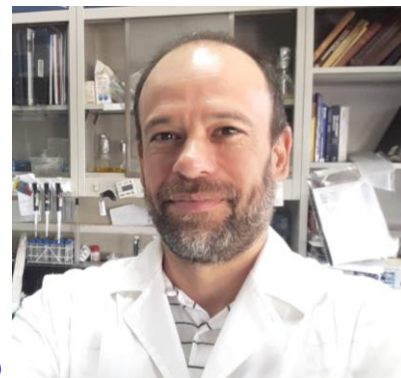


GENERAL INFORMATION

Address: Fundación Instituto Leloir
Av. Patricias Argentinas 435
(C1405BWE) Buenos Aires, Argentina
Phone: +54-11-5238-7500 ext. 2552 / 2304
E-mail: sklinke@leloir.org.ar
ResearchGate: www.researchgate.net/profile/Sebastian-Klinke-2
Scopus: www.scopus.com/authid/detail.uri?authorId=8836130200



EDUCATION

- 03/1996-05/2002: University of Buenos Aires, School of Natural and Exact Sciences, Argentina. Degree: **Diploma in Chemistry**, with honors.
- 06/2002-05/2008: University of Buenos Aires, School of Natural and Exact Sciences, Argentina. Degree: **Doctor of the University of Buenos Aires**, Biological Chemistry Area. Supervisor: Dr. Fernando A. Goldbaum. Thesis title: “Crystallographic and catalytic studies on the enzyme Lumazine synthase from *Brucella* and other members in the order Rhizobiales”.
- 06/2008-03/2011: Institute of Biochemistry, University of Lübeck, Germany. Position: Postdoctoral Researcher. Supervisor: Prof. Dr. Dr. *h.c.* Rolf Hilgenfeld.

PRESENT POSITION

- Independent Researcher, Argentine Research Council (CONICET). Fundación Instituto Leloir, Buenos Aires, Argentina.
- Research project: “Structural study of virulence factors involved in flavin metabolism in *Brucella* and related bacteria”.

SCIENTIFIC PUBLICATIONS

41 Publications in international peer-reviewed journals, *h*-index = 13

- 41) Otero, L.H., Foscaldi, S., Antelo, G.T., Rosano, G.L., Sirigu, S., Klinke, S., Defelipe, L.A., Sánchez-Lamas, M., Battocchio, G., Conforte, V., Vojnov, A.A., Chavas, L.M.G.,

