

# JAVIER ARRANZ HERRERO

PhD in Science and Health Technologies

Bioinformatician

## Contact

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## Technical skills

- Data Management
- Linux and R programming
- R Shiny reports
- Python, Ruby
- NGS and Proteomic analysis
- Meta-analysis
- High laboratory experience
- Oral and Written communication skills

## Education

- 2023 (April-July)**  
Icahn School of Medicine at Mount Sinai  
Doctoral Internship
- 2020-Current**  
Universidad CEU San Pablo  
PhD in Science and Health Technologies
- 2019-2020**  
Universidad Politécnica de Madrid  
Master in Computational Biology
- 2019 (March-August)**  
Graham School – Chicago University (Illinois, EEUU)  
Business in Biotechnology
- 2015-2019**  
Universidad CEU San Pablo  
Biotechnology degree
- 2005-2015**  
Andel Colegio Educativo  
Scholarship

## Profile Summary

- PhD scientist with **+4 years** of experience in research in **Microbiology and Virology**, with a particular focus on computational biology and **Next Generation Sequencing (NGS)**.
- Master in Computational Biology
- Postgraduate Certificate in **Business of Biotechnology** by the Graham School of the University of Chicago.

## Highlights

- Proficiency in **Linux, R and R shiny programming** languages in NGS bioinformatic analysis. Experienced in **Python** and **Ruby** for bioinformatics applications.
- Expert in **Oxford Nanopore MinION technology**, from laboratory setup and library preparation to sequencing, data analysis, and reporting.
- Set up a sequencing and bioinformatics service, providing external NGS data analysis solutions for research groups.
- Developed R code pipelines for **bacterial whole-genome sequencing (WGS), RNA-Seq, ATAC-Seq and metagenomics** analysis, enabling fast in-house sequencing and data processing.

## Work experience

### Icahn School of Medicine at Mount Sinai

- Designed and developed a mouse *In vivo* model of Coinfection and Superinfection with Influenza virus and *Streptococcus pneumoniae*.

### Instituto de Salud Carlos III – PFIS predoctoral grant Univ. San Pablo Ceu – PhD in Science and Health Technologies

- Simultaneously led multiple projects, leading +5 of them and collaborating in +10 side projects.
- Optimized **RNA-seq and bacterial WGS/metagenomics pipelines**, developing **Shiny-based reporting tools** in R for rapid analysis.
- Applied **bioinformatics to drug discovery**, protein structure analysis, and conducted **two meta-analyses** on Real-World Evidence for influenza, vaccination, incidence, and prevalence.

### Intern at Polsky Center for Entrepreneurship and Innovation

- Evaluated and transformed innovative ideas into marketable products, assessing their commercial potential and development strategy

## Languages

**Spanish** (Native)  
**English** (Fluent)

## Training skills

**+3 Master students**  
**+7 Undergraduate students**

## Personal profile and cover letter

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I hold a Bachelor's degree in Biotechnology (2019) from San Pablo CEU University, a postgraduate certificate in "Business of Biotechnology" from the University of Chicago, a Master's in Computational Biology from the Polytechnic University of Madrid (2020), and a PhD in Science and Technology of Health (2025) from San Pablo CEU University. During my academic journey, I developed a deep interest in oncology, immunology, and virology, which led me to pursue advanced research in these fields.

As a PhD student, I have obtained valuable experience in the field of bioinformatics, particularly in the context of NGS applied to viral and bacterial coinfections. Throughout my doctoral research, I focused on influenza virus infections coupled with bacterial coinfections, both *in vitro* and *in vivo* mouse models. One of my key contributions has been the development of a robust RNASeq analysis pipeline tailored for the study of coinfections, involving sample collection, sequence manipulation, alignment, and transcriptomic analysis using Linux and R programming languages. Furthermore, I conducted proteomic data analysis of the same samples with OLINK. Additionally, in our laboratory, we have successfully sequenced metagenomes from pig lungs (manuscript under review), and I have spearheaded the development of a metagenomic analysis pipeline, and an online tool optimized for Oxford Nanopore Technologies' 16s analysis. Finally, we published two meta-analysis of influenza infections followed by bacterial infections and vaccination.

