

Prof. Pablo Rivera Fuentes

Associate Professor of Bioorganic Chemistry
Department of Chemistry, University of Zurich
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PREVIOUS APPOINTMENTS

- 2019-2022: **Tenure-Track Assistant Professor of Chemical Biology**
EPF Lausanne, Institute of Chemical Sciences and Engineering,
Lausanne, Switzerland.
- 2015-2019: **Non-Tenure-Track Assistant Professor of Organic Chemistry**
ETH Zurich, Laboratory of Organic Chemistry, Department of Chemistry
and Applied Biosciences. Zurich, Switzerland
- 2014-2015: **Postdoctoral Research Assistant**
University of Oxford, Department of Chemistry
Oxford, United Kingdom
Research Advisors: Profs. Harry L. Anderson and Christian Eggeling
- 2012-2014: **Swiss National Science Foundation Postdoctoral Fellow**
Massachusetts Institute of Technology, Department of Chemistry.
Cambridge, MA, USA
Research Advisor: Prof. Stephen J. Lippard

EDUCATION

- 2009-2012: PhD in Chemistry, ETH Zurich. Zurich, Switzerland
Thesis title: "Chiral and Achiral Carbon-rich Chromophores: Synthesis
and Structure-Property Relationships."
- 2008-2009: MSc in Chemistry, ETH Zurich. Zurich, Switzerland
Thesis title: "The First Enantiomerically Pure Allenic-acetylenic
Macrocycle"
- 2003-2007: BSc in Chemical Engineering, National Autonomous University of
Mexico. Mexico City, Mexico
Thesis title: "Origin of the Anomeric Effect in the S-C-P Segment"

FELLOWSHIPS AND AWARDS

2019	Swiss National Science Foundation Eccellenza Grant
2018	European Research Council Starting Grant
2017	Best presentation award. 26 th Nachwuchswissenschaftler-Symposium Bioorganische Chemie, Berlin, Germany.
2017	Elected participant of the 9 th Young Investigators Workshop (Organic Division of EuCheMS).
2017	Junior Scientist Participant, 52 nd Bürgenstock Conference.
2013	ETH Medal for outstanding doctoral dissertation.
2012	Postdoctoral fellowship of the Swiss National Science Foundation.
2011	SCNAT/SCS Chemistry Travel Award.
2010	Invitee to the Roche Symposium – Leading Chemists.
2009	Swiss Chemical Industry Fellowship for PhD studies.
2007	National Council of Science and Technology (Mexico) Fellowship for MSc studies.

RESEARCH GRANTS

2020	EPFL SViPhD grant (granted, co-applicant, 130k CHF)
2019	SNF Eccellenza grant (granted, sole applicant, 1.5M CHF).
2019	SNF R'equip grant (granted, lead applicant, 300k CHF)
2018	ERC Starting grant (granted, sole applicant, 1.5M €)
2017	ETH Scientific Equipment Program (granted, co-applicant, 50k CHF)
2016	ETH Scientific Equipment Program (granted, sole applicant, 40k CHF)
2016	ETH Research grant (granted, sole applicant, 225k CHF)
2016	SNF Project funding (granted, sole applicant, 400k CHF)
2016	SNF R'equip grant (granted, co-applicant, 100k CHF)

RECENT PRESENTATIONS

2021	International Chemical Congress of Pacific Basin Societies (Pacifichem) 2021 (virtual meeting).
2021	1 st Symposium on Molecular Biosensing, Logic Lab ITN (virtual meeting).
2021	CliC Summer School, University of Frankfurt. Niedernberg, Germany.
2021	Plenary lecture, National Meeting of the Mexican Chemical Society (virtual meeting).
2021	Single Molecule Localization Microscopy Meeting. Lausanne, Switzerland.
2021	European Federation of Medicinal Chemistry, International Symposium on Medicinal Chemistry (virtual meeting).
2021	Rudolph Mössbauer colloquium, Max Planck Institute for Medical Research, Heidelberg, Germany (virtual meeting).
2021	Excite colloquium, ETH and University of Zurich, Zurich, Switzerland (virtual meeting).
2021	Keynote lecture, French/Swiss Photochemistry Symposium (virtual meeting)
2020	Keynote lecture, Young Medicinal Chemists Symposium, European Federation of Medicinal Chemistry (virtual meeting).
2020	Neuroscience seminar, University of Göttingen, Germany (virtual meeting).
2020	Inaugural Lecture. Swiss Federal Institute of Technology Lausanne (EPFL), Lausanne, Switzerland.
2020	32. Irsee Natural Products Meeting. Kloster Irsee, Germany.
2020	Chemical biology seminar, Technical University of Munich, Munich, Germany.

