

## Giovanna Ponte



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**Current Position:** Researcher (ricercatore III° livello)

**Current Affiliation:**

Department of Biology and Development of Marine Organisms (BEOM)  
Stazione Zoologica Anton Dohrn, Villa Comunale, 80121 Naples, Italy

### Education/Training/Experience

Institute and Location	Degree/Function	Year	Field of Study
Chemistry and Pharmaceutical Technologies, Università degli Studi di Napoli Federico II (Napoli, Italy)	Master Degree (Laurea) BS+MS	03-2008	Pharmacology
Istituto di Biochimica delle Proteine – CNR, Napoli (Italy)	Internship	2008	Isolation and identification of relevant food allergen proteins
Department of Neuroscience, Università degli Studi di Parma (Italy)	Stage	2008	Neuroanatomy
Scuola Superiore di Studi Universitari e di Perfezionamento S. Anna di Pisa (Italy)	Contractor	2009-2010	Biorobotics - Analysis of the octopus' arm to facilitate design of bio-inspired robotic arm and its control
Neurosciences Institute, San Diego (CA, USA)	Visiting Researcher	2010	Neuroanatomy; Neuromodulation
Center for Micro-Biorobotics of IIT@SSSA, Istituto Italiano di Tecnologia (Pontedera, Pisa)	Contractor	2010-2011	Biorobotics - Functional approach to the characterization of the arm of <i>Octopus vulgaris</i>

Institute and Location	Degree/Function	Year	Field of Study
Department of University of Calabria (Cosenza, Italy)	PhD, Degree	12-2012	Animal Biology
Department of Biology and Development of Marine Organisms (BEOM), Stazione Zoologica Anton Dohrn, Napoli	Postdoctoral Fellow	2013-2019	Animal Biology and animal welfare
Neuroscience Dept. – Biological Sciences, University of Southampton (UK)	Visiting Researcher	2018	Neurophysiology and Neuromodulation
BEOM - Stazione Zoologica Anton Dohrn, Napoli	Researcher	2019 -	Neurophysiology of marine organism

### Appointments and awards

- 2020 EASI-Genomics (Unraveling the complex genome of an iconic non-model species: *Octopus vulgaris*) 2nd TNA Call - PID10443, **co-proponent**
- 2013–2017 **Chair** COST Action FA1301 “CephsInAction”

### Invited speaker

- 2013 – Freie Universität Berlin (Germany)
- 2014 – Center for Mind/Brain Sciences (CIMeC), University of Trento (Italy)
- 2015 – YOUMARES6 Bremen (Germany)
- 2016 – MPW2016 1st National Marine Biodiversity Institute of Korea’s Marine Organism Parataxonomist Workshop. National Marine Biodiversity Institute of Korea in Seocheon, South Korea.
- 2018-2019 – Member of the Faculty: COST Academy, COST Association Brussels (Belgium)

### Other

- Member of the Advisory Board* – Journal of Comparative Physiology - A
- Faculty Member* – Cephs Biology and Care (CBC): Faculty for the years: 2014, 2015, 2016, 2017, 2019, 2020, 2022. *Topics*: General and Local Anesthesia: introduction, aquatic species and cephalopods. FELASA accredited course on cephalopods as laboratory animals (CephRes)
- Co-organizer Workshop 5 CIAC 2018* – Cephalopod Science: the direction of future research and the relevance of new policies”. Organizers: Ponte G, Gleadall I, Fiorito G. Cephalopod International Advisory Council Conference 2018; St. Petersburg, Florida, USA, 10-11, November.
- Guest Editor* – Research Topic: CephsInAction: Towards Future Challenges for Cephalopod Science; *Frontiers in Physiology* (Front. Physiol.; 2018).
- Guest Editor* – Research Topic: The Digestive Tract of Cephalopods: at the Interface Between Physiology and Ecology; *Frontiers in Physiology* (Front. Physiol.; 2017).
- Guest Editor* – Special Issue: Cephalopod Biology Cephalopods; *Journal of Experimental Marine Biology and Ecology* (JEMBE; 2013).

*Guest Editor, Editorial Management and Assistant* – Abstracts of Contributions Presented at EuroCeph 2011 “Cephalopod Biology Research in the 21st Century-A European Perspective”; Journal of Shellfish Research, 30(3): 989-1023 (2011)

*Co-local-organizer* – “2nd joint Kemali-IBRO Mediterranean School of Neuroscience” - Stazione Zoologica Anton Dohrn, 6-13 July, 2011, Naples, Italy.

