

Alejandro Buschiazzo

Short CV - August 2026

NAME and SURNAME	POSITION TITLE	WEB SITE
Alejandro Buschiazzo	Tenured Research Scientist (Associate Professor)	https://pasteur.uy/en/laboratories/molecular-and-structural-microbiology/

Dr. Buschiazzo specialized in protein crystallography as a postdoc at the Institut Pasteur in Paris (Dept of Structural Biology & Chemistry), where he obtained a tenured position in 2003, eventually becoming Associate Professor in the Dept of Microbiology. Since 2006 he holds a double appointment as Head of the Lab of Molecular & Structural Microbiology at the Institut Pasteur de Montevideo (a member of the Inst Pasteur International Network) in Uruguay. His science is focused on microbiology, aimed at understanding molecular mechanisms of key proteins. A special interest is dedicated to pathogenicity determinants in *Leptospira* and other bacterial pathogens. Dr Buschiazzo leads a team with strong expertise in the Structural Biology and Biochemistry of bacterial signaling and motility systems. His lab has uncovered how proteins change their shape and conformation in very specific ways, enabling bacteria to sense their environment and internal milieu, and trigger adaptive responses. Recent discoveries from his team have revealed unique structure and functional features of *Leptospira*'s flagellar locomotion apparatus.

EDUCATION/TRAINING			
Institution and location	Degree	Month / Year	Field of Study
School of Natural Sciences, Univ. Nacional de La Plata, Argentina	BSc	03/1985 – 02/1991	Biology (Major in Zoology)
Institute Leloir, Univ. de Buenos Aires, Argentina	Specialization – entrance to Graduate School	03/1991 – 08/1992	Advanced Biological Chemistry course
Institute Leloir, Univ. de Buenos Aires, Argentina	PhD	09/1992 - 07/1999	Chemistry – Thesis in Biological Chemistry and Molecular Biology of Trypanosomatids
Univ. of California, Irvine, USA	Traineeship within PhD program	08/1995 – 10/1995	Training in Protein Crystallography at the Poulos Lab, Department of Molecular Biology & Biochemistry
Institut Pasteur, Paris, France	Traineeship within PhD program	02/1998 – 07/1998	Training in Protein Crystallography at the Alzari Lab, Department of Structural Biology & Chemistry
A. Positions and Honors. <i>Positions:</i> •08/1999 – 06/2003 : Postdoctoral Researcher, Dept of Structural Biology & Chemistry, Institut Pasteur, Paris •07/2003 – 12/2015 : Tenured Research Scientist (Assistant Professor), Institut Pasteur, Paris •01/2016 - present : Tenured Research Scientist (Associate Professor), Institut Pasteur, Paris •08/2006 - present : Head of the Laboratory of Molecular & Structural Microbiology, Institut Pasteur de Montevideo, Uruguay (member of the international Pasteur Network) <i>Honors:</i> •01/2021 : elected member of The World Academy of Sciences TWAS •07/2018 : elected Member of the National Academy of Sciences of Uruguay ANCIU			

- 10/2015 : recipient of the “Premio Nacional Ciudadano de Oro” Prize, Centro Latinoamericano de Desarrollo, Montevideo, Uruguay
- 01/2014 : recipient of the “François Jacob” Prize, Institut Pasteur, Paris, France
- 02/2003 : qualification as Assistant Professor (*Maître de conférences*), Conseil National des Universités (N° 03264133886), Biochemistry and Molecular Biology section, France
- 01/2002 : recipient of the Roux scholarship, Institut Pasteur, Paris, France
- 12/2000 : Special Mention of the Jury - Prize “Profesor Doctor Luis Federico Leloir” to the best Doctoral Thesis in Chemistry – Universidad de Buenos Aires, Argentina

Memberships:

