

# Alba Refoyo-Martínez

BIOINFORMATICIAN · DATA ANALYST

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I believe in a multidisciplinary perspective to tackle the challenges of today, as it enables us to find efficient and innovative solutions. Eager to design and implement appropriate solutions to handle large volumes of data, utilizing statistical techniques, machine learning algorithms and data visualization tools. Back in 2010, I had the opportunity to take part in an exceptional educational and cultural exchange project called The Ruta Quetzal, which sparked my deep passion for hiking and nature. Ever since, I have nurtured an ever-growing list of destinations that I am eager to explore and experience firsthand.

## Education

### MSc in Bioinformatics

2017-2019

University of Copenhagen, Denmark

- Enrolled in Artificial Intelligence in the Marketplace. Copenhagen Business School, Denmark

### Erasmus Programme

2016 - 2017

Vrije Universiteit Brussel, Belgium

- Molecular Biology Master's courses followed
- Worked with Patrick Vanderheyden in the Molecular and Biochemistry pharmacology laboratory, department of Bio-engineering Science

### BSc in Health Biology

2013-2017

Universidad de Alcalá, Spain

## Abilities and Interests

### Personal strengths:

- Project management. Science communication. Stakeholder management. Motivation and Leadership. Receptive to learning and change acceptance. Initiative and "can-do" attitude

### Communication:

- Spanish (native), English (fluent), Danish (beginner)

### Programming:

- Python, Unix Bash, LaTeX, JavaScript, R

### Data Science:

- Data processing, data analysis and data visualisation. Pipeline development and optimisation. Statistics.

### Interests:

- Human Health, Data Science, Machine Learning, Population and Evolutionary Genetics...

## Experience

### Postdoctoral researcher at University of Copenhagen

2022 - X

SHARED RESEARCHER IN RACIMO, SCHROEDER AND OLSEN GROUP IN THE SECTION FOR MOLECULAR ECOLOGY AND EVOLUTION, GLOBE INSTITUTE

- Project coordinator shared between three different research groups
- Bioinformatics support and pipeline developer

### PhD student at the University of Copenhagen

2019 - 2022

PHD FELLOW IN RACIMO GROUP AT LUNDBECK FOUNDATION GEOGENETICS CENTRE, GLOBE INSTITUTE

VISITING PHD IN NIELSEN GROUP IN THE DEPARTMENT OF INTEGRATIVE BIOLOGY AT THE UNIVERSITY

OF CALIFORNIA, BERKELEY

Sep, 2022

- Pipeline building and method development
- Data analysis on human modern and ancient samples

### Course Instructor at University of Copenhagen

2021

COURSE INSTRUCTOR IN ANALYSIS OF LARGE-SCALE DATASETS. PHD COURSE AT THE GLOBE INSTITUTE

- Run exercise classes and assistance

### Teaching assistant at University of Copenhagen

2019

TEACHING ASSISTANT IN INTERACTION DESIGN (KOMIT). COURSE UNDER THE BSc. COMMUNICATION AND IT

- Run tutorials/exercise classes with students
- Assess weekly assignments

## Graduate Researcher at University of Copenhagen

Apr. 2018 - Aug. 2019

RESEARCHER IN THE LUNDBECK FOUNDATION GEOGENETICS CENTRE

- Data processing and application of statistical methods and software designed for genomic data
- Evaluation and visualization of the results
- Science communication

## Traineeship at Vrije Universiteit Brussel

Feb. 2017 - Jul. 2017

RESEARCHER IN THE MOLECULAR AND BIOCHEMISTRY PHARMACOLOGY LABORATORY AT THE DEPARTMENT OF BIO-ENGINEERING SCIENCE

- Optimization of a functional read-out system of G protein coupled receptors for free fatty acids.

## Undergraduate Researcher at Universidad de Alcalá

May. 2016 - Jan. 2017

RESEARCHER IN THE CARDIOVASCULAR AND SOCIAL EPIDEMIOLOGY RESEARCH GROUP. HEART HEALTHY HOODS PROJECT

([HTTPS://HHHPROJECT.EU](https://hhhproject.eu))

- Primary data collection of dietary health habits from different neighborhoods in Madrid and data analysis of its effects.