- 2019 Chemical biology seminar, University of Zurich, Zurich, Switzerland.
2019 Chemistry seminar, Hungarian Academy of Sciences, Budapest, Hungary.
2019 Chemistry seminar, University of Oregon, OR, USA.
2019 Gordon Research Conference, Artificial Molecular Switches and Motors, Holderness, NH, USA.
2019 Farewell Symposium of François Diederich, ETH Zurich, Zurich, Switzerland.
2019 ACS National Meeting and Exposition, Spring 2019, Orlando, FL, USA.
2019 Chemiedozententagung 2019, German Chemical Society, Koblenz, Germany.
2019 Dream Chemistry Lecture Series, Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland.
2019 NCCR Chemical Biology winter retreat, Morges, Switzerland.
2018 Chemical biology seminar, Laboratory of Molecular Biology, Medical Research Council, Cambridge, UK.
2018 Institute retreat invited talk, Institute of Organic Chemistry and New Materials of the University of Ulm, Riezlern, Austria.
2018 Chemical biology seminar, University of Cambridge, Cambridge, UK
2018 Chemical biology seminar, Swiss Federal Institute of Technology Lausanne (EPFL), Lausanne, Switzerland.
2017 Chemistry seminar, Ruhr University of Bochum, Bochum, Germany.
2017 26th Nachwuchswissenschaftler-Symposium Bioorganische Chemie, Technical University of Berlin, Berlin, Germany.
2017 EuCheMS Organic Division 9th Young Investigator Workshop, Bergisch-Gladbach, Germany.
2017 Gordon Research Conference, Physical Organic Chemistry, Holderness, NH, USA.
2017 SCNAT Young Faculty Meeting, Bern, Switzerland.
2017 Medicinal chemistry seminar, Sanofi-Aventis, Frankfurt, Germany.
2017 52nd SCS Stereochemistry "Bürgenstock" Conference, Brunnen, Switzerland.
2017 Organic chemistry seminar, University of Geneva, Geneva, Switzerland.
2016 Inaugural Lecture, ETH Zurich, Zurich, Switzerland.
2015 Royal Society of Chemistry ISACS16: Challenges in Chemical Biology, Zurich, Switzerland.
2015 Chemical biology seminar, Department of Chemistry, University of Oxford, UK.
2014 Institute seminar, Institute of Science and Technology (IST) Austria, Klosterneuburg, Austria.

SUPERVISION OF STUDENTS

- since 2015 Supervision of postdoctoral (5), PhD (11), MSc (4) and BSc (24) students. Department of Chemistry and Applied Biosciences, ETH Zurich, Zurich, and Institute of Chemical Sciences and Engineering, Lausanne, Switzerland.

TEACHING ACTIVITIES

- 2019 – 2022 Course CH-416: Chemical Biology of Cell Imaging. MSc in Chemistry. Section of Chemistry and Chemical Engineering. EPF Lausanne, Lausanne, Switzerland.
2016 – 2018 Course 529-0735-00 G: Chemical Aspects of Bioimaging. MSc in Chemistry and MSc Interdisciplinary Sciences. Department of Chemistry and Applied Biosciences, ETH Zurich, Zurich, Switzerland.

SERVICE TO THE ACADEMIC COMMUNITY

- since 2022 International Editorial Advisory Board: Helvetica Chimica Acta
2021–2022 Guest Editor for Current Opinion in Chemical Biology.
- since 2021 Early Career Editorial Board member: ChemPhotoChem.
2021 International evaluator for the French National Research Agency.
- since 2020 Early Career Editorial Board member: ACS Chemical Biology.
2020 Swiss Chemical Society Fall Meeting, September 6, Zurich, Switzerland.
Member of the organizing committee.
- 2019 Swiss Chemical Society Fall Meeting, August 25 (virtual meeting).
Member of the organizing committee.
- 2019 Farewell Symposium of François Diederich. Co-chair.
- 2019 SCNAT Young Faculty Meeting. Co-organizer.
- 2017 Swiss Chemical Society Fall Meeting, August 21–22, Bern, Switzerland.
Member of the organizing committee.
- 2017 Evaluator of the Reaxys PhD Prize 2017.
- 2017 International evaluator for the Frontier Research in Chemistry Foundation (France).
- 2016–2017 Organizer of the weekly Organic Chemistry Colloquium for two consecutive semesters, Department of Chemistry and Applied Biosciences, ETH Zurich, Zurich, Switzerland.
- 2016–2021 Board member, Division of Fundamental Research, Swiss Chemical Society. Switzerland.
- since 2015 Co-referee of 15 doctoral dissertations in Switzerland and abroad.