- Member of the Scientific Evaluation Committee, Institut Pasteur (Paris) – COMESP 2018-2022
- Associate Editor of the journal PLoS Neglected and Tropical Diseases – 2010-2022
- Co-Editor of the journal Acta Crystallographica F – 2024-continues
- Editorial Board of the journal Current Research in Structural Biology– 2022-continues
- Founding node of the South American network for the advancement of Structural Biology “Centro de Biología Estructural del Mercosur” (CeBEM, <http://www.cebem-lat.org>) – 2008-continues
- Chair of the National Committee of Crystallography (RUCr, Uruguay), member of the International Union of Crystallography (IUCr) <http://www.iucr.org/iucr/ab.html/adhering-bodies/uruguay> – 2013-2024
- Member of the Commission on Biological Macromolecules of the IUCr (<https://www.iucr.org/iucr/commissions/biological-macromolecules>) – 2017-continues
- Member of the American Society of Microbiology – 2017-continues

B. Selected peer-reviewed publications.

H-index 35 (Web of Science), 43 (Google Scholar)

Selected among 86 peer-reviewed articles as of August 2026

(full list of published articles at <https://www.ncbi.nlm.nih.gov/myncbi/alejandroboschiazzo.2/bibliography/public/>):

1. San Martin F, Brady M, Fule L, Nouchikian L, Rodriguez A, Duchateau M, Mondino S, Larrieux N, Wunder E, Ko A, Rey M, Chamot-Rooke J, Duran R, Trajtenberg F, Picardeau M, Sindelar C*, **Buschiazzo A***. (2026) Core-sheath coupling controls flagellar curvature and motility in *Leptospira*. *Nat Commun*. doi:10.1038/s41467-026-75995-6.
2. Agustoni E[†], Mechaly A[†], Dalla Rizza J, Beriashvili D, Pluhackova K, Isaikina P, Trajtenberg F, Müntener T, Wunder Jr. EA, Ko AI, Schirmer T, **Buschiazzo A***, Hiller S*. (2026) Activation mechanism of the full-length histidine kinase LvrB from pathogenic *Leptospira*. *Nat Commun*. doi:10.1038/s41467-026-71783-4. Epub ahead of print. PMID: 41991510.
3. Vacca S*, Gragera M*, **Buschiazzo A**, Herreros D, Krieger JM, Bonn-Garcia S, Melero R, Sorzano CO, Carazo JM, Medalia O, Plückthun A. (2025) Structural analysis of HER2-trastuzumab complex reveals receptor conformational adaptation. *Sci Adv*. **11**:eadu9945.
4. Imelio JA, Trajtenberg F, Mondino S, Zarantonelli L, Vitrenko I, Lemée L, Cokelaer T, Picardeau M, **Buschiazzo A**. (2024) Signal-sensing triggers the shutdown of HemKR, regulating heme and iron metabolism in the spirochete *Leptospira biflexa*. *PLoS One*. **19**:e0311040.
5. Nieves C, Vincent AT, Zarantonelli L, Picardeau M, Veyrier FJ*, **Buschiazzo A***. (2023) Horizontal transfer of the *rfb* cluster in *Leptospira* is a genetic determinant of serovar identity. *Life Sci Alliance*. **6**: e202201480.
6. Lima S, Blanco J, Olivieri F, Imelio JA, Nieves M, Carrión F, Alvarez B, **Buschiazzo A**, Marti MA, Trajtenberg F. (2023) An allosteric switch ensures efficient unidirectional information transmission by the histidine kinase DesK from *Bacillus subtilis*. *Sci Signal*. **16**:eabo7588.
7. Mondino S, San Martin F, **Buschiazzo A**. (2022) 3D cryo-EM imaging of bacterial flagella: Novel structural and mechanistic insights into cell motility. *J Biol Chem*. **298**:102105.
8. San Martin F, Fule L, Iraola G, **Buschiazzo A***, Picardeau M*. (2022) Diving into the complexity of the spirochetal endoflagellum. *Trends Microbiol*. **13**:S0966-842X(22)00256-6.
9. Imelio JA, Trajtenberg F, **Buschiazzo A**. (2021) Allostery and protein plasticity: the keystones for bacterial signaling and regulation. *Biophys Rev*. **13**:943-53.
10. Fule L, Halifa R, Fontana C, Sismeiro O, Legendre R, Varet H, Coppée JY, Murray GL, Adler B, Hendrixson DR, **Buschiazzo A**, Guo S, Liu J, Picardeau M. (2021) Role of the major determinant of

polar flagellation FlhG in the endoflagella-containing spirochete *Leptospira*. *Mol Microbiol.* **116**:1392-406.

