

Laura Núñez Pons



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Current Position: ricercatore III° livello

Current Affiliation:

Section Sezione di Biologia ed Evoluzione di Organismi Marini (BEOM), Stazione Zoologica Anton Dohrn, Napoli (Italy) and Postdoctoral Fellow at Smithsonian Tropical Research Institute (STRI)

Education/Training/Experience

Institute and Location	Degree / Function	Year	Field of Study
Biology Faculty, Universitat de València, Spain	Licenciate (Laurea)	1998-2003	Biological sciences
IUSC, Universitat de Barcelona & Univesitat Politècnica de Barcelona, Spain	Master	2003-2004	Pollution and anthropogenic effects in marine environments
Department of Ecology, Universitat de Barcelona & Univesitat Politècnica de Barcelona, Spain	DEA Master	2003-2005	Marine Sciences Program – Project: Grazing and physiological responses in <i>Posidonia oceanica</i>
Department of Animal Biology, Universitat de Barcelona, Spain	Master	2005-2006	Taxonomy of Antarctic Anthozoa and Hydrozoa
Department of Animal Biology, Universitat de Barcelona, Spain	Ph.D.	2006-2012	Chemical Ecology in Antarctic Benthos
Hawai'i Institute of Marine	Postdoc	2013-2015	Coral reef symbiosis

Biology (HIMB) – University of Hawai’i at Manōa, USA			
Smithsonian Tropical Research Institute (STRI), Republic of Panama	Postdoc	2016-present	Microbial and nutritional coupling and sponge–corals interactions
Stazione Zoologica Anton Dohrn, Napoli, Italy	Ricercatore	2016-present	Marine Parasitology

Appointments and awards

Movility bursary for students coursing doctorate programs with mention of quality during the year course of 2003-2004.

Movility bursary for students coursing doctorate programs with mention of quality during the year course of 2004-2005.

Bursary by the enterprise PharmaMar in the frame of the technologic of the scientific project ECOQUIM-2 in the CEAB-CSIC institution for the collection and taxonomical identification of Antarctic invertebrate samples from January to March 2006.

I3P Postgrade Scholarship from the Ministry of Science of Spain from March until April 2006.

FPU PhD 4-year Scholarship from the Ministry of Education of Spain from may 2006 until June 2010 for PhD.

Bursary from the Universitat de Barcelona for attending the “1st Euro-Mediterranean Conference in Marine Natural Products” in Sharm el Sheik, Egypt in October-November 2008.

Bursary from the Universitat de Barcelona for attending the “6th European Conference in Marine Natural Products” in Porto, Portugal in July 2009.

Travel bursary from the PSE society for active participation to the “6th European Conference in Marine Natural Products” in Porto, Portugal in July 2009.

Bursary from REDES project-2010 to make a short stay of one month at the laboratory of the Chemistry of Marine Natural Products in the ICB-CNR in Pozzuoli, Naples (Italy).

Bursary from CAREX for attending the course on “Extreme Environments” in Pieve Tesino, Italy on June-July 2010.

Bursary from the Universitat de Barcelona for attending the “XIII MANAPRO Symposium of Marine Natural Products” in Phuket, Thailand in October 2010.

Bursary from the Universitat de Barcelona for finishing the PhD in December 2010.

Student/early career scientist support from the organization of the ISDSC 5 for participation in the ISDSC 5 (5th International Symposium of Deep Sea Corals), Amsterdam, The Netherlands 2012.

IAS (International Association of Sedimentologists)travel grant for participation in the ISDSC 5 (5th International Symposium of Deep Sea Corals), Amsterdam, Holland April 2012.

Assemble scholarship to attend to the Workshop on “Fuctional genomics of marine model organisms” Assemble, Stazione Zoologica Anton Dohrn, Napoli, Italia, 22nd-23rd May 2012.

Postdoctoral Research Fellow from Fundación Ramón Areces. XXV Announcement for fellows for extended studies in foreign countries on Iife Sciences and Materia for a postdoctoral stage of two years at the Institute of Marine Biology (HIMB) University of Hawai’i at Mānoa, Hawai’i, U.S.A, 2013-2014 and 2014-2015.

Grant from OWECS to attend the OIST Winter course "Evolution of Complex Systems" 2013 (OWECS 2013). OIST, Okinawa, Japan; December 2013.

