

-updated 28.feb.20-

# Curriculum Vitae

## Jorge Alegre-Cebollada, PhD

National Institute of Cardiovascular Research (CNIC)  
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[RESEARCHERID PROFILE](#)

[LAB WEBSITE](#)

[Twitter: @AlegreCebollada](#)

### CURRENT POSITION

National Institute for Cardiovascular Research, CNIC-Carlos III (Madrid, Spain) from 2014  
**Associate Professor – Group Leader (from 2019); Assistant Professor - Group Leader (2014-2019)**

Autonomous University of Madrid, Biochemistry Department (Madrid, Spain) from 2016  
**Honorary Professor**

### EDUCATION

**Complutense University, Department of Biochemistry and Molecular Biology (Madrid, Spain)** 2008  
**Ph. D. Biochemistry (Summa Cum Laude)**  
Emphasis in lipid-protein interactions by spectroscopy, calorimetry and molecular biology  
Dissertation Title: Mechanism of membrane pore formation by the actinoporin Sticholysin II  
Supervisors: **Prof. Álvaro Martínez del Pozo** and **Prof. José G. Gavilanes**

**Complutense University, Department of Biochemistry and Molecular Biology (Madrid, Spain)** 2003  
**M. Sc. Biochemistry (GPA: 3.86/4.00)**  
Thesis Title: Production of a strain of *L. lactis* expressing the ribotoxin  $\alpha$ -sarcin  
Supervisor: **Prof. Álvaro Martínez del Pozo**

**Complutense University, School of Chemistry (Madrid, Spain)** 2001  
**B. Sc. Chemistry (GPA: 3.67/4.00)**

### RESEARCH POSITIONS

**Columbia University, Department of Biological Sciences (New York, US)** 2013-2014  
*Associate Research Scientist*  
Topic: Single-molecule force-spectroscopy by Atomic Force Microscopy and Magnetic Tweezers  
Adviser: **Prof. Julio M. Fernández**

**Columbia University, Department of Biological Sciences (New York, US)** 2008-2013  
*Postdoctoral Research Scientist*  
Topic: Single-molecule force-spectroscopy by Atomic Force Microscopy  
Adviser: **Prof. Julio M. Fernández**

**Free University of Brussels, Department of Structure and Function of Biological Membranes (Belgium)** 2005  
*Visiting scholar* (3 months)  
Topic: ATR infrared spectroscopy applied to sticholysin II bound to lipids  
Supervisor: **Prof. Erik Goormaghtigh**

## RESEARCH INTERESTS

- Emergent mechanical properties of proteins in cardiac muscle
- Interplay between redox biochemistry and protein mechanics
- Intramolecular covalent bonds in proteins: mechanical stability, reactivity, biological role, biosynthesis
- Protein biomaterials

## GRANTS AWARDED AS PRINCIPAL INVESTIGATOR

- 1. Ministry of Science, Innovation and Universities** 2019-2020  
*Europa Investigación*  
Title: “Towards the ERC-consolidator: Novel animal and cell models to probe protein nanomechanics in health and disease”
- 2. Regional Government of Madrid** 2019-2022  
*Programas de Actividades de I+D*  
Title: “New technologies for the study of biological nanomachines”  
Coordinated proposal –Tec4Bio (6 PIs)  
Reference: P2018/NMT-4443
- 3. Ministry of Economy and Competitiveness (Spain)** 2018-2020  
*Programa Estatal de Fomento de la Investigación Científica y Técnica de Excelencia*  
Title: “Emergent mechanical properties of proteins in the myocardium and in biomaterials with biotechnological applications”  
Reference: BIO2017-83640-P
- 4. Ministry of Economy and Competitiveness (Spain)** 2019-2020  
*Redes de Excelencia*  
Title: “Network of excellence in Mechanobiology”  
Coordinated proposal (10 PIs)  
Reference: BFU2017-90692-REDT
- 5. Ministry of Economy and Competitiveness (Spain) – CNIC** 2017-2019  
Intramural Grants Program – Severo Ochoa  
Title: Immune – Mechanical Crosstalk in the Cardiomyopathic Heart  
Coordinated proposal (2 PIs, coordinator: Alegre-Cebollada)  
Reference: 03-2016 IGP
- 6. European Research Area Network on Cardiovascular Diseases – Horizon 2020** 2017-2019  
Joint Transnational Call 2016  
Title: Metabolic Therapy for Managing Diastolic Heart Failure (MINOTAUR)  
Coordinated proposal (5 PIs)  
Reference: AC16/00045
- 7. Regional Government of Madrid** 2017-2018  
*Ayudas para la promoción del empleo joven 2016*  
Reference: PEJ 16/MED/TL-1593
- 8. Ministry of Economy and Competitiveness (Spain)** 2015-2017  
*Programa Estatal de Fomento de la Investigación Científica y Técnica de Excelencia*  
Title: “Mechanobiochemistry: from the regulation of muscle elasticity to the production of biomaterials with adjustable stiffness”

Reference: BIO2014-54768-P

- 9. Ministry of Economy and Competitiveness (Spain)** 2015-2020  
*Ramón y Cajal Program (top candidate in the BFU section)*  
 Reference: RYC-2014-16604
- 10. CNIC-IIF Marie Curie** 2014-2015  
 International Incoming Fellowship for Young Group Leaders  
 Reference: FP7-PEOPLE-2010-COFUND-267149
- 11. National Institute of Allergy and Infectious Diseases (NIH, US)** 5/17/13 – 5/16/14  
 Pathway to Independence Award (K99/R00)  
 Title: Bacterial Attachment under Mechanical Perturbations  
 Reference: 1K99AI106072  
 Duration: K99 Mentored Phase (1 year) + R00 Independent Phase (2 years).  
 R00 phase was cancelled due to international move.

