Maria Sirakov, Ph.D.

Current Position:
Researcher Department of Biology and Evolution of Marine Organisms - Stazione Zoologica Anton Dohrn (BEOM-SZN) Napoli, Italy

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EXPERTISE KEYWORDS Gut physiology, Signalling pathway**,** Marine Organism, Gene expression, Transcriptomic, Emerging contaminant.

2018-2028: Eligible as Associate Professor National Scientific Qualification SSD: 05/F1 (BIO/13), Applied Biology.

Education
2004-2007: Ph.D. in Animal Biology. Università degli Studi della Calabria (UNICAL, Italy)
1999-2003*: Laurea cum laude* (equivalent M2R) in Natural Science. Università degli studi di Napoli "Federico II" (UNINA, italy)

Employment record
2019 up to present Researcher (permanent position) at BEOM-SZN
2017-2018 Post-doc at Università degli Studi della Campania "Vanvitelli" (UNICAMPANIA) , Italy, laboratory lead by Dr. Ciniglia.
2013-2016 Post-doc at Telethon Institute of Genetics and Medicine (TIGEM), Italy, laboratory lead by Prof. Auricchio.
2013 Post-doc Instituto di Genetica e Biophysica (IGB) 'Adriano Buzzati-Traverso', CNR, Ital, laboratory lead by Prof. Simeone.
2011-2013 Post-doc Institut de Biologie et de Médecine Moléculaires (IBMM), Belgium, laboratory lead by Prof. Bellefroid.
2008- 2011 Post-doc Institut de Génomique Fonctionnelle de Lyon (IGFL), France, laboratory lead by Prof. Samarut.

Scientific Society Member
From 2017 Member of Società dei Naturalisti (Society of Natural Scientist) in Naples;
From 2022 Memebr of Euro Evo-Devo Society (EED)

Editorial Activity

Occasional peer reviewing: Biochimica et Biophysica Acta, BMC Molecular Biology, Cancer, Cell Death and Differentiation, Cells, Frontiers in Endocrinology, International Journal of Molecular Science, Molecular and Cellular Endocrinology, PloSONE, Scientific Reports, Water

Guest Editor

- ✓ CELLS Thyroid Hormone Signaling and Function: News from Classical and Emerging Models (2022);
- ✓ MOLECULAR AND CELLULAR ENDOCRINOLOGY Endocrinology of the Intestine (on going);
- ✓ INTERNATIONAL JOURNAL OF MOLECULAR SCIENCE Explore Marine Biodiversity: Discover Insights from Genomics and Transcriptomics (on going).

Ongoing research activities with external scientific collaborators

- "Natural Organic Matter characterization in marine environment" with Prof. Fabbricino and Dr. Pontoni (UNINA, Italy) and Dr. Boguta, Institute of Agrophysics, Polish Academy of Sciences (IAPAS), Poland;
- "Effect of *Caulerpa cilindracea* on *M. galloprovincialis*" with Prof. De Falco and Dr. Rosati (UNINA) and Dr. Brunelli (UNICAl);
- "Effect of Emerging Contaminants if fresh and marine organisms" with Dr. Antonietta Siciliano (UNINA) and Prof. Marco Guida (UNINA).

Funded ongoing projects

• PRIN: RESEARCH PROJECTS OF RELEVANT NATIONAL INTEREST – 2022 PNRR Call. Project title: "The NONO killifish Aphanius fasciatus as an ecophysiological SENtinel of vulnerable coastal habitats (acronym: NONOSENS)". Role: SZN UNIT member, PI Dr. Eva Terzibasi. CUP: C53D2300715000. Start 1/12/2023 – ongoing.

· Project title “Neuroactive MEtabolites and Plastics: Re-evaluations Through a Model Elasmobranch – NEMERTE” financed by Piano Nazionale Ripresa e Resilienza (PNRR), Missione 4 “Istruzione e ricercar.)”. Role: SZN UNIT member, PI Dr. Eva Terzibasi CUP: C63C24000880001. Start Start: 1/12/2024- ongoing.

Oral Presentation (from 2022)
(*) corresponding, ($) presenter
• Gerdol M, Marino R, Plateroti M, Locascio A, Sirakov M ($*). Novel insights on *Ciona robusta* gut physiology and evolution. 2nd Italian Congress on Marine Evolution (EVOLMAR 2023), November 14th-17th 2023, virtual congress.

• Gerdol M, De Felice V, Sicong Y, Marino R, Capaldo A, Locascio A, Sirakov M ($*). Histological and molecular features provide insight to consider *Ciona robusta* gut a suitable model to study gut physiology and evolution. 5th Euro-Mediterranean Conference for Environmental Integration (EMCEI23), October 2nd-5th 2023. Rende (Italy).

