Roberto SILVA ROJAS, PhD

Professional Goal

I am a bioscientist currently evolving into the cardiovascular field with a postdoc position in CNIC Institute in Madrid where I study the implication of titin mechanics in cardiac and muskuloskeletal diseases. My PhD topic was the study and therapy development for a multisystemic disorder and made me familiar with the study of different organs and cell types but with particular focus on skeletal muscle. I am proactive and enjoy being part of international collaborative networks.

Contact

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Languages

Spanish: **Native**
English and French: **Proficient**

Academic History

University of Strasbourg
PhD degree | Life Sciences | 2017-2021
- Thesis subject: "*Physiopathology of Tubular Aggregate Myopathy and therapeutic approaches*"
- Mouse model characterisation, physiopathology studies and validation of therapies based on genetic cross and gene silencing by shRNA
Supervised by Johann BOHM and Jocelyn LAPORTE

University of Strasbourg
MSc degree | Biology and Molecular Genetics | 2015-2017
- Integrated molecular and cellular biology
- Final mark: 15.2 out of 20

Complutense University of Madrid
BSc degree | Biochemistry | 2012-2016
- Molecular biology, biotechnology and biochemistry
- 4th year as Erasmus student in University of Strasbourg
- Final mark: 8.12 out of 10

Work Experience

Research Scientist (Postdoc)
CNIC, Madrid, Spain | Jan 2022 - Now
- AAV-mediated delivery of TEV protease to trigger titin cleavage
- Primary culture and differentiation of muscle cells
- Monitoring of PhD students and grant application

Researcher Project Manager (PhD candidate)
IGBMC, Illkirch (Strasbourg), France | Nov 2017 - Oct 2021
- Manage multinational collaborative networks
- Mouse characterization and therapy validation for multisystemic disorders
- Worked with adeno-associated virus (AAV) and antisense oligonucleotides (ASO)
- Mentoring of three master students
- Grant application and scientific writing (4 first author accepted manuscripts)

Researcher (MSc student intern)
IGBMC, Illkirch (Strasbourg), France | Sep 2016 - Jun 2017
- Initial characterization of syndromic disease mouse model. Low to high-througput scale up of cell drug screening

Researcher (BSc student intern)
IPCB, Strasbourg, France | Jan 2016 - Sep 2016
- BSc project in human-yeast homology studies for dynamin 2 protein

Skills

- Animal experimentation (FELASA A to D accreditation), 5 years:
  - Design and performance of mouse phenotyping pipelines
  - Virus handling and intramuscular/systemic injection (AAV)
  - Mouse blood sampling
  - *In situ* muscle force experiments
  - Mouse and zebrafish handling
- Molecular Biology, 5 years:
  - Cloning and PCR
  - Protein extraction and Western Blot
  - Gene expression by RT-qPCR
- Yeast culture, transformation and characterisation, 1 year
- Histology, 5 years:
  - Muscle, spleen, skin, heart and liver
  - Immunofluorescence
- Cell culture, 5 years:
  - Immortalized and fibroblast
  - Cell drug screening
  - Myoblast primary culture
- Microscopy, 5 years:
  - Epifluorescence, confocal and laser dissection
  - Ca2+ imaging
  - Image analysis (ImageJ, Fiji, NDPI)

Soft skills

Project design and management
Student mentoring
Effective communicator
Good writing abilities:
(scientific grants/articles and ethical commity submissions)
Multi-tasking
Problem solver
Fast-learner
Enjoying international environments

Publications as first author

ORCID: 0000-0002-0349-4283

2022:

Silva-Rojas, R., Pérez-Guardia, L., Lafabrie, E., Moulaert, D., Laporte, J., and Bohm, J. (*In revision in Mol Ther Methods Clin Dev*). **Silencing of the Ca2+ channel ORAI1 improves the multi-systemic phenotype of tubular aggregate myopathy and Stormorken syndrome (STRMK) in mice.** *Int J Mol Sci* 23 (13), 6968.

2021:

Silva-Rojas, R*., Nattarayan, V*., Jaque-Fernandez, F., Gómez-Oca, R., Menuet, A., Reiss, D., Goret, M., Messadeq, N., Lionello, V.M., Reiss, D., Kretz, C., Cowling, B.C., Jacquemond, V., and Laporte, J. (2021). **Mice with muscle-specific deletion of *Bin1* recapitulate centronuclear myopathy and acute downregulation of dynamin 2 improves their phenotypes.** *Mol Ther* 30, 1-13. (* Equal contribution)

Silva-Rojas, R., Charles, A.L., Djeddi, S., Geny, B., Laporte, J., and Bohm, J. (2021). **Pathophysiological Effects of Overactive STIM1 on Murine Muscle Function and Structure.** *Cells* 10, 1730.

2020:

Silva-Rojas, R., Laporte, J., and Bohm, J. (2020). **STIM1/ORAI1 Loss-of-Function and Gain-of-Function Mutations Inversely Impact on SOCE and Calcium Homeostasis and Cause Multi-Systemic Mirror Diseases.** *Front Physiol* 11, 604941. (Review)

2019:

Silva-Rojas, R., Treves, S., Jacobs, H., Kessler, P., Messaddeq, N., Laporte, J., and Bohm, J. (2019). **STIM1 over-activation generates a multi-systemic phenotype affecting the skeletal muscle, spleen, eye, skin, bones and immune system in mice.** *Hum Mol Genet* 28, 1579-1593.

Grants and fellowships

2022:
European Molecular Biology Organization (EMBO). **Postdoctoral fellowship**. Ref: ALTF 417-2022.

2017:
Fondation pour la Recherche Medicale (FRM). **PhD fellowship**. Ref: PLP20170939073.

Conferences

2022:
Iberian Biophysics Congress. Bilbao (Spain). **Poster presenter**.

2019:
Gordon Research Conference: Muscle: Excitation-Contraction Coupling. Lucca (Italy). **Speaker and poster presenter.**

2017:
Journées de la Société Française en Myologie. Colmar (France). **Poster presenter.**

Awards

2019:

Gordon Research Conference: Muscle: Excitation-Contraction Coupling. Lucca (Italy). **Knox Chandler best speaker award.**

References

PhD supervisors:

Johann BOHM (**johann@igbmc.fr**) and Jocelyn LAPORTE (**jocelyn@igbmc.fr**). Research directors in the team Physiopathology of Neuromuscular Disorders at the Institut de Génétique et de Biologie Moléculaire et Cellulaire (IGBMC), Illkirch (France).

Postdoc supervisor:

Jorge ALEGRE-CEBOLLADA (**jorge.alegre@cnic.es**). Research director in the team Molecular Mechanics of the Cardiovascular System at the Spanish National Center for Cardiovascular Research (CNIC), Madrid (Spain)