Grant for the Course practical and theoretical "Light and Photosynthesis on Coral Reefs", UNAM & CICESE, Puerto Morelos, Méjico; January 20th - February 8th 2014.

Marie Curie Postdoctoral Research Fellowship in the frame of the European CO-FUND Program Beatriu de Pinós for a 2-year stage at the Smithsonian Tropical Research Institute (STRI), Bocas del Toro, Panamá, Jan-2016 to Jan-2018.

Grant from the Smithsonian Institution to attend the 49th Annual Symposium of the Society of Invertebrate Pathology, 24th-28th July 2016, Tours, France.

Researcher Posotion in Marine Parasitology, Stazione Zoologia Anton Dohrn (SNZ), Napoli, Italia, since September 2016.

GGI Exploratory Science Grant from Smithsonian Institution for supporting the project "Symbioses on the Rocks": Exploring Microbial and Nutritional Couplings of Coral Reef Architects" (\$13,427.78).

Involvement in funded projects:

Chemical ecology of Antarctic invertebrates; - 2 (ECOQUIM-2). CGL2004-03356/ANT . 2005-2007. IP: Dr. C. Avila.

Isolation of bioactive marine natural products with antifouling properties. HG-2005-0027. Acción Integrada (España-Grecia). IP: Dr. C. Avila.

Ecological activities of natural marine products of Antartic chemical ecology, (ACTIQUIM) CGL2007-65453/ANT. 2008-2010. IP: Dr. C. Avila.

Spanish network of diversity; Systemic evolution of working plan for assistance; (REDES) CTM2009-06185/E. 2010. IP: Dr. H. Dopazo.

Ecological activity of natural marine products of Antartica, chemical ecology; in-situ and alterations caused by human activity; (ACTIQUIM-II) CTM2010-17415/ANT. 2011-2013. IP: Dr. C. Avila.

"Regulation of Algal-Cnidarian Symbiosis" Santa Monica College Foundation Grant for Scientific Projects (PI: Dr. Garen Baghdasarian, Santa Monica College) October 2013 - November 2014.

Diversidad y estructura de comunidades bentonicas antarticas; Universitat de Barcelona (DiStAntCom). CTM2013- 42667/ANT. 2014-2016. IP: Dr. C. Avila.

Staying Alive: How to microbes help corals survive warming oceans?. Experiment.com Crowdfunding Platform. IP: Dr. Laura Núñez Pons. Co-Reserachers: Dr. Ross Cunning, Raphael Ritson-Williams. <https://experiment.com/projects/stayin-alive-how-do-microbes-help-corals-recover-from-bleaching>

Architects of Destruction: Investigation on *Speciospongia vagabunda* bioerosion. Undergraduate Research Opportunities Program (UROP). IP: Dr. Laura Núñez Pons & Dr. Ruth Gates.

"Symbioses on the Rocks": Exploring Microbial and Nutritional Couplings of Coral Reef Architects", PI: Dr. Laura Núñez Pons 2016-2018.

"MarineGEO/TMON Bocas del Toro", PI: Dr. Andrew Altieri & Dr. Janina Seemann 2016-2018.

"Community Ecology and Resilience of Marine and Coastal Ecosystems in Panama", PI: Dr. Andrew Altieri 2016-2018.

Bioactive marine natural products in a changing planet (BlueBio). CTM2016-78901-R. 2017-2019.
IP: Dr. C. Avila.

Cruises experience and international stages

Stay on board the BIO-Hespérides vessel and at the Spanish Antarctic Base Gabriel de Castilla in Deception Island, South Shetland Islands (Antarctica), collaborating in the Antarctic Campaign ECOQUIM-2 from December-January 2005-2006.

Short stay of 2 weeks at the laboratory of Pharmacological Chemistry at the University of Athens (Greece).

Stay of 3 months in the the frame of the FPU PhD scholarships program in the Istituto di Chimica Biomolecolare (ICB-CNR) in Pozzuoli, Napples (Italy) from September to December 2007.

Stay of 2 months in the the frame of the FPU PhD scholarships program in the Istituto di Chimica Biomolecolare (ICB-CNR) in Pozzuoli, Napples (Italy) from October to December 2008.

