2019 EDITION

ANNUAL REPORT

Department of Biomedical Sciences UNIPD

DIPARTIMENTO DI SCIENZE BIOMEDICHE

1222 · 2022 800 ANNI

UNIVERSITÀ DEGLI STUDI DI PADOVA

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FOREWORD

The Director's message

While University is traditionally conceived as the space of higher education and research, undoubtedly among its key missions is also to dialogue with society, allowing the general public to appreciate the value of scientific knowledge by getting a closer look at the academic world.

Established in March 1992, despite its short history, the Department of Biomedical Sciences (DSB) has directed significant effort on public engagement in order to provide a platform to our research and innovation achievements.

The overarching focus of our *Commissione Terza Missione* is precisely defined as improving the visibility of the research activities carried out within our institution. Following wide consultation, recently the *Commissione* embarked on several initiatives to be developed in the next couple of years, which include redesigning the content of our website and engaging in social media communication with an institutional Twitter account. This will enable us to communicate effectively the focus of our research, displaying the

outstanding work carried out by all our staff. This public engagement goal will be complemented by issuing an Annual Report, a yearly drawn up document which aims at photographing our Department's staff and facilities, encapsulating the outcomes of our activities.

Concretely the present text depicts the DSB in 2019 and is the very prototype for our future issues. About the provisional structure of this report, it must be acknowledged that for this first attempt at an Annual Report we purposely excluded activities traceable to our Department's research groups that had been managed by third parties, with the underlying intention of streamlining the statistics. As a consequence, activities associated with:

- The Veneto Institute of Molecular Medicine (VIMM)
- CRIBI Biotechnology Center
- The National Research Council of Italy (CNR)
- Human Inspired Technology Research Centre (HIT)
- Padova Neuroscience Center (PNC)
- Myology Center (CIR-Myo)
- Istituto di Ricerca Pediatrica Città della Speranza (IRP)

are not part of this report, but will likely be integrated in the following issues.

In 2019, our research staff counted a hundred eighty-seven members, divided into thirty-five laboratories. It is thanks to their effort and the excellence of their work that the DSB could record €16,530,133.89 of funding; an outstanding amount considering the well known lack of funding for Italian public research institutions. Although there is always room for improvement for the years ahead of us, it is important to acknowledge and celebrate some of the notable achievements of the last year: in 2019 our institution was funded for 39 projects from 15 different institutions. It is also remarkable the results obtained in terms of publications. We reached the important goal of having 125 papers that were published in top 25% journals of the different SSD and 27 publications in Journals with IF higher than 10 (top 5%) .

As a last consideration, I warmly invite you to take advantage of the opportunities for public outreach activities supported by our department, such as Kids University, European Researchers' Night (Venetonight), Brain Awareness Week and workshops in local schools. Investing some of our time to engage meaningfully in these efforts is crucial to our mission, and to growing as a community.

Professor Marco Sandri
Director of the Department of Biomedical Sciences
University of Padova

STATISTICS

The DSB in numbers for 2019

218

STAFF MEMBERS

240

PUBLICATIONS IN JOURNALS WITH IMPACT FACTOR

Q1

125

PUBLICATIONS ON Q1 JOURNALS

27

PUBLICATIONS WITH IF>10

ΣIF

1088.3

SUM OF IMPACT FACTOR OF PUBLICATIONS

1989

CITATIONS

As in the previous chapter, please be reminded that all the activities and personnel traceable to our Department's research groups/members that had been managed by third parties were purposely excluded with the underlying intention of streamlining the data collection process and the statistics. The third parties are namely:

- The Veneto Institute of Molecular Medicine (VIMM)
- CRIBI Biotechnology Center
- The National Research Council of Italy (CNR)
- Human Inspired Technology Research Centre (HIT)
- Padova Neuroscience Center (PNC)
- Myology Center (CIR-Myo)
- Istituto di Ricerca Pediatrica Città della Speranza (IRP)

DSB Staff

RESEARCH STAFF CATEGORIES	NR
PhD students	31
Borsisti	30
Assegnisti	47
Technicians	17
IT Technicians	2
General services	3
Administrative assistants	20
Researchers	29
Associate Professors	27
Full Professors	12
TOT.	**218**

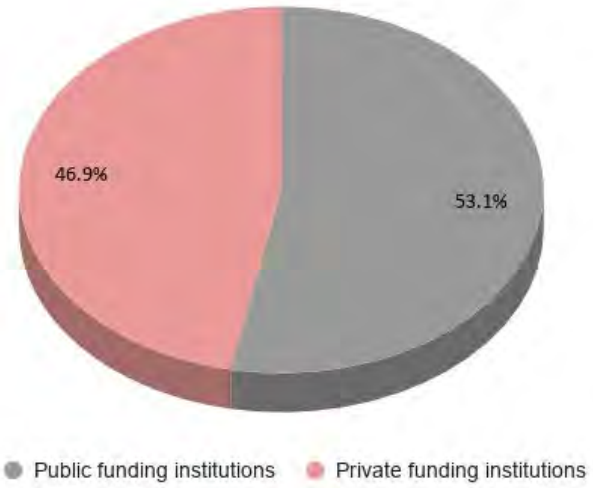
[1] *Early Stage Researchers* are defined as those who are in the first four years (or full time equivalent) of their research careers, starting from when they obtained a degree entitling them to embark on a PhD program.

[2] *Experienced Researchers* are either in possession of a doctoral degree or have at least four years of research experience (full-time equivalent).

DSB Funding and Projects

In 2019 the DSB had 73 active projects for an overall funding value of €16,530,133.89[3].

The main source of funding was the **public sector** with **€8,776,278.89** (53,09%), against the €7,753,855.00 (46,91%) allocated by private institutions.