### AWARDS AND HONORS

- Spanish Biochemical Society (SEBBM)** 2019  
 Highlighted profile “[Acércate a nuestros científicos](#)”
- General Military Hospital (Zaragoza, Spain)** 2019  
 Plenary speaker – Commemorative Conference *N<sup>a</sup> S<sup>a</sup> del Perpetuo Socorro*
- International Union for Pure and Applied Chemistry (IUPAC)** 2018  
 Selected for the [Periodic Table of Younger Chemists](#) – Arsenic
- Spanish Biophysical Society** 2014  
 Award to the Best Biophysicist under 33 years
- Complutense University (Madrid, Spain)**  
 Annual Award for Best Dissertation in Biochemistry (*Premio Extraordinario Doctorado*) 2008
- Spanish Ministry of Science**  
 1<sup>st</sup> National Award on Biochemistry (*1<sup>er</sup> Premio Nacional Fin de Carrera*) 2004
- Complutense University (Madrid, Spain)**  
 Annual Award for Masters Students (*Premio Extraordinario Licenciatura*) 2003

### FELLOWSHIPS

- Fundación Ibercaja (Zaragoza, Spain)** 2011-2012  
 Postdoctoral Fellowship
- Fundación Alfonso Martín Escudero (Madrid, Spain)** 2008-2010  
 Postdoctoral Fellowship
- Fundación Caja Madrid (Madrid, Spain)** 2008  
 Postdoctoral Fellowship

**Spanish Ministry of Science** 2004-2008  
Research Fellowship for Graduate Students (FPU program)

**Spanish Ministry of Education** 2002-2003  
Research Fellowship for Undergraduate Students

### INSTITUTIONAL RESPONSIBILITIES

**Spanish Society of Biochemistry and Molecular Biology (SEBBM)** from 2018  
Vocal, committee for selection of new members

**CNIC (Madrid, Spain)** 2017-2018  
Committee for the generation of an institutional repository ISCIII/CNIC/CNIO

**CNIC (Madrid, Spain)** from 2016  
Member of the editorial committee, [CNIC-Pulse Magazine](#)

**CNIC (Madrid, Spain)** from 2015  
Scientific Activities, Web and Library committee (Coordinator 2015-2019)

**CNIC (Madrid, Spain)** from 2015  
Coordinator, Working Group – Proteomics Core Facility

**CNIC (Madrid, Spain)** 2015  
Committee for the renewal of the institutional web site

### PROFESSIONAL MEMBERSHIPS

**Member, Biophysical Society** 2009-present

**Member, Spanish Biophysical Society** 2007-present

**Member, Spanish Biochemical Society** 2004-present

### PUBLICATIONS

**Positive Evaluation 2 Research Periods** by Spanish Ministry of Education (“*Sexenios*”): 2004-2009; 2010-2015  
**Positive Evaluation I3 Program** by Spanish Ministry of Science, Education and Universities (2016-2019)

\* Shared authorship    # Corresponding author

H-index: 21 (Google Scholar), 19 (WoS) (July 2019)

#### 10 most relevant publications

1. Maria Rosaria Pricolo, Elías Herrero-Galán, Cristina Mazzaccara, Maria Angela Losi, [Jorge Alegre-Cebollada\\*](#), Giulia Frisso (2020). Thermodynamic destabilization informs pathogenicity assessment of a variant of uncertain significance in cardiac myosin binding protein C. **Journal of Cardiovascular Translational Research, in press.**
2. Carolina Pimenta-Lopes, Carmen Suay-Corredera, Diana Velázquez-Carreras, David Sánchez-Ortiz, [Jorge Alegre-Cebollada#](#) (2019). Concurrent Atomic Force Spectroscopy. **Communications Physics 2**, 91. Selected as paper of the month by the Spanish Biophysical Society.

3. (Preprint) Jaime Andrés Rivas-Pardo, Yong Li, Zsolt Mártonfalvi, Rafael Tapia-Rojo, Andreas Unger, Ángel Fernández-Trasancos, Elías Herrero-Galán, Diana Velázquez-Carreras, Julio M. Fernández, Wolfgang A. Linke\*, Jorge Alegre-Cebollada\*. A HaloTag-TEV genetic cassette for mechanical phenotyping of native proteins (2019). **BioRxiv** <https://www.biorxiv.org/content/10.1101/577445v1>. Accepted in principle in **Nature Communications**.
4. David Giganti, Kevin Yan, Carmen L. Badilla, Julio M. Fernández, Jorge Alegre-Cebollada<sup>#</sup> (2018) Disulfide isomerization reactions in titin immunoglobulin domains enable a mode of protein elasticity. **Nature Communications** **9**:185. Selected as paper of the month by the Spanish Biophysical Society.
5. Jorge Alegre-Cebollada<sup>\*,#</sup>, Pallav Kosuri\*, David Giganti, Edward Eckels, Jaime-Andrés Rivas-Pardo, Nazha Hamdani, Chad M. Warren, R. John Solaro, Wolfgang A. Linke, Julio M. Fernández<sup>#</sup> (2014). S-glutathionylation of cryptic cysteines enhances titin elasticity by blocking protein folding. **Cell**, **156**, 1235-1246. This article was chosen for the **cover** of the issue.
6. Jorge Alegre-Cebollada<sup>#</sup>, Pallav Kosuri, Jaime Andrés Rivas-Pardo, Julio M. Fernández<sup>#</sup> (2011). Direct observation of disulfide isomerization in a single protein. **Nature Chemistry**, **3**, 882-887. This article was highlighted in the **cover** of **Nature Chemistry** and in a **News and Views** article. The article was also featured in **Chemical and Engineering News**.
7. (Review) Elías Herrero-Galán<sup>#</sup>, Inés Martínez-Martín, Jorge Alegre-Cebollada<sup>#</sup> (2019) Redox regulation of protein nanomechanics in health and disease: Lessons from titin. **Redox Biology**, **21**, 101074.
8. Pallav Kosuri, Jorge Alegre-Cebollada, Jason Feng, Anna Kaplan, Álvaro Inglés-Prieto, Carmen L. Badilla, Brent R. Stockwell, José M. Sánchez-Ruiz, Arne Holmgren, Julio M. Fernández (2012). Protein folding drives disulfide formation. **Cell**, **151**, 794-806.
9. Aitor Manteca, Jörg Schönfelder, Alvaro Alonso-Caballero, Marie J. Fertin, Nerea Barruetaña, Bruna F. Faria, Elías Herrero-Galán, Jorge Alegre-Cebollada, David De Sancho, Raul Perez-Jimenez (2017). Mechanochemical evolution of the giant muscle protein titin as inferred from resurrected proteins. **Nature Structural and Molecular Biology**, **24**, 652-657. This article was chosen for the **cover** of the issue.
10. Farees Saqlain, Ionel Popa, Julio M. Fernández<sup>#</sup>, Jorge Alegre-Cebollada<sup>#</sup> (2015). A novel strategy for utilizing voice coil servoactuators in tensile tests of low volume protein hydrogels. **Macromolecular Materials and Engineering**, **300**, 369-376.

