



SIICS

Società Italiana di
Immunobiologia Comparata
e dello Sviluppo



UPO

UNIVERSITÀ DEL PIEMONTE ORIENTALE



PROGRAM

XXV Meeting of the Italian Association of Developmental and Comparative Immunobiology (IADCI)

February 19th - 21th, 2025

*Università del Piemonte Orientale,
Dipartimento di Scienze e Innovazione Tecnologica (Alessandria, Italy)*

Organizing Committee:

Francesco Dondero

Antonio Calisi

Wednesday, February 19th, 2025

13:00 - 14:00 Registration

14:00 - 14:30 Opening of the Congress and Welcome address

Guido Lingua- Director of Department of Sciences and Innovative Technologies, University of Eastern Piedmont, Alessandria

Francesco Dondero- President of Organizing Committee

Davide Malagoli- President of Italian Association of Developmental and Comparative Immunobiology

14:30 - 15:30. Laura Canesi

Lecture: Neuroendocrine and environmental control of early larval development in *Mytilus galloprovincialis*
Department of Earth, Environmental and Life Sciences-DISTAV, University of Genova, Italy

15:30 - 16:00 Coffee break

Session I.1: Immunological response and disease of environmental disturbance and stress

Chair: Valerio Matozzo (University of Padua); Antonio Calisi (University of Eastern Piedmont)

16:00 - 16:15. Balbi Teresa^{1,2}, Auguste Manon^{1,2}, Miglioli Angelica³, Canesi Laura^{1,2}

Physiological responses of early developmental stages of *Mytilus galloprovincialis* to ocean warming and pathogen infection in a global change scenario

¹*Department of Earth, Environmental and Life Sciences-DISTAV, University of Genova, Italy*

²*National Biodiversity Future Center, 90133 Palermo, Italy*

³*Sorbonne Université/CNRS, Laboratoire de Biologie du Développement, Villefranche-sur-Mer, France*

16:15 - 16:30. C. Bon¹, N Baranzini^{1,2}, L Pulze^{1,2}, D Tessaro³, A Grimaldi^{1,2}

Investigating the Impact of PET Nanoparticles on the acute immune response in the medicinal leech *Hirudo verbana*

¹ *Department of Biotechnology and Life Sciences, University of Insubria, Varese, Italy*

²*Italian Leech Farm (ILFARM) S.r.l, Varese, Italy*

³ *Department CMIG "G.Natta" Politecnico di Milano, Milan, Italy*

16:30 - 16:45. De Marco Giuseppe¹, Galati Mariachiara¹, Billè Barbara¹, Terranova Mery^{1,2}, Raccuia Salvatore Giovanni Michele¹, Dara Mariano², Abouda Siwar^{1,3}, La Corte Claudia², Vinci Graziano¹, Cappello Tiziana^{1,4}, Cammarata Matteo^{2,5}, De Stefano Concetta¹, Parisi Maria Giovanna^{2,5}, Maisano Maria¹

Environmental impact of two gadolinium forms on mussel immune response: preliminary study

¹*Department of, Chemical, Biological, Pharmaceutical and Environmental Sciences, University of Messina, Messina, Italy*

²*Department of Earth and Marine Sciences, University of Palermo, Palermo, Italy*

³*Higher Institute of Biotechnology, University of Monastir, Monastir, Tunisia*

⁴*Universal Scientific Education and Research Network (USERN)*

⁵*National Biodiversity Future Center (NBFC), Palermo, Italy*

16:45 - 17:00. Stefano Magni¹, Andrea Binelli¹, Camilla Della Torre¹

Toxic effects of tire particle-derived contaminants to *Lumbricus terrestris*

¹*Department of Biosciences University of Milan, Milan, Italy*

17:00 - 17:15. Simone Domenichi¹, Lorian Ballarin¹

Effects of polyethylene nanoplastics (nPET) on immune responses of the colonial ascidian *Botryllus schlosseri*

¹*Department of Biology, University of Padua, Padua, Italy*

17:15 - 17:30. Jacopo Fabrello¹, Valerio Matozzo¹

Haemocyte responses in the blue crab *Callinectes sapidus* exposed to organic and inorganic contaminants

¹*Department of Biology, University of Padova, Padova, Italy*

Thursday, February 20th, 2025

Session II.1: **Molecular and cellular process in comparative and developmental immunobiology of metazoans**

