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Fernán Agüero PhD

Assistant Professor, University of San Martín
Principal Research Fellow, National Research Council

About me. I am a Biologist by training, with a PhD in Chemistry and postdoctoral training in Genomics and Bioinformatics. I have studied parasite biology for >20 years, focusing on different aspects (biochemistry, molecular biology, genomics) and using different approaches (experimental bench work, bioinformatics) over time. I also have an interest in teaching and training of human resources, and in the promotion of Bioinformatics. I teach a Computational Biology and Bioinformatics course for both graduate and undergraduate students, and am a founding member of the Argentinian Society for Computational Biology and Bioinformatics (A2B2C).

Education

2001, PhD (Chemistry)
Instituto de Investigaciones Bioquímicas "Luis F. Leloir", Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires.

1995, BSc. (Biology)
Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires.

Research Positions and Experience

2005 – present, Group Leader
Laboratory of Genomics and Bioinformatics, Instituto de Investigaciones Biotecnológicas, Universidad de San Martín, Argentina.

2017 – present, Principal Research Fellow
2013 – 2017, Independent Research Fellow
2008 – 2012, Associate Research Fellow
2005 – 2007, Assistant Research Fellow
Scientific Research Career, National Research Council of Argentina (CONICET).

May – June 2005, United Nations University fellow
Programme for Biotechnology in Latin America and the Caribbean, visiting the laboratory of Dr. JC Kissinger, University of Georgia, USA.

2001 – 2005, Postdoctoral fellow
Instituto de Investigaciones Biotecnológicas, Universidad de San Martín, San Martín, Argentina.

1995 – 2001, PhD Student
Instituto de Investigaciones Bioquímicas "Luis F. Leloir", Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires, Buenos Aires, Argentina.

Awards

1996 Luis F Leloir Fellow, Fundación Campomar

Research / Teaching

2019 Immunoinformatics Course, Mexico City, April 8-9, Center of Complexity Sciences, Universidad Autónoma de Mexico (UNAM).

2017 – present Category I – Special Program of Incentives to Researchers in Education, Secretary of University Policies, Ministry of Education, Argentina.

Teaching Positions and Experience

2005 – present
Assistant Professor (Bioinformatics, Computational Biology), Instituto de Investigaciones Biotecnológicas, Universidad de San Martín, San Martín, Argentina.

2009 – 2017
Invited Professor, "Bioinformatics", Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires.

2008 – 2015
Instructor, Wellcome Trust Advanced Training Workshop "Working with Pathogen Genomes" (Montevideo, Uruguay; Hinxton, UK).

2009 – 2017
Invited Professor,"Molecular Biology of Lower Eukaryotes", Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires.

2010
Instructor, "Working with Pathogen Genomes" (EuPathDB / TDR Targets / SchistoDB), 16–19 March, Instituto de Higiene, Montevideo, Uruguay.

2004 – 2006
Invited Professor, "Computational Biology". Master in Medical Molecular Biology, University of Buenos Aires.

2001 – 2004
Instructor, Instituto de Investigaciones Biotecnológicas, Universidad de San Martín, San Martín, Argentina.

1997 – 2001
Graduate Teaching Assistant, Instituto de Investigaciones Biotecnológicas, Universidad de San Martín, San Martín, Argentina.

1995 – 1997
Undergraduate Teaching Assistant, Department of Biological Chemistry, Facultad de Ciencias Exactas y Naturales, Universidad de Buenos Aires.

Other honorary positions

A2B2C
VicePresident (2009–2010, 2015–present), President (2010–2011), and Treasurer (2012–2015), Argentinian Society for Bioinformatics and Computational Biology.

FIIB
Vocal (2012–2019); Vicepresident (2019–), Fundación Instituto de Investigaciones Biotecnológicas

Complete list of publications available at:

Google Scholar:
goo.gl/1GysDD
H-Index = 21

PubMed (NCBI):
bit.ly/2Vw9UPK

ORCID:
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Recent Selected Publications

38 peer-reviewed articles, H-index = 21 (Google Scholar), 2 book chapters.