*Management and Assistant* – Abstracts of Contributions Presented at EuroCeph 2011 “Cephalopod Biology Research in the 21st Century-A European Perspective”; Journal of Shellfish Research, 30(3): 989-1023 (2011)

*Founding Member* – Associazione Cephalopod Research, CephRes, a no profit research organization and Member of the Board of Directors.

## Students' Supervision

Currently, DoS (Director of Study) of 1 PhD student (OU, SZN)  
Co-Tutor of 2 PhD students and 5 MSc theses.

## Publications

### *List of publications of the last 10 years*

### *Journal Papers*

- Styfhals, R., Zolotarov, G., Hulselmans, G., Spanier, K.I., Poovathingal, S., Elagoz, A.M., Deryckere, A., Rajewsky, N., **Ponte, G.**, Fiorito, G. and Aerts, S. (2022). Cell type diversity in a developing octopus brain. *Nature Communications*, 13(1), pp.1-17; doi: [10.1038/s41467-022-35198-1](https://doi.org/10.1038/s41467-022-35198-1)
- Petrosino, G. \*, **Ponte, G.** \*, Volpe, M. \*, Zarrella, I., Ansaloni, F., Langella, C., Di Cristina, G., Finaurini, S., Russo, M.T., Basu, S. and Musacchia, F. (2022). Identification of LINE retrotransposons and long non-coding RNAs expressed in the octopus brain. *BMC Biology*, 20(1), pp.1-22; doi: [10.1186/s12915-022-01303-5](https://doi.org/10.1186/s12915-022-01303-5)
- Ponte, G.**, Chiandetti C, Edelman DB, Imperadore, P., Pieroni, E.M., and Fiorito, G. (2022). Cephalopod Behavior: From Neural Plasticity to Consciousness. *Frontiers in Systems Neuroscience*, 15: 787139; doi: [10.3389/fnsys.2021.787139](https://doi.org/10.3389/fnsys.2021.787139)
- Ponte, G.**, Roubedakis, K., COST Action FA1301, Galligioni, V., Dickel, L., Bellanger, C., Pereira, J., Vidal, E.A., Grigoriou, P., Alleva, E. and Santucci, D., et al. (2022). General and species-specific recommendations for minimal requirements for the use of cephalopods in scientific research. *Laboratory Animals*; doi: [10.1177/00236772221111261](https://doi.org/10.1177/00236772221111261)
- Andrews, P.L.R., **Ponte, G.** and Rosas, C. (2022) Methodological considerations in studying digestive system physiology in octopus: limitations, lacunae and lessons learnt. *Front. Physiol.* 13:928013; doi: [10.3389/fphys.2022.928013](https://doi.org/10.3389/fphys.2022.928013)
- Ponte, G.**, Taite, M., Borrelli, L., Tarallo, A., Allcock, A.L. and Fiorito, G. (2021). Cerebrotypes in Cephalopods: Brain Diversity and its Correlation with Species Habits, Life History, and Physiological Adaptations. *Frontiers in Neuroanatomy*, 14:565109; doi: [10.3389/fnana.2020.565109](https://doi.org/10.3389/fnana.2020.565109)
- De Sio, F., Hanke, F.D., Warnke, K., Marazia, C., Galligioni, V., Fiorito, G., Stravidou, I. and **Ponte, G.** (2020). E Pluribus Octo—Building Consensus on Standards of Care and Experimentation in Cephalopod Research; a Historical Outlook. *Frontiers in Physiology*, 11: 645; doi: [10.3389/fphys.2020.00645](https://doi.org/10.3389/fphys.2020.00645)
- Sykes, A.V., Almansa, E., **Ponte, G.**, Cooke, G.M. and Andrews, P.L.R. (2020). Can cephalopods vomit? Hypothesis based on a review of circumstantial evidence and preliminary experimental observations. *Frontiers in Physiology*, 11: 765; doi: [10.3389/fphys.2020.00765](https://doi.org/10.3389/fphys.2020.00765)

