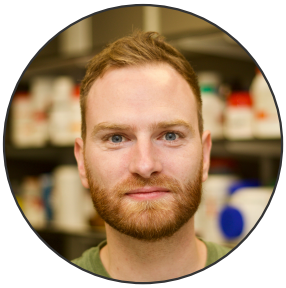

Conor M. **Finlay**

Senior Research Fellow

Trinity Translational Medicine Institute, Trinity College Dublin

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Cellular Immunologist and bioinformatician combinding molecular, in vivo and translational research. I am ready to educate the next generation of doctors and scientists and lead my own group to make transformative discoveries.

1. Applicant details

Senior Research Fellow, Trinity College Dublin (2022-present)

- Myeloid cell dysfunction in COVID-19 (COVID-19 SFI-funded strategic partnership)
- "TCD Omics" - single cell RNA-sequencing (independent project)
- lab management and biomarker research (Trinity Kidney Health Centre with Mark Little).
- Data integration of multi-modal clinical data, supervising development of R package (with Mark Little)
- Longitudinal clinical study design (high parameter (30+) flow cytometry panels) - T cell exhaustion as a predictor of autoimmune relapse (PARADISE, with Mark Little)

Honorary Research Fellow, University of Manchester (2021-present)

- Collaboration on my *MRC* programme grant with Prof. Judith Allen (approx 20% FTE).

Employment History

Research Fellow — *Trinity College Dublin*

Supervisor: Prof Mark Little — *2021*

- Single cell RNA-sequencing lead on COVID-19 strategic partnership. Laboratory management of Trinity Kidney Health Centre (THKC). Clinical data analysis: incorporating data from clinical datasets (RedCap) with biobank datasets to stratify patients and combine with biomarker results for analysis using machine learning.

Research Associate — *University of Manchester*

Supervisor: Prof Judith Allen. — *2017-2021*

- Origin, heterogeneity, proliferation and effector function of macrophages during helminth infection and type 2 immune responses. Funding: Medical Research Council/Wellcome Trust. See recent preprint for outputs.

Lecturer (teaching relief) — *Trinity College Dublin*

School of Biochemistry and Immunology — *2016-2017*

- Performed the teaching duties for a senior professor on sabbatical for 1 year. Duties included undergraduate practical supervision, undergraduate and MSc teaching via lectures and tutorials, setting examinations and corrections with associated administration duties.

Post-doctoral Researcher — *Trinity College Dublin*

Supervisor: Prof Kingston HG Mills. — *2013-2016*

- Research projects: 1. IP-protected translational project identifying and testing novel helminth-derived proteins as therapeutics for inflammatory disease. 2. Role of mast cells in the alternative activation of macrophages via IL-33. 3. Circadian regulation of autoimmune disease

Education

Special Purpose Certificate in Teaching, Learning & Assessment for Academic Practice — *Trinity College Dublin*

Perspectives on teaching and Learning in Higher Education — *2022*

- Consitutes one third of the SP Cert

Informatics Training Scheme (Wellcome Trust TPA) — *University of Manchester*

Programming and Computational Approaches to Biology Modules — *2020*

- Constituted 50% of tought compenent of MSc Bioinformatics and Systems Biology

PhD in Immunology — *Trinity College Dublin*

Immune modulation by the helminth Parasite Fasciola hepatica — *2013*

- Supervisor: Kingston Mills

BA(Mod) in Natural Sciences — *Trinity College Dublin*

Major: Biochemisty with Immunology — *2007*

- Grade: 1:1, graduated top of class

Referees

Prof Judi Allen — *University of Manchester*
Professor of Immunobiology; judi.allen@manchester.ac.uk — *Lydia Becker Institute*
Dr Matthew Hepworth — *University of Manchester*
Sir Henry Dale Fellow; matthew.hepworth@manchester.ac.uk — *Lydia Becker Institute*
Prof Kingston HG Mills — *Trinity College Dublin*
Professor of Experimental Immunology; kingston.mills@tcd.ie — *School of Biochemistry and Immunology*
Prof Cliona O'Farrelly — *Trinity College Dublin*
Professor of Comparative Immunology; ofarrecl@tcd.ie — *School of Biochemistry and Immunology*