PUBLICATION LIST

From independent research:

C. Paganini, B. Hettich, M. R.G. Kopp, A. Eördögh, U. Capasso Palmiero, G. Adamo, N. Touzet, M. Manno, A. Bongiovanni, **P. Rivera-Fuentes**, J.-C. Leroux, P. Arosio *Adv. Healthcare Mater.* **2021**, *early view*. Rapid Characterization and Quantification of Extracellular Vesicles by Fluorescence-Based Microfluidic Diffusion Sizing.

J. Nguyen, A. Tirla, **P. Rivera-Fuentes**, *Org. Biomol. Chem.* **2021**, *19*, 2681. Disruption of Mitochondrial Redox Homeostasis by Enzymatic Activation of a Trialkylphosphine Probe.

A. Eördögh, C. Paganini, D. Pinotsi, P. Arosio, **P. Rivera-Fuentes**, *ACS Chem. Biol.* **2020**, *9*, 2597. A Molecular Logic Gate Enables Single-Molecule Imaging and Tracking of Lipids in Intracellular Domains.

E. A. Halabi, J. Arasa, S. Püntener, V. Collado-Diaz, C. Halin, **P. Rivera-Fuentes**, *ACS Chem. Biol.* **2020**, *15*, 1613. Dual-Activatable Cell Tracker for Controlled and Prolonged Single-Cell Labeling.

Z. Thiel, J. Nguyen, **P. Rivera-Fuentes**, *Angew. Chem. Int. Ed.* **2020**, *59*, 7669. Genetically Encoded Activators of Small Molecules for Imaging and Drug Delivery.

R. J. B. Schäfer, M. R. Monaco. M. Li, A. Tirla, **P. Rivera-Fuentes**, H. Wennemers, *J. Am. Chem. Soc.* **2019**, *141*, 18644. The Bioorthogonal Isonitrile–Chlorooxime Ligation

Z. Thiel, **P. Rivera-Fuentes**, *Angew. Chem. Int. Ed.* **2019**, *58*, 11474. Single-Molecule Imaging of Active Mitochondrial Nitroreductases Using a Photo-Crosslinking Fluorescent Sensor.

E. A. Halabi, D. Pinotsi, **P. Rivera-Fuentes**, *Nat. Commun.* **2019**, *10*, 1232. Photoregulated Fluxional Fluorophores for Live-Cell Super-Resolution Microscopy with No Apparent Photobleaching. *Highlighted in Nat. Methods* **2019**, *16*, 357.

A. Tirla, **P. Rivera-Fuentes**, *Biochemistry*, **2019**, *58*, 1184. Peptide Targeting of an Intracellular Receptor of the Secretory Pathway.

Z. Thiel, **P. Rivera-Fuentes**, *Chimia*, **2018**, *72*, 764–770. Photochemically Active Dyes for Super-Resolution Microscopy. *Invited review to the special issue "Bioorthogonal Chemistry"*

E. A. Halabi, S. Püntener, **P. Rivera-Fuentes**, *Helv. Chim. Acta* **2018**, *101*, e1800165. A Simple Probe for Super-Resolution Imaging of the Endoplasmic Reticulum in Living Cells. *Contribution to the special issue in honor of Prof. François Diederich.*

A. Tirla, M. Hansen, **P. Rivera-Fuentes**, *Synlett* **2018**, *29*, 1289–1292. Synthesis of Asparagusic Acid Modified Lysine and its Application in Solid-Phase Synthesis of Peptides with Enhanced Cellular Uptake. *Invited contribution to the Special Section 9th Young Investigators Workshop (EuCheMS Organic Division).*

G. Bassolino, E. A. Halabi, **P. Rivera-Fuentes**, *Synthesis*, **2018**, *50*, 846–852. Practical and Scalable Synthesis of 7-Azetidin-1-yl-4-(hydroxymethyl)coumarin: An Improved Photoremovable Group. *Invited contribution to the Bürgenstock Special Section 2017 Future Stars in Organic Chemistry.*

G. Bassolino, C. Nançoz, Z. Thiel, E. Bois, E. Vauthey, **P. Rivera-Fuentes**, *Chem. Sci.* **2018**, *9*, 387–391. Photolabile Coumarins with Improved Efficiency through Azetidinylation Substitution.

