Inés Martínez Martín

DNI: 05436142-T

Date of Birth: 06-11-1996 (Madrid, Spain)

Address: Luis Calvo Street, 28028, Madrid, Spain

Mobile: +34 638 456 404 **Email**: ines.martinezmartin@gmail.com

Profile

Interested in basic research, particularly in **Molecular Biophysics** and **Mechanobiology**. I have a master's degree in Biophysics, and a bachelor´s degree in Biochemistry and Molecular Biology. I also have research experience in the fields of Biochemistry, Molecular Biology and Biophysics, including techniques of Cryo-Electron Microscopy, Force Spectroscopy, Proteomics, and MonteCarlo simulations of the mechanical properties of proteins.

Education

Doctoral Program in Biochemistry, Molecular Biology and Biomedicine 2020 – 2024
(**Universidad Complutense de Madrid, Madrid, Spain)**

- Thesis supervisor: Jorge Alegre Cebollada and Elías Herrero Galán (Centro Nacional de Investigaciones Cardiovasculares, Madrid, Spain).
- Thesis tittle: Characterization of redox posttranslational modifications in titin as modulators of myocardial activity in health and disease.

Master's degree in Physics of Condensed Matter and Biological Systems 2018 –2019
(Universidad Autónoma de Madrid, Madrid, Spain).

- Biophysics specialization
- Grade point average: 9.32 out of 10.
- Elective courses about Bioinformatics, Systems Biology and Image Analysis
- Best grade (*Matrícula de Honor)* in the Master Thesis.

Bachelor´s degree in Biochemistry and Molecular Biology 2014 - 2018
(Universidad Autónoma de Madrid, Madrid, Spain).

- Grade point average: 9.35 out of 10 (Ranked 4th of 83 students).
- Elective courses about Programming, Developmental Biology and Glycobiology.

Boston University (Boston, Massachusetts, United States) 2016

- One semester as an exchange student.
- Courses about Biology of Stem Cells, Molecular Biology, Neuroscience and Neurophysiology (including laboratory and preparation of scientific presentations and papers).

International Baccalaureate (IB) Diploma 2012 - 2014
(IES Ramiro de Maeztu, Madrid, Spain**)**

- Score: 39 out of 45.

Research Experience

European Molecular Biology Laboratory, EMBL (Hamburg, Germany) 2020
Structure and Function of Molecular Machinery for Protein Translocation across Membranes (Group leader: Matthias Wilmanns, PhD)

- 6-months internship
- Main techniques: Protein expression and purification, X-Ray crystallography.

Spanish National Centre for Cardiovascular research, CNIC (Madrid, Spain) 2018 – 2019
Molecular Mechanics of the Cardiovascular System Lab (Group leader: Jorge Alegre-Cebollada, PhD)

- Bachelor Thesis and Master Thesis
- Project: Oxidative posttranslational modifications as regulators of the mechanical properties of sarcomeric proteins.
- Main techniques: Protein extraction from muscle, protein expression and purification, in gel determination of oxidized thiols in proteins, mass spectrometry data analysis, MonteCarlo simulations of protein mechanical properties.

Vienna Biocenter Summer School – Research Institute of Molecular Pathology, IMP (Vienna, Austria) 2018
Molecular Machines in Action Lab (Group leader: David Haselbach, PhD)

- 9-week internship.
- Project: Role of Rpt coiled-coil regions in the molecular mechanism of the 26S proteasome
- Main techniques: Negative stain electron microscopy, cryo-electron microscopy, electron microscopy data processing, protein purification, activity assays, fluorescence anisotropy.
- Representative of students during the program.

Spanish National Centre for Cardiovascular research, CNIC (Madrid, Spain) 2017
Molecular Mechanics of the Cardiovascular System Lab (Group leader: Jorge Alegre-Cebollada, PhD)

- Student of **CICERONE** Programme for undergraduate students (6-week internship).
- Main techniques: Atomic Force Spectroscopy experiments to measure mechanical properties of sarcomeric proteins, protein expression and purification techniques.

Instituto Cajal – CSIC (Madrid, Spain) 2016
Axon and Axon Initial Segment Lab (Group leader: Juan José Garrido, PhD)

- 5-week internship.
- Main techniques: Primary neuron/glia cultures, fluorescence microscopy, confocal microscopy.

