

JAMES PETER SÁENZ

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Employment

- 2016 –** **Group Leader**, B CUBE Center for Molecular Bioengineering, Technical University Dresden
- 2015 – 2016** **Postdoctoral Fellow**, Harvard OEB, Cambridge, MA and MPI-CBG, Dresden, Germany. *Mentors: Tony Hyman, Kai Simons and Colleen Cavanaugh*
- 2011 – 2015** **Postdoctoral Fellow**, MPI-CBG, Dresden, Germany. *Mentor: Kai Simons.*
- 2010** **Postdoctoral Associate**, MIT department of Earth Atmospheric and Planetary Sciences, Cambridge, MA. *Mentor: Roger Summons.*
- 2006 – 2010** **Doctoral Fellow** at the MIT-WHOI Joint Program, Cambridge and Woods Hole, MA. *Mentors: Tim Eglinton, Roger Summons.*

Education

- 2012** Physiology Course, Marine Biological Laboratory, Woods Hole, MA
- 2010** Ph.D. Marine Chemistry and Geochemistry, MIT-WHOI Joint Program in Oceanography, Cambridge, MA, USA.
- 2008** Microbial Diversity Course, Marine Biological Laboratory, Woods Hole, MA.
- 2004** B.A. Earth Sciences, Boston University, Boston, MA, USA.

Fellowships, Grants and Awards

- 2017** **Volkswagen Foundation Grant “Life?” – Design Principles of Living Membranes.** 1.5 million Euros for 5 years. Co-awardees: Maya Shuldiner (Weizmann Institute, Isreal), Robert Ernst (Universitätsklinikum des Saarlandes), Ilya Levental (University of Texas, Houston).
- 2015** **Simons Foundation Origins of Life Postdoctoral Fellowship**, Host: Harvard University, Department of Organismal and Evolutionary Biology, Cambridge, MA, USA.
- 2013** **National Science Foundation International Research Fellowship**, Host: MPI-CBG, Dresden, Germany.
- 2011** **Alexander von Humboldt Postdoctoral Fellowship**, Host: MPI-CBG, Dresden, Germany.
- 2009** Marine Biological Laboratory (MBL) **Microbial Diversity Course Award** to present course research project at the American Society for Microbiology meetings in May, 2009. Sponsored by the Moore Foundation.
- 2008** **Dan David Prize Doctoral Scholarship**, Tel Aviv, Israel (\$15,000).
- 2008** **MIT Scurlock Fund** awarded to support fieldwork at the Bermuda Atlantic Time-Series Station.
- 2007** **WHOI Coastal Ocean Institute Student Research Fund: Developing a Molecular Proxy for Cyanobacteria in Coastal Environments** (\$5,000).
- 2007** **WHOI Ocean Ventures Fund: Developing a Molecular Proxy for Marine Cyanobacteria** (\$15,000).
- 2006** **WHOI Coastal Ocean Institute Student Research Fund: Investigating Anaerobic Ammonium Oxidation in the Waquoit Bay Subterranean Estuary** (\$5,000).
- 2005** **European Association for Organic Geochemistry Student Travel Award:** funding for collaborative visit to the Royal Netherlands Institute for Sea Research, Texel, Netherlands.
- 2004** **NSF Graduate Research Fellowship** (Three years full support for graduate stipend and tuition).
- 2003** Undergraduate Research Opportunities Program (UROP) Conference Participation **Travel Award** for participation in 2003 American Geophysical Union Fall Meetings.

- 2003** University of Minnesota, Department of Geology and Geophysics Summer Internship (**NSF-REU**), Mentor: Dr. William Seyfried.
- 2003** Woods Hole Oceanographic Institution Summer Student Fellowship (**NSF-REU**), Mentor: Dr. Delia Oppo.
- 2003** Columbia University/Lamont-Doherty Earth Observatory Summer Internship (**NSF-REU**), declined.
- 2002** Mount Desert Island Biological Laboratory Undergraduate Student Fellowship (**NSF-REU**), Salisbury Cove, Maine. Mentors: Drs. Rolf Kinne and Evamira Kinne, Max Planck Institute of Molecular Physiology.