- Goldbaum, F.A., Mroginski, M.A., Rinaldi, J. & Bonomi, H.R. (2021). Structural basis for the Pr-Pfr long-range signaling mechanism of a full-length bacterial phytochrome at the atomic level. *Science Advances*, **in press**.
- 40) Lorenzo, R., Defelipe, L.A., Aliperti, L., Niebling, S., Custódio, T.F., Löw, C., Schwarz, J.J., Remans, K., Craig, P.O., Otero, L.H., Klinke, S., García-Alai, M., Sánchez, I.E. & Alonso, L.G. (2021). Deamidation drives molecular aging of the SARS-CoV-2 spike protein receptor-binding motif. *Journal of Biological Chemistry*, **in press**.
- 39) Rinaldi, J., Fernández, I., Shin, H., Sycz, G., Gunawardana, S., Kumarapperuma, I., Paz, J.M., Otero, L.H., Cerutti, M.L., Zorreguieta, Á., Ren, Z., Klinke, S.*, Yang, X.* & Goldbaum, F.A.* (2021). Dimer asymmetry and light activation mechanism in *Brucella* blue-light sensor histidine kinase. *mBio* **12**, e00264-21. ***Co-corresponding authors**
- 38) Conforte, V., Otero, L.H., Toum, L., Sirigu, S., Antelo, G.T., Rinaldi, J., Foscaldi, S., Klinke, S., Chavas, L.M.G., Vojnov, A.A., Goldbaum, F.A., Malamud, F. & Bonomi, H.R. (2021). Pr-favoured variants of the bacteriophytochrome from the plant pathogen *Xanthomonas campestris* hint on light regulation of virulence-associated mechanisms. *FEBS Journal*, **in press**.
- 37) Ghiglione, B., Rodríguez, M.M., Brunetti, F., Papp-Wallace, K.M., Yoshizumi, A., Ishii, Y., Bonomo, R.A., Gutkind, G., Klinke, S.* & Power, P.* (2021). Structural and biochemical characterization of the novel CTX-M-151 extended-spectrum beta-lactamase and its inhibition by Avibactam. *Antimicrobial Agents and Chemotherapy* **65**, e01757-20. ***Co-corresponding authors**
- 36) Gianotti, A.R., Klinke, S. & Ermácora, M.R. (2021). The structure of unliganded sterol carrier protein 2 from *Yarrowia lipolytica* unveils a mechanism for binding site occlusion. *Journal of Structural Biology* **213**, 107675.
- 35) Cagnoni, A.J., Primo, E.D., Klinke, S., Cano, M.E., Giordano, W., Mariño, K.V., Kovensky, J., Goldbaum, F.A., Uhrig, M.L. & Otero, L.H. (2020). Crystal structures of peanut lectin in the presence of synthetic beta-N- and beta-S-galactosides disclose evidence for the recognition of different glycomimetic ligands. *Acta Crystallographica Section D* **76**, 1080-1091.
- 34) Olmos, J., Pignataro, M.F., Benítez Dos Santos, A.B., Bringas, M., Klinke, S., Kamenetzky, L., Velazquez, F. & Santos, J. (2020). A highly conserved Iron-Sulfur cluster assembly machinery between humans and amoeba *Dictyostelium discoideum*: the characterization of frataxin. *International Journal of Molecular Sciences* **21**, 6821.
- 33) Pellizza, L., López, J.L., Vázquez, S., Sycz, G., Guimarães, B.G., Rinaldi, J., Goldbaum, F.A., Aran, M.*, Mac Cormack, W.P.* & Klinke, S.* (2020). Structure of the putative long tail fiber receptor-binding tip of a novel temperate bacteriophage from the Antarctic bacterium *Bizionia argentinensis* JUB59. *Journal of Structural Biology* **212**, 107595. ***Co-corresponding authors**
- 32) Zylberman, V., Sanguineti, S., Pontoriero, A.V., Higa, S.V., Cerutti, M.L., Morrone Seijo, S.M., Pardo, R., Muñoz, L., Acuña Intrieri, M.E., Alzogaray, V.A., Avaro, M.M., Benedetti, E., Berguer, P.M., Bocanera, L., Bukata, L., Bustelo, M.S., Campos, A.M., Colonna, M., Correa, E., Cragnez, L., Dattero, M.E., Dellafiore, M., Foscaldi, S., González, J.V., Guerra, L.L., Klinke, S., Labanda, M.S., Lauché, C., López, J.C., Martínez, A.M., Otero, L.H., Peyric, E.H., Ponziani, P.F., Ramondino, R., Rinaldi, J., Rodríguez, S., Russo, J.E., Russo, M.L., Saavedra, S.L., Seigelchifer, M., Sosa, S., Vilariño, C., López Biscayart, P., Corley,