## Undergraduate Researcher Universidad de Alcalá

Sep. 2015 - Jan. 2018

RESEARCHER AND COORDINATOR OF THE JUNIOR TEAM. INTRODUCTORY PHYSICS LIFE SCIENCES (IPLS) - SPAIN

- The IPLS Project is inspired by "Vision and Change" ([www.visionandchange.org](http://www.visionandchange.org)). The aim is to develop study plans for Life Science students to train professionals to work in pluridisciplinary research groups. My role was to recompile and contrasting information from IPLS courses in the American scientific community, and to coordinate the junior research group.

## Volunteering

- PhD Committee Member organizing the GLOBE PhD Day 2022.
- Co-organizer of the EPIC (Evolutionary and Population Genetics in Denmark) conference in Copenhagen, 2022.
- Co-organizer of the Lab retreat for Lundbeck Foundation GeoGenetics Center, 2021.

## Science communication

### Research Publications

1. Allentoft, ME\*, Sikora, M\*, **Refoyo-Martínez, A.\***, Irving-Pease, EK\*, Fischer, A\*, Barrie, W\*, Ingason, A\*, [...] , Korneliussen, TS., Durbin, R., Nielsen, R., Delaneau, O., Werge, T., Racimo, F., Kristiansen, K., Willerslev, E. Population genomics of Stone age Eurasia. *bioRxiv* (2022), doi: 10.1101/2022.05.04.490594.
2. Irving-Pease, EK\*, **Refoyo-Martínez, A.\***, Ingason, A., Pearson, A., Fischer, A., Barrie, W\*, [...] , Lawson DJ., Durbin, R., Korneliussen, TS., Werge, T., Allentoft, ME., Sikora, M., Nielsen, R., Racimo, F., Willerslev, E. The Selection Landscape and Genetic Legacy of Ancient Eurasians. *bioRxiv* (2022), doi:10.1101/2022.09.22.509027.
3. Barrie, W., Yang, Y., Attfield, K.E., Irving-Pease, E., Scorrano, G., Jensen, LT., Armen, A.P., Dimopoulos, EA., Stern, A., **Refoyo-Martínez, A.**, Ramsøe, A., Gaunitz, C., Demeter, F., Jørkov, M.L.S., Møller, S.B., Springborg, B., Klassen, L., Hyldgård, IM., Wickmann, N., Vinner, L., Korneliussen, TS., Sikora, M., Kristiansen, K., Rodriguez, S., Nielsen, R., Iversen, AKN., Lawson, DJ., Fugger, L., and Willerslev, E. Genetic risk for Multiple Sclerosis originated in Pastoralist Steppe populations. *bioRxiv*, doi: 10.1101/2022.09.23.509097.
4. **Refoyo-Martínez, A.**, Liu, S., Jørgensen, A. M., Jin, X., Albrechtsen, A., Martin, A. R., Racimo, F. How robust are cross-population signatures of polygenic adaptation in humans?. *Peer Community Journal* (2020), vol. 1, e22.
5. **Refoyo-Martínez, A.**, daFonseca, RR, Halldorsdottir, K, Arnason, E, Mailund, T, Racimo, F. Identifying loci under positive selection in complex population histories. *Genome research* 29.9 (2019): 1506-1520.

### Conference presentations

1. Society of Molecular Biology and Evolution 2021, online - "Selection on complex traits at the Mesolithic to Neolithic transition"
2. 9th International Symposium on Biomolecular Archaeology 2021, online - "Reconstructing ancient traits and recovering variants under positive selection at the Mesolithic-Neolithic transition using 1,490 ancient imputed genomes"
3. Society of Molecular Biology and Evolution 2019, Manchester, UK - "Evidence of polygenic adaptation using GWAS cohorts of several ancestries"

### Conference posters

1. Annual Danish Bioinformatics Conference, 2021, Aalborg, Denmark - "Reconstructing ancient HLA haplotypes, using variation graphs and pangenome assemblies"

#### Science Journalism

1. delRomero, A, Sancho, M, Ros, G, Herrera, L, Javier Suárez, J, Ramón, G, Selfa, L, Berzal, N, Refoyo, A, Correa, J, González, S, Molina, A, Delgado, S. Physics in the biologist formation in XXI century. Reflexion and proposal for BSc in Biology in Spain. Biochemistry and Molecular Biology Spanish Society (2017) <http://www.sebbm.es/revista/articulo.php?id=347>.

## Extracurricular Activity

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### Ruta Quetzal BBVA 2010

COMPLUTENSE UNIVERSITY, SPAIN

2010

- The mystery of the white Mayan bicentenary, Mexico, 2010. Project declared of universal interest by the UNESCO, backed by the European Union.