

## Dr. Patricia CASTILLO-BRICENO

Researcher and scientific advisor. My research goes on biomedicine applied to assess the effect of environmental alterations in animal systems and ecosystems health. I am interested in uncover mechanisms able to alter the functioning of components and tissues highly conserved across species, such as collagen and mucosal epithelia, and to modulate their physiological outcomes.

In addition, I promote diversity in science, science communication, and science-policy interactions.

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### PROFILE LINKS

Google Scholar <https://scholar.google.com.ec/citations?user=VN5SwaEAAAAJ>  
Publons ID <https://publons.com/a/667541>  
ORCID <http://orcid.org/0000-0001-9122-6002>  
ResearchGate [https://www.researchgate.net/profile/Patricia\\_Castillo-Briceno2](https://www.researchgate.net/profile/Patricia_Castillo-Briceno2)

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### LANGUAGES

**Spanish** (native speaker)  
**English** (advanced)  
**French** (intermediate)  
**Portuguese** (reading)

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### ACADEMIC DEGREES

Sep 2010 **Doctorate - PhD “Cum Laude”, European Mention.** Subject: “Implication of extracellular matrix related molecules in the immune response and spermatogenesis in the teleost fish gilthead seabream”. Official program on Integration and modulation of signalling in Biomedicine. University of Murcia. Spain.

Mar 2016 **Master in Sciences in Marine Aquaculture.** Study of case: “The extracellular matrix in immunity and its potential for improving the production in fish aquaculture”. Polytechnic Superior School of Littoral (ESPOL), Ecuador.

Sep 2007 **Master in Technology and Research in Experimental Biomedical Sciences.** Thesis: “Collagen and related molecules like activators of phagocytic cells in fish and mammals”. Postgraduate Official Program in Integration and modulation of signalling in Biomedicine. U. of Murcia. Spain.

Feb 2003 **Marine Biologist.** Thesis: “Study of water status on artesian fishery areas in Chone river estuary, Manabí, Ecuador based on microbiological indicators, since April to August 2002”. Catholic University of Ecuador - PUCE. Coastal Resources Program. Ecuador.

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### SCIENTIFIC EXPERIENCE

Nov 2016 - currently **Research Professor.** Faculty of Marine Sciences. ULEAM University - Universidad Laica Eloy Alfaro de Manabí. **Ecuador.**

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Mar 2014 - currently. **Co-Director**. Equatorial Biome & Ocean Acidification - EBIOAC Group. Ecuador. Subject: Impact of Ocean Acidification on ecosystems health and implications for food sovereignty.

Feb - Jun 2017 **Director (E)**. Central Research Department. ULEAM University. **Ecuador**.

Mar - Oct 2016 **Associate Professor**. Faculty of Marine Sciences. ULEAM University. **Ecuador**.

Feb 2014 - Feb 2015 **Visitor Researcher**. Prometeo Project. National Secretary of Higher Education, Science, Technology and Innovation - SENESCYT / Escuela Superior Politécnica del Litoral - ESPOL. **Ecuador**.

Jan 2012 - Nov 2013 **Researcher / Postdoctoral Researcher**. Institute of Developmental Biology of Marseille - IBDM, CNRS / University Aix-Marseille. Subject: The role of sex steroids in mucociliary epithelia. **France**.

Nov 2010 - Dic 2011 **Postdoctoral Fellow**. IBDM, CNRS / Aix-Marseille University. Subject: Role of microRNAs and effect of sex steroids in ciliogenesis. **France**.

Oct 2006 - Sep 2010 **Doctoral Researcher**. Dep. Cell Biology and Histology, U. of Murcia. Subject: Study of extracellular matrix molecules involved in the reproductive and immune systems in teleost fish. **Spain**.

Sep - Dec 2009 **Research Visitor**. M Nilges Lab, Dep. Structural Biology & Chemistry, Institute Pasteur. Subject: Use of bioinformatics for modelling of collagen receptors in the teleost fish gilthead seabream, *Sparus aurata* L. **France**.

Sep - Dec 2008 **Research Visitor**. RW Farndale Lab, Dep. of Biochemistry, University of Cambridge. Subject: Presence and binding activity of collagen receptors in a teleost fish using toolkits for collagens II & III. **United Kingdom**.

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#### ADVISING, REVIEWING AND EVALUATION EXPERIENCE

Feb-May 2018, Feb-May 2020 External Expert. Projects assessment on Higher Education. EACEA Agency of European Commission. Belgium.