Chair: Maria Maisano (University of Messina) Maria Rosaria Coscia (National Research Council of Italy, Naples)

09:00 - 09:15. Losi Chiara¹, M Montanari¹, Malagoli Davide^{1,2}

Flow cytometry analysis reveals variable DNA content in non-proliferating hemocytes of the invasive freshwater snail *Pomacea canaliculata*

¹Department of Life Sciences, University of Modena and Reggio Emilia, Modena, Italy

²NBFC, National Biodiversity Future Center, Palermo, Italy

09:15 - 09:30. Ametrano Alessia¹, Fioriniello Salvatore^{2,3}, Cocca Ennio⁴, Italiani Paola¹, Coscia Maria Rosaria¹

DNA methylation analysis unveils a fine-tuned regulation of immune-related genes from the cold adapted teleost *Trematomus bernacchii*

¹Institute of Biochemistry and Cell Biology, National Research Council of Italy, Naples, Italy

²Institute of Genetics and Biophysics "Adriano Buzzati-Traverso", National Research Council of Italy, Naples, Italy

³Department of Chemistry and Biology "Adolfo Zambelli", University of Salerno, Fisciano, Italy

⁴Institute of Biosciences and Bioresources, National Research Council of Italy, Naples, Italy

09:30 - 09:45. Auguste Manon^{1,2}, Leonessi Martina^{1,2}, Oliveri Caterina¹, Furones Dolors³, Vezzulli Luigi^{1,2}, Canesi Laura^{1,2}

Immune responses in marine mussel to cross infections with *Malaciobacter marinus* and *Vibrio aestuarianus*

¹ DISTAV, Dept. of Environmental, Earth and Life Sciences, University of Genoa, Italy

² NBFC, National Biodiversity Future Center, Palermo, Italy

³ IRTA, La Ràpita Centre, Aquaculture Program, Spain

09:45 - 10:00. Ciacchi Caterina¹, Canesi Laura², Mancin Nicoletta³, Lo Bue Giusto³, Burattini Sabrina¹, Frontalini Fabrizio⁴

Assessment of antioxidant defenses and energy metabolism in neglected marine organisms: an integrated approach for *Sabellaria spinulosa* (Sabellariidae, Annelida)

¹ Department of Biomolecular Sciences, University of Urbino "Carlo Bo", Urbino, Italy,

² Department of Earth, Environment and Life Sciences, University of Genoa, Genoa, Italy.

³ Department of Earth and Environmental Sciences, University of Pavia, Pavia, Italy.

⁴ Department of Pure and Applied Sciences, University of Urbino "Carlo Bo" – Urbino, Italy

10:00 - 10:30 Coffee break

Session II.2: **Molecular and cellular process in comparative and developmental immunobiology of metazoans**

Chair: Jacopo Vizioli (University of Lille); Giovanna Parisi (University of Palermo);

10:30 - 10:45 Kireta Dona¹, Decarli Pietro¹, Riommi Damiano², Gualandi Nicolò³, Greco Samuele¹, Pallavicini Alberto¹, Gerdol Marco¹

Myticalins: a class of antimicrobial peptides and their role in mussel immunity

¹Applied and Comparative Genomics Group, Department of Life Sciences, Università di Trieste, Trieste, Italy

²Department of Agronomy, Animals, Food, Natural Resources and Environment, Università degli studi di Padova, Padua, Italy

³San Raffaele Telethon Institute for Gene Therapy, Milan, Italy

10:45 - 11:00. Claudia La Corte^{1,2}, Luca Bisanti^{1,2}, Mariano Dara^{1,2}, Federica Bertini^{1,2}, Jacopo Vizioli³, Maria Giovanna Parisi^{1,2}, Matteo Cammarata^{1,2} and Daniela Parrinello^{1,2}

Insights into the immune response of *Ciona robusta*: The TLR-NFκB pathway and functional enzymes

¹ Marine Immunobiology Laboratory, Department of Earth and Marine Sciences, University of Palermo, Palermo, Italy

² National Biodiversity Future Center (NBFC), Palermo, Italy

³ Laboratoire Protéomique, Réponse Inflammatoire et Spectrométrie de Masse (Inserm U1192), Département de Biologie, Université de Lille, Lille, France



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11:00 - 11:15. Leonessi Martina^{1,2}, Auguste Manon^{1,2}, Lopez Jose³, Oliveri Caterina¹, Furones Dolors³, Vezzulli Lugi^{1,2}, Canesi Laura^{1,2}

Immune responses of *Mytilus galloprovincialis* to challenge with a bacterial isolate from a mussel mortality outbreak in a Spanish aquaculture farm.

