AS. (2019). Inducible IFN- γ Expression for MHC-I Upregulation in Devil Facial Tumor Cells. *Frontiers in Immunology*, **9**, 3117. DOI: [10.3389/fimmu.2018.03117](https://doi.org/10.3389/fimmu.2018.03117).
- (2) Flies AS, Blackburn N, Lyons AB, Hayball JD, Woods GM (2017). Comparative Analysis of Immune Checkpoint Molecules and Their Potential Role in the Transmissible Tasmanian Devil Facial Tumor Disease. *Frontiers in Immunology*, **8**, 513. DOI: [10.3389/fimmu.2017.00513](https://doi.org/10.3389/fimmu.2017.00513).
- (1) Flies AS, Lyons AB, Corcoran LM, Papenfuss AT, Murphy JM, Knowles GW, Woods GM, Hayball JD. (2016). PD-L1 Is Not Constitutively Expressed on Tasmanian Devil Facial Tumor Cells but Is Strongly Upregulated in Response to IFN- γ and Can Be Expressed in the Tumor Microenvironment. *Frontiers in Immunology*, **7**, 581. DOI: [10.3389/fimmu.2016.00581](https://doi.org/10.3389/fimmu.2016.00581).

Colleagues Supervised

Muhanad Ali (Leiden University, Postdoctoral Fellow)	2021-2022
Miriam van Gent (Leiden University, PhD)	2021-2022
Robin van den Biggelaar (Leiden University, Postdoctoral Fellow)	2021
Noor Kuhlemajjer (Leiden University, Internship)	2021
Maureen Severin (Leiden University, Internship)	2020-2021

Beth Pearson (University of Edinburgh, PhD)	2020
Peter Murphy (University of Tasmania, UROP and Honours)	2017-2018
Candida Wong (University of Tasmania, Honours)	2018
Gerardo Lacapra (University of Tasmania, Honours)	2018
Ayda Issa (University of Tasmania, UROP)	2017
Mahalia Kingsley (University of Tasmania, UROP)	2017
Kris Nand (University of Tasmania, UROP)	2017
Nirdesh Poudel (University of Tasmania)	2017

Presentations, Symposia and Conferences

Edinburgh Antimicrobial Resistance Forum Poster Day – University of Edinburgh	2022
6 th European Congress for Immunology – Online	2021
6 th World One Health Congress workshop: ‘How do we prevent disease X?’ – Online	2020
Immunology and Infectious Agents lecture: ‘Contagious tumours’ – Leiden University (online)	2020
One Health EJP Communications and Media workshop – Online	2020
Le Studium Conference – Université de Tours (online)	2020
CJA212 lecture: ‘Introduction to One Health’ – University of Tasmania (online)	2020
Sense About Science: Standing Up for Science workshop - Online	2020
Defence of Master’s research dissertation – Université de Tours (online)	2020
One Health EJP Summer School lecture – Wageningen University (online)	2020
R(D)SVS Summer Lecture: ‘Better the devil you know’ – University of Edinburgh (online)	2020
Who’s Who in One Health Oceania webinar – ISOHA	2020
One Health EJP Annual Scientific Meeting – Online	2020
Student One Health Conference – University of Glasgow, UK	2019
Veterinary Ethics and Welfare Conference – University of Edinburgh, UK	2019
International Conference and Exhibition on Genomics and Microbiomics – Barcelona, Spain	2019
Infectious Diseases and One Health Symposium – Tours, France	2018
Man-imal One World, One Health Symposium – INRA Nouzilly, France	2018
Defence of Honours research dissertation – UTAS, Australia	2017
Defence of research project – UTAS (Research Project in Health & Disease), Australia	2016

Media Coverage

CIRcuits Virtual Coffee Break Introduction (link)	May 2022
Podcast Guest – Storytellers of STEMM (link)	Feb. 2021
Author Q&A – Public Journal Club (link)	Jul. 2020
‘We developed tools to study cancer in Tasmanian devils. They could help fight disease in humans’ – The Conservation (link)	Jul. 2020
‘Fête de la Science: quand les étudiants s'emparent des réseaux sociaux’ – France 3 (link)	Oct. 2018

Technology and Method Development

FAST protein expression vectors (with Dr Andy Flies)	https://www.addgene.org/Andrew_S._Flies/
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Technical Knowledge

Mammalian cell culture and transfection	Sanger sequencing by Big Dye Terminator
Mammalian immune cell isolation and culture	CRISPR/Cas9 gene knockout