E. A. Halabi, Z. Thiel, N. Trapp, D. Pinotsi, **P. Rivera-Fuentes**, *J. Am. Chem. Soc.* **2017**, *139*, 13200–13207. A Photoactivatable Probe for Super-Resolution Imaging of Enzymatic Activity in Live Cells.

G. Bassolino, **P. Rivera-Fuentes**, *Chimia* **2016**, *70*, 796–799. Intracellular Photoactivation and Quantification using Fluorescence Microscopy: Chemical Tools and Imaging Approaches. *Invited review to the special issue New Faculty in Switzerland.*

A. Tirla, **P. Rivera-Fuentes**, *Angew. Chem. Int. Ed.* **2016**, *55*, 14709–14712. Development of a Photoactivatable Phosphine Probe for Induction of Intracellular Reductive Stress with Single-Cell Precision. *Highlighted in Chimia* **2017**, *71*, 45.

From postdoctoral, doctoral and undergraduate research:

Y. Xiong, **P. Rivera-Fuentes**, E. Sezgin, A. Vargas Jentzsch, C. Eggeling, H. L. Anderson, *Org. Lett.* **2016**, *8*, 3666–3669. Photoswitchable Spiropyran Dyads for Biological Imaging.

P. Rivera-Fuentes, S. J. Lippard, *Acc. Chem. Res.* **2015**, *48*, 2927–2934. Metal-Based Optical Probes for Live Cell Imaging of Nitroxyl (HNO).

C. Mügge, T. Marzo, L. Massai, J. Hildebrandt, G. Ferraro, **P. Rivera-Fuentes**, N. Metzler-Nolte, A. Merlino, L. Messori, W. Weigand, *Inorg. Chem.* **2015**, *54*, 8560–8570. Platinum(II) Complexes with O,S Bidentate Ligands: Biophysical Characterization, Antiproliferative Activity, and Crystallographic Evidence of Protein Binding.

P. Rivera-Fuentes, A. T. Wrobel, M. L. Zastrow, M. Khan, J. Georgiou, T. Luyben, J. C. Roder, K. Okamoto, S. J. Lippard, *Chem. Sci.* **2015**, *6*, 1944–1948. A Far-Red Emitting Probe for Unambiguous Detection of Mobile Zinc in Acidic Vesicles and Deep Tissue.

P. Rivera-Fuentes, S. J. Lippard, *ChemMedChem*, **2014**, *9*, 1238–1243. SpiroZin1: A Reversible and pH-Insensitive, Reaction-based, Red-fluorescent Probe for Imaging Biological Mobile Zinc.

A. T. Wrobel, T. C. Johnstone, A. D. Liang, S. J. Lippard, **P. Rivera-Fuentes**, *J. Am. Chem. Soc.* **2014**, *136*, 4697–4705. A Fast and Selective Near-Infrared Fluorescent Sensor for Multicolor Imaging of Biological Nitroxyl (HNO).

P. Rivera-Fuentes, M. von Wantoch Rekowski, W. B. Schweizer, J.-P. Gisselbrecht, C. Boudon, F. Diederich, *Org. Lett.* **2012**, *14*, 4066–4069. Cascade Carbopalladation Reaction between Alkynes and *gem*-Dibromoolefins: Facile Access to Monoannulated Pentalenes.

P. Rivera-Fuentes, F. Diederich, *Angew. Chem. Int. Ed.* **2012**, *51*, 2818–2828. Allenes in Molecular Materials.

V. Ehmke, J. E. Q. Quinsaat, **P. Rivera-Fuentes**, C. Heindl, C. Freymond, M. Rottmann, R. Brun, T. Schirmeister, F. Diederich, *Org. Biomol. Chem.* **2012**, *10*, 5764–5768. Tuning and Predicting Biological Affinity: Aryl Nitriles as Cysteine Protease Inhibitors.

C. M. Reisinger, **P. Rivera-Fuentes**, S. Lampart, W. B. Schweizer, F. Diederich, *Chem. Eur. J.* **2011**, *17*, 12906–12911. Cascade Pericyclic Reactions of Allenes-Acetylenes: Facile Access to Highly Substituted Cyclobutene, Dendralene, Pentalene, and Indene Skeletons.