¹ DISTAV, Dept. of Environmental, Earth and Life Sciences, University of Genoa, Italy

² NBFC, National Biodiversity Future Center, Palermo, Italy

³ IRTA_La Ràpita Centre, Aquaculture Program, Spain

11:15 - 11:30. Franchi Nicola¹, G. Sales², A. Vezzi², Sacchi Sandro¹, Malagoli Davide¹

When Immune Meets Neural: The Hidden Power of the Complement System in Gastropod Brain Development and Degeneration

¹ Dept. of Life Sciences, University of Modena and Reggio Emilia, Modena, Italy ,

² Dept. of Biology, University of Padova, Padova, Italy;

11:30 - 11:45. Sacchi Sandro¹, A Bonan¹, A Ferri¹, A Freschi¹, Franchi Nicola¹, Malagoli Davide^{1,2}

Cerebral ganglia of *Pomacea canaliculata* express immune-related mediators *PcAIF1* and *PcIL-17* in response to tentacle amputation

¹Department of Life Sciences, University of Modena and Reggio Emilia, Modena, Italy

²NBFC, National Biodiversity Future Center, Palermo, Italy

11:45 - 12:00 Alimenti Claudio¹, Pedrini Bill², Luporini Pierangelo¹, Vallesi Adriana¹

Structural evolution of the water-borne protein pheromone families ruling self/not-self recognition in the ciliate *Euplotes*: an updated scenario.

¹ School of Biosciences and Veterinary Medicine, University of Camerino, 62032 Camerino (MC), Italy

² Paul Scherrer Institute, 5232 Villigen PSI, Switzerland

12:00 - 13:30 Light Lunch

Chair: Francesco Dondero

13:30 - 14:30. Lorian Ballarin

Lecture: The ascidian phagocyte: a multitasking cell

Department of Biology, University of Padua, Padua Italy

Session I.2: Immunological response and disease of environmental disturbance and stress

Chair: Nicola Franchi (University of Modena and Reggio Emilia); Annalisa Grimaldi (University of Insubria)

14:30 - 14:45 Scala Serena¹, Chiara Samori², Paola Valbonesi¹, Teresa Balbi^{3,4}, Manon Auguste^{3,4}, Martina Leonessi^{3,4}, Laura Canesi^{3,4}, Elena Fabbri¹

Impacts of bioplastic leachates on early larval stages and adult mussels: cellular, biochemical and physiological responses

¹ Department of Biology, Geology and Environmental Science, ²Department of Chemistry "Giacomo Ciamician", University of Bologna, Ravenna (Italy)

³Department of Earth, Environmental and Life Sciences-DISTAV, University of Genova, Italy

⁴National Biodiversity Future Center, 90133 Palermo, Italy

14:45 - 15:00 Anita Ferri¹, Sandro Sacchi¹, Davide Malagoli¹

Organ-specific accumulation of PET-nanoplastics in *Pomacea canaliculata* (Gastropoda) under chronic and acute exposure

¹Department of Life Science, University of Modena and Reggio Emilia, Modena, Italy.

15:00 - 15:15 Kholidhaghghi Shaghayegh^{1,2}, Piva Elisabetta¹, Ametrano Alessia³, Pacchini Sara¹, Drago Laura¹, Irato Paola¹, Coscia Maria Rosaria³, Santovito Gianfranco¹

Expression analysis of Toll-like receptor genes in response to temperature challenge in the Antarctic fish *Trematomus bernacchii*

¹Department of Biology, University of Padova, Padova, Italy

²Department of Environmental Sciences, Informatics and Statistics, Ca' Foscari University of Venice, Venice, Italy

³Institute of Biochemistry and Cell Biology, National Research Council of Italy, Naples, Italy

15.15 - 15:30 Gualandris Davide¹, Rotondo Davide¹, Lorusso Candida¹, Calisi Antonio¹, Dondero Francesco¹
Chronic PFAS Exposure in Terrestrial Oigochetaes (*E. fetida*) Unveiling sublethal Immune Responses
¹Department of Science and Technological Innovation, Università del Piemonte Orientale, Alessandria, Italy,

