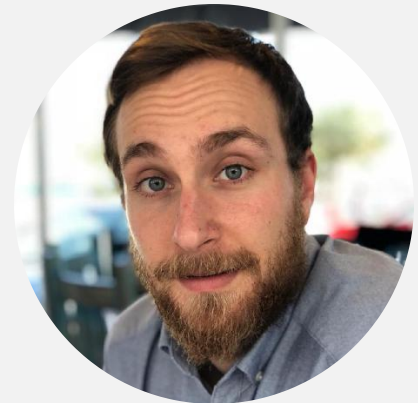# POL CASTELLANO ESCUDER

**Ph.D.**

I'm a Computational Biologist and Data Scientist. Currently, I'm working at Duke University as a Postdoctoral Researcher, focusing on Deep and Machine learning predictive modeling, clustering algorithms, and software development for biological and omics sciences.

## 🎓 EDUCATION

**2021** — **Ph.D. in Biomedicine (Bioinformatics area)**
University of Barcelona

Doctoral thesis: Statistical Methods for Intake Prediction and Biological Significance Analysis in Nutrimetabolomic Studies

**2017** — **M.S. in Bioinformatics and Biostatistics**
Open University of Barcelona and University of Barcelona

Master thesis: Prediction model of response to a certain treatment in childhood obesity

**2016** — **B.S. in Biology**
University of Barcelona

Bachelor thesis: Murine model of caloric restriction during pregnancy: Role of the WNT7A gene on liver proliferation and lipid metabolism

## 💻 RESEARCH EXPERIENCE

**Oct. 2021 | Present** — **Postdoctoral Associate**
Duke University — 📍 Durham, North Carolina, US

**Feb. 2018 | Sep. 2021** — **Bioinformatician (Ph.D. student)**
University of Barcelona — 📍 Barcelona, Spain

**Nov. 2017 | Dec. 2017** — **Bioinformatician**
Sant Joan de Déu Hospital — 📍 Barcelona, Spain

**Sep. 2016 | Oct. 2017** — **Bioinformatician (M.S. student)**
Sant Joan de Déu Hospital — 📍 Barcelona, Spain

**Sep. 2015 | Sep. 2016** — **Research Assistant (B.S. student)**
Sant Joan de Déu Hospital — 📍 Barcelona, Spain

## CONTACT INFO

- ✉ polcaes@gmail.com
- pcastellanoescuder
- polcastellano_
- 🔗 pcastellanoescuder.github.io
- 📍 Durham, North Carolina, US

## SKILLS

Full experience in statistical analysis, dimension reduction algorithms, clustering algorithms, data mining, data workflows/pipelines, statistical learning models, and ML/DL algorithms for predictive modeling.

Highly skilled in R software development, Shiny, LaTeX, with experience in Python, HTML, SQL, CSS, Bash.

*Last updated on 2022-12-11.*

# 🌐 RESEARCH STAYS

**Ph.D. Research Stay at Aberystwyth University**
Oct. 2018
|
Dec. 2018

Aberystwyth University                    📍 Aberystwyth, Wales, UK

Three-month stay at Aberystwyth University working on the Cook2Health
EIT-Health project

# 🏅 FUNDING AND AWARDS

**200 Years of Florence Nightingale Contest**
2020

1st Place

- Source code
- Contest
- Contest organized by RLadies
  Spain, Spanish Biometric Society
  and the Catalan Statistical Society

**Doctoral Fellowship**
2020

- Doctoral fellowship by the University of Barcelona to continue my
  Ph.D. at the Biomarkers and Nutritional & Food Metabolomics research
  group

**Novartis Datathon 2nd Edition**
2019

5th place

**Doctoral Fellowship**
2019

- Doctoral fellowship by the Fundació Bosch i Gimpera Foundation to
  continue my Ph.D. at the Biomarkers and Nutritional & Food
  Metabolomics research group

**Collaboration Grant**
2018

- Collaboration grant by the Fundació Bosch i Gimpera Foundation to start
  my Ph.D. at the Biomarkers and Nutritional & Food Metabolomics
  research group

# 📅 ORGANIZATION AND COMMITTEES

**ASA DataFest**
2022

Consultant & Judge at Duke DataFest 2022, organized by the
American Statistical Association (ASA)

📍 Durham, NC, US

**Internal Evaluation Committee**
2018

Representative of alumni of the Bioinformatics and Biostatistics
master's degree (UOC & UB)

📍 Barcelona, Spain

**XXIXth International Biometric Conference**
2018

Volunteer in the Local Organising Committee     📍 Barcelona, Spain

## 📖 TRAINING AND COURSES

**2018** ● **Data Science Course**
University of Barcelona

**2017** ● **High-performance Computing for Reproducible Genomics**
edX, Harvard University

## 💡 PATENTS

**2018** ● **Markers for predicting weight loss treatment response in children (Num. EP18382873)**
Sant Joan de Déu Hospital and Polytechnic University of Catalonia

📍 Barcelona, Spain

**Pol Castellano Escuder**, Maria Maqueda, Ruben Díaz Naderi, Marta Ramon Krauel, Carles Lerin Martinez, Alexandre Perera Lluna, José Carlos Jiménez Chillarón

• Request number: EP18382873 • Priority country: Spain
• Request date: Nov 30, 2018

## 📄 PUBLICATIONS

**2022** ● **A mixture of four dietary fibres ameliorates adiposity and improves metabolic profile and intestinal health in cafeteria-fed obese rats: an integrative multi-omics approach**
Journal of Nutritional Biochemistry, 111, 109184.