2. Alignment with UCD Strategic themes and SDGs

I am committed to UCD's Rising to the Future Strategy and the UN Sustainable development goals (SDG). **Theme 3 Building a Healthy World**: My past work on neglected tropical diseases has given me an affinity for the 'One Health' concept on the interconnectivity of living organisms: The discovery of health interventions requires a holistic approach that incorporates other species and the environment. My core research focuses on immune cells called macrophages maps across tissues, disease types and species. **Theme 2 Transforming though Digital Technology**: My research and teaching are a blend of the 'wet lab' and data analytics and incorporates the very cutting-edge technologies. **Theme 1 Creating a Sustainable Global Society**: I have implemented green lab policies, linking with SDG#12. I have met and fully support the Postgraduate Workers' Organisation in their pursuit reduce barriers to science in Ireland. *Please see cover letter for more details.*

Equality, Diversity, and Inclusion (EDI)

I am committed to UCD's **Equality, Diversity, and Inclusion (EDI) strategy and Action plan**. have completed the Equality, Diversity and Inclusion in Higher Education training in TCD. Consideration for EDI has modified how I manage staff and conduct teaching. I am attuned to neurodiversity and have managed neurodiverse staff. My own neurodiversity has driven me to reconstruct my teaching material and assessment to make learning more accessible to a variety of student types. Such approaches approach aligns with UCD's University for All strategy. *Please see cover letter for details*.

3. Key Achievements in Research Excellence and Impact

I started my career in Trinity College Dublin identify pathways that shut down autoimmunity and allergy, leading to three papers in *The Journal of Immunology* and one in *Parasite immunology* and co-authorship in *Nature communications*. Next in Manchester I made a major advance on how adaptive immunity controls macrophages and how macrophage differentiation controls disease outcomes, publishing articles in *Immunity*, *elife*, *Nature Immunology* and *Parasite Immunology*. Recently, back in Ireland I have been conducting patient orientated research where I have submitted my first co-final author paper. I have received a best talk at the Irish Society of Immunology conference, been an invited speaker at 3 conferences and spoken at 13 more. I have received 8 awards. I have supervised 13 research students, reviewed articles, grants and will soon join *Frontiers in immunology* as a review editor. I am the member of 4 scientific societies, and sit on 3 committees. I am a co-inventor on a patent WM01-740-02 that has been commercialised as a biotech company Pravalix Tx.

Funding

Awarded

Building Engagements in Health Research Scheme — *Internal TCD*
10K Eur, Co-PI — *2023*
- Understanding mast cells and their progenitors in Telangiectasia Macularis Eruptiva Perstans (TMEP)'

MR/V011235/1 Programme Grant — *Medical Research Council*
2.26 Million GBP, Research Co-Investigator — *2021*
- "Macrophages in type 2 immunity: unravelling susceptibility and resistance to tissue nematode infection". I co-wrote grant and provided scientific design and preliminary data. Awarded an honorary position at UoM to facilitate ongoing collaboration after leaving Manchester

Building Engagements in Health Research Scheme — *Internal TCD*
10K Eur, Co-PI — *2021*
- 'Nanoparticle modulation of neutrophil and monocyte responses to ANCA'

Funding, Under Review

SFI Pathways program 2022, €425,000. - *Title withheld*. - Short-listed for 2nd stage, expected outcome Q2 2023.

Presentations, Awards & contributions

Presentations

- 3 invited speaker presentations
- 13 conference oral presentations, selected from abstract
- 8 conference poster presentations

Awards and media

- Commentry in *Immunity*: “Macrophages show up in style when Th2 lymphocytes organize their homecoming”
- Paper featured on The Immunology Podcast - Episode 51

Discipline Contributions

2023	Kidney Research UK	*Grant review*
2023	Frontiers in Immunology (in negotiation)	*Review Editor*
2022	Irish Nephrology Society Conference	*Session Chair*
2022	Post-Doctoral scientist at TCD	*Interview panel*
2022	PhD Candidate in TCD	*Continuation Viva*
2021-2022	Frontiers in Immunology	*Article review*
2021-2022	Research Assistant at TCD	*Interview panel*
2021	French National Research Agency (ANR) 2021 generic call	*Grant review*
2021	BBSRC Discovery Fellows award	*Grant review*
2021	Venture capital funded Trinity Spinout – Parvalis Tx	*Patent (inventor)*
2018	Scientific Reports	*Article review*
2017-2020	Parasite Immunology	*Article review*

Active Collaborations

Lara Dungan, Niall Conlon — *St James’ Hospital*
Understanding mast cells and their progenitors in Telangiectasia Macularis Eruptiva Perstans

Padraic Fallon — *Trinity College Dublin*
Title withheld; inflammation focused (mouse)

