# COST ACTION 16203 - MARISTEM

## – 2nd[st] International Training School

***"An integrated approach to marine invertebrate biodiversity: evolutionary and functional adaptations"***

*Location: Palazzo Grassi and Stazione Idrobiologica "U. D'Ancona"* - Chioggia (Venice)*

*(*member of MARS – European network of marine research institutes and stations)*

*https://www.biologia.unipd.it/dipartimento/sedi-e-strutture/chioggia/stazione-idrobiologica*

*9 - 13 September 2019*



Funded by the Horizon 2020 Framework Programme of the European Union

**Aim**

Invertebrates represent the largest component of biodiversity and the widest evolutionary adaptive radiation on our planet, with more than 2,000,000 morpho-species formally described (95% of the overall animal biodiversity). They include aquatic organisms with relatively simple body plans such as sponges or cnidarians as well as morphologically complex taxa, such as molluscs, echinoderms and protochordates. By investigating life cycles and functional adaptations of marine invertebrates, scientists can learn on the evolution of Metazoa. Moreover, many taxa have been established or are currently emerging as laboratory model systems, simple versions of more complex organisms, contributing to the elucidation of various biological problems. Remarkable examples goes back to experiments on phagocytosis in sea star larvae, the first studies on biological chimeras in corals, the importance of the sea urchin to understand the molecular basis of development, including the “gene regulatory networks” and the discovery of cyclins as molecular controls of cell proliferation, the studies on primitive immunity in colonial organisms (sponges, hydrozoans, corals, urochordates, bryozoans), the plasticity of development, the use of aquatic flatworms for regeneration studies, and the discovery of green fluorescent protein in cnidarians, among many others. Research on marine invertebrates led to some of the greatest scientific advances. Studies on squid biology led to the comprehension of the molecular basis of synapytic transmission; investigations on sea urchin were fundamental for the understanding of sexual reproduction and early development; polychaetes provided key information on the evolution and development of centralized nervous systems; cnidarians offered fundamental insights on aging, stem cell biology and the molecular mechanisms controlling cell differentiation; sponges, placozoans and ctenophora are groups for tracing back the evolution of multicellularity. Furthermore, marine invertebrates are considered an untapped source of new bioactive compounds.

In-depth knowledge of adaptive strategies and developmental patterns of marine invertebrates is mandatory for the comprehension of the organism-environment interactions, their intra-specific and inter-specific relationships, and the functioning of marine communities. The training school is organized in the framework of a joint agreement of academic cooperation among the Universities of Milan, Padua, Palermo, and Salento (Lecce) and sponsored by the COST European Programme “Maristem” coordinated by the Department of Biology of the University of Padua (IT) and the Zoological Society of Italy (UZI).The scientific themes will cover comparative analysis of main adaptive strategies across several invertebrate phyla to raise interest on invertebrate biology and evolution. Finally, this international school will provide the opportunity for exchanging students of different European universities and can be credited as a Master Course Program, acknowledged by 4 credits (ECTS) through a specific final verification test.



Funded by the Horizon 2020 Framework Programme of the European Union

**The School' structure**

Lessons will be in English and will consist of lectures, field and laboratory activities and tutorials addressing morphology, anatomy, ecology, developmental biology (including eco-devo and evo-devo approaches) of selected marine invertebrate groups in the general framework of their reciprocal evolutionary relationships, with focus on their adaptive strategies to various environments, life cycle adjustments, environmental stress responses, and immunobiology.

Active participation will be essential as students will make observations on living invertebrates, carry on experimental bench work, analyse results, and discuss recent bibliography. In addition, communication skills will be developed, including informal interactions with instructors, collaborative work with other participants, oral presentation of their interests, written report describing the experiments and analysing their own results.

•Field work: The Chioggia location (on the south of the Venice Lagoon) is the teaching pole of the Department of Biology of the University of Padova, where the degree courses in Marine Biology are taught.
Palazzo Grassi's rooms and laboratories (see map) will be at the school's disposal for the occasion. Close to it there is also our small Marine Station and its boat will be useful for collecting specimens of animals, plankton.

•Practical work: Students will work on microscopes and dissecting microscopes throughout the course to carry on direct observations of features presented by lecturers.

<u>Contents (Main taxa, Topics, Models)</u>

- Porifera, Cnidaria, Xenacoelamorpha, Platyhelminthes, Rotifera, Echinodermata, Hemichordata, Tunicata.
- Morphological and functional adaptations (sensory-motor integration, respiration, nutrition, locomotion and reproduction), life cycles and life histories.
- Regeneration, aging, reverse development, stem cells.
- Stress responses, immunobiology, self-recognition, chimerism.