**Additional publications:**

11. Asier Echarri, Dácil M. Pavón, Sara Sánchez, María García-García, Enrique Calvo, Carla Huerta-López, Diana Velázquez-Carreras, Christine De Viaris, Nicholas Ariotti, Ana Lázaro-Carrillo, Raffaele Strippoli, David De Sancho, Jorge Alegre-Cebollada, Christophe Lamaze, Robert G. Parton and Miguel A. Del Pozo (2019). An Abl-FPB17 mechanosensing system couples local plasma membrane curvature and stress fiber remodeling during mechanoadaptation. **Nature Communications**, **10**, 5828
12. Daniel J. Echelman<sup>\*#</sup>, Jorge Alegre-Cebollada<sup>\*#</sup>, Carmen L. Badilla, Chungyu Chang, Hung Ton-That, Julio M. Fernández<sup>#</sup> (2016). CnaA domains in bacterial pili are efficient dissipaters of large mechanical shocks. **PNAS**, **113**, 2490-2495.
13. Esperanza Rivera-de-Torre, Sara García-Linares, Jorge Alegre-Cebollada, Javier Lacadena, José G. Gavilanes and Álvaro Martínez-del-Pozo (2016) Synergistic action of actinoporin isoforms from the same sea anemone species assembled into functionally active heteropores. **Journal of Biological Chemistry**, **291**, 14109-14119.
14. Jaime Andrés Rivas-Pardo, Jorge Alegre-Cebollada, César A. Ramírez-Sarmiento, Julio M. Fernández, Victoria Guixé (2015) Identifying sequential substrate binding at the single-molecule level by enzyme mechanical stabilization. **ACS Nano**, **9**, 3996-4005.

15. Carles Solsona, Thomas B. Kahn, Carmen L. Badilla, Cristina Álvarez-Zaldiernas, Juan Blasi, Julio M. Fernandez, Jorge Alegre-Cebollada (2014). Altered thiol chemistry in human amyotrophic lateral sclerosis-linked mutants of superoxide dismutase 1. **Journal of Biological Chemistry**, **289**, 26722-26732.
16. Ionel Popa, Ronen Berkovich, Jorge Alegre-Cebollada, Carmen L. Badilla, Jaime Andres Rivas-Pardo, Yukinori Taniguchi, Masaru Kawakami, Julio M. Fernández (2013). Nanomechanics of HaloTag Tethers. **Journal of the American Chemical Society**, **135**, 12762-12771.
17. Ionel Popa, Pallav Kosuri, Jorge Alegre-Cebollada, Sergi Garcia-Manyes, Julio M. Fernandez (2013). Force dependency of biochemical reactions measured by single molecule force-clamp spectroscopy. **Nature Protocols**, **8**, 1261-76.
18. David Giganti, Jorge Alegre-Cebollada, Saioa Urresti, David Albesa-Jové, Ane Rodrigo-Unzueta, Natalia Comino, Michael Kachala, Sonia López-Fernández, Dmitri I. Svergun, Julio M. Fernández, Marcelo E. Guerin (2013). Conformational plasticity of the essential membrane-associated mannosyltransferase PimA from Mycobacteria. **Journal of Biological Chemistry**, **288**, 29797-29808.
19. Sara García-Linares, Inés Castrillo, Marta Bruix, Margarita Menéndez, Jorge Alegre-Cebollada; Alvaro Martinez-del-Pozo, José G Gavilanes (2013). Three-dimensional structure of the actinoporin sticholysin I. Influence of long-distance effects on protein function. **Archives of Biochemistry and Biophysics**, **532**, 39-45. This article was chosen for the cover of the issue.
20. (*Book chapter*) Raul Perez-Jimenez, Jorge Alegre-Cebollada (2013). **Enzyme catalysis at the single-molecule level**, in “Single-molecule Studies of Proteins” (Ed. Andres F. Oberhauser), Springer, New York, US.
21. Sergi Garcia-Manyes, Carmen L. Badilla, Jorge Alegre-Cebollada, Yalda Javadi, Julio M. Fernández (2012). Spontaneous dimerization of the titin Z1-Z2 domains induces a strong nano-mechanical anchoring. **Journal of Biological Chemistry**, **287**, 20240-20247.
22. (*Preview*) Jorge Alegre-Cebollada, Pallav Kosuri, Julio M. Fernández (2011). Protease power strokes force proteins to unfold. **Cell**, **145**, 339-340.
23. Raúl Perez-Jimenez, Álvaro Inglés-Prieto, Ziming Zhao, Inmaculada Sanchez-Romero, Jorge Alegre-Cebollada, Pallav Kosuri, Sergi Garcia-Manyes, Arne Holmgren, José Manuel Sanchez-Ruiz, Erik A. Gaucher, Julio M. Fernandez (2011). Single-molecule paleoenzymology probes the chemistry of resurrected enzymes. **Nature Structural and Molecular Biology**, **18**, 592-596.
24. (*Review*) Lucía García-Ortega, Jorge Alegre-Cebollada, Sara García-Linares, Marta Bruix, Álvaro Martínez del Pozo, José G. Gavilanes (2011). The behaviour of sea anemone actinoporins at the water-membrane interface. **BBA-Biomembranes**, **1808**:2275-2288.
25. Miguel A. Pardo-Cea, Inés Castrillo; Jorge Alegre-Cebollada, Álvaro Martinez-del-Pozo, José G. Gavilanes, Marta Bruix (2011). Intrinsic local disorder and a network of charge-charge interactions are key to actinoporin membrane disruption and cytotoxicity. **FEBS Journal**, **278**, 2080-2089.
26. Jorge Alegre-Cebollada<sup>#</sup>, Carmen L. Badilla, Julio M. Fernández<sup>#</sup> (2010). Isopeptide bonds block the mechanical extension of pili in pathogenic *Streptococcus pyogenes*. **Journal of Biological Chemistry**, **285**, 11235-11242.
27. (*Review*) Jorge Alegre-Cebollada, Raúl Pérez-Jiménez, Pallav Kosuri, Julio M. Fernández (2010). Single-molecule force spectroscopy approach to enzyme catalysis. **Journal of Biological Chemistry**, **285**, 18961-18966.