Invited Seminars

- 2018** ETH Zurich, Institute for Biochemistry, Zurich, Switzerland.
- 2018** Centro Andaluz de Biología del Desarrollo CABD, Seville, Spain.
- 2017** Medical Research Council Laboratory of Molecular Biology, Cambridge, UK.
- 2017** International Max Plank Graduate Research School for Molecular Biomedicine 11th annual meeting, Muenster, Germany.
- 2016** Vallee Foundation Summer Symposium, Rapallo, Italy (invited poster)
- 2016** Center for Genomic Regulation, Barcelona, Spain
- 2016** MPI for Terrestrial Microbiology, Marburg, Germany
- 2015** B CUBE, Dresden University of Technology, Dresden, Germany
- 2015** Annual Conference of the Association for General and Applied Microbiology (VAAM), Marburg, Germany
- 2014** California Institute of Technology, Department of Biochemistry and Molecular Biophysics, Pasadena, CA USA
- 2014** University of California Santa Barbara, Department of Molecular Cellular and Developmental Biology, Santa Barbra, CA USA
- 2014** Helmholtz Institute for Geosciences (GFZ), Department of Geomicrobiology, Potsdam, Germany
- 2013** MPI for Marine Microbiology and University of Bremen - MARUM (Center for Marine Environmental Studies), Bremen, Germany
- 2013** Swiss Federal Institute of Technology (ETH), Geological Institute - Department of Biogeosciences, Zürich, Switzerland
- 2013** MPI-CBG Institute Seminar, Dresden, Germany
- 2012** Goethe-University, Institute of Biochemistry, Frankfurt, Germany
- 2012** University of Bonn, Alexander von Humboldt Foundation Symposium, Bonn, Germany
- 2010** Invitation to Dissertations in Chemical Oceanography Symposium (DISCO XXII), Honolulu, Hawai'i. Sponsored by the National Science Foundation (NSF).
- 2009** Harvard University, Microbial Sciences Initiative, Cambridge, MA USA

Field Work

- 2009** Field expedition to the Liquid Jungle Laboratory on the island of Canales del Tierra, Panama.
- 2008** 5-day oceanographic cruise on the R/V Atlantic Explorer near the Bermuda Atlantic Time-series Study Station.
- 2008** 10-day oceanographic cruise on the R/V Oceanus along the N.W. African Margin.
- 2007** Field expedition to the Gerace Research Center on San Salvador, Bahamas.
- 2007** 21-day oceanographic cruise on the R/V Oceanus along the N.W. African Margin.
- 2005** 10-day oceanographic cruise on the R/V Endeavor Narragansett, RI to Narragansett, RI.
- 2004** 30-day oceanographic cruise on the R/V Knorr. Woods Hole, MA to Woods Hole, MA.

- 2003** 30-day oceanographic cruise on the Baruna Jaya VIII: Jakarta to Bali, Indonesia.
- 2002** 30-day geologic field expedition to the Neoproterozoic Otavi Group of northern Namibia.
- 2001** 30-day cruise on the SSV *Corwith Cramer* as part of the Sea Education Association (SEA) program.

