

Hector Roux de Bézieux

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Education

Ph.D in Biostatistics

University of California, Berkeley, USA

Dissertation adviser: Sandrine Dudoit, GPA 4.0

2017 - 2021 (expected)

- Development of statistical tools for the analysis of Omic's data and application of those tools to relevant biological questions. Related publications include:
 1. **Roux de Bézieux, H.**, Street, K. ... Dudoit, S. (2020). Improving replicability in single-cell RNA-Seq cell type discovery with Dune. *BioRxiv*
 2. Van den Berge, K., **Roux de Bézieux, H.**, ... Dudoit, S., Clement, L. (2020). Trajectory-based differential expression analysis for single-cell sequencing data. *Nature Communications*, 11(1), 1201.
 3. Brann, D. H., ... **Roux de Bézieux, H.**, ... (2020). Non-neuronal expression of SARS-CoV-2 entry genes in the olfactory system suggests mechanisms underlying COVID-19-associated anosmia. *Science Advances*, eabc5801.
- PhD level classes in theoretical & applied statistics, computational statistics, genomic data analysis, machine learning.

Master of Science in Biology & Bioengineering

École polytechnique and UC Berkeley

Fung Institute Fellowship, Outstanding Investment Award, GPA 3.86

2015 - 2017

Bachelor of Science in Mathematics & Physics

École polytechnique, France

Received with overall 1st rank at the national entry exam, GPA 3.94

2011-2015

Experience

Pendulum Therapeutics

San Francisco, USA

Computational Biologist

June 2018 - Ongoing

- Analysis of clinical trial data and design of future clinical trial.
- Development of computational methods for the analysis of metagenomic datasets. Associated publication:
Roux de Bézieux, H., ... Jacob, L. (2020). Finding All Significant Closed Connected Subgraphs . *Machine Learning in Computational Biology (MLCB)*

Institut Jacques Monod, Cellular Adhesion and Mechanism Lab

Paris, France

Research Intern, Benoit Ladoux and René-Marc Mège's team

March–July 2016

PSA Peugeot Citroën

Shanghai, China

Intern, Strategic Partnership Department

June–August 2015

- Independently analyzed financial and auditing reports to give a strategic overview of PSA's Chinese partners.
- Participated in meetings and interview to conceive the business model for a joint PSA R&D center in China.

French Army, Elite Mountain Troop

France

2nd Lieutenant

September 2013– April 2014

- Took courses on leadership in the French ground forces.
- Led a group of 8 professional soldiers during a NATO exercise in great Northern Norway.
- Led a group of 30 newly enrolled soldiers through initial military trial.

Related skills

- **Programming:** Python, Bash (Intermediate), R, Latex (Expert)
- **Language:** English (fluent), French (native), German (intermediate)

Interests

First Aid Certification by the Red Cross: 2011, 2015 **Rowing:** 6 years at national level

Triathlon: 1000 miles annually, Ironman 70.3 (Santa Cruz, 2020) **Sailing:** Summer instructor

Publications

- **Roux de Bézieux, H.**, ... Jacob, L. (2020). Finding All Significant Closed Connected Subgraphs . *Machine Learning in Computational Biology (MLCB)*
- Brann, D. H., ...**Roux de Bézieux, H.**,... (2020). Non-neuronal expression of SARS-CoV-2 entry genes in the olfactory system suggests mechanisms underlying COVID-19-associated anosmia. *Science Advances*, eabc5801.
- Adkins, R. S., Aldridge, A. I., Allen, S., Ament, S. A., ...**Roux de Bézieux, H.**,... (2020). A multimodal cell census and atlas of the mammalian primary motor cortex. *BioRxiv*.
- **Roux de Bézieux, H.**, Street, K. ... Dudoit, S. (2020). Improving replicability in single-cell RNA-Seq cell type discovery with Dune. *BioRxiv*
- Yao, Z., Liu, H., Xie, F., Fischer, S.,...**Roux de Bézieux, H.**,... (2020). An integrated transcriptomic and epigenomic atlas of mouse primary motor cortex cell types. *BioRxiv*
- Van den Berge, K., **Roux de Bézieux, H.**, ... Dudoit, S., Clement, L. (2020). Trajectory-based differential expression analysis for single-cell sequencing data. *Nature Communications*, 11(1), 1201.
- Croizat, G., Kehren, A., **Roux de Bézieux, H.**, Barakat, A. (2018). Influence of pulsatile blood flow on allometry of aortic wall shear stress. *arXiv*

Talks

European Bioconductor Meeting 2020

90mn workshop

Trajectory inference across conditions: differential expression and differential progression.

Europe (Virtual)

December 2020

BioC 2020

60mn workshop

Trajectory inference across conditions: differential expression and differential progression.

USA (Virtual)

July 2020

JBIMS Data Sciences Workshop

15mn Talk

Bacterial and metagenome GWAS

Berkeley, California

February 2020

Statistics and Genomics Seminar

1h talk

Trajectory inference, Differential Expression and clustering along developmental trajectories in single cell RNA-Sequencing.

Berkeley, California

May 2020

Berkeley Stem Cell Center Retreat

15mn talk

Unlocking the power of continuity in single cell RNA-Seq - Differential gene Expression along developmental trajectories.

Monterey, California

May 2020

FAST-BIG: Workshop on High-dimensional statistics

30mn talk

Beyond DBGWAS: exploring assembly graphs in an efficient manner

INRIA, Paris

March 2019