Stay on board the BIO-Las Palmas vessel and at the Spanish Antarctic Base Gabriel de Castilla in Deception Island, South Shetland Islands (Antarctica), collaborating in the Antarctic Campaign ACTIQUIM-1 from December-January 2008-2009.

Stay of 3 months in the the frame of the FPU PhD scholarships program in the Istituto di Chimica Biomolecolare (ICB-CNR) in Pozzuoli, Napples (Italy) from September to December 2009.

Stay on board the BIO-Las Palmas and BIO-Hespérides vessels and at the Spanish Antarctic Base Gabriel de Castilla in Deception Island, South Shetland Islands (Antarctica), collaborating in the Antarctic Campaign ACTIQUIM-2 from December-January 2009-2010.

Stay of 1 month in the the frame of the REDES-2010 scholarships program in the Istituto di Chimica Biomolecolare (ICB-CNR) in Pozzuoli, Napples (Italy) June-July 2010.

Stay of 1 month and a half in the Istituto di Chimica Biomolecolare (ICB-CNR) in Pozzuoli, Napples (Italy) June-July 2010.

Stay of 1 month and a half in the Istituto di Chimica Biomolecolare (ICB-CNR) in Pozzuoli, Napples (Italy) November-December 2010.

Stay of 1 month and a half in the Istituto di Chimica Biomolecolare (ICB-CNR) in Pozzuoli, Napples (Italy) June-July 2011.

Stay on board the BIO-Las Palmas and BIO-Hespérides vessels and at the Spanish Antarctic Base Gabriel de Castilla in Deception Island, South Shetland Islands (Antarctica), collaborating in the Antarctic Campaign ACTIQUIM-3 from December-February 2011-2012.

Stay at the Spanish Antarctic Base Gabriel de Castilla in Deception Island, South Shetland Islands (Antarctica), collaborating in the Antarctic Campaign ACTIQUIM-4 from January-March 2013.

PostDoctoral research stage project “Functional biology of microbial symbioses involved in competitive ecological spatial interactions between scleractinian corals and bioeroding sponges in reef ecosystems”, from October 1st 2013 (ongoing) at HIMB (University of Hawai’i at Manōa) Hawai’i, U.S.A.

PostDoctoral research contract (Oct-Dec 2015) on the projects “Fungi associated to marine hosts and their role in ecological interactions and host ecology”, from October 1st 2015 (ongoing) at Amend’s Lab (University of Hawai’i at Manōa) Hawai’i, U.S.A.

PostDoctoral 2-year research stage with the projects ““Symbioses on the Rocks’: Exploring Microbial and Nutritional Couplings of Coral Reef Architects”, “MarineGEO/TMON Bocas del

Toro”, and “Community Ecology and Resilience of Marine and Coastal Ecosystems in Panama”, from December 30th 2015 (ongoing) at STRI (Smithsonian Tropical Research Institute) Panamá.

Research Fellow in Marine Parasitology, Stazione Zoologica Anton Dohrn (SNZ), Napoli, Italia, since September 2016.

Past professional experience

Member

Research Fellow in Marine Parasitology since September 2016 at the Stazione Zoologica Anton Dohrn di Napoli (Italia): Symbiosis, disease and adaptation in marine invertebrates.

PostDoctoral research fellow from December 30th 2015 (ongoing) at Altieri’s Lab, STRI (Smithsonian Tropical Research Institute) Panamá, Project: “‘Symbioses on the Rocks’: Exploring Microbial and Nutritional Couplings of Coral Reef Architects”.

PostDoctoral research collaboration from January 25th 2016 (ongoing) at Altieri’s Lab, STRI (Smithsonian Tropical Research Institute) Panamá, Project: “MarineGEO/TMON Bocas del Toro”, employing NGS for determination of microbiome symbiont community composition, isotopes and field work.

PostDoctoral research collaboration from January 25th 2016 (ongoing) at Altieri’s Lab, STRI (Smithsonian Tropical Research Institute) Panamá, Project: “Community Ecology and Resilience of Marine and Coastal Ecosystems in Panama”, participating in the collections and field work.

PostDoctoral contract/research from September 2015 (ongoing) at Amend’s Lab in collaboration with HIMB (both, University of Hawai’i at Manōa) Hawai’i, U.S.A., Project: “FungAsso: Fungal communities associated to marine hosts and their role in ecological interactions and host ecology”, employing NGS amplicon sequencing (ribosomal DNA ITS-1) with PNA PCR clamping techniques, and MiSeq (Illumina) for determination of fungal community compositions in several marine hosts (corals, sponges, sea stars).