15:30 - 16:00 Coffee break

Session I.3: Immunological response and disease of environmental disturbance and stress
Chair: Tiziana Cappello (University of Messina) Nicolò Baranzini (University of Insubria)

16:00 - 16:15. Galati Mariachiara¹, De Marco Giuseppe¹, Bille Barbara¹, Cristaldi Antonio², Eliso Maria Concetta¹, Terranova Mery¹, Oliveri Conti Gea², Ferrante Margherita², Maisano Maria¹, Cappello Tiziana¹,
Anti-inflammatory drugs: an environmental threat to the reproductive health of non-target species?
¹Department of Chemical, Biological, Pharmaceutical and Environmental Sciences, University of Messina, Messina, Italy
²Department of Medical, Surgical and Advanced Technologies "G.F. Ingrassia", University of Catania, Catania, Italy
³Department of Biology and Evolution of Marine Organisms, Stazione Zoologica Anton Dohrn, Naples, Italy
⁴Universal Scientific Education and Research Network (USERN)

16:15 - 16:30 Pacchini Sara¹, Vanzan Giacomo¹, Piva Elisabetta¹, Drago Laura¹, Kholdihaghighi Shaghayegh^{1,2}, Irato Paola¹, Bottacin-Busolin Andrea³, Marion Andrea³, Santovito Gianfranco¹
Exploring PFAS-induced Stress Responses: The Role of Prdx4 in Oxidative and Lipid Homeostasis in *Squalius cephalus* Kidney
¹Department of Biology, University of Padova, Padova, Italy
²Department of Environmental Sciences, Informatics and Statistics, Ca' Foscari University of Venice, Venice, Italy
³Department of Industrial Engineering, University of Padova, Padova, Italy

16:30-16:45. Piva Elisabetta¹, Ametrano Alessia², Pacchini Sara¹, Drago Laura¹, Kholdihaghighi Shaghayegh^{1,3}, Irato Paola¹, Coscia Maria Rosaria² and Santovito Gianfranco¹.
Exploring acclimation responses to heatwaves-like events in the cold-adapted fish *Trematomus bernacchii*
¹Department of Biology, University of Padova, Padova, Italy
² Institute of Biochemistry and Cell Biology, National Research Council of Italy, Naples, Italy
³Department of Environmental Sciences, Informatics and Statistics, Ca' Foscari University of Venice, Venice, Italy

16:45- 17:00. Romano Rossana¹⁻², Rosati Luigi³, Napolitano Gaetana¹⁻², Motta Chiara Maria³, Ferrigno Federica¹, Simoniello Palma¹.
Histopathological and Molecular responses in Mussel Gills treated with Micro and Nanoplastics
¹Department of Science and Technology, Parthenope University of Naples, Naples, Italy,
²International PhD Programme, UNESCO Chair "Environment, Resources and Sustainable Development", Department of Science and Technology, Parthenope University of Naples, Naples, Italy,
³Department of Biology, University of Naples Federico II, Napoli, Italy.

17:00 - 18:00 Members General Assembly

20:30 Social Dinner at Ristorante Osteria "La Chiacchierata", via Mazzini 134, Alessandria

Friday, February 21th, 2025

Chair: Francesco Dondero

9:00 - 10:00 Marco Gerdol

Lecture: Advancing comparative immunogenomics: insights into immune system evolution through -omics approaches

Department of Life Sciences, University of Trieste, Trieste, Italy,

Session III.2: Big Data analysis and innovative methodologies in comparative immunology

Chair: Gianfranco Santovito (University of Padua); Adriana Vallesi (University of Camerino)

10:00 - 10:15 Drago Laura¹, Cortese Martina¹, Pacchini Sara¹, Vanzan Giacomo¹, Piva Elisabetta¹, Kholidhaghghi Shaghayegh^{1,2}, Irato Paola¹, Ballarin Lorian¹, Bottacin-Busolin Andrea³, Marion Andrea³, Santovito Gianfranco¹

Stress granules as new potential biomarkers to assess PFAS toxicity in *Squalius cephalus*

¹*Department of Biology, Università degli Studi di Padova, Padova, Italy*

²*Department of Environmental Sciences, Informatics and Statistics, Università Ca' Foscari di Venezia, Venezia, Italy*