Funded by the Horizon 2020 Framework Programme of the European Union

Journal clubs setting up: presentations of some recent relevant papers on invertebrate biology focussing on stem cells. Participants will be provided with papers and, gathered in 4-5 groups, will give a presentation illustrating the novelties of the papers.

The draft program will be sent soon.

**<u>This course has been endorsed by the Zoological Society of Italy and the Italian Association of developmental and Comparative Immunology</u>**



Funded by the Horizon 2020 Framework Programme of the European Union

## Contributors and lecturers

Loriano Ballarin
*Department of Biology, University of Padova, Padova, Italy.*
E-mail: loriano.ballarin@unipd.it

Eugene Berezikov
*European Research Institute for the Biology of Aging, University of Groningen, Nederland*
E-mail: e.berezikov@umcg.nl

Matteo Cammarata
Department of Earth and Sea Science, University of Palermo, Italy
E-mal: matteo.cammarata@unipa.it

Alexander Ereskowsky
*Institut Méditerranéen de Biodiversité et d'Ecologie marine et continentale (IMBE)*
*UMR n°7263 CNRS, Aix Marseille Université, IRD, Avignon Université Station Marine d'Endoume*
E-mail: alexander.ereskovsky@imbe.fr

Cinzia Ferrario
*Department of Political and Environmental Sciences, University of Milano, Milano, Italy*
Email: cinzia89.ferrario@alice.it

Diego Fontaneto
Consiglio Nazionale delle Ricerche, Istituto per lo Studio degli Ecosistemi, Verbania Pallanza, Italy
E-mail: d.fontaneto@ise.cnr.it

Fabio Gasparini
*Department of Biology, University of Padova, Padova, Italy.*
E-mail: fabio.gasparini@unipd.it

Lucia Manni
*Department of Biology, University of Padova, Padova, Italy.*
E-mail: lucia.mannj@unipd.it

Pedro Martinez
Departament de Genetica, Universitat de Barcelona, Barcelona, Spain
E-mail: pedro.martinez@ub.edu

Maria Giovanna Parisi
*Department of Earth and Sea Science, University of Palermo, Italy*
E-mail: mariagiovanna.parisi@unipa.it

Roberta Pennati
*Department of Political and Environmental Sciences, Milano, Italy*
E-mail: roberta.pennati@unimi.it

Stefano Piraino
*Department of Biological and Environmental Science and Technology (DISTEBA), Salento University, Lecce, Italy*
E-mail: stefano.piraino@unisalento.it

Buki Rinkevich
*Israel Oceanography and Limnological Research, National Institute of Oceanography, Haifa 31080, Israel*
E-mail: buki@ocean.org.il

Ildiko ML Somorjai
School of Biology, University of St Andrews, Scotland, UK
E-mail: imls@st-andrews.ac.uk

Michela Sugni
*Department of Political and Environmental Sciences, University of Milano, Milano, Italy*
E-mail: michela.sugni@unimi.it



Funded by the Horizon 2020 Framework Programme of the European Union

## How to reach Chioggia

## Venue

Chioggia is a picturesque town on the south of the Venice Lagoon (https://en.wikipedia.org/wiki/Chioggia). It is connected to Venice by regular buses (quickest way) and by boats. There is a direct connection to the airport of Venice.

The Training School will take place at *Palazzo Grassi,* Fondamenta Canal Vena 1282 in Chioggia (Venice, ITALY) and at the *Marine Station "U. D'Ancona"* of the Department of Biology of the University of Padova, in Chioggia (Venice, ITALY).

## By plane

The closest international airport is **Venice Marco Polo**.

From there, there are regular shuttle buses to Venice Piazzale Roma (30-min trip, bus nr. 5 and nr. 35 every 10' and cost € 8 per ride), where the buses to Chioggia leave (1-h trip to Chioggia).

There is also a direct bus service from Venice airport to Chioggia (90-min trip; at € 6.40). The provider is *Arriva Veneto* (www.arrivaveneto.it), bus nr. 80, stop at Chioggia Campo Marconi. Please notice that buses are not regular on Sundays: the last one leaves at 22.30 from Venice airport.

Some low-cost companies reach the airport of **Venice Treviso**. From there, regular buses to Venice Piazzale Roma (1-h trip) are available: www.atvo.it, buses every 30' at € 22 return ride.



Funded by the Horizon 2020 Framework Programme of the European Union

From Piazzale Roma change bus to Chioggia. Please notice that buses are not regular on Sundays.