PostDoctoral contract/research from October 2015 (ongoing) at Amend’s Lab (both, University of Hawai’i at Manōa) Hawai’i, U.S.A., Project: “Associated fungal communities in autochthonous plants from Hawai’i”, employing NGS amplicon sequencing (ribosomal DNA ITS-1) and MiSeq (Illumina) for determination of fungal compositions in several local Hawai’ian plants.

PostDoctoral research from October 2013 (ongoing) at the HIMB (University of Hawai’i at Manōa) Hawai’i, U.S.A., Project: “SymbioFunk: Functional biology of microbial symbioses involved in competitive ecological spatial interactions between bioconstructing scleractinian corals and bioeroding sponges in reef ecosystems”, employing amplicon deep sequencing (ribosomal DNA 16S, ITS-2 and ITS-1) on MiSeq (Illumina) for determination of bacterial/archaeal, *Symbiodinium* and fungal community composition, and confocal microscopy for anatomical analysis of microbial distribution patterns.

PostDoctoral research collaboration HIMB – Università Politecnica delle Marche – Università degli Studi di Genova from May 2013 (ongoing) at Project: “Kane’oPor: Description of boring sponge fauna from Kane’ohe Bay, with DNA-Barcoding and abundance distribution”; abundance analysis using quadrat and transect methodology on the field by scuba-diving, and species description by morphological analysis of spicules and DNA-Barcoding on COI-extended region recommended for sponges with Sanger sequencing.

Postdoctoral research collaboration Universitat de Barcelona - HIMB Project “Odontiña: Descriptive study of a new potential disease in the Antarctic sea asteroid *Odontaster validus*” from February 2013 (ongoing); analysis of tissue samples from healthy and affected (sea stars with

morphological signs of disease) specimens, including the characterization of microbial communities integrating deep sequencing (ribosomal DNA 16S) on new generation sequencing platforms, MiSeq (Illumina), in the search for potential pathogenic agents; along with histological studies using as imaging, optic, electronic (SEM, TEM), and confocal microscopy.

PostDoctoral research collaboration on the project "Regulation of Algal-Cnidarian Symbiosis" with Santa Monica College - HIMB (University of Hawai'i at Manōa) from November 2013 (ongoing), performing field and laboratory work using *Aiptasia pulchera* as model organism to study heat stress bleaching effects on the physiology and symbiont community, through molecular techniques of amplicon deep sequencing (ITS-2) on MiSeq (Illumina) for determining *Symbiodinium* community composition.

Postdoctoral collaborator at the Universitat de Barcelona November 2013 - September 2014; preparing the Antarctic Campaign ACTIQUIM-4, processing of Antarctic invertebrate samples for chemical analysis, studying morphological signs of disease in Antarctic sea stars, imaging analysis of Antarctic sponge specimens for studies of reproduction, writing of scientific manuscripts for publications, and preparing new project proposals and oral and poster presentations for two International symposiums.

Collaboration in the Antarctic Campaign ECOQUIM-2 December-January 2005-2006 on board the BIO-Hespérides boat and stay at Spanish Antarctic Base Gabriel de Castilla in Deception Island, participating in the collection of Antarctic invertebrate samples from boat trawling and conducting *in situ* repellency experiments using Antarctic marine predators for chemical ecology studies.

Collaboration in the Antarctic Campaign ACTIQUIM-1 December-January 2008-2009 staying at the Spanish Antarctic Base Gabriel de Castilla in Deception Island, participating in the collection of Antarctic invertebrate samples by scuba diving and conducting various types of *in situ* experiments for chemical ecology studies, including antibacterial-antifouling, antifeedant, toxicity, and anti-developmental bioassays using Antarctic invertebrate organisms.

Collaboration in the Antarctic Campaign ACTIQUIM-2 December-January 2009-2010 staying at the Spanish Antarctic Base Gabriel de Castilla in Deception Island, participating in the collection of Antarctic invertebrate samples by scuba diving and conducting various types of *in situ* experiments for chemical ecology studies, including antibacterial-antifouling, antifeedant, toxicity, and anti-developmental bioassays using Antarctic invertebrate organisms.