- Cooke, G.M., Anderson, D.B., Begout, M.L., Dennison, N., Osorio, D., Tonkins, B., Kristiansen, T., Fiorito, G., Galligioni, V., **Ponte, G.** and Andrews, P.L.R. (2019). Prospective severity classification of scientific procedures in cephalopods: Report of a COST FA1301 Working Group survey. *Laboratory Animals*, 53(6): 541-563; doi: [10.1177/0023677219864626](https://doi.org/10.1177/0023677219864626)
- Frasnelli, E., **Ponte, G.**, Vallortigara, G., and Fiorito, G. (2019). Visual Lateralization in the Cephalopod Mollusk *Octopus vulgaris*. *Symmetry* 11(9): 1121; doi: [10.3390/sym11091121](https://doi.org/10.3390/sym11091121)
- 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; doi: [10.1007/s10158-019-0225-y](https://doi.org/10.1007/s10158-019-0225-y)
- Zarrella, I., Herten, K., Maes, G.E., Tai, S., Yang, M., Seuntjens, E., Ritschard, E.A., Zach, M., Styfhals, R., Sanges, R., Simakov, O., **Ponte, G.**, and Fiorito, G. (2019). The survey and reference assisted assembly of the *Octopus vulgaris* genome. *Scientific Data* 6(1): 13; doi: [10.1038/s41597-019-0017-6](https://doi.org/10.1038/s41597-019-0017-6)
- Shigeno, S., Andrews, P.L.R., **Ponte, G.**, and Fiorito, G. (2018). Cephalopod Brains: An Overview of Current Knowledge to Facilitate Comparison with Vertebrates. *Frontiers in Physiology* 9: 952; doi: [10.3389/fphys.2018.00952](https://doi.org/10.3389/fphys.2018.00952)
- Baldascino, E., Di Cristina, G., Tedesco, P., Hobbs, C., Shaw, T.J., **Ponte, G.**, and Andrews, P.L.R. (2017). The Gastric Ganglion of *Octopus vulgaris*: Preliminary Characterization of Gene- and Putative Neurochemical-Complexity, and the Effect of *Aggregata octopiana* Digestive Tract Infection on Gene Expression. *Frontiers in Physiology* 8:1001; doi: [10.3389/fphys.2017.01001](https://doi.org/10.3389/fphys.2017.01001)
- Ponte, G.**, and Modica, M.V. (2017). Salivary Glands in Predatory Mollusks: Evolutionary Considerations. *Frontiers in Physiology* 8: 580; doi: [10.3389/fphys.2017.00580](https://doi.org/10.3389/fphys.2017.00580)
- Ponte, G.**, Sykes, A.V., Cooke, G.M., Almansa, E., and Andrews, P.L.R. (2017). The Digestive Tract of Cephalopods: Toward Non-invasive *In vivo* Monitoring of Its Physiology. *Frontiers in Physiology* 8:403; doi: [10.3389/fphys.2017.00403](https://doi.org/10.3389/fphys.2017.00403)
- Sykes, A. V., Almansa, E., Cooke, G. M., **Ponte, G.** and Andrews, P.L.R. (2017). The digestive tract of cephalopods: a neglected topic of relevance to animal welfare in the laboratory and aquaculture. *Frontiers in Physiology*, 8: 492; doi: [10.3389/fphys.2017.00492](https://doi.org/10.3389/fphys.2017.00492)
- Ponte, G.**, Sykes, A. V., Cooke, G. M., Almansa, E., and Andrews, P.L.R. (2017). The digestive tract of cephalopods: toward non-invasive *in vivo* monitoring of its physiology. *Frontiers in Physiology*, 8: 403; doi: [10.3389/fphys.2017.00403](https://doi.org/10.3389/fphys.2017.00403)
- Shaw, T.J., Osborne, M., **Ponte, G.**, Fiorito, G. and Andrews, P.L.R. (2016). Mechanisms of wound closure following acute arm injury in *Octopus vulgaris*. *Zoological Letters*, 2: 8; doi: [10.1186/s40851-016-0044-5](https://doi.org/10.1186/s40851-016-0044-5)
- Di Cristina, G., Andrews, P., **Ponte, G.**, Galligioni, V., and Fiorito, G. (2015). The impact of Directive 2010/63/EU on cephalopod research. *Invertebrate Neuroscience*, 15: 8; doi: [10.1007/s10158-015-0183-y](https://doi.org/10.1007/s10158-015-0183-y)
- Fiorito, G., Affuso, A., Basil, J., Cole, A., de Girolamo, P., D'Angelo, L., Dickel, L., Gestal, C., Grasso, Kuba, M., Mark, F., Melillo, D., Osorio, D., Perkins, K., **Ponte, G.**, Shashar, N., Smith, D., Smith, J., and Andrews, P.L.R. (2015). Guidelines for the Care and Welfare of Cephalopods in Research - A consensus based on an initiative by CephRes, FELASA and the Boyd Group. *Laboratory Animals*, 49(2 Suppl): 1-90; doi: [10.1177/0023677215580006](https://doi.org/10.1177/0023677215580006)
- Zarrella, I., **Ponte, G.**, Baldascino, E. and Fiorito, G. (2015). Learning and memory in *Octopus vulgaris*: a case of biological plasticity. *Current Opinion in Neurobiology*, 35: 74-79; doi: [10.1016/j.conb.2015.06.012](https://doi.org/10.1016/j.conb.2015.06.012)
- Amodio, P., Andrews, P., Salemme, M., **Ponte, G.**, and Fiorito, G. (2014). The Use of Artificial Crabs for Testing Predatory Behavior and Health in the Octopus. *ALTEX*, 31: 494-499; doi: [10.14573/altex.1401282](https://doi.org/10.14573/altex.1401282)
- Fiorito, G., Affuso, A., Anderson, D., Basil, J., Bonnaud, L., Botta, G., Cole, A., D'Angelo, L., Girolamo, P., Dennison, N., Dickel, L., Cosmo, A., Cristo, C., Gestal, C., Fonseca, R., Grasso, F., Kristiansen, T., Kuba, M., Maffucci, F., Manciocco, A., Mark, F., Melillo, D., Osorio, D., Palumbo, A., Perkins, K., **Ponte, G.**, Raspa, M., Shashar, N., Smith, J., Smith, D., Sykes, A., Villanueva, R., Tublitz, N., Zullo, L., and Andrews,