Our main funders are **Italian private institutions** (e.g. AIRC, Telethon), which provide **34.1%** of our budget, followed by the European Commission (23.8%). From Italian public institutions (mainly the Ministry of University and Research) we receive 18% of funding, from International private institutions 12.9%. Noticeably, the University of

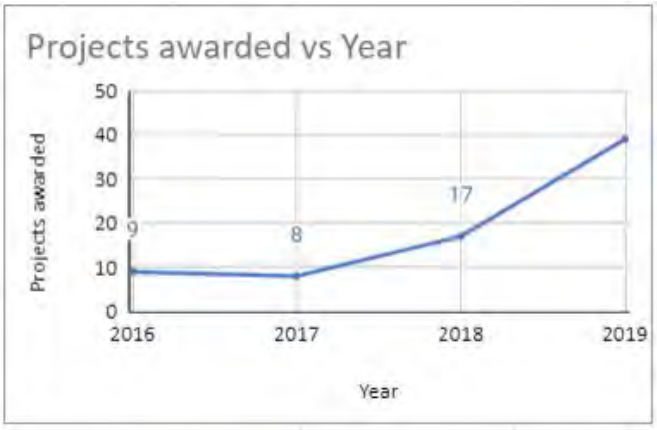
[3] This value is the sum of the overall funding assigned to all the projects active in 2019, disregarding the fact that the project duration might be longer than that specific year.

Padova funds several projects in our Department, reaching 10.4% of our overall budget.

Projects active in 2019

Type of funding	Project types	N	%	Amount
Italian private institutions	CARIPARO	3	34.1%	5,629,504.64€
	CARIPLO	1		
	AIRC	8		
	TELETHON	5		
European Commission	MSCA-RISE	2	23.8%	3,939,196.13€
	MSCA-IF	2		
	FET	2		
Italian public institutions	Ricerca sanitaria finalizzata	3	18.0%	2,976,549.24€
	FESR 2014-2020	2		
	FSE	2		
	ASI	2		
	PRIN	17		
International private institutions	Fondazione Leducq	2	12.9%	2,124,350.36€
	AFM Telethon	4		
	Johns Hopkins University	1		
	MDA	1		
	Kennedy's Disease Association	1		
	Akira Arimura Foundation	1		
UNIPD	MSCA Seal of Excellence	2	10.4%	1,713,400.00€
	STARS	9		
Foreign public institutions	NIH	1	0.6%	107,133.52€
	McGill University Health Centre	1		
Intergovernmental organizations	ESA	1	0.2%	40,000.00€
TOTAL		**73**		**16,530,133.89€**

In 2019 our department had seventy-three ongoing research projects, started between 2016 and 2019, for the overall value of 16,530,133.89€. PRIN projects were the most numerous (seventeen), followed by STARS (nine) and AIRC (eight).



Since 2016 the number of projects awarded each year to DSB staff members grew considerably: nine in 2016 to thirty-nine in 2019[4] (+333.3%; +129.4% from 2018).

Projects started in 2019

Funding type	Project type	Project nr
European Commission	FET	1
	MSCA-IF	1
Foreign public institutions	McGill University Health Centre	1
	NIH	1
Intergovernmental org.s	ESA	1
International private institutions	AFM Telethon	4
	Kennedy's Disease Association	1
Italian private institutions	AIRC	4
	CARIPARO	1
	Telethon	1
	ASI	1
	FESR 2014-2020	1
	PRIN	13
	Ricerca sanitaria finalizzata	2
UNIPD	STARS	6
TOTAL:		**39**

+7,325,751.04 €

In 2019 our Department was awarded thirty-nine projects, for an overall value of **€7,325,751.04**. Out of these grants we count thirteen PRIN, six STARS, and four AIRC.

[4] It must be noticed that in 2019 the results of the 2017 PRIN call were released.

RESEARCH

Research areas

Research at the Department of Biomedical Science spans a wide array of areas which include:

- ✧ Cell Signaling
- ✧ Computational and Structural Biology
- ✧ Inflammation and Immunity
- ✧ Medical Biotechnology
- ✧ Mitochondrial Pathophysiology
- ✧ Muscle Physiology in Health and Disease
- ✧ Neuroscience
- ✧ Physical Activity and Health

Below are the tables of all the laboratories associated with each research area and the related Principal Investigator (PI).

Cell Signaling

Laboratories	***PI***
Ca2+ and cAMP signaling in physiology and pathology	Prof. P. Pizzo
Pharmacobiology of Natural Compounds	Dr. L. Biasutto
Phosphorylation Signaling in Health and Disease	Prof. M. Ruzzene
Redox signaling and cancer biomarkers	Prof. M.P. Rigobello

Computational and Structural Biology

Laboratories	***PI***
BioComputing UP	Prof. S.C.E. Tosatto
Protein crystallography and cryoEM	Prof. G. Zanotti

Inflammation and Immunity

Laboratories	***PI***
Inflammation and Immunity	Prof. A. Viola

Medical Biotechnology

Laboratories	***PI***
Extracellular Matrix (Ecm) Pathobiology	Prof. M. Onisto
Mass Spectrometry and Proteomics	Prof. G. Arrigoni
Nano-immune-technology	Dr. L.G. Delogu
Nano-biotechnology and nano-biomedicine	Prof. E. Papini
Peptides and Antibodies	Prof. O. Marin
Protein engineering	Prof. A. Negro

Mitochondrial Pathophysiology

Laboratories	***PI***
Mitochondria in Cell Death and Cancer	Prof. P. Bernardi/ Prof. A. Rasola
Mitochondrial Calcium Signaling	Prof. R. Rizzuto
Molecular mechanisms of aging	Prof. M. Giorgio
Oxidative metabolism in cardiac disease	Prof. F. Di Lisa
Regulation of the Mitochondrial Proteome	Prof. G. Szabadkai

Muscle Physiology in Health and Disease

Laboratories	***PI***
Autonomic Control of Cardiac Function	Prof. M. Mongillo
Chaperones in Muscle Differentiation and Disease	Prof. L. Gorza
Muscle Contractility And Plasticity	Prof. M. Narici
Pathophysiology of Striated Muscles	Prof. P. Volpe
Signaling pathways that control protein homeostasis in muscles	Prof. M. Sandri

Neuroscience

Laboratories	***PI***
Circuit formation and function in the brain	Dr. C. Lodovichi
Genetics of focal epilepsies	Dr. C. Nobile
Migraine Pathophysiology	Prof. Pietrobon

