Yann Aquino, PhD

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I am a multidisciplinary scientist with a broad background in human population genomics, single-cell transcriptomics and epigenomics, evolutionary genetics and systems immunology. My research is based on large cohorts of healthy human donors, integrating genetic and environmental predictors with molecular phenotypes to investigate the drivers of natural human immune diversity. My interests include cellular responses to infection, the regulation of gene expression, gene-by-environment interactions and evolutionary biological adaptation in the context of building a precision immunology framework through single-cell genomics.

Professional Experience

Scientific Project Manager, Single-cell Genomics and Precision Immunology

Human Evolutionary Genetics Unit, Institut Pasteur, Paris, France 2023–

The Human Evolutionary Genetics Unit of Institut Pasteur is recognized today for its expertise in population-level human single-cell genomics studies. This expertise was largely built during my thesis project: together with my colleagues and supervisors, we set up the experimental and analytical pipelines in use today. As the Unit diversifies with new cohorts and members, my new role is to help senior researchers manage progress—*in vitro* and *in silico*—across all single-cell genomics projects by supervising budgets, timelines and analyses.

Education

Doctoral candidate, Human Evolutionary Genetics Unit of Institut Pasteur

Institut Pasteur, Paris, France; Sorbonne Université, Paris, France 2020–2023

Back from the U.S.A., I joined the Human Evolutionary Genetics Unit of Institut Pasteur—first as an intern, then as a doctoral candidate—where I led the experiments and analyses of the Unit's first population single-cell genomics project.

Master of Science in Genetics, Magistère Européen de Génétique

Université Paris Cité (*antea* Paris VII), Paris, France 2018–2020 16/90

I next enrolled in the Magistère Européen de Génétique: one of Europe's top curricula in genetics. In 2019, I spent 5 very enriching months at the University of Connecticut's Health Center, where I had my first hands-on research experience in bioinformatics and single-cell genomics.

Bachelor of Science in Cell Biology, Molecular Biology and Physiology

Université de Bretagne Occidentale, Brest, France 2015–2018 1/222

Born in Mexico to a French mother and a Mexican father, I came to France in 2013 to study medicine. After a couple of years, I decided to start afresh and focus on genetics. From 2015 to 2018, I studied cell and molecular biology at the Université de Bretagne Occidentale, achieving top of the class each year.

Research Internships

A single-cell view of innate immune responses to influenza infection

6 months

Human Evolutionary Genetics Unit, Institut Pasteur, Paris, France 2020

Single-cell chromatin accessibility profiling of embryonic mouse development

5 months

Cotney Lab, University of Connecticut's Health Center. Farmington, U.S.A. 2019

Publications

- Aquino, Y.*, Bisiaux, A.*, Li, Z.*, O'Neill, M.*, Mendoza-Revilla, J., Merkling, S.H., Kerner, G., Hasan, M., Libri, V., Bondet, V., Smith, N., *et al.*, 2023. Dissecting human population variation in single-cell responses to SARS-CoV-2. *Nature*, 621(7977), pp.120-128.
- Lee, D., Le Pen, J.*, Yatim, A.*, Dong, B.*, Aquino, Y.*, Ogishi, M.*, Pescarmona, R., Talouarn, E., Rinchai, D., Zhang, P., Perret, M., *et al.*, 2022. Inborn errors of OAS–RNase L in SARS-CoV-2–related multisystem inflammatory syndrome in children. *Science*, 379(6632), p.eabo3627.
- O'Neill, M.B., Quach, H., Pothlichet, J., Aquino, Y., Bisiaux, A., Zidane, N., Deschamps, M., Libri, V., Hasan, M., Zhang, S.Y., Zhang, Q., *et al.*, 2021. Single-cell and bulk RNA-sequencing reveal differences in monocyte susceptibility to influenza A virus infection between Africans and Europeans. *Frontiers in Immunology*, 12, p.768189.

Highlighted Presentations

Oral presentation | American Society of Human Genetics' Annual Meeting, Plenary Session
Denver, Colorado, U.S.A. 2024

Variation in chromatin accessibility in immune cells: population differences and genetic contributors

Oral presentation | *Milieu Intérieur* Consortium's Annual Meeting
Paris, France 2024

The genetics of chromatin accessibility in human immune cells

Oral presentation | Institut Pasteur's 'Genomes and Genetics' Departmental Retreat
Pornichet, France 2023

Dissecting human population variation in single-cell responses to SARS-CoV-2

Oral presentation | Cold Spring Harbor Laboratory's Biology of Genomes
Cold Spring Harbor, New York, U.S.A. 2022

Genetic and evolutionary sources of population variation in immune responses to SARS-CoV-2

Poster presentation | Institut Pasteur's 'Genomes and Genetics' Departmental Retreat
Pornichet, France 2021

A single-cell view of innate immune responses to the influenza A virus and SARS-CoV-2 across human populations

Teaching Experience

Academic teaching | Human Population Genomics and Genetic Epidemiology Master's Course
Institut Pasteur, Paris, France 2022–

Contributing to joint lectures with senior researchers; assisting with single-cell data-analysis workshops

Tutoring | Université de Bretagne Occidentale's Science Faculty Tutoring Programme
Université de Bretagne Occidentale, Brest, France 2016–2018

Creating and participating in a student-led tutoring programme, later endorsed by the Dean and still in existence

Awards and Honors

Prix solennel de thèse de la Chancellerie, Section Médecine : Maladies infectieuses
Chancellerie des Universités de Paris, France 2024

Best poster at the 'Genomes and Genetics' Departmental Retreat
Institut Pasteur's 'Genomes and Genetics' Department, France 2021

Contrat Doctoral de Droit Public
Ministère de l'Enseignement supérieur et de la Recherce, France 2020