

Pamela Imperadore



Born in Piedimonte Matese on 25/07/1985

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Current Position:

Permanent Staff, Technician: Manager of the Functional Area 'Physiology and Behavior'

Current Affiliation:

Biology and Evolution of Marine Organisms, Stazione Zoologica Anton Dohrn, Napoli (Italy)

EDUCATION/TRAINING/EXPERIENCE

| Institute and Location | Degree/Function | Year | Field of Study |
|---|------------------------------------|--------------|---|
| Stazione Zoologica Anton Dohrn, Napoli, Italy | CTER VI, Functional Area Manager | 2019-present | Physiology and Behavior |
| Humane slaughtering of cephalopods – HSACephRes, UK and Italy | Working Group Member | 2019-present | Animal welfare; molecular and cellular biology |
| Neuron Regeneration group- Marine Biology Laboratories, Woods Hole, USA | Working Group Member | 2018-present | History, philosophy and science of regeneration |
| Stazione Zoologica Anton Dohrn, Napoli, Italy | Post Doc | 2018-2019 | Animal biology, nociception |
| Stazione Zoologica Anton Dohrn, Napoli, Italy | Post Doc | 2017-2018 | Neural and muscle regeneration, imaging |
| Università della Calabria - Arcavacata di Rende, Italy | PhD | 2013-2017 | Animal biology, regeneration |
| The Scripps Research Institute, La Jolla, California | International exchange PhD student | 2013-2014 | Animal biology and physiology, regeneration |
| Department of Pharmaceutical Chemistry and Technology - Università degli Studi di Napoli Federico II, Napoli, Italy | Master Degree (Laurea) | 2004-2011 | Pharmaceutical Chemistry and Technology |

WORKING EXPERIENCE

August 2019-current

Permanent Staff, Technician: Manager of the Functional Area 'Physiology and Behavior' Stazione Zoologica Anton Dohrn, Napoli, Italy

I am currently manager of the Functional Area of Physiology and Behavior in the Department of Biology and Evolution of Marine Organisms at the Stazione Zoologica Anton Dohrn. I am responsible for the control and organization of resources, lab space, equipment and platforms available in the area. I also offer technical support to research in the physiology laboratories, including the execution of experiments and the management of electrophysiology instruments, microinjection and neurophysiological techniques.

I am involved in several research projects, with two major focuses: the investigation of mechanisms controlling nerve regeneration and the identification of main molecular basis of nociception in cephalopod mollusks.

December 2019-current

Working group member for the HSA-CephRes project: Bringing Humane Slaughtering to cephalopod mollusks: an integrative approach

The project aims at identifying potential humane stunning methods/parameters for commercial large-scale slaughter of coleoid cephalopod mollusks. My involvement in the project is aimed at helping in determining neurological, behavioral and physiological markers for the state of consciousness, welfare status and nociceptive responses of cephalopods. The information obtained will serve to design stunning methods whose humaneness and efficiency will be assessed and tested for its feasibility.

September 2018-present

Working group member - McDonnell Initiative - Neuron Regeneration group -Marine Biological Laboratory, Woods Hole, USA

McDonnell Initiative promotes collaboration amongst historians and philosophers of science and practicing life scientists in studies of regeneration across complex living systems. I am contributing to this working group through the investigation of the physiological and molecular mechanisms involved in nerve regeneration in the *Octopus vulgaris* and through the mining of old documents and articles on the topic.

August 2018-July 2019

Post doc - Stazione Zoologica Anton Dohrn, Napoli, Italy

Project: Identification and localization of nociceptors and receptors in the arms and suckers of the cephalopod mollusc *Octopus vulgaris*.

This project was aimed at the identification and localization of nociceptors and sensory receptors on the arm and suckers of the common octopus. This led to the finding of several potential targets that are currently being investigated for their function through electrophysiological tests and also to the discovery of a large dataset of transcripts potentially involved in the transmission of nociceptive stimuli from periphery to the CNS.