## Publications, scientific and technical documents

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1. Marina Redruello-Requejo; María del Mar Blaya; Daniel González-Reguero; Marina Robas-Mora; Arranz Herrero; Teresa Partearroyo; Gregorio Varela-Moreiras; Diana Penalba-Iglesias; Pedro Jiménez-Gómez; Paloma Reche-Sainz. Cross-Sectional Comparative Analysis of Gut Microbiota in Spanish Adolescents with Mediterranean and Western Diets. *European Respiratory Review*. 2024. Type of production: Scientific paper. Corresponding author: No. Format: Journal
2. Presa; Arranz Herrero; Alvarez Losa; Rius Rocabert; Pozuelo; Lalueza; Ochando; Eiros; Sanz Muñoz; Nistal Villan. Influenza Vaccine Outcomes: A Meta-Analysis Revealing Morbidity Benefits Amidst Low Infection Prevention. *European Respiratory Review*. 2024. Type of production: Scientific paper. Corresponding author: No. Format: Journal
3. Robas; Presa; Arranz Herrero; Yildiz; Rius Rocabert; Linares Pinel; Probanza; Schmolke; A Jimenez. Influenza A virus infection alters the resistance profile of gut microbiota to clinically relevant antibiotics. *Microbiology Spectrum*. 12 - 1, 11/01/2024. Type of production: Scientific paper. Corresponding author: No. Format: Journal
4. Arranz Herrero; Presa; Rius Rocabert; Utrero Rico; Arranz Arijia; Lalueza; M Escribese; Ochando; Soriano; Nistal Villan. Determinants of poor clinical outcome in patients with influenza pneumonia: A systematic review and meta-analysis. *International Journal Of Infectious Diseases*. 131, 15/06/2023. Type of production: Scientific paper. Corresponding author: No. Format: Journal
5. Sergio Rius Rocabert; Javier Arranz Herrero; Adolfo Fernandez Valdes; Marcia Marciello; Sandra Moreno; Francisco Llinares Pinal; Jesus Presa; Ruben Hernandez Alcoceba; Roberto Lopez Piriz; Ramon Torrecillas; Antonia Garcia; Alejandro Brun; Marco Filice; Jose S Moya; Belen Cabal; Estanislao Nistal Villan. Broad virus inactivation using inorganic micro/nano-particulate materials. *Materials Today Bio*, 2022. Type of production: Scientific paper. Corresponding author: No. Format: Journal
6. Coderch; Arranz Herrero; Nistal Villan; de Pascual Teresa; Rius Rocaber. The Many Ways to Deal with STING. *International Journal of Molecular Science*. 24 - 10, 20/05/2023. Type of production: Review. Corresponding author: No. Format: Journal

## Project Management & Teaching experience

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1. Project title: Puesta a punto de secuenciación por Oxford Nanopore y análisis de secuencia de *Streptococcus pneumoniae*.  
Type of project: Trabajo Fin de Grado  
Entity: Fundación universitaria San Pablo CEU  
City of entity: Madrid, Community of Madrid, Spain  
Student: Gonzalo Zarzosa Pérez  
Date of reading: 30/06/2022
2. Project title: Caracterización de la respuesta inflamatoria en pulmón de cerdo con neumonía gripal y coinfección bacteriana  
Type of project: Trabajo Fin de Master  
Entity: Universidad Complutense de Madrid  
Type of entity: University  
City of entity: Madrid, Community of Madrid, Spain  
Student: Diana Sofia Méndez Arakari  
Date of reading: 30/09/2020
3. Project title: Investigations on the antiviral properties of Teniposide  
Type of project: Trabajo Fin de Master  
Entity: Fundación universitaria San Pablo CEU  
Type of entity: University  
City of entity: Madrid, Community of Madrid, Spain  
Student: Oliwia Wajsbrot  
Date of reading: 19/10/2022
4. Project title: Effect of a gluten-free diet on the intestinal microbiota of women with Celiac Disease  
Type of project: Trabajo Fin de Grado  
Entity: Fundación universitaria San Pablo CEU  
Type of entity: University  
City of entity: Madrid, Community of Madrid, Spain  
Student: Maria del Mar Morcillo  
Date of reading: 21/07/2024
5. Project title: Estudio comparado de la microbiota intestinal en población adolescente según patrones dietéticos: dieta mediterránea vs. Dieta occidental  
Type of project: Trabajo Fin de Grado  
Entity: Fundación universitaria San Pablo CEU  
Type of entity: University  
City of entity: Madrid, Community of Madrid, Spain  
Student: Maria del Mar Blaya Peralta  
Date of reading: 21/07/2024

## Other quality indicators of scientific research

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I have published 6 indexed manuscripts according to PubMed. All of them belongs to the Q1 percentile of their fields according to Scopus and have been cited 28 times (h-index of 3).

<https://pubmed.ncbi.nlm.nih.gov/?term=Arranz-Herrero+J>

At the moment, 4 manuscript are under review, and 3 are ready to send for review and currently in process of being submitted. In addition, results of all of them have been presented in several international conferences 2022 as poster or oral presentations: \* The international American Society of Virology (ASV22), celebrated in Madison (Wisconsin), \* Sociedad Española de Virología, celebrated in Malaga (Spain) in 2022 and in Santiago in 2024. \* Alicante Winter Immunology Symposium in Health, celebrated in Alicante (Spain) in 2022, 2023, and 2024 \* Sociedad Española de Inmunología, celebrated in Bilbao (Spain) (2023) \* International Cytokines&Interferon Society (ICIS), celebrated in Athens (Greece) in 2023 and in Korea in 2024