11. Lara J, Diacovich L, Trajtenberg F, Larrieux N, Malchiodi EL, Fernández MM, Gago G, Gramajo H*, **Buschiazzo A***. (2020) *Mycobacterium tuberculosis* FasR senses long fatty acyl-CoA through a tunnel and a hydrophobic transmission spine. *Nat Commun.* **11**:3703.
12. Gibson KH, Trajtenberg F, Wunder EA, Brady MR, San Martin F, Mechaly A, Shang Z, Liu J, Picardeau M, Ko A*, **Buschiazzo A***, Sindelar CV*. (2020) An asymmetric sheath controls flagellar supercoiling and motility in the leptospira spirochete. *eLife.* **9**:e53672.
13. **Buschiazzo A**, Trajtenberg F. (2019) Two-Component Sensing and Regulation: How Do Histidine Kinases Talk with Response Regulators at the Molecular Level? *Annu Rev Microbiol.* **73**:507-28.
14. Adhikarla H, Wunder EA Jr, Mechaly AE, Mehta S, Wang Z, Santos L, Bisht V, Diggle P, Murray G, Adler B, Lopez F, Townsend JP, Groisman E, Picardeau M, **Buschiazzo A***, Ko AI*. (2018) Lvr, a Signaling System That Controls Global Gene Regulation and Virulence in Pathogenic *Leptospira*. *Front Cell Infect Microbiol.* **8**:45.
15. Trajtenberg F, Imelio JA, Machado MR, Larrieux N, Marti MA, Obal G, Mechaly AE, **Buschiazzo A**. (2016) Regulation of signaling directionality revealed by 3D snapshots of a kinase:regulator complex in action. *eLife* **5**: e21422.
16. Wunder EA Jr, Figueira CP, Benaroudj N, Hu B, Tong BA, Trajtenberg F, Liu J, Reis MG, Charon NW, **Buschiazzo A**, Picardeau M, Ko AI. (2016) A novel flagellar sheath protein, FcpA, determines filament coiling, translational motility and virulence for the *Leptospira* spirochete. *Mol Microbiol.* **101**:457-70.
17. Meyer PA, Socias S, Key J, Ransey E, Tjon EC, **Buschiazzo A**, et al. (2016) Data publication with the structural biology data grid supports live analysis. *Nat Commun.* **7**:10882.
18. Fouts D, Matthias MA, Adhikarla H, Adler B, Amorim-Santos L, Berg DE, Bulach D, **Buschiazzo A**, et al. (2016) What Makes a Bacterial Species Pathogenic?: Comparative Genomic Analysis of the Genus *Leptospira*. *PLoS Negl Trop Dis.* **10**:e0004403.
19. Obal G, Trajtenberg F, Carrión F, Tomé L, Larrieux N, Zhang X, Pritsch O*, **Buschiazzo A***. (2015) Conformational plasticity of a native retroviral capsid revealed by X-ray crystallography. *Science* **349**:95-8.

C. Additional information. Concerning the last 5 years of activity.

- Principal Investigator in >15 research projects, which have received funding from national and international agencies.
- Supervisor of students (4 undergraduate, 5 MSc, 7 PhD) and postdoctoral researchers (5) over time.
- Member of committees at the Institut Pasteur de Montevideo involved in Scientific counseling to the Executive Director and strategic planning.
- Invited speaker to numerous international conferences and seminars, including Gordon Research Conferences, EMBO Workshops; Department seminars and invited lectures at Harvard University, Yale University, Institut Pasteur (Paris), University of Basel; meetings of the International Union of Crystallography and the International Union of Microbiology Societies.
- Founder and regular organizer of an International Course on Macromolecular Crystallography, which has been run on a regular basis for nine editions at the Institut Pasteur de Montevideo (Uruguay) and the Instituto de Física de São Carlos (Univ of São Paulo, Brazil), in collaboration with the CCP4 (UK) staff of macromolecular crystallography methods developers.