Molecular and cellular mechanisms of neurodegenerative and neuromuscular diseases	Prof. A. Bertoli
Neuronal Networks and Neurotechnologies	Prof. S. Vassanelli
Neuron-glia signaling in brain function and dysfunction	Dr. P. Carmignoto
Neuroparalysis and Neuroregeneration Lab	Prof. O. Rossetto
Pathogenesis of neurological and neuromuscular diseases	Prof. M. Pennuto
Plasticity In Pathology	Prof. M. Caleo
Enlightening Brain Mechanisms	Dr. M. Dal Maschio

Physical Activity and Health

Laboratories	***PI***
Environmental and respiratory physiology	Prof. G. Bosco
Health, Sport and Exercise Sciences	Prof. A. Paoli

Research groups

The tables below illustrate the activities of the research groups forming the DSB, taking into consideration parameters such as staff members, publications, and funded projects. Notwithstanding, it must be acknowledged that for this first attempt at an Annual Report **we purposely excluded activities** traceable to our Department's research groups/members that had been **managed by third parties,** with the underlying intention of streamlining the data collection process and the statistics. The third parties are namely:

- The Veneto Institute of Molecular Medicine (VIMM)
- CRIBI Biotechnology Center
- The National Research Council of Italy (CNR)
- Human Inspired Technology Research Centre (HIT)
- Padova Neuroscience Center (PNC)
- Myology Center (CIR-Myo)
- Istituto di Ricerca Pediatrica Città della Speranza (IRP)

Data related to funded projects and staff members were provided by the Department's administration. Below are listed **projects of competitive funding calls** exclusively. Commercial funds and projects awarded to CNR, CRIBI, VIMM, HIT, PNC, CIR-Myo, and IRP were disregarded in this context. Staff members are reported as of December 31st 2019. Bosisti were not included as no official list is available.

Keywords on each group's research field were taken from the ORCID profile of the Principal Investigator, when available.

The list of publications was compiled searching the **repository IRIS** for the publications of permanent staff members (*personale strutturato*) of the Department. CNR affiliates were not included for the above mentioned reason, however their CNR webpage is linked.

Cell Signaling

1 - Ca2+ and cAMP signaling in physiology and pathology

Principal Investigator	Prof. Paola Pizzo ORCID https://orcid.org/0000-0001-6077-3265 Scopus 35597536700 Google Scholar Paola Pizzo WoS ID T-4874-2018
Contact	paola.pizzo@unipd.it 049 827 6067 website
Keywords	Neurodegeneration; Aging; Calcium Homeostasis; Mitochondrial function; Neuroscience; Neurobiology and Brain Physiology; Alzheimer's Disease; Genetically Encoded Ca2+ Probes; Signal transduction; cAMP signaling
Members	Pizzo Paola — Associate Professor Basso Emy — CNR researcher Di Benedetto Giulietta — CNR researcher Greotti Elisa — CNR researcher Pendin Diana — CNR researcher Riccardo Filadi — CNR researcher Fasolato Cristina — Researcher (ric. universitario) Mendes Pereira Magalhães Paulo Jorge — Technician Redolfi Nelly — Postdoc Scremin Elena — PhD Candidate Vajente Nicola — PhD Candidate
Projects	- *Impact of Endoplasmic Reticulum morphological alterations on cellular Ca2+ homeostasis: a common pathway in hereditary axonopathies?* (CARIPARO - Pizzo/Pendin) - *Astrocytes in brain pathophysiology: focus om calcium signalling* (PRIN - Pozzan/Fasolato) - *A shape to fit the needs: how cells rearrange their organelle composition and architecture during development and stress* (PRIN) - *Early dysfunctions of intercellular signalling in brain disorders* (PRIN - Pozzan/Fasolato)
Publications	Connolly, Niamh M. C., Pierre Theurey, and Paola Pizzo. 'Glucose Dysregulation in Pre-Clinical Alzheimer's Disease'. Aging 11, no. 15 (4 August 2019): 5296–97. https://doi.org/10.18632/aging.102146. Fedeli, Chiara, Riccardo Filadi, Alice Rossi, Cristina Mammucari, and Paola Pizzo. 'PSEN2 (Presenilin 2) Mutants Linked to Familial Alzheimer Disease Impair

Autophagy by Altering Ca $^{2+}$ Homeostasis'. *Autophagy* 15, no. 12 (2 December 2019): 2044–62. https://doi.org/10.1080/15548627.2019.1596489.

Filadi, Riccardo, and Paola Pizzo. 'Defective Autophagy and Alzheimer's Disease: Is Calcium the Key?' *Neural Regeneration Research* 14, no. 12 (2019): 2081. https://doi.org/10.4103/1673-5374.262584.

Filadi, Riccardo, and Paola Pizzo. 'ER-Mitochondria Tethering and Ca2+ Crosstalk: The IP3R Team Takes the Field'. *Cell Calcium* 84 (December 2019): 102101. https://doi.org/10.1016/j.ceca.2019.102101.

Galla, Luisa, Paola Pizzo, and Elisa Greotti. 'Exploiting Cameleon Probes to Investigate Organelles Ca2+ Handling'. In *Calcium Signalling*, edited by Anna Raffaello and Denis Vecellio Reane, 1925:15–30. New York, NY: Springer New York, 2019. https://doi.org/10.1007/978-1-4939-9018-4_2.

Gómez-Suaga, Patricia, Beatriz G. Pérez-Nievas, Elizabeth B. Glennon, Dawn H. W. Lau, Sebastien Paillusson, Gábor M. Mórotz, Tito Calì, Paola Pizzo, Wendy Noble, and Christopher C. J. Miller. 'The VAPB-PTPIP51 Endoplasmic Reticulum-Mitochondria Tethering Proteins Are Present in Neuronal Synapses and Regulate Synaptic Activity'. *Acta Neuropathologica Communications* 7, no. 1 (December 2019): 35. https://doi.org/10.1186/s40478-019-0688-4.

Greotti, Elisa, Paola Capitanio, Andrea Wong, Tullio Pozzan, Paola Pizzo, and Diana Pendin. 'Familial Alzheimer's Disease-Linked Presenilin Mutants and Intracellular Ca2+ Handling: A Single-Organelle, FRET-Based Analysis'. *Cell Calcium* 79 (May 2019): 44–56. https://doi.org/10.1016/j.ceca.2019.02.005.