³*Department of Industrial Engineering, Università degli Studi di Padova, Padova, Italy*

10:15 - 10:30 Francesco Oliva¹, Davide Gualandris¹, Rotondo Davide¹, Lorusso Candida¹, Calisi Antonio¹, Dondero Francesco¹

Exploring the Shared Molecular Mechanisms of Immunostimulation and Heavy Metal Exposure in Mussel Hemocytes

¹*Department of Science and Technological Innovation, Università del Piemonte Orientale, Alessandria, Italy,*

10:30 - 10:45 Valeria Longo¹, Noemi Aloï¹, Alessia Li Vigni¹, Alessia Maria Sampino¹, Giuseppa Augello¹, Melchiorre Cervello¹, Maria Grazia Zizzo², Rosa Maria Serio² and Paolo Colombo¹

Effects of environmental pollutants on innate immune response and cell to cell communication

¹*Institute for Biomedical Research and Innovation, National Research Council of Italy (IRIB-CNR)*

²*Department of Biological, Chemical and Pharmaceutical Sciences and Technologies (STEBICEF)*

10:45 - 11:00 Marcolli Gaia¹, Baranzini Nicola^{1,2}, Pulze Laura^{1,2}, L Barone¹, F Rossi¹, R Gornati¹, Grimaldi Annalisa^{1,2}

A cell-free wound healing approach: the effects of human Dental Pulp Stem Cells-derived Conditioned Medium on tissue regeneration in *Hirudo verbana*

¹ *Department of Biotechnology and Life Sciences, University of Insubria, Varese, Italy*

² *Italian Leech Farm (ILFARM) S.r.l, Varese, Italy*

11:00 - 11:30 Coffee break

Session III.3: Big Data analysis and innovative methodologies in comparative immunology

Chair: Francesco Dondero (University of Eastern Piedmont); Davide Malaqoli (university of Modena and Reggio Emilia)

11:30 - 11:45. Daniela Eugenia Nerelli¹, Dona Kireta¹, Samuele Greco¹, Amaro Saco², Magali Rey Campos², Beatiz Novoa², Antonio Figueras², Umberto Rosani³, Alberto Pallavicini¹, Marco Gerdol¹

Bivalve pangenomes: investigating the inter-individual diversity of immune-related molecules.

¹ *Università degli Studi di Trieste, Trieste, Italy*

² *Instituto de Investigaci3n Mariñas – CSIC, Vigo, Spain*

³ *Università di Padova, Padua, Italy*

11:45 - 12:00 Umberto Rosani¹, Marco Gerdol², Mart Krupovic³

The highly dynamic pangenome of basal chordates is enriched in defence and immunity genes and is inherited following the Mendelian law.

¹ *Department of Biology, University of Padova, Padova, Italy*

² *Department of Life Sciences, University of Trieste, Trieste, Italy*

³ *Institut Pasteur, Université Paris Cité, Paris, France*



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12:00 - 12:15 Dara Mariano^{1,5}, Blervacq Anne-Sophie², Moreau Myriam³, Maria Giovanna Parisi^{1,5}, Cammarata Matteo^{1,5}, Vizioli Jacopo⁴

Exploring *Mytilus edulis* immune response using Raman vibrational spectroscopy.

¹Marine Immunobiology Laboratory, Department of Earth and Marine Sciences, University of Palermo, Palermo, Italy.

²Université de Lille, Sciences et Technologies, CNRS, UMR 8576-UGSF-Unité de Glycobiologie Structurale et Fonctionnelle, Lille, France.

³Université de Lille, Sciences et Technologies, CNRS, UMR 8516-LASIRE-Laboratoire de Spectroscopie Pour les Interactions, la Réactivité et l'Environnement, Lille, France.

⁴Université de Lille, Sciences et Technologies, Inserm U1192-PRISM -Protéomique, Réponse Inflammatoire, Spectrométrie de Masse, Lille, France.

⁵NBFC, National Biodiversity Future Center, Palermo, Italy

12:15 - 12:30 awards ceremony (Davide Malagoli and directive council)

12:30- 13:00 Closing remarks and scientific closing of the XXV IADCI Meeting (Davide Malagoli)

13.00 Greetings and transfer to the Monferrato hills for excursion participants