Arthur White — *Trinity College Dublin*
New statistical methods for semi-supervised clustering of flow and mass cytometry data

Legend Biotech (Ireland), Tony Mc Elligott — *Trinity College Dublin*
Title withheald

Judi Allen, Lili Zhang — *University of Manchester*
B cell-macrophage interactions in type 2 immune responses

Pn’g Loke — *NIH, Bethesda, MA*
Effect of genotype on alternative activation of serous cavity macrophages

Niall Conlon, Katie Ridge — *St James’ Hospital*
Role of mast cell progenitors in chronic urticaria

Ross MacManus — *Trinity College Dublin*
Linking immune cell perturbations to ankylosing spondylitis outcomes

Mark Travis — *University of Manchester*
Title withheld, T cell and infection focused (mouse)

Maria M. Munoz San Martin — *RCSI*
Title withheld, microglia focused (mouse)

Sharee Basdeo — *Trinity College Dublin*
Innate immune training of human monocytes and macrophages by SARS-Cov2 vaccine ChAdOx1

Judi Allen — *University of Manchester*
Serous cavity macrophage in nematode control

Judi Allen, James Parkinson — *University of Manchester*
The plueral cavity macrophage proteome

Alvaro Diaz — *Uni. de la República Uruguay*
Role of CD40 signalling in tissue resident macorphage proliferation

Teaching & Supervision

Formal teaching

Transcriptomics (2 hr workdshop) — *20 students*
MSc in Immunology — *2022*
- Introduction to Transcriptomics and single cell technologies

Datascience for Immunology (3 workshops and assessment) — *20 students*
MSc in Immunology — *2022*
- 12 hours direct teaching time. Introduction to R programming, with a focus on analysis in R markdown. Analysing and visualising immunology data in R. Single cell RNA-sequencing analysis. Student assessment in Single cell RNA-sequencing analysis. Module design and module refrorm via comittee.

R programming, data visualisation and transcriptomic analysis (3 workshops) *20 students*

MSc in Immunology *2021*

- Part of immunogenetics module - This included 3 dry lab sessions (in person) and assessment: student presentations of bioinformatic analysis (microarray)

T cells (4 lectures) *30 Students*

BA(Mod) Biochemisty with Immunology (4th year) *2016-2017*

- This advanced course teaches most aspect of T cell biology form development, T cell education, tolerance, activation through the immunological synapse, APC function, co-stimulation, expansion, tissue/lymph node homing, T cell subset differentiation, regulation and the concept of immune responses types. Assessment: written exam

Cancer immunology and immunotherapy (2 lectures) *30 Students*

BA(Mod) Biochemisty with Immunology (4th year) *2016-2017*

- Brief history of chemotherapy, failed early immune oncology interventions, recent success, checkpoint inhibitors, combination studies, CAR-T cell, future perspectives Assessment: written exam

Multiple sclerosis (1 lecture) *30 Students*

BA(Mod) Biochemisty with Immunology (4th year) *2016-2017*

- Th1 and Th17 cells in autoimmunity, animal models of disease, S1p1 inhibitors, VLA4, future targets.

T cell differentiation, effector function and regulation (2 lectures) *20 students*

MSc in Immunology *2016-2017*

- Introductory course to T cell biology, differentiation and the cytokine control of immune responses. Assessment: written exam

Introduction to parasite and type 2 Immune responses (3 lectures) *20 students*

MSc in Immunology *2014-2017*

- This is an advanced course that covers aspect of type 2 immune responses. Th2 cells, helminth infections, eosinophils, M2 macrophages, wound repair, hygiene hypothesis and allergy. Workshop style with three PBL topics. Assessment: written exam

Integrtated Tutorials *3 students*

BA(Mod) Biochemisty with Immunology (3rd year) *2014-2017*

- Ongoing small group tutorials for 3 students each year integrated with specific modules

Research Project Supervision

2023	Ba(Mod) Molecular Medicine (intercalating Medical student)	*TCD*
2022	Ba(Mod) Molecular Medicine (intercalating Medical student)	*TCD*
2021-2022	Bachelor in Medicine	*TCD*
2021-2022	Research Assistant	*TCD*
2021-2022	PhD student	*TCD*
2021	Ba(Mod) Molecular Medicine (intercalating Medical student)	*TCD*
2020-2021	Mres Infection Biology	*UoM*
2018-2019	Mres Infection Biology	*UoM*
2017-2021	PhD Student	*TCD*
2016	Msc Immunology	*TCD*
2015-2017	PhD Student	*TCD*
2015	Msc Immunology	*TCD*
2014	Msc Immunology	*TCD*

Additional teaching duties In 2016 I took on the academic duties for a Professor in TCD on teaching sabbatical. This included all aspects of the role, including practical supervision, assessment and marking, tutorials and administrative duties. I have organised visits for school students between 2013-2016. I sit on thesis committees for 3 PhD students.