2019

Molecular and antigenic characterization of *Trypanosoma cruzi* TolT proteins. Lobo M, *et* al. **PLOS Neglected Tropical Diseases 13:** e0007245.

2017

Next-generation ELISA diagnostic assay for Chagas Disease based on the combination of short peptidic epitopes. Mucci JS *et al*. **PLOS Negl Trop Dis 11:** e0005972.

Novel scaffolds for inhibition of Cruizipain identified from high-throughput screening of anti-kinetoplastid chemical boxes. Salas Sarduy E, *et* al. **Scientific Reports 7:** 12073.

High-resolution profiling of linear B-cell epitopes from mucin-associated surface proteins (MASPs) of *Trypanosoma cruzi* during human infections. Durante IM *et* al. **PLOS Negl Trop Dis 11:** e0005986.

Chagas Disease Diagnostic Applications: Present Knowledge and Future Steps. Balouz V, Agüero F, Buscaglia CA. **Advances in Parasitology 97:** 1–45.

2016

A Multilayer Network Approach for Guiding Drug Repositioning in Neglected Diseases. Berenstein AJ, Magariños MP, Chernomoretz A, Agüero F. **PLOS Negl Trop Dis 10:** e0004300.

2015

Neglected Tropical Diseases in the Post Genomics Era. Buscaglia CA, Kissinger JC, Agüero F. **Trends in Genetics 31:** 539-55.

Towards high-throughput immunomics for infectious diseases: use of next-generation peptide microarrays for rapid discovery and mapping of antigenic determinants. Carmona SJ *et* al. **Mol Cell Proteomics 14:** 1871–84.

2014

Genetic profiling of the isoprenoid and sterol biosynthesis pathway genes of *Trypanosoma cruzi*. Cosentino RO and Agüero F. **PLOS One 9:** e96762.

2012

Diagnostic Peptide Discovery: Prioritization of Pathogen Diagnostic Markers Using Multiple Features. Carmona SJ, Sartor P, Leguizamón MS, Campetella O, and Agüero F. **PLOS One 7:** e50748.

A simple strain typing assay for *Trypanosoma cruzi*: discrimination of major evolutionary lineages from a single amplification product. Cosentino RO and Agüero F. **PLoS Negl Trop Dis 6:** e1777.

TDR Targets: a chemogenomics resource for neglected diseases. Magariños MP, Carmona SJ, Crowther GJ, Ralph SA, Roos DS, *et* al. **Nucleic Acids Res 40:** D1118.

2010
Identification of attractive drug targets in neglected-disease pathogens using an *in silico* approach. Crowther GJ, Shanmugam D, Carmona SJ, Doyle MA, Hertz-Fowler C, *e*t al. **PLoS Negl Trop Dis 4:** e804.

2008
Genomic-scale prioritization of drug targets: the TDR Targets database. Agüero F, Al-Lazikani B, Aslett M, *et al.* **Nature Reviews Drug Discovery 7:** 900.

Recent Participation in Committees and Boards

2015–present Editor, Microbial Genomics (MGen), Society for General Microbiology, UK.

2012 – 2018 Member of the Advisory Board of the Instituto de Investigaciones Biotecnológicas, Universidad de San Martín.

2009 – present Member of the Advisory Committee of the TriTrypDB Database Resource for *Trypanosoma cruzi*.

2016 Conference Chair, 2016 ISCB Latin America Conference on Bioinformatics, Buenos Aires, Argentina

2014 Member of the Steering Committee, 2014 ISCB Latin America Conference on Bioinformatics, Rio de Janeiro, Brazil.

2013 Member of the Scientific Committee, 4th Argentinian Congress of Bioinformatics and Computational Biology (A2B2C, Argentinian Society of Bioinformatics and Computational Biology).

List of Active Awards and Grants

2016 – 2021
NIH, 1R01AI123070 “High-throughput epitope discovery: use of next-generation peptide chips for fast identification and fine mapping of diagnostic and prognostic markers for Chagas Disease” (Role: PI)

2019-2021
ANPCyT, PICT-2017-0175 “Immunomics applied to the massive discovery of new serological iomarkers for infectious diseases” (Role: PI)

Participation in Scientific Societies

ISCB International Society for Computational Biology. Professional Member since 2008.