28. Inés Castrillo, Nelson A. Araujo, Jorge Alegre-Cebollada, José G. Gavilanes, Álvaro Martínez del Pozo, Marta Bruix (2010). Specific interactions of sticholysin I with model membranes: an NMR study. **PROTEINS: Structure, Function, and Bioinformatics**, **78**, 1959-1970.
29. Miguel A. Pardo-Cea, Jorge Alegre-Cebollada, Álvaro Martínez-del-Pozo, José G. Gavilanes, Marta Bruix (2010). <sup>1</sup>H, <sup>13</sup>C, and <sup>15</sup>N NMR assignments of StnII-Y111N, a highly impaired mutant of the sea anemone actinoporin Sticholysin II. **Biomolecular NMR Assignments**, **4**, 69-72.
30. Inés Castrillo, Jorge Alegre-Cebollada, Álvaro Martínez del Pozo, José G. Gavilanes, Jorge Santoro and Marta Bruix (2009). <sup>1</sup>H, <sup>13</sup>C, and <sup>15</sup>N NMR resonance assignments of the actinoporin Sticholysin I. **Biomolecular NMR Assignments**, **3**, 5-7.
31. Inés Castrillo, Jorge Alegre-Cebollada, Álvaro Martínez del Pozo, José G. Gavilanes, Marta Bruix (2009). (<sup>1</sup>H), (<sup>13</sup>C), and (<sup>15</sup>N) NMR assignments of StnII-R29Q, a defective lipid binding mutant of the sea anemone actinoporin Sticholysin II. **Biomolecular NMR Assignments**, **3**, 239-241.
32. Elisa Álvarez-García, Jorge Alegre-Cebollada, Eva Batanero, Vicente Monedero, Gaspar Pérez-Martínez, Rosa García-Fernández, José G. Gavilanes and Álvaro Martínez del Pozo (2008). *Lactococcus lactis* as a vehicle for the heterologous expression of fungal ribotoxin variants with reduced IgE-binding affinity. **Journal of Biotechnology**, **134**, 1-8.
33. (Review) Nelson Carreras-Sangrà, Elisa Álvarez-García, Elías Herrero-Galán, Jaime Tomé, Javier Lacadena, Jorge Alegre-Cebollada, Mercedes Oñaderra, José G. Gavilanes and Álvaro Martínez del Pozo (2008). The therapeutic potential of fungal ribotoxins. **Current Pharmaceutical Biotechnology**, **9**, 153-160.
34. (Book chapter) Elías Herrero-Galán, Elisa Álvarez-García, Nelson Carreras-Sangrà, Javier Lacadena, Jorge Alegre-Cebollada, Álvaro Martínez del Pozo, Mercedes Oñaderra and José G. Gavilanes (2008). **Fungal ribotoxins: structure, function and evolution**, in “Microbial toxins: current research and future trends” (Ed. Thomas Proft). Horizon Bioscience, Norwich, UK.
35. Jorge Alegre-Cebollada, Michela Cunietti, Elías Herrero-Galán, José G. Gavilanes and Álvaro Martínez del Pozo (2008). Calorimetric scrutiny of lipid binding by sticholysin II toxin mutants. **Journal of Molecular Biology**, **382**, 920-930.
36. Jorge Alegre-Cebollada, Giorgia Clementi, Michela Cunietti, Christian Porres, Mercedes Oñaderra, José G. Gavilanes and Álvaro Martínez del Pozo (2007). Silent mutations at the 5'-end of the cDNA of actinoporins from the sea anemone *Stichodactyla helianthus* allow their heterologous overproduction in *E. coli*. **Journal of Biotechnology**, **127**, 211-221.
37. (Review) Javier Lacadena, Elisa Álvarez-García, Nelson Carreras-Sangrà, Elías Herrero-Galán, Jorge Alegre-Cebollada, Lucía García-Ortega, Mercedes Oñaderra, José G. Gavilanes and Álvaro Martínez del Pozo (2007). Fungal ribotoxins: molecular dissection of a family of natural killers. **FEMS Microbiology Reviews**, **31**, 212-237.
38. Jorge Alegre-Cebollada<sup>#</sup>, Álvaro Martínez del Pozo, José G. Gavilanes<sup>#</sup> and Erik Goormaghtigh (2007). Infrared spectroscopy study on the conformational changes leading to pore formation of the toxin sticholysin II. **Biophysical Journal**, **93**, 3191-3201.
39. (Review) Jorge Alegre-Cebollada, Mercedes Oñaderra, José G. Gavilanes and Álvaro Martínez del Pozo (2007). Sea anemone actinoporins: The transition from a folded soluble state to a functionally active membrane-bound oligomeric pore. **Current Protein and Peptide Science**, **8**, 558-572.