Outreach, organisation, and patient & public involvment in research

Discover Research Night, Dublin Sep 2014. Marie Skłodowska-Curie-funded. I was the event organiser responsible for public engagement at Trinity Biomedical Sciences Institute, organising a team of 50 researchers in leading themed tours of scientific facilities. We were the most subscribed event of Dublin Research Night (>500 members of the public).

10th International Symposium on Bordetella, Sep 2013. Logistics manager responsible for operations of the conference including registration, AV equipment and support for speakers.

Manchester Immunology Group Seminar Series, May 2017 – Sep 2018. Co-lead organiser. Handling invitations, hospitality, communications, for renowned international speakers to visit University of Manchester.

School talk, Oaklands Community College, Edenderry Co. Offaly, 2021. “The life of a scientist”.

TCD Omics Core facility.I have established formal pipelines for a single cell RNA-sequencing core service ‘TCD Omics’. I have successfully lobbied my institute to fund a research assistant to support the service under my supervision.

Patient involvement I have worked alongside patient representatives for Vasculitis Ireland as part of the PARADISE project.

Online Appendix

Please see my gitub for a long form CV with exhaustive list of presentations, awards, datasets, training and skills, etc.

Publications

1. Finlay, C. M., Parkinson, J. E., Zhang, L., Chan, B. H. K., Ajendra, J., Chenery, A., Morrison, A., Kaymak, I., Houlder, E. L., Murtuza Baker, S., Dickie, B. R., Boon, L., Konkel, J. E., Hepworth, M. R., MacDonald, A. S., Randolph, G. J., Rückerl, D., & Allen, J. E. (2023). T helper 2 cells control monocyte to tissue-resident macrophage differentiation during nematode infection of the pleural cavity. *Immunity*, 1–18. https://doi.org/10.1016/j.immuni.2023.02.016
2. McEntee, C. P., Houston, S., Finlay, C. M., Rossi, S., Liu, G., Shaw, T. N., Casulli, J., Fife, M., Smedley, C., Griffith, T. S., Pepper, M., Hussell, T., Hansbro, P. M., Schwartz, J.-M., Paidassi, H., & Travis, M. A. (2023). A subset of CD4+ effector memory T cells limit immunity to pulmonary viral infection and prevent tissue pathology via activation of latent TGF. *bioRxiv*, 2023.03.02.527395. https://doi.org/10.1101/2023.03.02.527395
3. Han, J., Gallerand, A., Erlich, E. C., Helmink, B. A., Mair, I., Li4, X., Eckhouse2, S. R., Dimou, F. M., Shakhsheer, B. A., Phelps, H., Chan, M., Schilling5, J. D., Finlay, C. M., Judith, Allen, E., Jakubzick, C. V., Else, K., Onufer, E. J., Zhang, N., & Randolph, G. J. (2023). In-depth comparison of human serous cavity resident macrophages and dendritic cells to their murine counterparts. *PREPRINT (Version 1) Available at Research Square*. https://doi.org/https://dx.doi.org/10.21203/rs.3.rs-2689141/v1
4. McManus, C. M., Bouchery, T., Suleiman, M., Kildemoes, A. O., Ferguson, A., Wang, T., Finlay, C. M., Chan, R., Renahan, T., Mukundan, A., Nkurunungi, G., & Bobardt, S. D. (2022). Hydra 2022: return of the interactive conference on helminth parasitology after the pandemic. *Trends in Parasitology*, *38*(12), 999–1007. https://doi.org/10.1016/j.pt.2022.09.013
5. Fiancette, R., Finlay, C. M., Willis, C., Bevington, S. L., Soley, J., Ng, S. T. H., Baker, S. M., Andrews, S., Hepworth, M. R., & Withers, D. R. (2021). Reciprocal transcription factor networks govern tissue-resident ILC3 subset function and identity. *Nature Immunology*, *22*(10), 1245–1255. https://doi.org/10.1038/s41590-021-01024-x