• Tramontin E, De Felice V, Spinosa G, Gerdol M, Locascio A, Sirakov M ($*). *Ciona robusta* as model system for Intestinal Stem Cells biology (CrISCs). 11th Tunicate International Meeting (ITM2022), July 11th-15th 2022 Kobe (Japan). Virtual congress.

Publications
(*) Corresponding

- Paolella G, Pontoni L, Locascio A, Sirakov M, Scivicco M, Fabbricino M (2025) Evaluation of potential bioaccumulation of Bisphenol A in the mussel *Mytilus galloprovincialis*. *Journal of Environmental Management* 382, 125295. doi: 10.1016/j.jenvman.2025.125295
- Gerdol M, Greco S, Marino R, Locascio A, Plateroti M, Sirakov M* (2024) Conserved Signalling Pathways in the *Ciona robusta* Gut. *International Journal of Molecular Sciences* 25 (14), 7846. doi:10.3390/ijms25147846.
- Paolella G, Fabbricino M, Locascio A, Sirakov M, Pontoni L (2024) Fate of bisphenol A in marine environment: A critical review. *Chemical Engineering Journal*, 153228. doi:10.1016/j.cej.2024.153228
- Yao S, Boguta P, Giolito MV, Pontoni L, Sirakov M*, Plateroti M, Fabbricino M (2024) Nano-sized natural organic matter interacts with bisphenol A and decreases cytotoxicity to human cells. *Environmental Chemistry Letters* 22:2183-2189. doi: 10.1007/s10311-024-01711-9
- Salatiello F, Gerdol M, Pallavicini A, Locascio A, Sirakov M* (2022) Comparative analysis of novel and common reference genes in adult tissues of the mussel *Mytilus galloprovincialis*. *BMC Genomics* 23:349. doi:10.1186/s12864-022-08553-1
- Pontoni L, La Vecchia C, Boguta P, Sirakov M, D’Aniello E, Fabbricino M, Locascio A (2022) Natural organic matter controls metal speciation and toxicity for marine organisms: a review. *Environmental Chemistry Letters* 20: 797–812. doi:10.1007/s10311-021-01310-y
- Sirakov M, Plateroti M (2022) Thyroid Hormone Signaling and Function: News from Classical and Emerging Models. Cells 11:453. doi:10.3390/cells11030453
- Sirakov M*, Claret L, Plateroti M. Thyroid Hormone Nuclear Receptor TRα1 and Canonical WNT Pathway Cross-Regulation in Normal Intestine and Cancer (2021) *Frontiers in Endocrinology* (Lausanne) Dec 10:12:725708. doi: 10.3389/fendo.2021.725708. eCollection 2021
- Sirakov M, Palmieri M, Iovinella M, Davis SJ, Petriccione M, di Cicco MR, De Stefano M, Ciniglia C (2021) *Cyanidiophyceae* (*Rhodophyta*) Tolerance to Precious Metals: Metabolic Response to Palladium and Gold. *Plants* 10: doi:10.3390/plants10112367
- Godart M, Frau C, Farhat D, Giolito MV, Jamard C, Le Nevé C, Freund JN, Penalva LO, Sirakov M, Plateroti M (2021) The murine intestinal stem cells are highly sensitive to the modulation of the T3/TRα1-dependent pathway. *Development* 148: doi:10.1242/dev.194357
- Ciniglia C, Cennamo P, De Natale A, De Stefano M, Sirakov M, Iovinella M, Yoon HS, Pollio A (2019) *Cyanidium chilense* (*Cyanidiophyceae, Rhodophyta*) from tuff rocks of the archeological site of Cuma, Italy. *Phycological Research* 67:311–319. doi:10.1111/pre.12383
- Skah S, Uchuya-Castillo J, Sirakov M, Plateroti M (2017) The thyroid hormone nuclear receptors and the Wnt/β-catenin pathway: An intriguing liaison. Developmental Biology 422:71–82. doi:10.1016/j.ydbio.2017.01.003