Collaboration in the Antarctic Campaign ACTIQUIM-3 December-February 2011-2012 staying at the Spanish Antarctic Base Gabriel de Castilla in Deception Island, participating in the collection of Antarctic invertebrate samples by scuba diving and conducting various types of *in situ* experiments for chemical ecology studies, including antibacterial-antifouling, antifeedant, toxicity, and anti-developmental bioassays using Antarctic invertebrate organisms.

Collaboration in the Antarctic Campaign ACTIQUIM-4 January-March 2013 staying at the Spanish Antarctic Base Gabriel de Castilla in Deception Island, participating in the collection of Antarctic invertebrate samples by scuba diving and conducting various types of *in situ* experiments for chemical ecology studies, including antibacterial-antifouling, antifeedant, toxicity, and anti-developmental bioassays using Antarctic invertebrate organisms. Abundance transects were also conducted studying the most common species of echinoderms in the area.

Contracted for PharmaMar Enterprise from december 2005 until February 2006, including funding for participating in an Antarctic campaign in December 2005-January 2006 for sample collection and taxonomical identification of Antarctic invertebrates.

Professor assistant in practical courses of animal zoology for students at 1st and 3rd year of Biology at the University of Barcelona during the year courses: 2006-2007, 2007-2008, 2008-2009 and 2009-2010.

Practical laboratory and field work in marine biology at the Centre de Estudis Avançats de Blanes (CEAB-CSIC), Girona, Catalonia Spain May-December 2005.

Environmental instructor at Itaca, Arenys de Mar February 2005 to June 2005.

Environmental instructor at the CRAM (Center for Recuperation of Marine Animals) December-July 2003-2004.

Other relevant information

Member of Member of Review Editorial Board of Frontiers in Marine Science

Reviewer of several journals: *Molecules*, *Comparative Biochemistry and Physiology*, *Frontiers in Marine Science: Marine Biotechnology*

Local coordinator - participant in one USA funded project, one EU-funded project and one Italian project

Professional Diver down to 30m of depth (BPPP).

Titles in recreative diving: “Open Water”, “Advanced Diver”, “Rescue Diver” and “Dive Master” from PADI with more than 635 dives.

Experienced in polar diving with dry suit with 85 Polar dives.

US Scientific Diver Title.

Certificate of US Boating State of Hawai'i (US Coast Guard)

Certificate for Small Motor Boat Driving in National Waters of Panama

Students' Supervision/Guidance

Guidance of two undergraduate students, five graduate students, two Ph.D. students and one postdoctoral researcher

Publications

Author of 20 publications on ISI-journals (h index: 8) and 2 book chapters

List of publications of the last 10 years

Peer-reviewed publications:

Núñez-Pons L., Gates R., Baghdasarian G., Symbiotic adjustments for thermal and light acclimation using cnidarian-dinoflagellate model holobionts. *Marine Ecology Progress Series*. *In press*

Moles J., Núñez-Pons L., Taboada S., Cristobo J., Avila C. 2016. Incidence of anti-predatory chemical defenses in Antarctic benthic organisms. *Marine Biology* 162:1813–1821.

Núñez-Pons L., and Avila C. 2015. Natural products mediating ecological interactions in Antarctic ecosystems: A mini-Review of the known molecules. *Natural Product Reports* 32 1114 - 1130.

Núñez-Pons L., Nieto R., M^a Avila C., Jiménez C., and Rodríguez J., 2014. Mass Spectrometry Detection of Minor New Meridianins from Antarctic Colonial Ascidians *Aplidium falklandicum* and *A. meridianum*., *Journal of Mass Spectrometry*., DOI 10.1002/jms.,3502.