## Curriculum Vitae – Jorge Alegre-Cebollada, PhD

40. Jorge Alegre-Cebollada, Ignacio Rodríguez-Crespo, José G. Gavilanes and Álvaro Martínez del Pozo (2006). Detergent-resistant membranes are platforms for actinoporin pore-forming activity on intact cells. **The FEBS Journal**, **273**, 863-871.
41. Jorge Alegre-Cebollada, Valle Lacadena, Mercedes Oñaderra, José M. Mancheño, José G. Gavilanes and Álvaro Martínez del Pozo (2004). Phenotypic selection and characterization of randomly produced non-haemolytic mutants of the toxic sea anemone protein sticholysin II. **FEBS Letters**, **575**, 14-18.

### ORAL PRESENTATIONS AND INVITED TALKS

1. **Invited presentation** 2020  
International Cardiovascular Symposium at King's College London-BHF Centre of Research Excellence
2. **Invited presentation** 2020  
7<sup>th</sup> International Iberian Biophysics Congress, Coimbra, Portugal
3. **Invited seminar** 2020  
EMBL-Hamburg, Germany
4. **Invited seminar** 2020  
Center of Biological Research (CIB), Madrid, Spain
5. **Invited seminar** 2020  
Department of Chemistry, University of Basel, Switzerland
6. **Oral presentation** 2020  
64<sup>th</sup> Biophysical Society meeting, San Diego, CA
7. **Invited lecture** 2019  
Chemistry Day (*Foro Química y Sociedad*), Palma de Mallorca, Spain
8. **Keynote lecture** 2019  
Symposium celebrating the 250th anniversary of Semmelweis University, Budapest, Hungary
9. **Invited talk** 2019  
Meeting of the National Mechanobiology Network, Zaragoza, Spain
10. **Invited seminar** 2019  
Department of Molecular Medicine and Medical Biotechnology, University of Naples Federico II, Italy
11. **Invited talk** 2018  
XII Course on Cardiovascular Pathophysiology, CNIC, Madrid, Spain
12. **Invited talk** 2018  
41<sup>st</sup> Congress of the Spanish Society of Biochemistry and Molecular Biology, Santander, Spain
13. **Oral presentation** 2018  
47<sup>th</sup> European Muscle Conference, Budapest, Hungary
14. **Invited talk** 2018  
2nd ELECOMI International Workshop, Universidad de Zaragoza, Spain



15. **Invited seminar** 2018  
IQFR-CIB Hub on Integrative Structural Biochemistry (V), Madrid, Spain
16. **Invited seminar** 2018  
Biodonostia Health Research Institute, San Sebastian, Spain
17. **Invited talk** 2018  
Summer School “Mechanobiology of polarised cells”, Les Houches, France
18. **Invited talk** 2018  
7<sup>th</sup> Multifrequency AFM Conference, Madrid, Spain
19. **Invited talk** 2017  
FEBS3+ 1<sup>st</sup> Joint Meeting of the French-Portuguese-Spanish Biochemical and Molecular Biology Societies  
Barcelona, Spain
20. **Oral presentation** 2017  
46th European Muscle Conference, Potsdam, Germany
21. **Invited seminar** 2017  
Department of Cell Biology and Immunology, Center for Molecular Biology (CBM-Severo Ochoa), Madrid, Spain
22. **Invited seminar** 2017  
IMDEA – Nanoscience, Madrid, Spain
23. **Invited seminar** 2017  
Department of Structural and Computational Biology, University of Vienna & Max Perutz Laboratories, Austria
24. **Invited seminar** 2017  
Institute of Science and Technology, Austria
25. **Invited seminar** 2017  
Institute of Biomedicine of Seville, Spain
26. **Oral presentation and co-chair of the platform “Cardiac Muscle Mechanics and Structure”** 2017  
61<sup>st</sup> Biophysical Society meeting, New Orleans, LA
27. **Invited talk** 2016  
Mechanobiology across Networks Conference, Barcelona, Spain
28. **Invited seminar** 2016  
Department of Condensed Matter Physics, University of Barcelona, Spain
29. **Oral presentation** 2016  
39<sup>th</sup> Congress of the Spanish Society of Biochemistry and Molecular Biology, Salamanca, Spain  
*1<sup>st</sup> Workshop of the Emerging Investigator*
30. **Oral presentation** 2016  
5th International Iberian Biophysics Congress, Porto, Portugal
31. **Invited Seminar** 2016  
Department of Physiology and Cardiothoracic Surgery, University of Porto, Portugal