January 18, 2017 – July 2018

Research Assistant - Association for Cephalopod Research 'CephRes', Napoli, Italy

Project: New imaging technologies for the characterization of regeneration in the common octopus.

During this project I focused on the development and application of new techniques and methodologies for 3D, label-free and live imaging of the phenomena occurring during nerve and limb regeneration in the cephalopod mollusk *Octopus vulgaris*. Cephalopods are master in regeneration, but remain poorly studied, mainly because of the lack in innovative techniques and tools allowing this investigation.

RESEARCH EXPERIENCE and TRAINING

February 1-19, 2020

Ruppin Academic Center, Mikhmoret, Israel

Training on electrophysiological techniques for the investigation of LTP in *Octopus vulgaris* brain slice (analogous of hippocampus). Host Supervisor: Prof. Tal Shomrat

July 1-31, 2020

Association for Cephalopod Research 'CephRes', Napoli, Italy and FELASA

Trainee at CBC FELASA accredited Course – Cephalopods Biology and Care (CBC2020).

October 8-10, 2019

Imaging Technological Development Unit, IFOM the FIRC Institute of Molecular Oncology, Milano, Italy. Theoretical and Practical Confocal Microscopy training course.

November 26-30, 2015

COST Action FA1301 & Association for Cephalopod Research 'CephRes', Napoli, Italy

Assistant at CephRes Action Training School – Cephalopods Biology and Care (CBC2015).

September 12-19, 2015

Neuroscience School of Advanced Studies, Bressanone, Italy

Student at the "Spinal Cord Injury Course".

October 21, 2013 – April 21, 2014

PhD student-International exchange student - The Scripps Research Institute, La Jolla, California, USA. Host Supervisor: Prof. Helen Makarenkova.

EDUCATION

January 17, 2017

PhD defense: "Nerve regeneration in the cephalopod mollusc *Octopus vulgaris*: a journey into morphological, cellular and molecular changes including epigenetic modifications".

Supervisors: Dr. Graziano Fiorito (SZN), Prof. Maria Carmela Cerra (Università della Calabria, Italy) – **final examination – PhD Awarded.**

2013-2017

PhD program - XXVIII cycle, curriculum: Animal Biology, Doctoral School of Life Sciences. Università della Calabria - Arcavacata di Rende, Italy & Association for Cephalopod Research 'CephRes', Napoli, Italy.

The primary objective of my PhD project has been the identification of main biological events occurring during nerve regeneration in the cephalopod mollusc *Octopus vulgaris*. Cephalopods are well known for their ability to regenerate arms and other parts of their body, including the central and peripheral nervous system.

I studied nerve degeneration and regeneration occurring after complete transection of the octopus' pallial nerve and identified main events occurring at different time points, until complete structural and functional recovery.

In addition, even though preliminary, gene expression analysis highlighted the involvement of genes involved in epigenetic modifications and of regeneration associated genes (RAGs) during nerve regenerative process.

2004-2011

Degree in Pharmaceutical Chemistry and Technology. Università degli studi di Napoli Federico II, Napoli, Italy.

Dissertation title: "High performance liquid chromatography/ms/ms identification of a new palytoxin-like compound, ovatoxin-c, from *Ostreopsis ovata* culture of Adriatic sea".

Supervisor: Prof. P. Ciminiello – University of Napoli Federico II.

GRANTS and AWARDS

2019- The Company of Biologists – Journal of Experimental Biology – Travel award to visit **Universitätsklinikum Carl Gustav Carus, Dresden, Germany. Project title** "Label-free multiphoton microscopy as a tool for the investigation of developing and regenerating arms in the cephalopod mollusc *Octopus vulgaris*". January 13- 26. Host supervisor: Prof. M. Kirsch.

2018– Aldo Fasolo Prize for young researchers: best 2018 publication –Stazione Zoologica Anton Dohrn, Napoli, Italy.

