

Daniel Felipe Luque Duque

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Personal Information

Full name Daniel Felipe Luque Duque
Nationality Colombian
Pronouns He/Him

Employment

2023–Present **Research Associate**, *Imperial College London*, London, United Kingdom.
PostDoc position in Becca Asquith's theoretical and mathematical immunology group.

Education

2018–2023 **PhD in Applied Mathematics**, *University of Leeds*, Leeds, United Kingdom.
Network models of T cell receptor repertoires, cross-reactivity, and viral infection
Member of the Marie Skłodowska-Curie Innovative Training Network (*ITN*) in
Quantitative T-Cell Immunology and Immunotherapy (*QuantII*)

2013–2018 **BSc in Mathematics**, *Pontificia Universidad Javeriana*, Bogotá, Colombia.
GPA 4.25/5.

Experience

Teaching

2024–2025 **Mathematical modelling**, Imperial College London, London, UK.
Introductory lecture on mathematical modelling to Immunology MSc students.

2021 **MATH2920 Computational Mathematics**, University of Leeds, Leeds, UK.
Tutorials and marking

Selected Workshops

2024–2025 **PostDoc Teaching and Learning community workshops**, *Imperial College London*, London, UK.
Year long programme of teaching focused workshops. Covered subjects include:

- **Small and large group teaching**, *PTLC workshop*.
- **Assistant supervisor training**, *PTLC workshop*.
- **Assessment and feedback**, *PTLC workshop*.

2020 **Fundamentals of Deep Learning**, *NVIDIA Deep Learning Institute*, UK.
Introductory workshop on deep learning and data augmentation.

2019 **QuanTII Complementary Skill Workshop**, *University of Leeds*, Leeds, UK.
Complementary Skill Workshop organised by the QuanTII ITN at the university of Leeds.

2019 **RNA-Seq workshop**, *University of Leeds*, Leeds, UK.
Workshop on RNA-Seq data analysis organised by the Leeds Omics group.

Short Courses

2016 **Genomic Medicine Short Course**, *Universidad de la Sabana*, Chia, Colombia.
Short course organised by Universidad de la Sabana and the University of Southampton.

Recent Talks and posters

04/09/2025 **UK Mathematical Biology conference**, *University of Birmingham*, Birmingham, UK.

Quantifying thymic output using TCR sequencing data – Poster

27/05/2025 **Antwerp TCR conference 2025**, *University of Antwerp*, Antwerp, Belgium.

Quantifying thymic output using TCR sequencing data – Poster

20/09/2022 **12th European Conference on Mathematical and Theoretical Biology**, *ECMTB/SMB*, Heidelberg, Germany.

Stochastic modelling of TCR-epitope recognition in the context of cross-reactivity – Poster

29/06/2022 **Viral Immunity: Basic Mechanisms and Therapeutic Applications**, *Keystone Symposia*, Keystone, CO, USA.

Stochastic modelling of TCR-epitope recognition in the context of cross-reactivity – Talk & Poster

08/02/2022 **DSABNS2022**, *Basque Center for Applied Mathematics*, Bilbao, Spain (online).

Stochastic modelling of TCR-epitope recognition in the context of cross-reactivity – Talk

Awards

29/06/2022 **Keystone Symposia Scholarship**, *Viral Immunity: Basic Mechanisms and Therapeutic Applications*, Keystone Symposia, Keystone, CO, USA.

Secondments

06/2022 **St Jude Children's Research Hospital**, Memphis, TN, USA.

Secondment in Paul Thomas' lab in the department of Immunology at St. Jude Children's Research Hospital.

09/2019– **St Jude Children's Research Hospital**, Memphis, TN, USA.

11/2019 Secondment in Paul Thomas' lab in the department of Immunology at St. Jude Children's Research Hospital.

Publications

In preparation Daniel Luque, Laura Mora, Taher Taher, Ami Song, Yan Zhang, Guillem Sanchez Sanchez, Moosa Rezvani, Maria Papadopoulou, David Vermijlen, Carrie Willcox, Benjamin Willcox, Derek Macallan, and Becca Asquith. Quantifying thymic output of $\alpha\beta$ and $\gamma\delta$ t cells using TCR sequencing data. In preparation.

In preparation Daniel Luque, Thea Hogan, Ameenah Ali Zeglamm, Sanket Rane, David Withers, Andy Yates, Ben Seddon, and Becca Asquith. $\gamma\delta$ t cell dynamics in mice. In preparation.

- 2023 Daniel Luque Duque, Jessica A Gaevert, Paul G Thomas, Martín López-García, Grant Lythe, and Carmen Molina-París. Multi-variate model of T cell clonotype competition and homeostasis. *Scientific Reports*, volume 13, page 21995. Nature Publishing Group UK London, 2023.
- 2022 Chun-Yang Lin, Joshua Wolf, David C Brice, Yilun Sun, Macauley Locke, Sean Cherry, Ashley H Castellaw, Marie Wehenkel, Jeremy Chase Crawford, Veronika I Zarnitsyna, Daniel Duque, Kim J. Allison, et al. Pre-existing humoral immunity to human common cold coronaviruses negatively impacts the protective SARS-CoV-2 antibody response. *Cell Host & Microbe*, volume 30, pages 83–96.e4. Elsevier, 2022.
- 2021 Jessica Ann Gaevert, Daniel Luque Duque, Grant Lythe, Carmen Molina-París, and Paul Glyndwr Thomas. Quantifying T Cell Cross-Reactivity: Influenza and Coronaviruses. *Viruses*, volume 13, page 1786. Multidisciplinary Digital Publishing Institute, 2021.

PhD thesis

Title Network models of T cell receptor repertoires, cross-reactivity, and viral infection
Supervisors Grant Lythe, Martín López García, Carmen Molina París

Undergraduate thesis

Title Commutative Algebra and some results in Algebraic Geometry
Supervisor Beatriz Graña Otero

Computing skills

Programming Python, Mathematica, C++, R, Git, GitHub
Computing \LaTeX

Languages

Spanish **Native**
English **Fluent**
French **Fair**
German **Fair**

Interests

Algebraic Geometry
Commutative Algebra
Applied Mathematics
Mathematical Biology
Computational Biology
Genomic Medicine



References

Name	Relationship	Contact
Becca Asquith	PI	B.Asquith@imperial.ac.uk
Martín López García	PhD Supervisor	M.LopezGarcia@leeds.ac.uk
Grant Lythe	PhD Supervisor	G.D.Lythe@leeds.ac.uk