Adrià Mitjavila Ventura

Bioinformatician

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Biotechnologist with training in Molecular Genetics and Bioinformatics. Interested in omics data analysis to study the mechanisms of gene regulation in mammals.

Education

PhD. in Bioinformatics, *Universitat Oberta de Catalunya (UAB)*, Online — *2022 - Present*

MSc. Bioinformatics and Biostatistics, *Universitat Oberta de Catalunya (UOC)*, Online — *2018 - 2022*

MSc. Molecular Genetics and Biotechnology, *Universidad de Sevilla (US)*, Seville (Spain) — *2017 - 2018*

BSc. Biotechnology, *Universitat de Girona (UdG)*, Girona (Spain) — *2012 - 2017*

Employment

Institut Josep Carreras (IJC) — **Badalona (Spain)**

PhD student in Bioinformatics — *11/2022 - Present*

- **Study of the role of transposable elements in the evolution of gene regulation in mammals.**

Bioinformatician — *08/2021 - 11/2022*

- **Study of the variation Piwi-interacting RNAs (piRNAs) across closely-related species.**
- Analysis of small RNA-seq, RNA-seq and genomics data for the study of piRNAs.

Istituto Europeo di Oncologia (IEO) — **Milan (Italy)**

Bioinformatician — *07/2019 - 08/2021*

- **Study of differnt signaling pathways in the development of cancer and stem cell differentiation.**
- Analysis and integration of RNA-, ChIP- and ATAC-seq data.
- Comparison of different software for ATAC-seq peak calling.
- Comparison of sequencing depths for RNA-seq and their impact on differential expression analysis.

Instituto de Biomedicina de Sevilla (IBiS) — **Seville (Spain)**

Research assistant — *07/2018 - 10/2018*

- **Study of protein Ccr4 and its influence in nucleosome positioning and transcriptional regulation in yeast.**
- Computational analysis of MNase-seq data.

Master's thesis student — *09/2017 - 07/2018*

- **Study of protein Xrn1 and its influence in nucleosome positioning and transcriptional regulation in yeast.**
- Computational analysis of MNase-seq data.
- MNase-qPCR experiments: DNA digestion, primer design, qPCR.

Institut d'Investigació Biomèdica de Girona — **Girona (Spain)**

Research internship student — *07/2017 - 09/2017*

- Identification of new factors (genetic and bacterial) related to adipose tissue physiology and obesity.
- DNA and RNA extraction from animal and human biopsies/feces.

Microbial. Sistemes i aplicacions analítiques, S.L. — **Girona (Spain)**

Bachelor's thesis student — *01/2017 - 07/2017*

- Analyisis of the mucosa-associated microbiota from human intestinal biopsies
- DNA extraction, qPCR, analysis of sequencing data.

Internship student — *09/2016 - 01/2017*

- Analysis of pathogens in food and water samples. Food Forensics.
- DNA extraction, qPCR, molecular clonning, bacterial culture.

Publications

Journal Articles

Begley *et al*. **Xrn1 influence on gene transcription results from the combination of general effects on elongating RNA pol II and gene-specific chromatin configuration**. *RNA Biology*. 2021. DOI: 10.1080/15476286.2020.1845504.

Presentations and posters

Mitjavila & Vavouri. **Analysis of piRNA variation across three *Mus* species** *(in Catalan)*. Oral presentation at the *Jornades de Biologia de la Reproducció* from the Catalan Society of Biology (March 2022).

Projects

Academic projects

Analysis of the variation in piRNA expression across three *Mus* species

- Master thesis (UOC, 2022) | Grade: 9.7/10 (*with honours*) | Supervisor: Dr. Tanya Vavouri.

Influence of Xrn1 in nucleosome positioning across *Saccharomyces cerevisiae* genome and its effects in transcription

- Master thesis (US, 2018). | Grade: 9.2/10. | Supervisors: Dr. Sebastián Chávez de Diego and Dr. Gabriel Gutiérrez Pozo.
- Related publications: Begley *et al*., RNA Biology, 2020

Butyrate-induced changes in the diversity of the intestinal mucosa-associated microbiota in colorectal cancer patients submitted to a lateral ileostomy

- Bachelor thesis (UdG, 2017). | Grade: 9.4/10. | Supervisor: Prof. Jesús García-Gil.

Skills

Languages

- Catalan (*native*), Spanish (*bilingual*), English (*IELTS 7.5 - C1*), Italian (*basic*)

Bioinformatics

- *Omics data analysis*: Microarray, (small) RNA-seq, ChIP-seq, ATAC-seq, MNase-seq
- *Genomic Browsers*: IGV, UCSC Genome Browser
- *Other*: Analysis of sequences, ENSEMBL Compara, Biomart

Informatics

- *Languages*: R/Bioconductor, Bash, Python (*basic*)
- *Other*: R Markdown, Snakemake, Conda, Docker, Singularity, Git, HPC, LaTeX

Development

R packages

- `plOtMICS`: visualization of omics and sequencing data in R.
- `ggmitji`: cool functions to complement ggplots.
- `chromHMMviewR`: visualize outputs from `ChromHMM`.

Others.

- `DNAme`: shinyApp with learning purposes that transforms a name to DNA/RNA sequence.
- `DNApp`: shinyApp with some DNA-related applications, including `DNAme`
- `MYomics`: shinyApp to visualize several omics data. *Ongoing*

Organizations

Societat Catalana de Biologia (SCB). 2018 - Present

Associació de Biotecnòlegs de Catalunya (ASBTEC). 2017 - Present (*Board member*. 2019 - Present)

Honours & Awards

INPhINIT Incoming PhD Fellowship (LaCaixa, 2022-2025)

Master's thesis **with honours** (UOC, 2022)

Elite athlete (BOE, 2015-2021)

World Rowing Under-23 Champion (FISA, 2016)

References

Available upon request.