- Skah S, Nadjar J, Sirakov M, Plateroti M (2015) The secreted Frizzled-Related Protein 2 modulates cell fate and the Wnt pathway in the murine intestinal epithelium. *Experimental Cell Research* 330:56–65. doi: 10.1016/j.yexcr.2014.10.014.
- Sirakov M, Boussouar AA, Kress E, Frau C, Lone IN, Nadjar J, Angelov D, Plateroti M (2015) The thyroid hormone nuclear receptor TRα1 controls the Notch signaling pathway and cell fate in murine intestine. *Development* 142:2764–2774. doi:10.1242/dev.121962
- Sirakov M, Kress E, Nadjar J, Plateroti M (2014) Thyroid hormones and their nuclear receptors: new players in intestinal epithelium stem cell biology? *Cellular and Molecular Life Science* 71(15):2897-907 doi 10.1007/s00018-014-1586-3
- Sirakov M*, Borra M, Cambuli FM, Plateroti M (2013) Defining Suitable Reference Genes for RT-qPCR Analysis on Intestinal Epithelial Cells. *Molecular Biotechnology* 54:930–938. doi:10.1007/s12033-012-9643-3
- Bellefroid EJ, Leclère L, Saulnier A, Keruzore M, Sirakov M, Vervoortc M, De Clercq S (2013) Expanding roles for the evolutionarily conserved Dmrt sex transcriptional regulators during embryogenesis. *Cellular and Molecular Life Science* 70:3829–3845. doi:10.1007/s00018-013-1288-2
- Diala I, Wagner N, Magdinier F, Shkreli M, Sirakov M, Bauwens S, Schluth-Bolard C, Simonet T, Renault VM, Ye J, et al. (2013) Telomere protection and TRF2 expression are enhanced by the canonical Wnt signalling pathway. *EMBO Reports* 14:356–363. doi:10.1038/embor.2013.16
- Parlier D, Moers V, Van Campenhout C, Preillon J, Leclère L, Saulnier A, Sirakov M, Busengdal H, Kricha S, Marine JC, et al. (2013) The Xenopus doublesex-related gene Dmrt5 is required for olfactory placode neurogenesis. Developmental Biology 373:39–52. doi:10.1016/j.ydbio.2012.10.003
- Sirakov M, Skah S, Nadjar J, Plateroti M (2013) Thyroid hormone's action on progenitor/stem cell biology: New challenge for a classic hormone? *Biochimica et Biophysica Acta* 1830:3917–3927. doi:10.1016/j.bbagen.2012.07.014
- Sirakov M, Plateroti (2011). The thyroid hormones and their nuclear receptors in the gut: From developmental biology to cancer. *Biochimica et Biophysica Acta* 1812:938–946. doi:10.1016/j.bbadis.2010.12.020
- Kress E, Skah S, Sirakov M, Nadjar J, Gadot N, Scoazec JY, Samarut J, Plateroti M (2010) Cooperation Between the Thyroid Hormone Receptor TRα1 and the WNT Pathway in the Induction of Intestinal Tumorigenesis. *Gastroenterology* 138:1863-1874.e1. doi:10.1053/j.gastro.2010.01.041
- Sirakov M, Zarrella I, Borra M, Rizzo F, Biffali E, Arnone M.I., Fiorito G (2009) Selection and validation of a set of reliable reference genes for quantitative RT-PCR studies in the brain of the Cephalopod Mollusc Octopus vulgaris. *BMC Molecular Biology* 10. doi:10.1186/1471-2199-10-70

Published Abstract

- Chianese T, Rosati L, Vorzitelli S, Paturzo V, Locascio A, Sirakov M, Scudiero R (2023) Morphological conditions of mussels gonads after exposure to polistyrene microplastics alone and conjugated with bisphenolA or cadmium. *European Journal of Histochemistry* 67 (3), 9-9a.
- Skah S, Nadjar J, Sirakov M and Plateroti (2015) M 795 The Secreted Frizzled-Related Protein 2 Modulates Cell Fate and the WNT Pathway in the Murine Intestinal Epithelium. *Gastroenterology* 148 (49): S-156
- Sirakov M, Plateroti M (2013) Sa2008 The Activity of the Notch Signalling Pathway in the Developing Intestine Is Modulated by the Thyroid Hormone Nuclear Receptor Trα1. *Gastroenterology* 144 (5): S-358
- Sirakov M, Skah S, Platerot M (2011) Multiple-Level Interactions Between the Thyroid Hormone Receptor Trα1 and the Wnt Pathway in the Context of the Intestinal Epithelium. *Gastroenterology* 140 (5): S-631.
- Skah S, Sirakov M, Cambuli FM, Plateroti M (2011) Study of the secreted Frizzled Related Protein 2 (sFRP2) function in the intestinal physiopathology. *BULLETIN DU CANCER* 98: S39-S40.
- Sirakov M, Skah S, Plateroti M (2010) 36 Synergy Between the Thyroid Hormone Receptor Trα1 and the Wnt/β-Catenin in the Induction of Intestinal Tumors in the Mouse. *Gastroenterology* 138 (5); S-7.

Book Chapter

- Sirakov M, Plateroti M. "In Vitro Approaches to Identify Thyroid Hormone Receptor-Dependent Transcriptional Response," in Thyroid Hormone Nuclear Receptor, ed. Plateroti M Samarut J (New York - DEU: Springer - Humana press), 29–38. doi:https://doi.org/10.1007/978-1-4939-7902-8_4