32. **Invited Seminar** 2015  
Institute of Material Science of Madrid (ICMM-CSIC), Madrid, Spain
33. **Invited seminar** 2015  
Department of Biochemistry and Molecular Biology I, Complutense University, Madrid, Spain
34. **Invited seminar** 2015  
Medical Research Institute, Hospital Universitario de La Princesa, Madrid, Spain
35. **Oral presentation** 2014  
Health in Code, A Coruña, Spain
36. **Invited seminar** 2014  
Spanish National Center of Biotechnology (CNB-CSIC), Madrid, Spain
37. **Oral presentation** 2014  
XIV International Congress of the Spanish Biophysical Society, Alcalá de Henares, Spain
38. **Oral presentation and co-chair of the platform “Fiber & Molecular Mechanics & Structure”** 2014  
58<sup>th</sup> Biophysical Society meeting, San Francisco, CA
39. **Oral presentation** 2014  
Department of Physiology and Biophysics, University of Washington, Seattle, WA
40. **Oral presentation** 2014  
Earl Stadtman Symposium on Molecular Biology and Biochemistry, NIH, Bethesda, MD
41. **Oral presentation** 2013  
Department of Biochemistry, UNAM, Mexico City, Mexico
42. **Invited speaker** 2013  
3<sup>rd</sup> USA-Mexico Workshop in Biological Chemistry. Guanajuato, Mexico
43. **Oral presentation** 2013  
Department of Cardiovascular Physiology, Ruhr University Bochum, Germany
44. **Oral presentation** 2013  
Department of Medicine, Microbiology Section, Imperial College London, UK
45. **Oral presentation** 2013  
Department of Molecular Biology and Biotechnology, University of Sheffield, UK
46. **Oral presentation** 2013  
National Institute of Cardiovascular Research (CNIC), Madrid, Spain
47. **Oral presentation** 2013  
Department of Biochemistry, University of Oxford, UK
48. **Oral presentation** 2012  
Gordon Research Seminar, “Thiol-Based Redox Regulation & Signalling”, Lewiston, ME
49. **Oral presentation and co-chair of the platform “Molecular Mechanics & Force Spectroscopy”** 2012

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56<sup>th</sup> Biophysical Society meeting, San Diego, CA

50. **Oral presentation** 2012  
Physical Chemistry Seminar Series, Department of Chemistry, Columbia University, NY

51. **Oral presentation** 2011  
Departmental Retreat, Department of Biological Sciences, Columbia University, NY

52. **Oral presentation** 2011  
XI Spanish Biophysical Society meeting, Murcia, Spain

53. **Oral presentation** 2004  
27<sup>th</sup> Congress of the Spanish Society of Biochemistry and Molecular Biology, Lleida, Spain

### ORGANIZATION OF SCIENTIFIC EVENTS

**42th SEBBM conference (Madrid, Spain)** 2019  
Scientific Committee

**Joint 12<sup>th</sup> EBSA and 10<sup>th</sup> ICBP-IUPAP Biophysics Congress (Madrid, Spain)** 2019  
Organizing Committee

**CNIC (Madrid, Spain)** 2016  
Co-organizer of the VI CNIC conference “Mechanical forces in physiology and disease”  
Competitive funding obtained: EMBO Keynote Lecture (1000 EUR), EMBO Young Investigator Lecture (800 EUR), Company of Biologists (£2000), SBE (600 EUR), SEBBM (1000 EUR)

**CNIC (Madrid, Spain)** from 2014  
Co-organizer of the “Mechanobiology” series of Seminars

### TEACHING EXPERIENCE

**University of Zaragoza, Master in Biomedical Engineering (Zaragoza, Spain)** 2020  
*Guest lecturer*

**Complutense University, Summer School (El Escorial, Spain)** 2019  
Lecturer in course “2019: international year of the periodic table. The impact of Chemistry in Society”

**Complutense University of Madrid, Master in Biomedical Physics (Madrid, Spain)** from 2018  
*Guest lecturer* in the course “Molecular Biophysics”  
Topic: “Protein Mechanics by Single-Molecule Methods”

**Complutense University, Summer School (El Escorial, Spain)** 2017  
Lecturer in course “New manners of dissemination of research in health: beyond classical scientific publications”

**Autonomous University, Master in Biomolecules and Cell Dynamics (Madrid, Spain)** from 2017  
*Guest lecturer* in the course “Biomolecular nanomachines”  
Topic: “The machinery of muscle contraction”

**Autonomous University (Madrid, Spain)** from 2016  
*Guest lecturer* in the Masters Program in Molecular Biosciences  
Topic: “Moral dilemmas in scientific research”