Núria Estanyol-Torres, Cristina Domenech-Coca, Raúl González-Domínguez, Antonio Miñarro, Ferran Reverter, Jose Antonio Moreno-Muñoz, Jesús Jiménez, Manel Martín-Palomas, **Pol Castellano-Escuder**, Hamza Mostafa, Santi García-Vallvé, Nerea Abasolo, Miguel A. Rodríguez, Helena Torrell, Josep M del Bas, Alex Sanchez-Pla, Antoni Caimari, Anna Mas-Capdevila, Cristina Andres-Lacueva, Anna Crescenti

**2022** ● **Exposing and Overcoming Limitations of Clinical Laboratory Tests in COVID-19 by Adding Immunological Parameters; a retrospective cohort analysis and pilot study**
Frontiers in Immunology, vol. 13.

Adrian Sánchez-Montalvá, Daniel Álvarez De La Sierra, Mónica Martínez-Gallo, Janire Perurena-Prieto, Iria Arrese-Muñoz, Juan Carlos Ruiz-Rodríguez, Juan Espinosa-Pereiro, Pau Bosch-Nicolau, Xavier Martínez-Gomez, Andrés Antón, Ferran Martínez-Valle, Mar Riveiro-Barciela, Albert Blanco-Grau, Francisco Rodriguez Frias, **Pol Castellano-Escuder**, Elisabet Poyatos-Canton, Jordi Bas-Minguet, Eva María Martínez-Cáceres, Alex Sanchez-Pla, Coral Zurera-Egea, Aina Teniente-Serra, Manuel Hernández-González, Ricardo Pujol-Borrell and Immune Profile Study Group Hospital Vall d'Hebron COVID-19

**2022**

**GDF15 is an eribulin response biomarker also required for survival of DTP breast cancer cells**
Cancers, 14(10), 2562.

Chiara Bellio, Marta Emperador, **Pol Castellano-Escuder**, Albert Gris, Francesc Canals, Alex Sánchez-Pla, Esther Zamora, Joaquín Arribas, Cristina Saura, Violeta Serra, Josep Tabernero, Bruce A. Littlefield, Josep Villanueva

**2022**

**Assessing adherence to healthy dietary habits through the urinary food metabolome: results from a European two-centre study**
Frontiers in Nutrition, 1193.

**Pol Castellano-Escuder**, Raúl González-Domínguez, Marie-France Vaillant, Patricia Casas-Agustench, Nicole Hidalgo-Liberona, Núria Estanyol-Torres, Thomas Wilson, Manfred Beckmann, Amanda J Lloyd, Marion Oberli, Christophe Moinard, Christophe Pison, Jean-Christian Borel, Marie Joyeux-Faure, Mariette Sicard, Svetlana Artemova, Hugo Terrisse, Paul Dancer, John Draper, Alex Sánchez-Pla, Cristina Andres-Lacueva

**2022**

**A polyphenol-rich diet causes increase in the gut microbiota metabolite indole 3-propionic acid in older adults with preserved kidney function: a randomized, controlled, crossover trial**
Molecular Nutrition & Food Research, 2100349.

Gregorio Peron, Tomás Meroño, Giorgio Gargari, Nicole Hidalgo-Liberona, Antonio Miñarro, Esteban Vegas Lozano, **Pol Castellano-Escuder**, Cristian Del Bo', Stefano Bernardi, Paul A. Kroon, Antonio Cherubini, Patrizia Riso, Simone Guglielmetti, Cristina Andrés-Lacueva

**2022**

**Apolipoprotein E and sex modulate fatty acid metabolism in a prospective observational study of cognitive decline**
Alzheimer's Research & Therapy, 14(1):1. doi: 10.1186/s13195-021-00948-8.

Raúl González-Domínguez, **Pol Castellano-Escuder**, Sophie Lefèvre-Arbogast, Dorrain Y. Low, Andrea Du Preez, Silvie R. Ruigrok, Hyunah Lee, Catherine Helmer, Mercè Pallàs, Mireia Urpi-Sarda, Alex Sánchez-Pla, Aniko Korosi, Paul J. Lucassen, Ludwig Aigner, Claudine Manach, Sandrine Thuret, Cécilia Samieri, Cristina Andres-Lacueva

**2021**

**The food-related serum metabolome associates with later cognitive decline in older subjects: A twelve-year prospective observational study**
Molecular Nutrition & Food Research, 2100606.