Pendin, Diana, Cristina Fasolato, Emy Basso, Riccardo Filadi, Elisa Greotti, Luisa Galla, Chiara Gomiero, et al. 'Familial Alzheimer's Disease Presenilin-2 Mutants Affect Ca2+ Homeostasis and Brain Network Excitability'. *Aging Clinical and Experimental Research*, 12 October 2019. https://doi.org/10.1007/s40520-019-01341-0.

Rossi, Alice, Paola Pizzo, and Riccardo Filadi. 'Calcium, Mitochondria and Cell Metabolism: A Functional Triangle in Bioenergetics'. *Biochimica et Biophysica Acta (BBA) - Molecular Cell Research* 1866, no. 7 (July 2019): 1068–78. https://doi.org/10.1016/j.bbamcr.2018.10.016.

Theurey, Pierre, Niamh M. C. Connolly, Ilaria Fortunati, Emy Basso, Susette Lauwen, Camilla Ferrante, Catarina Moreira Pinho, et al. 'Systems Biology Identifies Preserved Integrity but Impaired Metabolism of Mitochondria Due to a Glycolytic Defect in Alzheimer's Disease Neurons'. *Aging Cell* 18, no. 3 (June 2019): e12924. https://doi.org/10.1111/acel.12924.

Vajente, Nicola, Rosa Norante, Nelly Redolfi, Andrea Daga, Paola Pizzo, and Diana Pendin. 'Microtubules Stabilization by Mutant Spastin Affects ER Morphology and Ca2+ Handling'. *Frontiers in Physiology* 10 (20 December 2019): 1544. https://doi.org/10.3389/fphys.2019.01544.

Leparulo, Alessandro, M Mahmud, Elena Scremin, Tullio Pozzan, StefanoVassanelli, and Cristina Fasolato. Dampened Slow Oscillation Connectivity Anticipates Amyloid Deposition in the PS2APP Mouse Model of Alzheimer's Disease. *Cells* 9, no. 1 (24 Dicembre 2019): 54. https://doi.org/10.3390/cells9010054.

2 - Pharmacobiology of Natural Compounds

Principal Investigator	Dr. Lucia Biasutto ORCID https://orcid.org/0000-0002-7638-6865 Scopus 15829089100
Contact	lucia.biasutto@cnr.it 049 827 6055 website
Keywords	Flavonoids; Medicinal and Pharmaceutical Chemistry; Chromatography; Nutraceuticals; Polyphenols; High-Performance Liquid Chromatography; Metabolite Identification; Sample Preparation; Mass Spectrometry; LC-MS
Members	Biasutto Lucia CNR researcher
Projects	Information on Biasutto's research activities and publications are available at: http://www.in.cnr.it/index.php/it/9-people/48-lucia-basutto
Publications	

3 - Phosphorylation Signaling in Health and Disease

Principal Investigator	Prof. Maria Ruzzene ORCID https://orcid.org/0000-0001-8712-8151 Scopus 7006366475 Google Scholar Maria Ruzzene
Contact	maria.ruzzene@unipd.it 049 827 6112 website
Keywords	Cancer Cells; Cancer Biology; Phosphorylation; Apoptosis; Signaling Pathways; Signal Transduction; Cancer Research; Cell Biology; Proteins; Cell Signaling
Members	Ruzzene Maria — Associate Professor Salvi Mauro — Associate Professor Sarno Stefania — Researcher (ric. universitario) Borgo Christian — Research Associate (RTDA) Cesaro Luca — Technician D'amore Claudio — Postdoc
Projects	-
Publications	Biscaglia, Francesca, Santina Quarta, Gianmarco Villano, Cristian Turato, Alessandra Biasiolo, Lucio Litti, Maria Ruzzene, Moreno Meneghetti, Patrizia Pontisso, and Marina Gobbo. 'PreS1 Peptide-Functionalized Gold Nanostructures with SERRS Tags for Efficient Liver Cancer Cell Targeting'. *Materials Science and Engineering: C* 103 (October 2019): 109762. https://doi.org/10.1016/j.msec.2019.109762. Borgo, Christian, Cinzia Franchin, Luca Cesaro, Silvia Zaramella, Giorgio Arrigoni, Mauro Salvi, and Lorenzo A. Pinna. 'A Proteomics Analysis of CK2β $^{(-/-)}$ C2C12 Cells Provides Novel Insights into the Biological Functions of the Non-catalytic β Subunit'. *The FEBS Journal* 286, no. 8 (April 2019): 1561–75. https://doi.org/10.1111/febs.14799. Borgo, Christian, and Maria Ruzzene. 'Role of Protein Kinase CK2 in Antitumor Drug Resistance'. *Journal of Experimental & Clinical Cancer Research* 38, no. 1 (December 2019): 287. https://doi.org/10.1186/s13046-019-1292-y. D'Alessandro, Stefano, Serena Golin, Sofia Zanin, Laura Cendron, Michela Zottini, and Maria Ruzzene. 'Phosphorylation of P23-1 Cochaperone by Protein Kinase CK2 Affects Root Development in Arabidopsis'. *Scientific Reports* 9, no. 1 (December 2019): 9846. https://doi.org/10.1038/s41598-019-46327-0. D'Amore, Claudio, Valentina Salizzato, Christian Borgo, Luca Cesaro, Lorenzo A. Pinna, and Mauro Salvi. 'A Journey through the Cytoskeleton with Protein Kinase CK2'. *Current Protein & Peptide Science* 20, no. 6 (20 May 2019): 547–62. https://doi.org/10.2174/1389203720666190119124846. Di Maira, Giovanni, Alessandra Gentilini, Mirella Pastore, Alessandra Caligiuri, Benedetta Piombanti, Chiara Raggi, Elisabetta Rovida, et al. 'The Protein Kinase CK2

Contributes to the Malignant Phenotype of Cholangiocarcinoma Cells'. *Oncogenesis* 8, no. 11 (November 2019): 61. https://doi.org/10.1038/s41389-019-0171-x.