Feb 2019 National Research Expert. Workshop for planning of the Cooperation Program between Ecuador and Deutschland on research for application in Biodiversity and Climate Change. GIZ, INABIO - MAE. Ecuador.

Apr - Sep 2018 External Expert. Postgraduate programs assessment on Higher Education. CES (the National Council of Higher Education). Ecuador.

Jun 2017 - 2019. External Advisor. Ethics Committee for Research on Human - CEISH. Instituto Nacional de Investigación en Salud Pública Leopoldo Izquieta Pérez - INSPI-LIP. Ecuador. Subject: Experimental Biomedicine.

Ene 2017 International reviewer. PhD in Cellular Biology. UM. Spain. Subject: Functional characterization of mast cells and histamine in the immune system of gilthead seabream (*Sparus aurata*).

Abr-Dic 2016 Peer reviewer. Internal institutional assessment for CEAACES (the national council for higher education accreditation), for the Universities UTA, ULEAM, UNEMI. Ecuador.

2014-2015 Reviewer. FLOK Society, Sustainable models and public policy making for a social economy of open and commoning knowledge in Ecuador. IAEN-CIESPAL. Ecuador.

Apr 2015 Reviewer. 'Banco de Ideas' Contest for Building the Social Innovation Ecosystem in Ecuador. SENESCYT. Ecuador.

Jul – Aug, Dec 2014 Jury. Contests of postgrad and undergrad Research Recognition: Grants 2014. Zonal and National level. SENESCYT. Ecuador.

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Oct 2013 International reviewer. PhD in Cellular Biology. UM. Spain. Subject: Effect of testosterone on reproductive and immune systems of gilthead seabream (*Sparus aurata* L.).

Jul 2011 International reviewer and jury. PhD in Cellular Biology. UM. Spain. Subject: Modulation of the immune response by hormones and reproductive factors in teleosts.

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## PROJECTS PARTICIPATION

CRP (Coordinated Research Project) 'Impacts of Ocean Acidification on Growth and Food Quality Properties of the White Shrimp (*Litopenaeus vannamei*): Implications on Food Sovereignty' in the Call for 'Evaluating the Impact of Ocean Acidification on Seafood - a Global Approach' - Technical Cooperation Project by the International Atomic Energy Agency - IAEA. 2019 - 2021. Role: Chief Scientific Investigator.

INT7019 - Supporting a Global Ocean Acidification Observing Network towards Increased Involvement of Developing States. Technical Cooperation Project by the International Atomic Energy Agency - IAEA. 2016-2019. Role: National Counterpart of Ecuador.

Intervention of ocean acidification in marine species physiology and implications for food sovereignty. Entity: ULEAM University. 12/2016 - open. Ecuador. Role: Director

Sciences, Arts and Community in Ecuador. Conferences 'The art of Science - The science of Art'. ESPOL and SENESCYT. Ecuador. 05/2014 - 01/2015. Role: Director and Co-Organizer.

Effects of Ocean Acidification on health of fish from Equatorial waters: Impact on epithelial repairing processes. Entity: ESPOL - SENESCYT. Ecuador. 02/2014 - 02/2015. Role: Director.

Effect of sex steroids on vertebrate mucociliary epithelia. Fondation pour la Recherche Medicale. France. 02/2012 - 11/2013. Role: Principal researcher (Postdoc grant)

Control of motile ciliogenesis in tetrapod. ANR. France. 01/2011 - 12/2014. Role: Researcher

Characterization of inflammatory response in fish and development of animal models for aquaculture and biomedicine. Entity: MEC. 01/2009 - 12/2011. Role: Researcher (Postdoc grant)

Improvement of production in the Mediterranean aquaculture by the use of biotechnological tools. Seneca Foundation. Spain. 01/2008 - 12/2012. 04538/GERM/06. Role: Researcher

Effect of environmental pollutants of estrogenic nature in the immune response and breeding of fish. Entity: MICINN, Spain. 01/2009 - 12/2011. AGL2008-04575-c02-01. Role: Researcher

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## SELECTED PUBLICATIONS

### Scientific Papers

**P Castillo-Briceno**, L Kodjabachian. (2014) Xenopus embryonic epidermis as a mucociliary cellular ecosystem to assess the effect of sex hormones in a non-reproductive context. *Frontiers in Zoology* 11(1):9. doi:10.1186/1742-9994-11-9.