- E., Spatz, L., Baumeister, E.G. & Goldbaum, F.A. (2020). Development of a hyperimmune equine serum therapy for COVID-19 in Argentina. *Medicina (Buenos Aires)* **80**, Suppl. 3, 1-6.
- 31) Herrera, M.G., Noguera, M.E., Sewell, K.E., Agudelo Suárez, W.A., Capece, L., Klinke, S. & Santos, J. (2019). Structure of the human ACP-ISD11 heterodimer. *Biochemistry* **58**, 4596-4609.
- 30) Klinke, S., Rinaldi, J., Goldbaum, F.A., Suarez, S. & Otero, L.H. (2019). An all-inclusive and straightway laboratory activity to solve the three-dimensional crystal structure of a protein. *Biochemistry and Molecular Biology Education* **47**, 700-707.
- 29) Ruggiero, M., Papp-Wallace, K.M., Brunetti, F., Barnes, M.D., Bonomo, R.A., Gutkind, G., Klinke, S.* & Power, P.* (2019). Structural insights into the inhibition of the extended-spectrum β -lactamase PER-2 by Avibactam. *Antimicrobial Agents and Chemotherapy* **63**, e00487-19. ***Co-corresponding authors**
- 28) González, J.M., Agostini, R.B., Alvarez, C.E., Klinke, S., Andreo, C.S. & Campos-Bermudez, V.A. (2019). Deciphering the number and location of active sites in the monomeric glyoxalase I of *Zea mays*. *FEBS Journal* **286**, 3255-3271.
- 27) Serer, M.I., Carrica, M., Trappe, J., López Romero, S., Bonomi, H.R., Klinke, S., Cerutti, M.L. & Goldbaum, F.A. (2019). A high-throughput screening for inhibitors of riboflavin synthase identifies novel antimicrobial compounds to treat brucellosis. *FEBS Journal* **286**, 2522-2535.
- 26) Sosa, S., Rossi, A.H., Szalai, A.M., Klinke, S., Rinaldi, J., Farías, A., Berguer, P.M., Nadra, A.D., Stefani, F.F., Goldbaum, F.A. & Bonomi, H.R. (2019). Asymmetric bifunctional protein nanoparticles through redesign of self-assembly. *Nanoscale Advances* **1**, 1833-1846.
- 25) Palacios, A.R., Mojica, M.F., Giannini, E., Taracila, M.A., Bethel, C.R., Alzari, P.M., Otero, L.H., Klinke, S., Llarrull, L.I., Bonomo, R.A. & Vila, A.J. (2019). The reaction mechanism of metallo-beta-lactamases is tuned by the conformation of an active site mobile loop. *Antimicrobial Agents and Chemotherapy* **63**, e01754-18.
- 24) Rinaldi, J., Fernández, I., Poth, L.M., Shepard, W.E., Savko, M., Goldbaum, F.A. & Klinke, S. (2018). Crystallization and initial X-ray diffraction analysis of the multi-domain *Brucella* blue light-activated histidine kinase LOV-HK in its illuminated state. *Biochemistry and Biophysics Reports* **16**, 39-43.
- 23) Espinoza-Cara, A., Zitare, U., Alvarez-Paggi, D., Klinke, S., Otero, L.H., Murgida, D.H. & Vila, A.J. (2018). Engineering a bifunctional copper site in the cupredoxin fold by loop-directed mutagenesis. *Chemical Science* **9**, 6692-6702.
- 22) Sapp, A., Huguet-Tapia, J.C., Sánchez-Lamas, M., Antelo, G.T., Primo, E.D., Rinaldi, J., Klinke, S., Goldbaum, F.A., Bonomi, H.R., Christner, B.C. & Otero, L.H. (2018). Draft genome sequence of *Methylobacterium* sp. strain V23, isolated from accretion ice of the Antarctic subglacial Lake Vostok. *Genome Announcements* **6**, e00145-18.
- 21) Primo, E.D., Otero, L., Ruiz, F., Klinke, S. & Giordano, W. (2018). The disruptive effect of lysozyme on the bacterial cell wall explored by an *in-silico* structural outlook: a comprehensive laboratory exercise. *Biochemistry and Molecular Biology Education* **46**, 83-90.