Di Paolo, Maria Luisa, Giorgio Cozza, Andrea Milelli, Francesca Zonta, Stefania Sarno, Elirosa Minniti, Fulvio Ursini, Michela Rosini, and Anna Minarini. 'Benextramine and Derivatives as Novel Human Monoamine Oxidases Inhibitors: An Integrated Approach'. *The FEBS Journal* 286, no. 24 (December 2019): 4995–5015. https://doi.org/10.1111/febs.14994.

Lettieri, Antonella, Christian Borgo, Luca Zanieri, Claudio D'Amore, Roberto Oleari, Alyssa Paganoni, Lorenzo A. Pinna, Anna Cariboni, and Mauro Salvi. 'Protein Kinase CK2 Subunits Differentially Perturb the Adhesion and Migration of GN11 Cells: A Model of Immature Migrating Neurons'. *International Journal of Molecular Sciences* 20, no. 23 (26 November 2019): 5951. https://doi.org/10.3390/ijms20235951.

Piirsoo, Alla, Marko Piirsoo, Martin Kala, Eve Sankovski, Elina Lototskaja, Viktor Levin, Mauro Salvi, and Mart Ustav. 'Activity of CK2α Protein Kinase Is Required for Efficient Replication of Some HPV Types'. Edited by Paul Francis Lambert. *PLOS Pathogens* 15, no. 5 (15 May 2019): e1007788. https://doi.org/10.1371/journal.ppat.1007788.

Salizzato, Valentina, Sofia Zanin, Christian Borgo, Elisa Lidron, Mauro Salvi, Rosario Rizzuto, Giorgia Pallafacchina, and Arianna Donella-Deana. 'Protein Kinase CK2 Subunits Exert Specific and Coordinated Functions in Skeletal Muscle Differentiation and Fusogenic Activity'. *The FASEB Journal* 33, no. 10 (October 2019): 10648–67. https://doi.org/10.1096/fj.201801833RR.

'The Proceedings of the 16th Italian Convention of Investigators in Cystic Fibrosis: Verona, Italy. 22-24 November 2018'. *Multidisciplinary Respiratory Medicine* 14, no. S1 (February 2019): 5, s40248-018-0164–1. https://doi.org/10.1186/s40248-018-0164-1.

Villamañan, Lucía, Estefanía Alcaraz, Lorenzo A. Pinna, Maria Ruzzene, Emilio Itarte, Carles Arús, Maria Plana, and Ana Paula Candiota. 'Up-Regulation of the Alpha Prime Subunit of Protein Kinase CK2 as a Marker of Fast Proliferation in GL261 Cultured Cells'. *Pathology & Oncology Research* 25, no. 4 (October 2019): 1659–63. https://doi.org/10.1007/s12253-018-00567-z.

4 - Redox signaling and cancer biomarkers

Principal Investigator	Prof. Maria Pia Rigobello ORCID https://orcid.org/0000-0003-2586-3251 Google Scholar Maria Pia Rigobello Scopus 7003633359
Contact	mariapia.rigobello@unipd.it 049 827 6138 website
Keywords	Glutathione; Antioxidants; Oxidative Stress; Reactive Oxygen Species; Redox Regulation; Free Radicals; Antioxidant Activity; Free Radical Biology; MDA; Apoptosis;
Members	Rigobello Maria Pia — Associate Professor Zambon Carlo Federico — Associate Professor Folda Alessandra — Technician Scalcon Valeria — Postdoc Tonolo Federica — PhD Candidate
Projects	- *Dal latte di raccolta al latte fermentato come fonte di peptidi bioattivi: ricadute ed effetti sulla nutrizione umana* (FSE) - *La ricerca di base a supporto dell'azienda: realizzazione di un functional food e di nuovi nutraceutici per il benessere del consumatore* (FSE) - *Cibo intelligente per un futuro sostenibile* (FESR)
Publications	Campa, Daniele, Martina Matarazzi, William Greenhalf, Maarten Bijlsma, Kai-Uwe Saum, Claudio Pasquali, Hanneke van Laarhoven, et al. 'Genetic Determinants of Telomere Length and Risk of Pancreatic Cancer: A PANDoRA Study: "Teloscore" and PDAC Risk'. *International Journal of Cancer* 144, no. 6 (15 March 2019): 1275–83. https://doi.org/10.1002/ijc.31928. Danese, Elisa, Sara Raimondi, Martina Montagnana, Angela Tagetti, Taimour Langaee, Paola Borgiani, Cinzia Ciccacci, et al. 'Effect of *CYP 4F2* , *VKORC 1* , and *CYP 2C9* in Influencing Coumarin Dose: A Single-Patient Data Meta-Analysis in More Than 15,000 Individuals'. *Clinical Pharmacology & Therapeutics* 105, no. 6 (June 2019): 1477–91. https://doi.org/10.1002/cpt.1323. Scalcon, Valeria, Federica Tonolo, Alessandra Folda, Alberto Bindoli, and Maria Pia Rigobello. 'Dimers of Glutaredoxin 2 as Mitochondrial Redox Sensors in Selenite-Induced Oxidative Stress'. *Metallomics* 11, no. 7 (2019): 1241–51. https://doi.org/10.1039/C9MT00090A. Tonolo, Federica, Alessandra Folda, Luca Cesaro, Valeria Scalcon, Oriano Marin, Stefania Ferro, Alberto Bindoli, and Maria Pia Rigobello. 'Milk-Derived Bioactive Peptides Exhibit Antioxidant Activity through the Keap1-Nrf2 Signaling Pathway'. *Journal of Functional Foods* 64 (January 2020): 103696. https://doi.org/10.1016/j.jff.2019.103696. Tonolo, Federica, Laura Moretto, Stefania Ferro, Alessandra Folda, Valeria Scalcon,

	Michele Sandre, Federico Fiorese, Oriano Marin, Alberto Bindoli, and Maria Pia Rigobello. 'Insight into Antioxidant Properties of Milk-derived Bioactive Peptides in Vitro and in a Cellular Model'. *Journal of Peptide Science* 25, no. 5 (May 2019): e3162. https://doi.org/10.1002/psc.3162. Tonolo, Federica, Laura Moretto, Alessandra Folda, Valeria Scalcon, Alberto Bindoli, Marco Bellamio, Emiliano Feller, and Maria Pia Rigobello. 'Antioxidant Properties of Fermented Soy during Shelf Life'. *Plant Foods for Human Nutrition* 74, no. 3 (September 2019): 287–92. https://doi.org/10.1007/s11130-019-00738-6. Tonolo, Federica, Michèle Salmain, Valeria Scalcon, Siden Top, Pascal Pigeon, Alessandra Folda, Benoit Caron, et al. 'Small Structural Differences between Two Ferrocenyl Diphenols Determine Large Discrepancies of Reactivity and Biological Effects'. *ChemMedChem* 14, no. 19 (4 October 2019): 1717–26. https://doi.org/10.1002/cmdc.201900430.