**P Castillo-Briceno**, S Águila-Martínez, S Liarte, A García Alcázar, J Meseguer, V Mulero, A García-Ayala. (2012) In situ forming microparticle implants for delivery of sex steroids in fish: Modulation of the immune response of gilthead seabream by testosterone. *Steroids* 78(1):26-33.

**P Castillo-Briceno**, D Bihan, M Nilges, S Hamaia, J Meseguer, A García-Ayala, RW Farndale, V Mulero (2011) A role for specific collagen motifs during wound healing and inflammatory response of fibroblasts in the teleost fish gilthead seabream. *Mol Immunol.* 48(6-7):826-34.

**P Castillo-Briceno**, M Arizcun-Arizcun, J Meseguer, V Mulero, A García-Ayala (2010) Correlated Expression Profile of Extracellular Matrix-Related Molecules during the Inflammatory Response of the Teleost Fish Gilthead Seabream. *Dev Comp Immunol.* 34(10):1051-8.

## Books and Chapters

- C Garcia-Soto , D Breitburg, M Campillos, **P Castillo-Briceno**, S Chiba et al. (2021) Chapter 9: Pressures from Changes in Climate and Atmosphere. In: Second World Ocean Assessment, Regular Process for Global Reporting and Assessment of the State of the Marine Environment, including Socioeconomic Aspects. United Nations.
- R Basantes Serrano (ed); L Maisincho Guagrilla, V Cevallos Viteri, JL Santos Dávila,..., **P Castillo-Briceno** (contributors). (2017). Advances in Climate Change Adaptation in Ecuador. In: 3rd National Communication of Ecuador on Climate Change. pp1,3,255-452. Ministerio del Ambiente del Ecuador - MAE. Ecuador. ISBN 976-994-22-145-2.
- XE Barandiaran, D Araya y D Vila-Viñas (authors); **P Castillo-Briceno**, N Baur & A Calleja-López (contributors). (2015) Science: Collaborative, participative and open research. En: FLOK Society: public policy and sustainable models for a social economy of common and open knowledge in Ecuador. Ecuador: IAEN-CIESPAL. ISBN 978-9942-21-120-0. <http://book.floksociety.org/ec/>.
- P Castillo-Briceno** (2010) Implication of extracellular matrix related molecules in the immune response and spermatogenesis in the teleost fish gilthead seabream. Book reviewed. University of Murcia. ISBN: 978-84-693-8998-0.

## International Conference Proceedings & Abstracts

- P. Castillo-Briceno (2020) Mucosa as model for researching in biomedicine and biodiversity. **Virtual International Symposium "Challenges for Latin-America in the post-COVID era"**. Conference.
- P Castillo-Briceno, F Navarrete-Mier (2019) International Technical Support Is A Key Factor To Develop Ocean Acidification In Developing Countries - Ecuador Experience. **4th Global Ocean Acidification Observing Network (GOA-ON) International Workshop**. China. Plenary Talk.
- P Castillo-Briceno, F Navarrete-Mier. (2016) Building capacities and bridging gaps on Ocean Acidification research for equatorial developing countries: Ecuadorian experience. **4th International Symposium on the Ocean in a High-CO2 World**, and **3rd GOA-ON Science Workshop**. Australia. Poster.
- P Castillo-Briceno, F Navarrete-Mier. (2015) Sciences, Arts and Community: A Proposal for Integrative and Open Knowledge. **International Congress of Pedagogy. Cuba**. Poster.

## National Conference Proceedings & Abstracts

- S. Vélez-Moreira, M. Coello Mera, M. Núñez Cerón, J. Sánchez Vinuesa, F. Navarrete-Mier, P. Castillo-Briceno (2019) Development of a protocol for euthanasia in Green terror (*Andinoacara rivolatus*). **XLIII Jornadas Nacionales de Biología**. Ecuador. Talk.
- Hugo Mendoza-Delgado, F. Navarrete-Mier, P. Castillo-Briceno (2019) Preliminary data of survival and early life development of white-leg shrimp facing year 2100 ocean acidification conditions. **XLIII Jornadas Nacionales de Biología**. Ecuador. Poster.
- F. Navarrete-Mier, P. Castillo-Briceno (2019) Integrating public policy, international cooperation and global science data to develop ocean acidification research in Ecuador. **XLIII Jornadas Nacionales de Biología**. Ecuador. Plenary talk.