- Núñez-Pons L., and Avila C., 2014., Defensive Metabolites from Antarctic Invertebrates: Does Energetic Content Interfere with Feeding Repellence?., *Marine Drugs* 12:3770-3791.
- Figuerola B., Núñez-Pons L., Monleón-Getino A., and Avila C. 2014. Chemo-ecological interactions in Antarctic bryozoans., *Polar Biology* 37(7):1017-1030.
- Carbone M., Núñez-Pons L., Ciavatta M., L., Castelluccio F., Avila C., and Gavagnin M. 2014. Occurrence of a taurine derivative in an Antarctic glass sponge., *Natural Products Communications* 9(4):469-470.
- Núñez-Pons L., and Avila C., 2014. Deterrent activities in the crude lipophilic fractions of Antarctic benthic organisms: chemical defenses towards keystone predators., *Polar Research* 33 21624.
- Figuerola B., Núñez-Pons L., Moles J., and Avila C. 2013. Feeding repellence in Antarctic bryozoans. *Naturwissenschaften* 100(11):1069-1081.
- Núñez-Pons L., Carbone M., Vázquez J., Gavagnin M., and Avila C., 2013. Lipophilic defenses of *Alcyonium* soft corals from Antarctica., *Journal of Chemical Ecology*: 39(5):675-685.
- Taboada S.,* Núñez-Pons L.,* and Avila C. 2013., Feeding repellence of Antarctic benthic invertebrates against the omnivorous seastar *Odontaster validus* Koehler 1906. *Polar Biology* 36(1):13-25. *Authors with equal contributions.
- Núñez-Pons L., Carbone M., Vázquez J., Rodríguez J., Nieto R., M^a Varela M^a M., Gavagnin M., and Avila C. 2012. Natural products from Antarctic colonial ascidians of the genera *Aplidium* and *Synoicum*: variability and defensive role., *Marine Drugs* 10(8):1741-1764.
- Núñez-Pons L., Rodríguez-Arias M., Gómez-Garreta A., Ribera-Siguan A., and Avila C. 2012. Feeding deterrency in Antarctic marine organisms: bioassays with the omnivore amphipod *Cheirimedon femoratus*., *Marine Ecology-Progress Series* 462:163-174.
- Carbone M., Núñez-Pons Paone M., L., Castelluccio F., Avila C and Gavagnin M. 2012. Rossinone-related meroterpenes from the Antarctic tunicate *Aplidium fuegiense*., *Tetrahedron* 68:3541-3544.
- Núñez-Pons L., Carbone M., Paris D., Melck D., Ríos P., Cristobo J., Castelluccio F., Gavagnin M., and Avila C. 2012. Chemo-ecological studies on hexactinellid sponges from the Southern Ocean., *Naturwissenschaften* 99(5):353-368.
- Ballesteros M., Núñez-Pons L., Vázquez J., Cristobo F., J., Taboada S., Figuerola B., Avila C. 2011. Ecología química en el bentos antártico. *Ecosistemas* 20(1):54-68.
- Núñez Pons L., Forestieri R., Nieto R., M., Varela M., Nappo M., Rodríguez J., Jiménez C., Castelluccio F., Carbone Ramos-Esplá A., M., Gavagnin M., and Ávila C. 2010. Chemical defenses of tunicates of the genus *Aplidium* from the Weddell Sea (Antarctica)., *Polar Biology* 33(10):1319-1329.
- Carbone M., Núñez Pons L., Castelluccio F., Avila C., and Gavagnin M., Illudalane Sesquiterpenoids of the Alcyopterosin Series from the Antarctic Marine Soft Coral *Alcyonium grandis*. 2009. *Journal of Natural Products* 72(7): 1357-1360.

Avila C., Taboada S., and L., Núñez-Pons., Antarctic marine chemical ecology: what's next?. 2008. Marine Ecology: An Evolutionary perspective 29: 1-70.

Book Chapters:

Avila C., Núñez-Pons, L. and Moles J. 2016. From the Tropics to the Poles: A Comparison of Chemical Defensive Strategies in Sea Slug Molluscs (Euthyneura). Book Chapter in: Marine Chemical Ecology (CRC Marine Science) J. B. McClintock & B. J. Baker (eds.) CRC Press 2 Edition. *In press*.

Figuerola, B., Núñez-Pons, L., Vázquez, J., Taboada, S., Cristobo, F.J., Ballesteros, M. and Avila, C. 2012. Chemical Interactions in Antarctic Marine Benthic Ecosystems. Book Chapter in: A. Cruzado (eds.) Marine Ecosystems. Oceans Catalonia International SL, Blanes, Spain. In Tech Open Access Publisher of Scientific Books and Journals. 105-126 On line: <http://www.intechopen.com/articles/show/title/chemical-interactionsin-antarctic-marine-benthic-ecosystems>