Computational and Structural Biology

5 - BioComputing UP

Principal Investigator	Prof. Silvio Tosatto ORCID https://orcid.org/0000-0003-4525-7793 Scopus 9242408800 Google Scholar Silvio Tosatto WoS ID B-2840-2009
Contact	silvio.tosatto@unipd.it 049 827 6269 website
Keywords	Bioinformatics and Computational Biology; Modeling; Simulation; RNA; Bioinformatics; Statistics; Proteins; Protein Structure; Molecular Dynamics Simulation; Protein-Protein Interaction
Members	Tosatto Silvio — Full Professor Piovesan Damiano — Assistant Professor (RTDB) Minervini Giovanni — Research Associate (RTDA) Micetic Ivan — Technician Carraro Marco — Postdoc Monzon Alexander Miguel — Postdoc Necci Marco — Postdoc Paladin Lisanna — Postdoc Falconieri Antonella — PhD Candidate Hatos Andràs — PhD Candidate Quaglia Federica — PhD Candidate
Projects	- *IDPfun - Driving the functional characterization of intrinsically disordered proteins* (MSCA-RISE) - *Flex2IDP - Elucidating the continuum between protein structure flexibility and intrinsic disorder* (Seal of Excellence) - *REFRACT - Repeat protein Function Refinement, Annotation and Classification of Topologies* (MSCA-RISE) - *Towards a mechanistic understanding of von Hippel-Lindau syndrome in different tissue*s (AIRC) - *Protein bioinformatics for human health* (PRIN)
Publications	Aspromonte, Maria C., Mariagrazia Bellini, Alessandra Gasparini, Marco Carraro, Elisa Bettella, Roberta Polli, Federica Cesca, et al. 'Characterization of Intellectual Disability and Autism Comorbidity through Gene Panel Sequencing'. *Human Mutation* 40, no. 9 (September 2019): 1346–63. https://doi.org/10.1002/humu.23822. Capitani, Nagaja, Gaia Codolo, Francesca Vallese, Giovanni Minervini, Alessia Grassi, Fabio Cianchi, Arianna Troilo, et al. 'The Lipoprotein HP1454 of *Helicobacter Pylori* Regulates T -cell Response by Shaping T -cell Receptor Signalling'. *Cellular*

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Guo, Lishu, Michela Carraro, Andrea Carrer, Giovanni Minervini, Andrea Urbani, Ionica Masgras, Silvio C. E. Tosatto, Ildikò Szabò, Paolo Bernardi, and Giovanna Lippe. 'Arg-8 of Yeast Subunit e Contributes to the Stability of F-ATP Synthase Dimers and to the Generation of the Full-Conductance Mitochondrial Megachannel'. *Journal of Biological Chemistry* 294, no. 28 (12 July 2019): 10987–97. https://doi.org/10.1074/jbc.RA119.008775.

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Mészáros, Bálint, Gábor Erdős, Beáta Szabó, Éva Schád, Ágnes Tantos, Rawan Abukhairan, Tamás Horváth, et al. 'PhaSePro: The Database of Proteins Driving Liquid–Liquid Phase Separation'. *Nucleic Acids Research*, 15 October 2019, gkz848. https://doi.org/10.1093/nar/gkz848.

Mier, Pablo, Lisanna Paladin, Stella Tamana, Sophia Petrosian, Borbála Hajdu-Soltész, Annika Urbanek, Aleksandra Gruca, et al. 'Disentangling the Complexity of Low Complexity Proteins'. *Briefings in Bioinformatics* 21, no. 2 (23 March 2020):

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Minervini, Giovanni, Federica Quaglia, Francesco Tabaro, and Silvio C. E. Tosatto. 'Genotype-Phenotype Relations of the von Hippel-Lindau Tumor Suppressor Inferred from a Large-Scale Analysis of Disease Mutations and Interactors'. Edited by Avner Schlessinger. *PLOS Computational Biology* 15, no. 4 (3 April 2019): e1006478. https://doi.org/10.1371/journal.pcbi.1006478.

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Mitchell, Alex L, Teresa K Attwood, Patricia C Babbitt, Matthias Blum, Peer Bork, Alan Bridge, Shoshana D Brown, et al. 'InterPro in 2019: Improving Coverage, Classification and Access to Protein Sequence Annotations'. *Nucleic Acids Research* 47, no. D1 (8 January 2019): D351–60. https://doi.org/10.1093/nar/gky1100.

Monzon, Alexander Miguel, Marco Carraro, Luigi Chiricosta, Francesco Reggiani, James Han, Kivilcim Ozturk, Yanran Wang, et al. 'Performance of Computational Methods for the Evaluation of Pericentriolar Material 1 Missense Variants in CAGI-5'. *Human Mutation* 40, no. 9 (September 2019): 1474–85. https://doi.org/10.1002/humu.23856.

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Saldaño, Tadeo E., Silvio C. E. Tosatto, Gustavo Parisi, and Sebastian Fernandez-Alberti. 'Network Analysis of Dynamically Important Residues in Protein Structures Mediating Ligand-Binding Conformational Changes'. *European Biophysics Journal* 48, no. 6 (September 2019): 559–68. https://doi.org/10.1007/s00249-019-01384-1.

Zhou, Naihui, Yuxiang Jiang, Timothy R. Bergquist, Alexandra J. Lee, Balint Z. Kacsoh, Alex W. Crocker, Kimberley A. Lewis, et al. 'The CAFA Challenge Reports Improved Protein Function Prediction and New Functional Annotations for Hundreds of Genes through Experimental Screens'. *Genome Biology* 20, no. 1 (December 2019): 244. https://doi.org/10.1186/s13059-019-1835-8.