Publications

Herrero-Galán E, Domínguez, F, **Martínez-Martín I**, Vicente N, Sánchez-González C, Velázquez-Carreras D, Bonzón-Kulichenko E, Calvo E, Vázquez J, García-Pavía P, Alegre-Cebollada J. "Conserved cysteines in titin sustain the mechanical function of cardiomyocytes*"* (Under review in *Circulation Research*).

Herrero-Galán E, **Martínez-Martín I**, Alegre-Cebollada J. "*Redox regulation of protein nanomechanics in health and disease: lessons from titin"*. Redox Biology 2018 Dec; 21:101074.

Presentations in Congresses

Inés Martínez-Martín, Elías Herrero-Galán, Natalia Vicente, Cristina Sánchez-González, Diana Velázquez-Carreras, Elena Bonzón-Kulichenko, Enrique Calvo, Jesús Vázquez, Jorge Alegre-Cebollada. *In vivo titin oxidation as a modulator of sarcomeric contractibility.* Poster presentation at Basic Cardiovascular Sciences Scientific Sessions, Boston, USA (July 2019).

Elías Herrero-Galán, **Inés Martínez-Martín**, Natalia Vicente, Cristina Sánchez-González, Diana Velázquez-Carreras, Elena Bonzón-Kulichenko, Enrique Calvo, Jesús Vázquez, Jorge Alegre-Cebollada. *In vivo titin oxidation as a regulator of muscle elasticity.* Poster presentation at 42nd Congress of the SEBBM, Madrid, Spain (July 2019).

Elías Herrero-Galán, **Inés Martínez-Martín**, Natalia Vicente, Cristina Sánchez-González, Diana Velázquez-Carreras, Elena Bonzón-Kulichenko, Enrique Calvo, Jesús Vázquez, Jorge Alegre-Cebollada. *In vivo titin oxidation as a regulator of muscle elasticity.* Poster presentation at 12th European Biophysics Congress, Madrid, Spain (July 2019).

Susanne Kandolf, Irina Grishkovskaya, Katarina Belačić, **Inés Martínez-Martín**, David Haselbach. *Cryo-EM analysis of the spinach 26S proteasome reveals a potential peptide release mechanism.* Poster presentation at Institute of Molecular Pathology Symposium 2018, Vienna, Austria (Oct 2018).

Competitive Fellowships

- PhD fellowship INPHINIT Retaining from "la Caixa" Foundation. Reference LCF/BQ/DR20/11790009. 2020
- NanoGUNE Winter School 2019
- CNIC-ACCIONA Master fellowship 2018
- Vienna Biocenter Summer School Scholarship 2018
- CNIC-Cicerone fellowship 2017
- Scholarship for a semester studying in Boston. 2016
- Merit-based scholarship: "Excellence Scholarship". 2017 and 2014

Informatic/Programming Skills

- Basic programming with Python, R, MATLAB and Igor Pro.
- Experience with protein and gene data banks and related bioinformatics tools.
- Cryo-EM data analysis software: Gctf, Relion, Gautomach, Warp, Cryosparc, CowSuite.

Languages

- **Spanish** – Native speaker
- **English (C1) -** TOEFL iBT (score: 103 out of 120 in Sep 2015)

Other Information

- Participant of a science dissemination project: El club de las científicas erbias (https://cientificaserbias.github.io/blog/)
- Volunteer in *XIX Semana de la Ciencia y la Innovación* at Spanish National Centre for Cardiovascular research, CNIC (November 2019).
- Volunteer in Joint 12th EBSA 10th ICBP-IUPAP Biophysics Congress (July 2019).
- Organizing committee of CNIC PhDay 2019.
- Organizing committee and speaker in orientation sessions for high school students (Sep 2017).
- Attendance to seminars and workshops about scientific communication and divulgation:
    - 5th CNIC PhDay – Scientific Growth (Nov 2018)
    - Trivulgando: Investigación, Sociedad y Divulgación (Mar 2018)
    - Workshop on Scientific Outreach and Communication – IMDEA Nanociencia (Feb 2018)
    - 4th CNIC PhDay – State of the Art (Nov 2017)
    - SEBBM Congress – Round Table: Dialogue between Science and Society (Oct 2018)