6. Cunningham, K. T., Finlay, C. M., & Mills, K. H. G. (2021). Helminth Imprinting of Hematopoietic Stem Cells Sustains Anti-Inflammatory Trained Innate Immunity That Attenuates Autoimmune Disease. *The Journal of Immunology*, *206*(7), 1618–1630. https://doi.org/10.4049/jimmunol.2001225
7. Finlay, C. M., Cunningham, K. T., Doyle, B., & Mills, K. H. G. (2020). IL-33–Stimulated Murine Mast Cells Polarize Alternatively Activated Macrophages, Which Suppress T Cells That Mediate Experimental Autoimmune Encephalomyelitis. *The Journal of Immunology*, *205*(7), 1909–1919. https://doi.org/10.4049/jimmunol.1901321
8. Finlay, C. M., & Allen, J. E. (2020). The immune response of inbred laboratory mice to Litomosoides sigmodontis: A route to discovery in myeloid cell biology. *Parasite Immunology*, *42*(7), e12708. https://doi.org/10.1111/pim.12708
9. Czajkowska, B. I., Finlay, C. M., Jones, G., & Brown, T. A. (2019). Diversity of a cytokinin dehydrogenase gene in wild and cultivated barley. *PLOS ONE*, *14*(12), e0225899. https://doi.org/10.1371/journal.pone.0225899
10. McEntee, C. P., Finlay, C. M., & Lavelle, E. C. (2019). Divergent Roles for the IL-1 Family in Gastrointestinal Homeostasis and Inflammation. *Frontiers in Immunology*, *10*. https://doi.org/10.3389/fimmu.2019.01266
11. Campbell, S. M., Knipper, J. A., Ruckerl, D., Finlay, C. M., Logan, N., Minutti, C. M., Mack, M., Jenkins, S. J., Taylor, M. D., & Allen, J. E. (2018). Myeloid cell recruitment versus local proliferation differentiates susceptibility from resistance to filarial infection. *eLife*, *7*, e30947. https://doi.org/10.7554/eLife.30947
12. Finlay, C. M., Stefanska, A. M., Coleman, M. M., Jahns, H., Cassidy, J. P., McLoughlin, R. M., & Mills, K. H. G. (2017). Secreted products of Fasciola hepatica inhibit the induction of T cell responses that mediate allergy. *Parasite Immunology*, *39*(10), e12460. https://doi.org/10.1111/pim.12460
13. Sutton, C. E., Finlay, C. M., Raverdeau, M., Early, J. O., DeCourcey, J., Zaslona, Z., O'Neill, L. A. J., Mills, K. H. G., & Curtis, A. M. (2017). Loss of the molecular clock in myeloid cells exacerbates T cell-mediated CNS autoimmune disease. *Nature Communications*, *8*(1), 1923. https://doi.org/10.1038/s41467-017-02111-0
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15. Bernard, N. J., Finlay, C. M., Tannahill, G. M., Cassidy, J. P., O'Neill, L. A., & Mills, K. H. (2015). A critical role for the TLR signaling adapter Mal in alveolar macrophage-mediated protection against Bordetella pertussis. *Mucosal Immunology*, *8*(5), 982–992. https://doi.org/10.1038/mi.2014.125
16. Finlay, C. M., Walsh, K. P., & Mills, K. H. G. (2014). Induction of regulatory cells by helminth parasites: exploitation for the treatment of inflammatory diseases. *Immunological Reviews*, *259*(1), 206–230. https://doi.org/10.1111/imr.12164
17. Coleman, M. M., Finlay, C. M., Moran, B., Keane, J., Dunne, P. J., & Mills, K. H. G. (2012). The immunoregulatory role of CD4 + FoxP3 + CD25 − regulatory T cells in lungs of mice infected with Bordetella pertussis. *FEMS Immunology & Medical Microbiology*, *64*(3), 413–424. https://doi.org/10.1111/j.1574-695X.2011.00927.x
18. Walsh, K. P., Brady, M. T., Finlay, C. M., Boon, L., & Mills, K. H. G. (2009). Infection with a Helminth Parasite Attenuates Autoimmunity through TGF- -Mediated Suppression of Th17 and Th1 Responses. *The Journal of Immunology*, *183*(3), 1577–1586. https://doi.org/10.4049/jimmunol.0803803

Publications in review

Dwivedi, A., Ui Mhaonaigh, A., Carrol, M., Little, M and Finlay, C.M. low density neutrophils in SARS-Cov 2 **Under Review, I am co-last and co-corresponding author**