6 - Protein crystallography and cryoEM

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Members	Zanotti Giuseppe — Full Professor Cali' Tito — Assistant Professor (RTDB) Giamogante Flavia — Postdoc Barazzuol Lucia — PhD Candidate Grinzato Alessandro — PhD Candidate
Projects	- *Discovering how signalling pathways coordinate intracellular organelle communication* (PRIN - Calì) - *Peeping at sympathetic innervation of normal and diseased skeletal muscles through optogenetics - SKoOP* (STARS-CoG - Zanotti/Zaglia) - *MOVESIN - Dynamic synaptic junctions at the interface between organelles orchestrate intracellular communication in physiopathology* (STARS-CoG - Calì)
Publications	Bayer, Emmanuelle M., Tito Calì, Francesca Giordano, Anne Hamacher-Brady, and Luca Pellegrini. 'EMBO Workshop: Membrane Contact Sites in Health and Disease'. *Contact* 2 (January 2019): 251525641982593. https://doi.org/10.1177/2515256419825931. Calì, Tito, Denis Ottolini, Mattia Vicario, Cristina Catoni, Francesca Vallese, Domenico Cieri, Lucia Barazzuol, and Marisa Brini. 'SplitGFP Technology Reveals Dose-Dependent ER-Mitochondria Interface Modulation by α-Synuclein A53T and A30P Mutants'. *Cells* 8, no. 9 (12 September 2019): 1072. https://doi.org/10.3390/cells8091072. Capitani, Nagaja, Gaia Codolo, Francesca Vallese, Giovanni Minervini, Alessia Grassi, Fabio Cianchi, Arianna Troilo, et al. 'The Lipoprotein HP1454 of *Helicobacter Pylori* Regulates T -cell Response by Shaping T -cell Receptor Signalling'. *Cellular Microbiology* 21, no. 5 (May 2019): e13006. https://doi.org/10.1111/cmi.13006. Catoni, Cristina, Tito Calì, and Marisa Brini. 'Calcium, Dopamine and Neuronal Calcium Sensor 1: Their Contribution to Parkinson's Disease'. *Frontiers in Molecular Neuroscience* 12 (22 March 2019): 55. https://doi.org/10.3389/fnmol.2019.00055. Costa, Roberto, Roberta Peruzzo, Magdalena Bachmann, Giulia Dalla Montà, Mattia Vicario, Giulia Santinon, Andrea Mattarei, et al. 'Impaired Mitochondrial ATP

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Teardo, Enrico, Luca Carraretto, Roberto Moscatiello, Enrico Cortese, Mattia Vicario, Margherita Festa, Lorenzo Maso, et al. 'A Chloroplast-Localized Mitochondrial Calcium Uniporter Transduces Osmotic Stress in Arabidopsis'. *Nature Plants* 5, no. 6 (2019): 581–88. https://doi.org/10.1038/s41477-019-0434-8.

Vicario, Mattia, and Tito Calì. 'Measuring Ca2+ Levels in Subcellular Compartments with Genetically Encoded GFP-Based Indicators'. In *Calcium Signalling*, edited by Anna Raffaello and Denis Vecellio Reane, 1925:31–42. New York, NY: Springer New York, 2019. https://doi.org/10.1007/978-1-4939-9018-4_3.

Vicario, Mattia, Domenico Cieri, Francesca Vallese, Cristina Catoni, Lucia Barazzuol, Paola Berto, Alessandro Grinzato, Laura Barbieri, Marisa Brini, and Tito Calì. 'A Split-GFP Tool Reveals Differences in the Sub-Mitochondrial Distribution of Wt and Mutant Alpha-Synuclein'. *Cell Death & Disease* 10, no. 11 (November 2019): 857. https://doi.org/10.1038/s41419-019-2092-1.

Inflammation and Immunity

7 - Inflammation and immunity

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Projects	- *Sistemi avanzati per il recupero dei rifiuti (*SARR) (FESR - Viola)
Publications	Acosta Lopez, Manuel J., Eva Trevisson, Marcella Canton, Luis Vazquez-Fonseca, Valeria Morbidoni, Elisa Baschiera, Chiara Frasson, et al. 'Vanillic Acid Restores Coenzyme Q Biosynthesis and ATP Production in Human Cells Lacking *COQ6*'. *Oxidative Medicine and Cellular Longevity* 2019 (10 July 2019): 1–11. https://doi.org/10.1155/2019/3904905. Dello Russo, Claudio, Anthony Cesta, Salvatore Longo, Maria A. Barone, Antonella Cima, Alvaro Mesoraca, Davide Sparacino, Antonella Viola, and Claudio Giorlandino. 'Validation of Extensive Next-Generation Sequencing Method for Monogenic Disorder Analysis on Cell-Free Fetal DNA'. *The Journal of Molecular Diagnostics* 21, no. 4 (July 2019): 572–79. https://doi.org/10.1016/j.jmoldx.2019.02.010. Martinvalet, Denis. 'Mitochondrial Entry of Cytotoxic Proteases: A New Insight into the Granzyme B Cell Death Pathway'. *Oxidative Medicine and Cellular Longevity* 2019 (21 May 2019): 1–13. https://doi.org/10.1155/2019/9165214. Viola, Antonella, Fabio Munari, Ricardo Sánchez-Rodríguez, Tommaso Scolaro, and Alessandra Castegna. 'The Metabolic Signature of Macrophage Responses'. *Frontiers in Immunology* 10 (3 July 2019): 1462. https://doi.org/10.3389/fimmu.2019.01462. Vitiello, Libero Lucia Tibaudo, Elena Pegoraro, Luca Bello, and Marcella Canton. 'Teaching an Old Molecule New Tricks: Drug Repositioning for Duchenne

Muscular Dystrophy'. *International Journal of Molecular Sciences* 20, no. 23 (30 November 2019): 6053. https://doi.org/10.3390/ijms20236053.