## Science Communication & Outreach

- C Segovia S., M Peláez, P Castillo-Briceno, P Santacruz (2019) The challenges that women scientists face in Ecuador. Edu@news. ISSN 1390-5406. Article
- P Castillo-Briceno, F Navarrete-Mier (2015) Potential Impacts of Ocean Acidification on Fisheries and Aquaculture in Ecuador. **Tilapia & Camarones, Magazine of the Latin-American Society of Aquaculture - SLA** 7(24): 28-33. Article.

P Castillo-Briceno. (2014) **The art of Science - The science of Art**. Campus Party Quito 4. Ecuador. Science Zone. Invited talk.

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## FELLOWSHIPS, GRANTS AND OTHER DISTINCTIONS

- Intergovernmental Oceanographic Commission of UNESCO IOC-UNESCO. Travel grant in support to attend the 4th Global Ocean Acidification Observing Network (GOA-ON) International Workshop. China. Apr 2019. 2818 USD
- International Atomic Energy Agency IAEA. Fellowship training program on the application of nuclear and isotopic techniques in ocean acidification research. Kuwait. Nov 2018. 6100 USD
- International Visitor Leadership Program IVLP, Hidden No More: Empowering Women in STEM. Ecuador Delegate. United States. Exchange project fellowship. Oct 2017. 22500 USD
- International Atomic Energy Agency IAEA. Country Delegates meeting TC project INT7019. Sponsored invitation. Austria. Apr 2017. 3 500 USD
- GOA-ON Workshop. IAEA Bursary. Australia. May 2016. 2 500 USD
- Latin-American Ocean Acidification LAOCA Meeting. Bursary. Chile. Dec 2015. 2 000 USD
- LAOCA workshop. Bursary. Chile. Nov 2014. 2 000 USD
- Yeosu Academy of the Law of the Sea. Korean Maritime Institute. South Korea. Bursary. Oct 2014. 6 000 USD
- Secretary of Higher Education & Science SENESCYT. Prometeo Grant. Ecuador. Feb 2014 - Feb 2015. 64 640 USD
- SENESCYT. Bursary for abroad international scientific events participation. Ecuador. Jan 2013. 1 200 USD
- Foundation for Research in Medicine - FRM. Postdoctoral grant. France. Feb 2012 - Nov 2013. 88 800 euros.
- University Aix Marseille II. Postdoctoral fellowship. France. Nov 2010 - Oct 2011. 28 800 euros.
- University of Murcia. Postdoctoral grant for research continuity. Spain. Dec 2010. 2 000 euros.
- University of Murcia. Collaboration fellowship for researching. Project 04538/GERM/06. Abr - Sep 2010. 6 000 euros.
- Ministry of Science and Innovation of Spain MICINN. Mobility grant FPU. Spain. Sep - Dec 2009. 4 500 euros.
- Int. Soc. of Developmental and Comparative Immunology - ISDCI. Travel bursary. Czech Rep. Jul 2009. 200 euros.
- University of Murcia. Funding to participate in scientific congresses and meetings. Spain. Jun 2009. 380 euros.
- Ministry of Science and Innovation of Spain MICINN. FPU Mobility grant. Spain. Sep - Dec 2008. 4 500 euros.
- Ministry of Science and Innovation of Spain MICINN. FPU Doctoral grant. Spain. Oct 2006 - Mar 2010. 42 000 euros.
- Belgian Technical Cooperation Scholarships. Master studies in Aquaculture. Oct 2004 - Ago 2006. 6000 euros.

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## NETWORKING, COMMUNITIES & MEMBERSHIPS

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- NC Chair for Ecuador. OWSD - Organization for Women in Science for the Developing World. (member since 2018, NC Chair 2021-2023)
- Vice-President. SEB – Ecuadorian Society of Biology. (2019-2021)
- Co-Founder y Regional Coordinator. REMCI - Ecuadorian Network of Women in Science. (since 2016 - on)
- Member of Scientific committee. Lemonsea organization. (2018 – on)
- Delegate of Ecuador. LAOCA - Latin American Ocean Acidification Network. Network for regional research on ocean acidification. (Dec 2015 - Dec 2018, currently Member)
- Member. Animal Behavior Society ABS. (Jul 2020 – Jul 2021)
- Member. AAAS - The American Association for the Advancement of Science. (2017 - 2018)
- Member. GOA-ON - Global Ocean Acidification - Observing Network. (2016 - on)
- Member. RECC - Red Ecuatoriana de Cambio Climático. Research network on climate change studies. (since 2017)
- Member RedBIO - Ecuadorian Network of Biodiversity. (2017 - on)
- Founder member. REIMAR - Network for Marine Research and Maritime Management of Ecuador. (2016 - 2018)
- Member. RIIN -Multidisciplinary network of researchers on national identities, based in Ecuador. (2016 - on)
- Member. SLA -Network of professionals on Aquaculture production and applied research. (since 2014)
- Member. Fauna-Latina - Network of Wild Fauna researchers for Conservation in Latin America. (2014-2019)
- Founder member. Red Aquae Network for researching, divulgation, cooperation and knowledge transfer on aquatic sciences. (since 2012)
- Member. OSF - Oceanógrafos sin Fronteras ONG for Climate Change related to marine research and management. (since 2007)
- Member. MARINET Iberoamerican Network for Environmental and Marine Research. (since 2006)