2018- European Molecular Biology Organization (EMBO) - Travel award for the participation to the EMBO conference "The Molecular & Cellular Basis of Regeneration and Tissue Repair". **Abstract selected for oral presentation.** September 15-19. La Valletta, Malta.

2016- CephInAction Short Term Scientific Mission (STSM) supported through the FA1301 COST Action. Universitätsklinikum Carl Gustav Carus, Dresden, Germany. STSM Title: Label-free multiphoton microscopy as a tool for the investigation of nerve regeneration in the cephalopod mollusc *Octopus vulgaris*. November 28 - December 9. Host supervisor: Prof. M. Kirsch.

2016- International Society for Invertebrate Neurobiology - Travel Grant for the participation to the Annual meeting of the Society for Neuroscience 2016. November 12-16, 2016. San Diego (CA) USA.

2016- The Malacological Society of London - Travel Grant for the participation to the Annual meeting of the Society for Neuroscience 2016. November 12-16, 2016. San Diego (CA) USA.

2015-CephsInAction Short Term Scientific Mission (STSM) supported through the FA1301 COST Action. Institute of Marine Research (IMR, Havforskninginstituttet), Storebø, Norway.

STSM Title: Contribution to the development of the Cephalopod Welfare Index. November 04, – December 04. Host supervisor: Dr. L. H. Stien

2013- Università della Calabria – International Grant for a six months internship (October 21st 2013 –April 21st 2014) at The Scripps Research Institute San Diego (CA) USA.

PUBLICATIONS

Imperadore P., Parazzoli D. Oldani A., Duebbert M., Büschges A. and Fiorito G. (2019). From injury to full repair: nerve regeneration and functional recovery in the common octopus, *Octopus vulgaris*. *Journal of Experimental Biology*, 222(19), jeb209965.

Imperadore P., Lepore M. G., Ponte G., Pflüger H. J. and Fiorito G. (2019). Neural pathways in the pallial nerve and arm nerve cord revealed by neurobiotin backfilling in the cephalopod mollusk *Octopus vulgaris*. *Invertebrate Neuroscience*, 19(2), 5.

Zullo L., **Imperadore P.** (2019) Regeneration and Healing. In: Gestal C., Pascual S., Guerra Á., Fiorito G., Vieites J. (eds) *Handbook of Pathogens and Diseases in Cephalopods*. Springer, Cham.

Imperadore, P., Fiorito, G. (2018). Cephalopod Tissue Regeneration: consolidating over a century of knowledge. *Frontiers in Physiology*, 9: 593.

Imperadore P., Uckermann O., Galli R., Steiner G., Kirsch M., Fiorito G. (2018). Nerve regeneration in the cephalopod mollusc *Octopus vulgaris*: label-free multiphoton microscopy as a tool for investigation. *Journal of the Royal Society Interface*, 15: e 20170889.

Imperadore P., Shah S. B., Makarenkova H. P., Fiorito G. (2017). Nerve degeneration and regeneration in the cephalopod mollusc *Octopus vulgaris*: the case of the pallial nerve. *Scientific Reports*, 7 e 46564

Zullo L., Fossati S. M., **Imperadore P.**, Nödl M. T. (2017). Molecular determinants of Cephalopod muscles and their implication in muscle regeneration. *Frontiers in Cell and Developmental Biology*, 5.

Lopes V.M, Sampaio E., Roubledakis K., Tanaka N. K., Carulla L., Gambús G., Woo T., Martins C. P. P., Penicaud V., Gibbings C., Eberle J., Tedesco P., Fernández I., Rodríguez-González T., **Imperadore P.**, Ponte G., Fiorito G. (2017). Cephalopod biology and care, a COST FA1301 (CephsInAction) training school: anaesthesia and scientific procedures. *Invertebrate Neuroscience*, 17: 8.