



María José Zaruma Delgado

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ABOUT ME

Genetics graduate with a Master's in Advanced Genetics and hands-on experience in molecular and cellular biology. I contributed to a project on emerging fertility preservation strategies using genetically modified cell lines and murine tissue to assess chemotherapy-induced gonadotoxicity. With a strong theoretical background in rare diseases, gene regulation, and RNA-based therapies, I am highly motivated to advance antisense oligonucleotide therapeutics using a gene-agnostic approach to address the complexity and unmet needs of genetic diseases, such as inherited retinal disorders.

WORK EXPERIENCE

CHROMATIN BIOLOGY LABORATORY - JOSEP CARRERAS LEUKAEMIA RESEARCH INSTITUTE – BADALONA, SPAIN

RESEARCH INTERN – 02/2024 – 06/2024

- Established cellular and tissue *in vitro* models to study Sirtuin-mediated protection against chemotherapy-induced gonadotoxicity.
- Investigated *Sirt7*, an epigenetic regulator of genome integrity, cell metabolism, and aging, through functional comparison between wild-type and CRISPR/Cas9 generated knockout cell lines.
- Analyzed Sirtuin-activating compounds to identify candidates with potential therapeutic applications.
- Optimized and standardized culture conditions for spermatocyte-derived cells and murine gonadal tissues, ensuring reproducibility and physiological relevance.
- Applied techniques including western blot, flow cytometry, immunofluorescence, and histological analysis combined with confocal microscopy to assess DNA damage, cell viability, and tissue integrity.
- Performed PCR and agarose gel electrophoresis to genotype genetically modified mouse lines, contributing to the validation of *in vivo* models.
- Analyzed microscopy images using ImageJ and performed statistical analysis of experimental results with GraphPad Prism.
- Presented findings at the 15th Conference of the Department of Cell Biology, Physiology, and Immunology (Autonomous University of Barcelona, 2024).

DEXEUS MUJER – BARCELONA, SPAIN

CLINICAL IVF LABORATORY INTERN – 01/2023 – 06/2023

- Gained experience in core assisted reproduction techniques, including: *in vitro* fertilization (IVF), intracytoplasmic sperm injection (ICSI), trophectoderm biopsy and preimplantation genetic testing (PGT).
- Worked under strict standard operating procedures (SOPs) and traceability systems ensuring regulatory compliance.
- Acquired skills in delicate biological sample handling and standardized clinical workflows.

GENETICS AND MALE FERTILITY - AUTONOMOUS UNIVERSITY OF BARCELONA – Cerdanyola del Vallès, SPAIN

UNDERGRADUATE RESEARCH INTERN – 06/2021 – 10/2021

- Investigated chromosomal territoriality in epididymal sperm cells from mice.
- Processed murine epididymal tissue to obtain sperm cell suspensions.
- Assisted in preparing cell slides and optimizing adhesion protocols for FISH assays.
- Contributed to the application and refinement of FISH protocols for chromosome painting.
- Used confocal microscopy to assess chromosomal organization.

EDUCATION AND TRAINING

28/09/2023 – 17/07/2024 Cerdanyola del Vallès, Spain

MASTER'S DEGREE IN ADVANCED GENETICS Autonomous University of Barcelona

Level in EQF EQF level 7

12/09/2018 – 30/06/2022 Cerdanyola del Vallès, Spain

BACHELOR'S DEGREE IN GENETICS Autonomous University of Barcelona

Level in EQF EQF level 6

● **SKILLS**

Cellular, Tissue & Molecular Techniques

Cell and tissue culture | Protein extraction and BCA quantification | Western blot | PCR | Gel electrophoresis | Flow cytometry | Immunofluorescence | Hematoxylin & Eosin staining | Confocal microscopy | Assisted reproduction techniques: FIV, ICSI, Trophoectoderm biopsy and PGT

Data analysis and bioinformatics

Image analysis with Fiji/ImageJ | Python programming language | Statistical analysis with GraphPad Prism

Scientific Research

Critical analysis of scientific literature | Experimental design refinement and protocol optimization | Accurate documentation and traceability | Adherence to SOPs and lab safety protocols

● **LANGUAGE SKILLS**

Mother tongue(s): **SPANISH**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
CATALAN	C2	C2	C2	C2	C2
ENGLISH	C1	C1	C1	C1	C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

● **ADDITIONAL TRAINING / COURSES**

06/2025 – CURRENT
Python Programming

CIFO La Violeta - Barcelona, Spain

04/2025 – 04/2025
ICH GOOD CLINICAL PRACTICE E6 (R2)

Global Health Training Centre (e-learning course)

03/2023 – 06/2023
Optimization of the IVF Laboratory: From Theory to Practice

Dexeus Mujer - Hospital Universitari Dexeus, Barcelona

● **REFERENCES**

Berta Nieves Vázquez Prat

Assistant Professor, Autonomous University of Barcelona - berta.vazquez@autonoma.cat

Clara Gonzáles Llagostera

Embryologist, Dexeus Mujer - clagon@dexeus.com