- 20) Soldano, A., Klinke, S., Otero, L., Rivera, M., Catalano-Dupuy, D.L. & Ceccarelli, E.A. (2017). Structural and mutational analysis of the *Leptospira interrogans* virulence-related heme oxygenase provide insights into its catalytic mechanism. *PLoS One* **12**, e0182535.
- 19) Cerutti, M.L., Otero, L., Smal, C., Pellizza, L., Goldbaum, F.A., Klinke, S.* & Aran, M.* (2017). Structural and functional characterization of a cold adapted TPM-domain with ATPase/ADPase activity. *Journal of Structural Biology* **197**, 201-209. ***Co-corresponding authors**
- 18) Otero, L.H., Klinke, S., Rinaldi, J., Velázquez-Escobar, F., Mroginski, M.A., Fernández López, M., Malamud, F., Vojnov, A.A., Hildebrandt, P., Goldbaum, F.A. & Bonomi, H.R. (2016). Structure of the full-length bacteriophytochrome from the plant pathogen *Xanthomonas campestris* provides clues to its long-range signaling mechanism. *Journal of Molecular Biology* **428**, 3702-3720.
- 17) Rinaldi, J., Arrar, M., Sycz, G., Cerutti, M.L., Berguer, P.M., Paris, G., Estrín, D.A., Martí, M.A., Klinke, S. & Goldbaum, F.A. (2016). Structural insights into the HWE histidine kinase family: the *Brucella* blue light-activated histidine kinase domain. *Journal of Molecular Biology* **428**, 1165-1179.
- 16) Ibañez, A.E., Coria, L.M., Carabajal, M.V., Delpino, M.V., Risso, G.S., Cobiello, P.G., Rinaldi, J., Barrionuevo, P., Bruno, L., Frank, F., Klinke, S., Goldbaum, F.A., Briones, G., Giambartolomei, G.H., Pasquevich, K.A. & Cassataro, J. (2015). A bacterial protease inhibitor protects antigens delivered in oral vaccines from digestion while triggering specific mucosal immune responses. *Journal of Controlled Release* **28**, 18-28.
- 15) Fernández, I., Otero, L.H., Klinke, S., Carrica, M.C. & Goldbaum, F.A. (2015). Snapshots of conformational changes shed light into the NtrX receiver domain signal transduction mechanism. *Journal of Molecular Biology* **427**, 3258-3272. **(Journal cover)**
- 14) Klinke, S.*, Foos, N., Rinaldi, J., Paris, G., Goldbaum, F.A., Legrand, P., Guimarães, B.G* & Thompson, A. (2015). S-SAD phasing of monoclinic histidine kinase from *Brucella abortus* combining data from multiple crystals and orientations: an example of data collection strategy and a posteriori analysis of different data combinations. *Acta Crystallographica Section D* **71**, 1433-1443. ***Co-corresponding authors**
- 13) Han, Z., Sakai, N., Böttger, L.H., Klinke, S., Hauber, J., Trautwein, A.X. & Hilgenfeld, R. (2015). Crystal structure of the peroxo-diiron(III) intermediate of Deoxyhypusine Hydroxylase, an oxygenase involved in hypusination. *Structure* **23**, 882-892.
- 12) Klinke, S., Otero, L.H., Rinaldi, J., Sosa, S., Guimarães, B.G., Shepard, W.E., Goldbaum, F.A. & Bonomi, H.R. (2014). Crystallization and preliminary X-ray characterization of the full-length bacteriophytochrome from the plant pathogen *Xanthomonas campestris* pv. *Campestris*. *Acta Crystallographica Section F* **70**, 1636-1639.
- 11) Aran, M., Smal, C., Pellizza, L., Gallo, M., Otero, L.H., Klinke, S., Goldbaum, F.A., Ithurrealde, E.R., Bercovich, A., Mac Cormack, W.P., Turjanski, A.G. & Cicero, D.O. (2014). Solution and crystal structure of BA42, a protein from the Antarctic bacterium *Bizionia argentinensis* comprised of a stand-alone TPM domain. *Proteins: Structure, Function, and Bioinformatics* **82**, 3062-3078.
- 10) Serer, M., Bonomi, H., Guimarães, B., Rossi, R., Goldbaum, F. & Klinke, S. (2014). Crystallographic and kinetic study of riboflavin synthase from *Brucella abortus*, a

chemotherapeutic target with an enhanced intrinsic flexibility. *Acta Crystallographica Section D* **70**, 1419-1434. (**Journal cover**)