- P. (2014). Cephalopods in neuroscience: regulations, research and the 3Rs. *Invertebrate Neuroscience*, 14: 13-36; doi: [10.1007/s10158-013-0165-x](https://doi.org/10.1007/s10158-013-0165-x)
- Smith, J.A., Andrews, P.L., Hawkins, P., Louhimies, S., **Ponte, G.**, Dickel, L. (2013). Cephalopod research and EU Directive 2010/63/EU: Requirements, impacts and ethical review. *Journal of Experimental Marine Biology and Ecology*, 447: 31-45; doi: [10.1016/j.jembe.2013.02.009](https://doi.org/10.1016/j.jembe.2013.02.009)
- Ponte, G.**, Dröscher, A., Fiorito, G. (2013). Fostering cephalopod biology research: past and current trends and topics. *Invertebrate Neuroscience*, 13(1): 1-9; doi: [10.1007/s10158-013-0156-y](https://doi.org/10.1007/s10158-013-0156-y)
- Canali, E., **Ponte, G.**, Belcari, P., Rocha, F., and Fiorito, G. (2011). Evaluating age in *Octopus vulgaris*: estimation, validation and seasonal differences. *Marine Ecology Progress Series*, 441: 141-149; doi: [10.3354/meps09399](https://doi.org/10.3354/meps09399)
- Margheri, L., **Ponte, G.**, Mazzolai, B., Laschi, C., and Fiorito, G. (2011). Non-invasive study of *Octopus vulgaris* arm morphology using ultrasound. *Journal of Experimental Biology*, 214: 3727-3731; doi: [10.1242/jeb.057323](https://doi.org/10.1242/jeb.057323)

### **Book chapters**

- Ponte, G.**, Andrews, P., Galligioni, V., Pereira, J., and Fiorito, G. (2019). Cephalopod Welfare, Biological and Regulatory Aspects: An EU Experience. in *The Welfare of Invertebrate Animals*, eds. C. Carere & J. Mather. (Cham, Switzerland: Springer International Publishing), p. 209-228.
- O'Brien, C.E., **Ponte, G.**, Fiorito, G. (2019). Octopus. In: *Encyclopedia of Animal Behaviour 2nd edition*; Reference Module in Life Sciences, Elsevier.
- Gerdol, M., Gomez-Chiarri, M., Castillo, M.G., Figueras, A., Fiorito, G., Moreira, R., Novoa, B., Pallavicini, A., **Ponte, G.**, Roubledakis, K., Venier, P. (2018). Immunity in molluscs: recognition and effector mechanisms, with a Focus on Bivalvia. In *Advances in Comparative Immunology* (Springer, Cham), p. 225-341.
- Marini, G., De Sio, F., **Ponte, G.**, and Fiorito, G. (2017). Behavioral Analysis of Learning and Memory in Cephalopods. In *Learning and Memory: A Comprehensive Reference (Second Edition)*, ed. J.H. Byrne. (Amsterdam, The Netherlands: Academic Press, Elsevier), p. 441-462.
- Ponte, G.**, and Fiorito, G. (2015). Immunohistochemical Analysis of Neuronal Networks in the Nervous System of *Octopus vulgaris*. In *Immunocytochemistry and Related Techniques*, eds. A. Merighi & L. Lossi (Springer Verlag), p. 61-77.
- Tricarico, E., Amodio, P., **Ponte, G.**, Fiorito, G. (2014). Cognition and Recognition in the Cephalopod Mollusc *Octopus vulgaris*: Coordinating Interaction with Environment and Conspecifics. In: *Biocommunication of Animals*, ed. Witzany, G. (Springer Netherlands), p. 337-349.