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## TRAINING AND EVENTS PARTICIPATION

- Course on STEM entrepreneurship. Women in Science and Entrepreneurship WISE Latin-America and USFQ University. Jul - Sep 2020.
  - Workshop for the Ocean Region of the South Pacific - 2nd Cycle of the Regular Process for Global Reporting and Assessment of the State of the Marine Environment. UN and Ecuador. December 2018.
  - Course on Geomorphology and Dynamics in Estuaries. CECIRA training program. Escuela Superior Politécnica del Litoral ESPOL. 40h. September 2018
  - Workshop Opportunities for Internationalization Research-Development-Innovation from national system and the EU and Ibero-American space. SENESCYT, EU & OEI. 24 h. May 2017.
  - Writing in the Sciences. Stanford University. 40h. Nov 2015
  - Foot and Mouth Disease: Response to Reports and Sanitary Emergencies. FAO RLC Policy Training Core. E-learning. Aug 2015
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- Latin-American Workshop on Ocean Acidification. Millennium Institute of Oceanography and Center for the Study of Multiple-drivers on Marine Socio-ecological Systems. Dichato, Chile. Nov 2014
  - Yeosu Academy of the Law of the Sea - UNCLOS. Maritime Territory Research Center of Korea Maritime Institute. Yeosu, South Korea. 40h. Oct-Nov 2014
  - Workshop for applying to public non-refundable grants. Ecuadorian Secretariat for Planning and Development - SENPLADES. Ecuador. Apr 2014
  - Signals during negotiations course. Ministry of Labour and migration. Spain. 2011.
  - Sanitation, Safety and Environment Training. Training Service of Institute Pasteur. France. Nov 2009
  - Course Introduction to the University Teaching (CIDU-3). Institute of Teaching Sciences, U. of Murcia. Spain. May 2008
  - Advance Diver Licence. PADI. Hesperides Centre. Spain. 2008
  - Course of Aquariology and Culture of fish: Immunopathology. International University of the Sea, U. of Murcia. Spain. Sep 2007
  - Inequality in Gender and Health. 1<sup>st</sup> Journey. Dep. Socio - Sanitarian Sciences, U. Murcia. Spain. Feb 2007
  - X Course of Postgraduate Training Animal Cell Culture: Basic concepts and Applied Techniques. U. of Murcia. Spain. Oct 2006
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### TEACHING EXPERIENCE

- Nov 2016 – ongoing. Courses of Physiology, and Applied research. Career of Biology. Faculty of Marine Sciences. ULEAM University. Ecuador.
  - Mar - Oct 2016 Courses of Physiology, and Basic research. Careers in Fisheries. Faculty of Marine Sciences, ULEAM University. Ecuador.
  - May - Sep 2014 Lecturer in Biology for Engineers. FIMCBOR, ESPOL. Ecuador.
  - 2012 - 2013 Supervision assistance of postgraduate students. IBDM, CNRS / Aix-Marseille University. France.
  - 2008 - 2010 Co-supervision of under- and postgraduate students. Dep. Cell Biology. U. Murcia. Spain.
  - Apr - Sep 2004 Lecturer in Ecology and Marine Ecology. PUCE, Coastal Resources Program. Ecuador.
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### COMPLEMENTARY MERITS & SKILLS

- Writing Mention. International Literary Prize “Juan Montalvo”. Third edition: Geography, History, Migrations an Environment. E-Book selection doi: 10.13130/2035-7680/4148. pp.324-5. 2013.
  - Writing Mention. Women, Images and Testimonies 2005 Latin-American Contest. Ecuador. pp.202-8. UNIFEM. 2006.
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