Recombinant protein and monoclonal antibody production and purification	PCR, restriction enzyme digestion, gel electrophoresis and DNA purification
Flow cytometry analysis and fluorescence activated cell sorting (FACS)	Gibson Assembly, bacterial culture and transformation and plasmid miniprep
Fc receptor-antibody binding assays	Receptor trans-endocytosis assays
Enzyme-Linked Immunosorbent Assays (ELISAs)	<i>De novo</i> transcriptome assembly and assaying for novel transcript identification
SDS-PAGE and Western blotting	BSL2/3 (PC2/3) laboratory operation
RNA and genomic DNA isolation	Pronuclear oocyte injection
First-strand and RACE-ready cDNA synthesis	ScotPIL rodent handling
Human skin equivalent culture models	Primary bronchial epithelial cell cultures

Community Outreach and Volunteer Activities

Pen Pal, Letters to a Pre-Scientist	2021-present
Editor, CIRcuits Internal Newsletter	2021
Admissions Interviewer and OCSE Examiner, Royal (Dick) School of Veterinary Studies	2020-2021
Skype-A-Scientist Volunteer	2020-present
BIG STEM Communicator	2020-2021
STEM Ambassador, STEM Ambassadors in Scotland	2020-2021
Volunteer, World One Health Congress (delayed)	2020
Field Reporter, Fête de la Science	2018
Organising Committee Member Science In The Pub Tasmania	2016-2018
Open Day at UTAS - Wild Immunity Fluorobox	2018
Organiser and MC, Hobart March for Science	2018
Volunteer, Amnesty International Hobart	2018
Action Group Coordinator, GetUp Hobart	2017-2018
Agfest Volunteer, Save The Tasmanian Devil Appeal	2017
Volunteer, Journey To Freedom at Elephant Nature Park	2016

Professional Activities

Conference Organiser, IDOH Day	2022-present
VP of Finance, International Student One Health Alliance	2020-2021
Secretary-General, International Student One Health Alliance	2019-2020
Sustainability Champion, University of Edinburgh	2019-present
Research Section Editor, The Edinburgh Scientist	2019-present
Quality Committee Representative, Erasmus Mundus IDOH Programme	2018-present
Laboratory Representative, Menzies Institute Student Committee	2017-2018
Vice Chancellor's Leadership Award, University of Tasmania	2015
Career Mentor Program, University of Tasmania	2015

Memberships

Young European Federation of Immunological Societies	2020-present
Dutch Society for Immunology	2020-2022
British Society for Immunology	2020-present
European Federation of Biotechnology	2020-present
VALIDATE Network	2020-present
International Veterinary Vaccinology Network	2019-present
World Society for Virology	2019-present

Erasmus Mundus Association	2018-present
Golden Key Honour Society	2014-present

Training and Certifications

Infection and Immunity Advanced Course, Leiden University	2022
Basic Methods and Reasoning in Biostatistics, Leiden University	2021
Introduction to R for Genomics, Edinburgh Genomics	2020
Future Innovators Programme, Edinburgh Innovations & Skillfluence	2020
Introduction to Linux for Genomics, Edinburgh Genomics	2020
COVID-19: Tackling the Novel Coronavirus, LSHTM	2020
Scottish Certificate for Safe Sale and Service of Alcohol	2020
Introduction to Beekeeping, Newbattle Abbey College	2019
Sustainable Food Systems: A Mediterranean Perspective, SDG Academy	2019
Tasmanian Young Achiever Award Nominee (Community Service & Volunteering)	2018, 2019
Working With Vulnerable People Registration	2018
Fire Warden	2017
First Aid and CPR	2017
Genomic Data Specialisation, Johns Hopkins University	2016
<i>Introduction to Genomic Technologies</i>	
<i>Genomic Data with Galaxy</i>	
Epigenetic Control of Gene Expression, University of Melbourne	2015
Senior Writer & Gaming Machine Supervisor	2014
Keno Writer & Gaming Machine Attendant	2013
Responsible Service of Gaming	2013
Barista Basics	2012
The Duke of Edinburgh's Bronze Award	2011
Responsible Service of Alcohol	2010

Computer Skills

Intermediate operations in Linux and R
Basic operations in Python and Java
Macro programming in Fiji / ImageJ
QGIS and ArcGIS
Statistical packages: Prism, Minitab, SPSS, R

Languages

Native: English
Proficient: Spanish
Elementary: French, Dutch
Beginner: German, Italian, Portuguese, Arabic

Hobbies and Interests

Hiking	Science communication	Cooking
Camping	Social activism	Upcycling
Travelling	Linguistics	Animal rights

References

Dr Andy Flies*

Senior Research Fellow, University of Tasmania

Co-founder, Science In The Pub Tasmania

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Dr Bob Dalziel*

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Dr Stéphanie Germon*

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Coordinator, Erasmus Mundus IDOH Programme

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Prof Emer Greg Woods

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* Written references can be provided on request.