- 9) De Berti, F., Capaldi, S., Ferreyra, R., Burgardt, N., Acierno, J., Klinke, S., Monaco, H. & Ermácora, M. (2013). The crystal structure of sterol carrier protein 2 from *Yarrowia lipolytica* and the evolutionary conservation of a large, non-specific lipid-binding cavity. *Journal of Structural and Functional Genomics* **14**, 145-53.
- 8) Rinaldi, J., Gallo, M., Klinke, S., Paris, G., Bonomi, H., Bogomolni, R., Cicero, D. & Goldbaum, F. (2012). The β -scaffold of the LOV domain of the *Brucella* light-activated histidine kinase is a key element for signal transduction. *Journal of Molecular Biology* **420**, 112-127.
- 7) Bonomi, H., Marchesini, M., Klinke, S., Ugalde, J., Zylberman, V., Ugalde, R., Comerci, D. & Goldbaum, F. (2010). An atypical riboflavin pathway is essential for *Brucella abortus* virulence. *PLoS One* **5**, e9435.
- 6) Primo, M., Klinke, S., Sica, M., Goldbaum, F., Jakoncic, J., Poskus, E. & Ermácora, M. (2008). Structure of the mature ectodomain of the human receptor-type protein-tyrosine phosphatase IA-2. *Journal of Biological Chemistry* **283**, 4674-4681.
- 5) Acierno, J., Braden, B., Klinke, S., Goldbaum, F. & Cauerhff, A. (2007). Affinity maturation increases the stability and plasticity of the Fv domain of anti-protein antibodies. *Journal of Molecular Biology* **374**, 130-146.
- 4) Klinke, S., Zylberman, V., Bonomi, H., Haase, I., Guimarães, B., Braden, B., Bacher, A., Fischer, M. & Goldbaum, F. (2007). Structural and kinetic properties of Lumazine synthase isoenzymes in the order Rhizobiales. *Journal of Molecular Biology* **373**, 664-680. (**Journal cover**)
- 3) Zylberman, V., Klinke, S., Haase, I., Bacher, A., Fischer, M. & Goldbaum, F. (2006). Evolution of vitamin B2 biosynthesis: 6,7-dimethyl-8-ribityllumazine synthases of *Brucella*. *Journal of Bacteriology* **188**, 6135-6142.
- 2) Klinke, S., Zylberman, V., Vega, D., Guimarães, B., Braden, B. & Goldbaum, F. (2005). Crystallographic studies on decameric *Brucella* spp. Lumazine synthase: a novel quaternary arrangement evolved for a new function? *Journal of Molecular Biology* **353**, 124-137.
- 1) Zylberman, V., Craig, P., Klinke, S., Braden, B., Cauerhff, A. & Goldbaum, F. (2004). High order quaternary arrangement confers increased structural stability to *Brucella* sp. lumazine synthase. *Journal of Biological Chemistry* **279**, 8093-8101.

INTERNATIONAL AWARDS

- 1996: Silver Medalist, 28th. International Chemistry Olympiad, Moscow, Russia
1995: Bronze Medalist, 27th. International Chemistry Olympiad, Beijing, China

EXPERIENCE IN PROTEIN CRYSTALLOGRAPHY

I have more than 19 years of research experience in the field of biological chemistry, more specifically in structural molecular biology and protein crystallography, including the following topics:

- Gene cloning. Recombinant expression, purification and crystallization of proteins.
 - In-house X-ray diffraction data collection in rotating anode and sealed tube generators.
 - Synchrotron X-ray diffraction data collection at the following stations: LNLS (Campinas, Brazil), NSLS (Brookhaven, USA), DESY (Hamburg, Germany), BESSY (Berlin, Germany), and SOLEIL (Paris, France).
 - Resolution, refinement and validation of protein structures.
 - To date, active participation in the resolution of more than 50 protein structures.
-

COMMUNICATIONS TO SCIENTIFIC MEETINGS AND CONGRESSES

To date, I have 135 presentations in Argentine and International meetings.

ACADEMIC ACTIVITIES AND PARTICIPATION IN SCIENTIFIC ASSOCIATIONS

2021-present: President, Argentinian Association of Crystallography (AACr).

2017-2021: Vice-president, Argentinian Association of Crystallography (AACr).

2017-present: Member of the Deliberative Council of the Latin American Association of Crystallography (LACA).

2011-2017: Secretary, Argentinian Association of Crystallography (AACr).

ADDITIONAL PROFESSIONAL ACTIVITIES

2013-present: Head of the Crystallography Node – Argentinian Platform for Structural Biology and Metabolomics “PLABEM” (www.plabem.gob.ar).

2011-present: Coordinator, Block Allocation Group for beamline access at the SOLEIL Synchrotron, France (10 groups from Argentina).

SCIENCE OUTREACH

2014-present: Member of the organizing committee of the Argentinian crystal growing competition for high school students.

LANGUAGES

Spanish (native), English and German (fluent), Portuguese (basic level).