F. Silvestri, M. Jordan, K. Howes, M. Kivala, **P. Rivera-Fuentes**, C. Boudon, J.-P. Gisselbrecht, W. B. Schweizer, P. Seiler, M. Chiu, F. Diederich, *Chem. Eur. J.* **2011**, *17*, 6088–6097. Regular Acyclic and Macrocyclic [AB] Oligomers by Formation of Push-Pull Chromophores in the Chain-Growth Step.

P. Rivera-Fuentes, B. Nieto-Ortega, W. B. Schweizer, J. T. López Navarrete, J. Casado, F. Diederich, *Chem. Eur. J.* **2011**, *17*, 3876–3885. Enantiopure, Monodisperse Alleno-acetylenic Cyclooligomers: Effect of Symmetry and Conformational Flexibility on the Chiroptical Properties of Carbon-rich Compounds.

P. Rivera-Fuentes, J. L. Alonso-Gómez, A. G. Petrovic, F. Santoro, P. Seiler, N. Harada, N. Berova, H. S. Rzepa, F. Diederich, *Chem. Eur. J.* **2010**, *16*, 9796–9807. Enantiomerically Pure Alleno-acetylenic Macrocycles: Synthesis, Solid State Structures, Chiroptical Properties, and Electron Localization Function Analysis.

A. Kraszewska, **P. Rivera-Fuentes**, G. Rapenne, J. Crassous, A. G. Petrovic, J. L. Alonso-Gómez, E. Huerta, F. Diederich, C. Thilgen, *Eur. J. Org. Chem.* **2010**, 4402–4411. Regioselectivity in Tether Directed Remote Functionalization - Reinvestigation of the Addition of a CTV Based Tris-Tether to C₆₀.

B. Buschhaus, V. Convertino, **P. Rivera-Fuentes**, J. L. Alonso-Gómez, A. G. Petrovic, F. Diederich, *Eur. J. Org. Chem.* **2010**, 2452–2456. Optically Active Trialkynyl(phenyl)methane: Synthesis and Determination of its Absolute Configuration by Vibrational Circular Dichroism (VCD) and Optical Rotatory Dispersion (ORD).

M. Yamada, **P. Rivera-Fuentes**, W. B. Schweizer, F. Diederich, *Angew. Chem. Int. Ed.* **2010**, 49, 3532–3535. Optical Stability of Axially Chiral Push-Pull-Substituted Buta-1,3-dienes: Effect of a Single Methyl Group on the C₆₀ Surface.

P. Rivera-Fuentes, J. L. Alonso-Gómez, A. G. Petrovic, F. Santoro, N. Harada, N. Berova, F. Diederich, *Angew. Chem. Int. Ed.* **2010**, 49, 2247–2250. Amplification of Chirality in Monodisperse, Enantiopure Allenyl-acetylenic Oligomers.

J. L. Alonso-Gómez, **P. Rivera-Fuentes**, N. Harada, N. Berova, F. Diederich, *Angew. Chem. Int. Ed.* **2009**, 38, 5545–5548. An Enantiomerically Pure Allenyl-acetylenic Macrocyclic: Synthesis and Rationalization of its Outstanding Chiroptical Response.

J. L. Alonso-Gómez, A. G. Petrovic, N. Harada, **P. Rivera-Fuentes**, N. Berova, F. Diederich, *Chem. Eur. J.* **2009**, 15, 8396–8400. Chiral Induction from Allenes to Twisted Tetracyanobutadienes (TCBDs): Conformational Assignment by Circular Dichroism (CD) Spectroscopy.

A. Kraszewska, **P. Rivera-Fuentes**, C. Thilgen, F. Diederich, *New J. Chem.* **2009**, 33, 386–396. First Enantiomerically Pure C₇₀-Adducts with a Non-inherently Chiral Addition Pattern.

J. L. Alonso-Gómez, P. Schanen, **P. Rivera-Fuentes**, P. Seiler, F. Diederich, *Chem. Eur. J.* **2008**, 14, 10564–10568. 1,3-Diethynylallenes (DEAs): Enantioselective Synthesis, Absolute Configuration, and Chiral Induction in 1,1,4,4-Tetracyanobuta-1,3-dienes (TCBDs).

BIBLIOMETRIC DATA (GOOGLE SCHOLAR)

- h-index: 23
- Total citations: 1502

Zurich, Switzerland
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