- CNIC and Autonomous University of Madrid, Master in Molecular Biomedicine (Madrid, Spain)** from 2017  
*Coordinator* of the course “Insight into cardiovascular pathology research”
- CNIC and Autonomous University of Madrid, Master in Molecular Biomedicine (Madrid, Spain)** from 2016  
*Guest lecturer* in the course “Insight into cardiovascular pathology research”  
 Topic: “From single molecules to heart disease”
- Complutense University, Degree in Biology (Madrid, Spain)** 2016  
*Guest lecturer* in the course “Biotechnology of Enzymes”, invited by Jesús Pérez-Gil  
 Topic: “Single-molecule enzymology”
- Complutense University, Degree in Biochemistry (Madrid, Spain)** 2016, 2018  
*Guest lecturer* in the course “Enzymology”, invited by Jesús Pérez-Gil  
 Topic: “Single-molecule enzymology”
- Complutense University (Madrid, Spain)** 2015  
*Guest lecturer* in the opening session of the Masters Program in Biochemistry, Molecular Biology and Biomedicine  
 Topic: “Moral dilemmas in scientific research”
- Autonomous University of Madrid – UAM (Madrid, Spain)** 2015  
*Guest lecturer* in the course of Contemporary Humanities: “What do I do now? Problem solving in different situations”  
 Coordinated by Teresa Sanz García and Félix García Moriyón  
 Topic: “Moral dilemmas in scientific research”
- Complutense University, Master in Biochemistry, Molecular Biology and Biomedicine (Madrid, Spain)** 2014  
*Guest lecturer* in the course “Protein structure and function and proteomics”, coordinated by Oscar Palomares  
 Topic: Application of single-molecule techniques to the study of proteins
- Columbia University, Department of Biological Sciences (New York, NY)** 2011, 2013  
*Guest lecturer* in the course “Single-molecule Approaches to Biology”, coordinated by Prof. Julio M. Fernández  
 1 class per year. An introductory lecture is followed by discussion of recent single-molecule publications
- Spanish Government, ANECA** 2011  
*Certification to teach at the Assistant Professor level (Spanish equivalent, Profesor Contratado Doctor)*  
 This teaching certification is required to become Assistant Professor at any Spanish University
- Complutense University, Department of Biochemistry and Molecular Biology (Madrid, Spain)** 2003-2008  
*Teaching Assistant* in the Biochemistry Laboratory for Undergraduates  
 5 Academic Years  
 20-30 students perform under my guidance basic experiments such as isolation of DNA, determination of kinetic parameters of enzymes, and separation of proteins by chromatography and electrophoresis
- Complutense University, Graduate Program in Biochemistry and Molecular Biology (Madrid, Spain)** 2008  
*Guest lecturer* in the course for graduate students “Structure of Proteins”, coordinated by Prof. Rosalía Rodríguez  
 Topic: Application of infrared spectroscopy to the study of proteins
- Milan-Bicocca University (Milan, Italy) & Complutense University (Madrid, Spain)** 2005  
*Co-supervisor* of the Thesis work of Masters student Giorgia Clementi  
 Thesis Title: Heterologous expression and purification of the cytolytic protein Sticholysin I from cytolytic sea anemone *Stichodactyla helianthus*

## SUPERVISION AND MENTORING ACTIVITIES

### Current postdoctoral scientists

Maria Rosaria Pricolo (since 2019)

Ángel Fernández-Trasancos (since 2018, awarded a Boehringer travel fellowship)

Elías Herrero-Galán (since 2014)

### Current PhD students

Inés Martínez Martín (since 2017. 2018 BSc in biochemistry, UAM; 2019 MSc in Biophysics, UAM, with honors)

Agata Bak (since 2019)

María Sánchez Díaz (since 2017, co-supervised by Andrés Hidalgo, CNIC)

Carmen Suay-Corredera (since 2017, awarded a competitive PhD Fellowship – FPI-SO program BES-2016-076638)

Carla Huerta-López (since 2015, awarded a competitive EMBO-short term fellowship)

### Current technicians

Diana Velázquez-Carreras (since 2014)

### Current Master students

Laura Sen (since 2019)

Nallely Nava (since 2019)

### Current Residents in Medicine

David Sánchez Ortiz (since 2017, 2019 MD with honors)

### Current Undergraduate students

Francisco Martín Zamora (since 2019)

### Autonomous University of Madrid

Master Thesis (Niels Groenewegen)

2020

### CNIC

Laboratory rotation – technical personnel (Israel Anguiano)

2019

### Autonomous University of Madrid-UAM (Spain)

#### Soft Matter Physics, Nanoscience and Biophysics Program

Member of Thesis Committee, Pablo David García López

2019

### University of Naples Federico II (Italy)

#### Department of Molecular Medicine and Medical Biotechnology

Member of Thesis Committee, Class of 2017/2018

2019

### Autonomous University of Madrid-UAM (Spain)

#### Neurosciences Program

Member of Thesis Committee, María del Carmen Fernández Ramírez

2019

### Autonomous University of Madrid-UAM (Spain)

#### Molecular Biosciences Program

Member of Thesis Committee, Roberto Moreno Vicente

2018

### CNIC

Member of Thesis Committee, Cristina Márquez López

2018

<b>University of León</b> Master Thesis (Andrea Rodríguez Blanco)	2018
<b>Autonomous University of Madrid-UAM (Spain)</b> <b>Molecular Biosciences Program</b> Member of Thesis Committee, Minerva Bosch Fortea	2018
<b>King’s College London (UK)</b> Member of Thesis Committee, Amy E. M. Beedle	2018
<b>CNIC</b> Laboratory rotation – technical personnel (Natalia Vicente)	2017-2019
<b>Autonomous University of Madrid-UAM (Spain)</b> <b>Condensed Matter Physics, Nanoscience, and Biophysics Program</b> Member of Thesis Committee, César López Pastrana	2017
<b>University of Barcelona (Spain)</b> Masters Thesis work (Carolina Lopes)	2017
<b>CNIC</b> Member of Thesis Committee, Giulio Fulgoni, María García-García	2016
<b>CNIC, European Commission International Training Network “BIOPOL” (Madrid, Spain)</b> Secondary co-supervisor of PhD students Víctor Jiménez, Antonio Quílez	2016-2018
<b>Complutense University (Madrid, Spain)</b> Masters Thesis work (Cristina Sánchez, Carmen Suay)	2016
<b>Autonomous University of Madrid-UAM, Molecular Biology PhD Program (Spain)</b> Member of Thesis Committee, Albert Galera	2016
<b>CNIC (Madrid, Spain)</b> Laboratory rotation for MDs who are doing their residency in cardiology (Res@CNIC program) María Plaza (2016), Andrés Escudero (2017)	from 2016
<b>Autonomous University of Madrid-UAM, Biophysics PhD Program (Spain)</b> Member of Thesis Committee, Jörg Schönfelder	2015
<b>University of Seville, Department of Vegetal Biochemistry and Molecular Biology (Spain)</b> Member of Thesis Committee, Andrés Manuel Vera Gómez	2015
<b>University of Alcalá de Henares (Spain)</b> Undergraduate Thesis work (Cristina Sánchez)	2015
<b>Autonomous University of Madrid-UAM, Department of Condensed Matter (Spain)</b> Member of Thesis Committee, Benjamin Gollnick	2014
<b>CNIC (Madrid, Spain)</b> Laboratory rotation for undergraduate students (CICERONE program) Carmen Suay (2014, 2015), Carla Huerta (2015), Ricardo Esteban (2016), Íñigo Urrutia (2016), Inés Martínez (2017) David Sánchez (2017, 2018), Manuel Mayo (2018), Luis Gutiérrez (2018)	from 2014

