

## Maria Sirakov, Ph.D.

### Current Position:

Researcher Department of Biology and Evolution of Marine Organisms - Stazione Zoologica Anton Dohrn (BEOM-SZN)  
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**EXPERTISE KEYWORDS** Intestinal Stem Cells, Signalling pathways, Colorectal Cancer, Marine Organisms, Gene expression, Environmental stress.

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) /SZN, Italy. Supervisor Dr. Fiorito (SZN) and co-supervisor Dr. Borra (SZN)

1999-2003: *Laurea cum laude* (equivalent M2R) in Natural Science. Università degli studi di Napoli "Federico II" (UNINA), Italy. Supervisor Prof. Pollio (UNINA)

### 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 Istituto 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 Memembr 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, PloS ONE, Scientific Reports, Water

#### Guest Editor

- ✓ FRONTIERS IN ENDOCRINOLOGY Special Issue: Endocrine Disruptors in Neurodegeneration and Aging: New Insights from Canonical and Non-canonical models *on going*
- ✓ CELLS Special Issue: Thyroid Hormone Signaling and Function: News from Classical and Emerging Models 2022

### Ongoing research activities with scientific collaborators

- “Natural Organic Matter characterization in marine environment” with Dr. Locascio and Dr. Casotti (SZN), Prof. Fabbicino and Dr. Pontoni (UNINA) and Dr. Boguta, Institute of Agrophysics, Polish Academy of Sciences (IAPAS), Poland;
- “Transcriptomic analysis of specific tissue of *Mytilus galloprovincialis* and *Ciona robusta*” with Prof. Pallavicini and Dr. Gerdol, Università degli Studi di Trieste (UNITS), Italy;
- “Chitin extraction via co-fermentation method from marine organisms and marine bio-waste” with Prof. Jaouadi, Centre of Biotechnology (CBS), University of SFAX, Tunisia and Prof. Fabbicino (UNINA);
- “Effect of *Caulerpa cylindracea* on *M. galloprovincialis*” with Prof. De Falco and Dr. Rosati (UNINA) and Dr. Brunelli (UNICAL);
- “Histological and molecular characterization of *C. robusta* gastrointestinal system” with Prof. Capaldo (UNINA) and Dr. David Ferrier, University of St. Andrews (UK);
- “Physiology of intestinal stem cells” with Dr. Plateroti, Interface Recherche Fondamentale et Appliquée en Cancérologie (IRFAC) UMR-S1113 Strasbourg, France.