In Chioggia the bus stop is located immediately out of the historical town centre, 5-10' walk from Palazzo Grassi (see map1).

**Airport transfers**

**Please remember that according to the COST rules, taxi can be used before 07.00 to facilitate an early departure and/or after 22.00 due to a late arrival.**

For shuttle service during the allowed timeframe you can use the GoOpti bus (www.goopti.com) from Treviso Airport to Venice airport and from Venice airport to Venice Piazzale Roma bus station (tickets from € 9), as last direct bus to Chioggia leaves at 22.30.

Last bus to Chioggia from Venice Piazzale Roma bus station is at 23.55 on Sundays.

**By car**

Chioggia is connected to the "Romea" road (SS3209).
It is not possible to find public parking on Chioggia. There is a big parking (payment is required) in the "Isola dell'Unione", the island between Chioggia and Sottomarina (see map2). Some parking places for small cars are available at Palazzo Grassi. Please, contact the organiser in case you are planning to come by car.

**Accommodation**

Participants will be accommodated at the Domus Clugiae in Calle Luccarini 825, 30015 Chioggia VE (Italy) http://domusclugiae.it/ .

Rooms have been pre-booked.

Trainees will benefit of a special rate of € 25/night in double or triple rooms, breakfast included.



Funded by the Horizon 2020 Framework Programme of the European Union

Trainers will be accommodated in single rooms at the cost of €35/night, breakfast included.

City tax is € 1 per day and it's not included in the room' price.

**Financial support**

For the financial support offered please refer to the Financial rules which will be sent separately to the school Trainers and to accepted Trainees.

Please contact our admin. for any question or doubt on it before booking your journey.

***Please notice that if you plan to stay in Venice more than the school duration, you should ask the Grant Holder for pre-approval 1 month before because it is considered a travel deviation from the COST rules.***

**Local Organiser of the event:**

University of Padua – Department of Biology

Via Ugo Bassi 58/b – I - 35131 Padova

*Prof. Loriano Ballarin*

*Email: loriano.ballarin@unipd.it*

*Phone (office) +39 049 8276197*

*Phone 2 (mobile) +39 328 8345580*

*For admin. questions please contact:*

*Luisa Talamo*

*Email: luisa.talamo@unipd.it*

*Phone (office hr) +39 049 827 6242*



Funded by the Horizon 2020 Framework Programme of the European Union

# – 2nd International Training School –
# 9 -13 September 2019

***An integrated approach to marine invertebrate biodiversity:***

***evolutionary and functional adaptations***

## Application and deadline

**Deadline for registration is August, 31st, 2019**

**Please Send applications to: loriano.ballarin@unipd.it, luisa.talamo@unipd.it**

Applications should include full department address, phone, fax, e-mail (see form below) together with a short curriculum vitae, description of the applicant's current research interest, and a letter of presentation written by a tutor from applicant's home institution.

Applications will be evaluated and all applicants will be notified by e-mail.

Maximum number of trainees: 15.
According to the COST rules, trainees from countries participating in the COST Action 16203 – MARISTEM will be preferred.

Trainees should be engaged in an official research programme as a PhD Student or postdoctoral fellow or employed by, or affiliated to, an institution, organisation or legal entity which has within its remit a clear association with performing research.

Students with an official Internship Contract/agreement can apply to the present call and their affiliation to their Institution should be highlighted in their letter of support.

Researchers located in an approved institution located in an International Partner Countries (IPC) are not eligible to receive a Trainee Grant.

Once selected, trainees must register for an e-COST profile at https://e-services.cost.eu.

The COST Action will cover the expenses of the materials and of lunches/coffee break. A support to travel and accommodation expenses will be given to participants of the COST countries in the form of a grant of 290 euros. A special price of 25 euros per night has been agreed at the Domus Clugiae guesthouse, in Chioggia, for trainees, in double or triple rooms, breakfast included.



Funded by the Horizon 2020 Framework Programme of the European Union

## MARISTEM – 2nd International Training School

***An integrated approach to marine invertebrate biodiversity: evolutionary and functional adaptations***

*Chioggia, Palazzo Grassi*

*9 -13 September 2019*

## *APPLICATION FORM*

***To be sent together with a CV***

***Please fill all fields in***

Surname, full Name:.....

Place and date of birth: .....

Tax code / health service code.....

Residence Address: .....

.....

ID Card / Passport number ID Card / Passport expiry date .....

.....

Mobile phone Cell. .....

E-mail address: .....

Job position.....

Affiliation (*name of Home Institution)*.....

.....



Funded by the Horizon 2020 Framework Programme of the European Union