## Curriculum Vitae – Jorge Alegre-Cebollada, PhD

<b>Columbia University, Department of Biological Sciences (New York, NY)</b> Laboratory rotation (graduate students) Daniel Echelman (MD/PhD, 2013), Edward Eckels (MD/PhD, 2012), Kausik Regunath (PhD-Biology, 2010)	2010-2013
<b>Columbia University, Department of Biological Sciences (New York, NY)</b> Thesis work (Pallav Kosuri)	2012
<b>Columbia University, Department of Biological Sciences (New York, NY)</b> Summer rotation program for undergraduate students (SURF program) Farees Saqlain (2013), Ido Haimi (2012)	2012, 2013
<b>Complutense University, Department of Biochemistry and Molecular Biology (Madrid, Spain)</b> Rotation program for international undergraduate students (ERASMUS) Michela Cunietti (Italy, 2006), Giorgia Clementi (Italy, 2005), Christian Porres (Germany, 2004)	2004-2006

### SERVICE AND OUTREACH

#### *Ad hoc reviewer*

Scientific Journals: Nature Communications, eLife, PNAS, JACS, ACS Nano, Redox Biology, PLOS-One, Biophysical Journal, BBA-Biomembranes, BBA-Molecular Cell Research, Scientific Reports, Protein Science, Journal of Chemical Physics, Nucleus, Annals of Biomedical Engineering

Funding agencies: H2020, Spanish National Agency of Evaluation (ANEP), International Foundation for Science, ProteoRed

Promotion committees: University of Oxford

**Opinion Article – SBE’s Newsletter** (<http://biofisica.info/>) 2020  
[Seeing the science glass half full](#)

#### **Outreach**

Organization of practical workshops during Madrid’s Science week at CNIC and at local schools yearly

**Opinion Article – NIAIA website** 2019  
[Who does Science belong to?](#) (in Spanish, *¿A quién pertenece la ciencia?*)

**Outreach, ISCIII** 2018  
Presentation of the National Catalogue in Health Science

**Opinion Article – NIAIA website** 2018  
[Moral dilemmas in research](#) (in Spanish, *Los dilemas morales en la investigación científica*)

**Outreach, CNIC** from 2018  
Organization of activity “Meet research groups” within the “Acércate” program for High School students

**ERA-CVD Minotaur project** 2017-2019  
Dissemination Manager

**Spanish Foundation for Science and Technology (FECYT)** 2017  
Coordinator of CNIC’s stand “*Tu sistema cardiovascular al descubierto*” in the Science Fair “*Finde Científico*”

<b>Spanish National Agency of Evaluation (ANEP)</b> <i>Selection committee Ramón y Cajal Program (Biomedicine)</i>	2017
<b>Popular science, SBE's Newsletter</b> Title of the article: <a href="#">Eric Betzig “super resolves” the way to ground-breaking science</a>	2017
<b>Spanish National Agency of Evaluation (ANEP)</b> <i>Selection committee Ramón y Cajal Program (Medicine)</i>	2016
<b>Nanotechnology</b> <i>Guest editor of a focus issue on Protein Folding</i>	2016
<b>NIAIA group – Training and research in solving moral problems</b> <i>Member</i>	from 2015
<b>Spanish Society of Biochemistry and Molecular Biology (SEBBM)</b> <i>Junior representative at CNIC</i>	from 2015
<b>Popular science, SBE's Newsletter (in Spanish)</b> Title of the article: <a href="#">La Medicina y la Biofísica</a> . ( <i>Medicine and Biophysics</i> )	2015
<b>Spanish Biophysical Society (SBE)</b> <i>Editorial Committee, SBE's Newsletter</i> <a href="http://biofísica.info/">http://biofísica.info/</a>	from 2014
<b>Popular science, website of the Spanish Society of Biochemistry and Molecular Biology (in Spanish)</b> Title of the article: <i>Jugando en el laboratorio con moléculas únicas</i> (Playing with single-molecules)	2011
<b>Popular science article, <i>Investigación y Ciencia</i> journal (in Spanish)</b> Title of the article: <i>Viaje molecular al pasado</i> (Molecular travel to the past) Co-authors: Raúl Pérez-Jiménez, <a href="#">Jorge Alegre-Cebollada</a> , Julio M. Fernández.	2011
<b>Workshop for the General Public, 7th Science Week, Madrid, Spain</b> <i>Co-organizer</i> Topic: Introduction to protein separation techniques: chromatography and ultracentrifugation	2007

#### APPEARANCES IN THE MEDIA

<b>El País</b> Interview (Sep 28 <sup>th</sup> ) – Back Page	2018
<b>Diario Médico</b>	2017
<b>La Razón</b> Interview (May 17 <sup>th</sup> )	2015
<b>Heraldo de Aragón – Tercer Milenio</b> Interview (November 25 <sup>th</sup> )	2014
<b>Aragon TV</b> Featured in the Evening News (July 29 <sup>th</sup> )	2014



**Spanish National Radio (RNE)**

Interview (In Spanish) – A Hombros de Gigantes (June 30th)

<http://www.rtve.es/alacarta/audios/a-hombros-de-gigantes/hombros-gigantes-estudiar-proteinas-para-prevenir-enfermedades-cardiacas-30-07-2014/2638179/>

2014