## Publications

- 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, Fabbicino M, Locascio A (2022) Natural organic matter controls metal speciation and toxicity for marine organisms: a review. Environ Chem Lett, 20: 797–812. doi:10.1007/s10311-021-01310-y
- Sirakov M, Plateroti M. Thyroid Hormone Signaling and Function: News from Classical and Emerging Models. Cells (2022) 11:453. doi:10.3390/cells11030453
- Sirakov M\*, Claret L, Plateroti M. Thyroid Hormone Nuclear Receptor TR $\alpha$ 1 and Canonical WNT Pathway Cross-Regulation in Normal Intestine and Cancer. Front Endocrinol (Lausanne) (2021) 12:1–8. doi:10.3389/fendo.2021.725708
- Sirakov M, Palmieri M, Iovinella M, Davis SJ, Petriccione M, di Cicco MR, De Stefano M, Ciniglia C. Cyanidiphyceae (Rhodophyta) Tolerance to Precious Metals: Metabolic Response to Palladium and Gold. Plants (2021) 10: doi:https://doi.org/10.3390/plants10112367
- Godart M, Frau C, Farhat D, Giolito MV, Jamard C, Le Nevé C, Freund JN, Penalva LO, Sirakov M, Plateroti M. The murine intestinal stem cells are highly sensitive to the modulation of the T3/TR $\alpha$ 1-dependent pathway. DEVELOPMENT (2021) 148: doi:doi: 10.1242/dev.194357
- Ciniglia C, Cennamo P, De Natale A, De Stefano M, Sirakov M, Iovinella M, Yoon HS, Pollio A. Cyanidium chilense (Cyanidiphyceae, Rhodophyta) from tuff rocks of the archeological site of Cuma, Italy. Phycol Res (2019) 67:311–319. doi:https://doi.org/10.1111/pre.12383
- Skah S, Uchuya-Castillo J, Sirakov M, Plateroti M. The thyroid hormone nuclear receptors and the Wnt/ $\beta$ -catenin pathway: An intriguing liaison. Dev Biol (2017) 422:71–82. doi:10.1016/j.ydbio.2017.01.003
- Skah S, Nadjar J, Sirakov M, Plateroti M. The secreted Frizzled-Related Protein 2 modulates cell fate and the Wnt pathway in the murine intestinal epithelium. Exp Cell Res (2015) 330:56–65. doi:doi: 10.1016/j.yexcr.2014.10.014.
- Sirakov M, Bousouar AA, Kress E, Frau C, Lone IN, Nadjar J, Angelov D, Plateroti M. The thyroid hormone nuclear receptor TR $\alpha$ 1 controls the Notch signaling pathway and cell fate in murine intestine. Dev (2015) 142:2764–2774. doi:10.1242/dev.121962
- Sirakov M, Kress E, Nadjar J, Plateroti M. Thyroid hormones and their nuclear receptors: new players in intestinal epithelium stem cell biology? Cell Mol LIFE Sci (2014)
- Sirakov M\*, Borra M, Cambuli FM, Plateroti M. Defining Suitable Reference Genes for RT-qPCR Analysis on Intestinal Epithelial Cells. Mol Biotechnol (2013) 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. Expanding roles for the evolutionarily conserved Dmrt sex transcriptional regulators during embryogenesis. *Cell Mol LIFE Sci* (2013) 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. Telomere protection and TRF2 expression are enhanced by the canonical Wnt signalling pathway. *EMBO Rep* (2013) 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. The *Xenopus* doublesex-related gene *Dmrt5* is required for olfactory placode neurogenesis. *Dev Biol* (2013) 373:39–52. doi:10.1016/j.ydbio.2012.10.003
- Sirakov M, Skah S, Nadjar J, Plateroti M. Thyroid hormone’s action on progenitor/stem cell biology: New challenge for a classic hormone? *Biochim Biophys ACTA-GENERAL Subj* (2013) 1830:3917–3927. doi:10.1016/j.bbagen.2012.07.014
- Sirakov M, Plateroti M. The thyroid hormones and their nuclear receptors in the gut: From developmental biology to cancer. *Biochim Biophys Acta - Mol Basis Dis* (2011) 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. Cooperation Between the Thyroid Hormone Receptor TR $\alpha$ 1 and the WNT Pathway in the Induction of Intestinal Tumorigenesis. *Gastroenterology* (2010) 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. 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 Mol Biol* (2009) 10: doi:10.1186/1471-2199-10-70

#### Abstract

- Skah S, Nadjar J, Sirakov M and Plateroti M 795 The Secreted Frizzled-Related Protein 2 Modulates Cell Fate and the WNT Pathway in the Murine Intestinal Epithelium. *Gastroenterology* 2015; 148 (49): S-156
- Sirakov M, Plateroti M Sa2008 The Activity of the Notch Signalling Pathway in the Developing Intestine Is Modulated by the Thyroid Hormone Nuclear Receptor Tr $\alpha$ 1. *Gastroenterology* 2013; 144 (5): S-358
- Sirakov M, Skah S, Platerot M Multiple-Level Interactions Between the Thyroid Hormone Receptor Tr $\alpha$ 1 and the Wnt Pathway in the Context of the Intestinal Epithelium. *Gastroenterology* 2011; 140 (5): S-631.
- Skah S, Sirakov M, Cambuli FM, Plateroti M Study of the secreted Frizzled Related Protein 2 (sFRP2) function in the intestinal physiopathology. *BULLETIN DU CANCER* 2011; 98: S39-S40.
- Sirakov M, Skah S, Plateroti M 36 Synergy Between the Thyroid Hormone Receptor Tr $\alpha$ 1 and the Wnt/ $\beta$ -Catenin in the Induction of Intestinal Tumors in the Mouse. *Gastroenterology* 2010; 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