Publications

- SÁENZ JP**, GROSSER D, BRADLEY A, LAGNY TJ, BRODA M, LAVRYNENKO O, SIMONS K. (2015). Hopanoids as functional analogues of cholesterol in bacterial membranes. *Proceedings of the National Academy of Science*. v. 112 (38): 11971-11976.
- STORDEUR C, HOFBAUER H, **SÁENZ JP**, ERNST, R. (2015) Homeostatic control of biological membranes by dedicated lipid and membrane packing sensors. *Biological Chemistry*, DOI: [10.1515/hsz-2015-0130](https://doi.org/10.1515/hsz-2015-0130).
- STORDEUR C, PUTH K, **SÁENZ JP**, ERNST, R. (2014) Crosstalk of lipid and protein homeostasis to maintain membrane function. *Biological Chemistry*, v. 395 (3): 313-326.
- SÁENZ JP**, SEZGIN E, SCHWILLE P, SIMONS K. (2012) Functional convergence of sterols and hopanoids in membrane ordering. *Proceedings of the National Academy of Science* v. 109 (35): 14236-14240.
- SÁENZ JP**, HOPMANS E, HENDERSON P, CHARETTE M, CASCIOTTI K, SCHOUTEN S, SINNINGHE DAMSTÉ J, EGLINTON TI. (2012) Distribution of anaerobic ammonia-oxidizing bacteria in a subterranean estuary. *Marine Chemistry* v. 136-137: 7-13.
- WAKEHAM SG, TURICH C, SCHUBOTZ F, PODLASKA A, LI XN, VARELA R, ASTOR Y, **SÁENZ JP**, RUSH D, SINNINGHE DAMSTÉ J, SUMMONS RE, SCRANTON MI, TAYLOR GT, HINRICHS K. (2012) Biomarkers, chemistry and microbiology show chemoautotrophy in a multilayer chemocline in the Cariaco Basin. *Deep Sea Research I* v. 63: 133-156.
- SÁENZ JP**, SUMMONS RE, EGLINTON TI, WATERBURY J. (2012) Hopanoids in marine cyanobacteria: probing their phylogenetic distribution and biological role. *Geobiology* v. 10 (4): 311-319.
- SÁENZ JP**, SUMMONS RE, EGLINTON TI, WAKEHAM SG. (2011) New constraints on the provenance of hopanoids in the marine geologic record: Bacteriohopanepolyols in marine suboxic and anoxic environments. *Organic Geochemistry* v. 42: 1351-1362.
- SÁENZ JP**, SUMMONS RE, EGLINTON TI. (2011) Abundance and structural diversity of bacteriohopanepolyols in suspended particulate matter along a river to ocean transect. *Organic Geochemistry* v. 42: 774-780.
- SÁENZ JP**. (2010) Exploring the Distribution and Physiological Roles of Bacterial Membrane Lipids in the Marine Environment. *Ph.D. Thesis. MIT/WHOI, 2010-18*
- SÁENZ JP**. (2010) Hopanoid enrichment in a detergent resistant membrane fraction of *Crocospaera watsonii*: Implications for bacterial lipid raft formation. *Organic Geochemistry* v. 41(8): 853-856.
- BRADLEY AS, PEARSON A, **SÁENZ JP**, MARX CJ. (2010) Adenosylhopane: the first step in biosynthesis of hopanoid side chains. *Organic Geochemistry* v. 41(10): 1075-1081.
- COOLEN MJL, **SÁENZ JP**, TROWBRIDGE N, GIOSAN L, EGLINTON TI. (2009) DNA and lipid molecular stratigraphic records of haptophyte succession in the Black Sea during the Holocene. *Earth and Planetary Science Letters* v. 284 (3-4): 610-621.
- PEARSON A, LEAVITT WD, **SÁENZ JP**, SUMMONS RE, TAM CM, AND CLOSE HG. (2008) Diversity of hopanoids and squalene-hopene cyclases across a tropical land-sea gradient. *Environmental Microbiology* v. 11 (5): 1208-1223.
- HILL WG, MATHAI JC, GENSURE RH, ZEIDEL JD, APODACA G, **SÁENZ JP**, KINNE-SAFFRAN E, KINNE R, ZEIDEL ML. (2004) Permeabilities of teleost and elasmobranch gill apical membranes: evidence that lipid bilayers alone do not account for barrier function. *American Journal Of Physiology-Cell Physiology*, v. 287 (1): C235-C242.
- SÁENZ JP**, KINNE R, AND KINNE-SAFFRAN E. (2003) Determination of the purity of membrane fractions isolated from flounder (*Pleuronectes Americanus*) gills by a selective biotin exposure technique. *Bulletin of the Mount Desert Island Biological Laboratory*, v. 42: 85-88.

HILL WG, MATHAI JC, GENSURE R, **SAENZ JP**, KINNE-SAFFRAN E, ZEIDEL ML, KINNE R. (2003) Studies of Osmoregulation in Teleosts and Elasmobranchs: Water and Solute Permeabilities of Apical Membranes Isolated From The Gills of Flounder (*Pleuronectes Americanus*) and Shark (*Squalus acanthias*). *Bulletin of the Mount Desert Island Biological Laboratory*, v. 42: 27-28.