A2B2C Argentinian Society for Bioinformatics and Computational Biology. Founder Member, 2009.

SAP Argentinian Society of Protozoology and Parasitic Diseases. Active Member, since 2011.

SAIB Argentinian Society of Research in Biochemistry and Molecular Biology. Active Member, (since 2001).

Mentorships / Training of Human Resources

Mentor of 18 students, Director of 7 PhD theses (3 underway)

Mercedes Didier Garnham Undergraduate student, Universidad Nacional de Hurlingham (2019–), Project: "A comparative chemogenomics strategy to identify conserved druggable modules across species".

Melissa S Nolan PhD, Master of Public Health, Assisstant Professor, University of South Carolina (2018–), Project: "Improving Chagas Disease Patient Diagnosis and Health Outcomes in the Southwestern United States: Epidemiologic and Antigenic Characterization of Autochthonous Cases" (Brockman Foundation Research Grant).

Leonel Bracco Undergraduate, Agrobiotechnology Engineering (UNSAM) (2017–), Project: "High-throughput discovery of new IgM/IgG serologic biomarkers for Congenital Chagas Disease".

Alejandro Ricci Lic. Biology (FCEyN UBA), PhD Student (2017–), Project: "Computational methods for large scale studies of human immune responses against pathogens: applications to Chagas Disease and Leishmaniasis".

Lionel Urán Landaburu BSc. Biotechnology (UNQ), PhD Student (2016–), Project: "Chemogenomics applied to the identification of bioactive compounds against Chagas Disease".

Diego Ramoa, Mauricio Brunner Undergraduate students, National University of Entre Ríos, Argentina. Degree Research Project: "Development of a server for prioritization of candidate diagnostic peptides from complete genomes" (2013–2016).

Santiago Javier Carmona BSc Biotechnology (UNSAM), PhD Student (2010–2015). Thesis: "High- throughput discovery of new serologic biomarkers for Chagas Disease".

María Paula Magariños BSc. Biology (UBA), PhD Student (2009–2014), Postdoctoral fellow (2014- -2016). Thesis: "Chemogenomics applied to the identification of new lead compounds for human pathogens"

Raúl Oscar Cosentino BSc Biotechnology (UNSAM), PhD Student (2009–2014). Thesis: "Design of a simple method for lineage typing in *Trypanosoma cruzi* and validation of candidate drug targets in trypanosomes".

Leonardo Gabriel Panunzi BSc Biotechnology (UNQ), PhD Student (2007–2013), Postdoctoral fellow (2014–2016). Thesis: "Genome-wide discovery of single-nucleotide polymorphisms in *Trypanosoma cruzi*".

Other mentored students María Carolina Dalmasso (UNSAM, 2010–2012); Laura Lazzati (UNSAM, 2015); Jose Antonio Agüero Fernandez (Cuba, 2008); Mariela Del Giudice (UNSAM, Argentina, 2006–2008); Alejandro Ackermann (UBA-UNSAM, 2005-2009); Claes Ladenvall & Anders Brinne (Uppsala Universitet, Sweden, 2002); Linnea Kälgren (Uppsala Univesitet, Sweden, 2003);

Activity as Peer Reviewer

For Journal articles
My latest peer review activity can be checked at **Publons:**
https://publons.com/researcher/1369842/fernan-aguero/peer-review/

For Funding Agencies Agencia Nacional de Promoción Científica y Tecnológica (ANPCyT, Argentina); Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET, Argentina); Wellcome Trust (UK); Comisión Sectorial de Investigación Científica (CSIC, Uruguay); Departamento administrativo de Ciencia, Tecnología e Innovación (Colciencias, Colombia);

Languages

Spanish: Native.

English: Bilingual, full professional proficiency.

Portuguese: Working proficiency.

CV last updated

May, 2019