Raúl González-Domínguez, **Pol Castellano-Escuder**, Francisco Carmona, Sophie Lefèvre-Arbogast, Dorrain Y. Low, Andrea Du Preez, Silvie R. Ruigrok, Claudine Manach, Mireia Urpi-Sarda, Aniko Korosi, Paul J. Lucassen, Ludwig Aigner, Mercè Pallàs, Sandrine Thuret, Cécilia Samieri, Alex Sánchez-Pla, Cristina Andres-Lacueva

**2021** • **Crosstalk among intestinal barrier, gut microbiota and serum metabolome after a polyphenol-rich diet in older subjects with "leaky gut": The MaPLE trial**
Clinical Nutrition, 40(10), 5288-5297.

Gregorio Peron, Giorgio Gargari, Tomás Meroño, Antonio Miñarro, Esteban Vegas Lozano, **Pol Castellano-Escuder**, Raúl González-Domínguez, Nicole Hidalgo-Liberona, Cristian Del Bo', Stefano Bernardi, Paul Antony Kroon, Barbara Carrieri, Antonio Cherubini, Patrizia Riso, Simone Guglielmetti, Cristina Andrés-Lacueva

**2021** • **The fobitools framework: The first steps towards food enrichment analysis**
Bioinformatics. DOI: btab626

**Pol Castellano-Escuder**, Cristina Andrés-Lacueva, Alex Sánchez-Pla

**2021** • **POMAShiny: A user-friendly web-based workflow for metabolomics and proteomics data analysis**
PLOS Computational Biology, 17(7): e1009148.

**Pol Castellano-Escuder**, Raúl González-Domínguez, Francesc Carmona-Pontaque, Cristina Andrés-Lacueva, Alex Sánchez-Pla

**2020** • **FOBI: an ontology to represent food intake data and associate it with metabolomic data**
Database, Volume 2020, 2020, baaa033.

**Pol Castellano-Escuder**, Raúl González-Domínguez, David S. Wishart, Cristina Andrés-Lacueva, Alex Sánchez-Pla

**2018** • **Lifestyle intervention decreases urine trimethylamine N-oxide levels in prepubertal children with obesity**
Obesity, 26(10), 1603-1610.

María Leal-Witt, Marina Llobet, Sara Samino, **Pol Castellano-Escuder**, Daniel Cuadras, Josep Jiménez-Chillarón, ÓscarvYanes, Marta Ramon-Krauel, Carles Lerin

## CONFERENCE PRESENTATIONS

**2021** • **POMA: A user-friendly workflow for metabolomics and proteomics data analysis**
Bioconductor Conference 2021 (BioC2021) ♦ Virtual Conference
Selected talk

**2020** • **POMA: An User-friendly Workflow for Pre-processing and Statistical Analysis of Mass Spectrometry Data**
European Bioconductor Meeting 2020 ♦ Virtual Conference
Selected talk

**2020** • **FOBI: An ontology to represent food intake data and associate it with metabolomic data**
16th Annual Conference of the Metabolomics Society
♦ Virtual Conference
Poster

**2020** ● **POMAShiny: An User-friendly Web-based Workflow for Statistical Analysis of Mass Spectrometry Data**
BioC Asia 2020 📍 Virtual Conference
Selected talk

**2020** ● **FOBI: An ontology to represent food intake data and associate it with metabolomic data**
11th International Conference on Biomedical Ontologies
📍 Virtual Conference
Selected talk

**2020** ● **FOBI: An ontology to represent food intake data and associate it with metabolomic data**
European RFMF-Metabomeeting 2020 📍 Toulouse, France
Poster

**2019** ● **FOBI: An ontology to represent food intake data and associate it with metabolomic data**
VII Bioinformatics and Genomics Symposium 📍 Barcelona, Spain
Poster

**2019** ● **POMA: Shiny Framework Statistical analysis tool for targeted metabolomic data**
useR!2019 📍 Toulouse, France
Selected talk

**2019** ● **POMA: Shiny Framework Statistical analysis tool for targeted metabolomic data**
BIOSTATNET 2019 📍 Santiago de Compostela, Spain
Selected talk

**2019** ● **Epigenome-wide association study in Childhood Obesity: Searching for early markers of late disease risk**
Advances at the interface between metabolism and epigenetics
📍 Cambridge, UK
Poster

**2018** ● **FBOnto: An ontology to represent food intake data and associate it with metabolomic data**
VI Bioinformatics and Genomics Symposium 📍 Barcelona, Spain
Poster

**2018** ● **Epigenome-wide association study in childhood obesity**
MetNet Meeting 📍 Barcelona, Spain
Selected talk

**2017** ● **Epigenome-wide association study in childhood obesity**
V Bioinformatics and Genomics Symposium 📍 Barcelona, Spain
Poster

2017   ●   **Epigenome-wide association study in childhood obesity**
1st FEBS3+ Joint Meeting of the French- Portuguese-Spanish
Biochemical and Molecular Biology Societies

**9** Barcelona, Spain

Poster