Zaramella, Patrizia, Fabio Munari, Matteo Stocchero, Barbara Molon, Daniel Nardo, Elena Priante, Francesca Tosato, Luca Bonadies, Antonella Viola, and Eugenio Baraldi. 'Innate Immunity Ascertained from Blood and Tracheal Aspirates of Preterm Newborn Provides New Clues for Assessing Bronchopulmonary Dysplasia'. Edited by Nades Palaniyar. *PLOS ONE* 14, no. 9 (4 September 2019): e0221206. https://doi.org/10.1371/journal.pone.0221206.

Zumerle, Sara, Bianca Calì, Fabio Munari, Roberta Angioni, Francesco Di Virgilio, Barbara Molon, and Antonella Viola. 'Intercellular Calcium Signaling Induced by ATP Potentiates Macrophage Phagocytosis'. *Cell Reports* 27, no. 1 (April 2019): 1-10.e4. https://doi.org/10.1016/j.celrep.2019.03.011.

Medical Biotechnology

8 - Extracellular Matrix (Ecm) Pathobiology

Principal Investigator	Prof. Maurizio Onisto ORCID https://orcid.org/0000-0002-1191-7418 Google Scholar Maurizio Onisto Scopus 6701645133 WoS ID K-5281-2014
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Keywords	PCR; Cell Biology; mRNA; DNA; Metastasis; Cancer Research; Matrix Metalloproteinase; Gelatinases; Zymography
Members	Onisto Maurizio Associate Professor
Projects	-
Publications	Franchi, Marco, Valentina Masola, Gloria Bellin, Maurizio Onisto, Konstantinos-Athanasios Karamanos, and Zoi Piperigkou. 'Collagen Fiber Array of Peritumoral Stroma Influences Epithelial-to-Mesenchymal Transition and Invasive Potential of Mammary Cancer Cells'. *Journal of Clinical Medicine* 8, no. 2 (7 February 2019): 213. https://doi.org/10.3390/jcm8020213. Masola, Valentina, Amedeo Carraro, Simona Granata, Lorenzo Signorini, Gloria Bellin, Paola Violi, Antonio Lupo, et al. 'In Vitro Effects of Interleukin (IL)-1 Beta Inhibition on the Epithelial-to-Mesenchymal Transition (EMT) of Renal Tubular and Hepatic Stellate Cells'. *Journal of Translational Medicine* 17, no. 1 (December 2019): 12. https://doi.org/10.1186/s12967-019-1770-1. Masola, Valentina, Gianluigi Zaza, Giovanni Gambaro, Marco Franchi, and Maurizio Onisto. 'Role of Heparanase in Tumor Progression: Molecular Aspects and Therapeutic Options'. *Seminars in Cancer Biology* 62 (May 2020): 86–98. https://doi.org/10.1016/j.semcancer.2019.07.014. Tavianatou, Anastasia-Gerasimoula, Zoi Piperigkou, Carlo Barbera, Riccardo Beninatto, Valentina Masola, Ilaria Caon, Maurizio Onisto, Marco Franchi, Devis Galesso, and Nikos K. Karamanos. 'Molecular Size-Dependent Specificity of Hyaluronan on Functional Properties, Morphology and Matrix Composition of Mammary Cancer Cells'. *Matrix Biology Plus* 3 (August 2019): 100008. https://doi.org/10.1016/j.mbplus.2019.100008.

9 - Mass Spectrometry and Proteomics

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Members	Arrigoni Giorgio — Associate Professor Bernardo Letizia — Postdoc
Projects	-
Publications	Bertini, Laura, Luana Palazzi, Silvia Proietti, Susanna Pollastri, Giorgio Arrigoni, Patrizia Polverino de Laureto, and Carla Caruso. 'Proteomic Analysis of MeJa-Induced Defense Responses in Rice against Wounding'. *International Journal of Molecular Sciences* 20, no. 10 (22 May 2019): 2525. https://doi.org/10.3390/ijms20102525. Borgo, Christian, Cinzia Franchin, Luca Cesaro, Silvia Zaramella, Giorgio Arrigoni, Mauro Salvi, and Lorenzo A. Pinna. 'A Proteomics Analysis of CK2β $^{(-/-)}$ C2C12 Cells Provides Novel Insights into the Biological Functions of the Non-catalytic β Subunit'. *The FEBS Journal* 286, no. 8 (April 2019): 1561–75. https://doi.org/10.1111/febs.14799. Maraldi, Tullia, Francesca Beretti, Laura Anselmi, Cinzia Franchin, Giorgio Arrigoni, Luca Braglia, Jessica Mandrioli, Marco Vinceti, and Sandra Marmiroli. 'Influence of Selenium on the Emergence of Neuro Tubule Defects in a Neuron-like Cell Line and Its Implications for Amyotrophic Lateral Sclerosis'. *NeuroToxicology* 75 (December 2019): 209–20. https://doi.org/10.1016/j.neuro.2019.09.015. Rodella, Anna, Michela Pozzobon, Matteo Rigon, Cinzia Franchin, Giorgio Arrigoni, Manuela Simonato, Emiliano Ghinelli, and Luca Vedovelli. 'Topical Application of Lyophilized and Powdered Human Amniotic Membrane Promotes Diabetic Ulcer Healing'. *Wound Medicine* 27, no. 1 (December 2019): 100171. https://doi.org/10.1016/j.wndm.2019.100171. Sharma, Nisha, Giorgio Arrigoni, Leonard Barnabas Ebinezer, Anna Rita Trentin, Cinzia Franchin, Sabrina Giaretta, Paolo Carletti, Sören Thiele-Bruhn, Rossella Ghisi, and Antonio Masi. 'A Proteomic and Biochemical Investigation on the Effects of Sulfadiazine in Arabidopsis Thaliana'. *Ecotoxicology and Environmental Safety* 178 (August 2019): 146–58. https://doi.org/10.1016/j.ecoenv.2019.04.008. Ura, Blendi, Lorenzo Monasta, Giorgio Arrigoni, Ilaria Battisti, Danilo Licastro, Giovanni Di Lorenzo, Federico Romano, et al. 'Phosphoproteins Involved in the

Inhibition of Apoptosis and in Cell Survival in the Leiomyoma'. *Journal of Clinical Medicine* 8, no. 5 (16 May 2019): 691. https://doi.org/10.3390/jcm8050691.

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10 - Nano-immune-biotechnology

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Keywords	-
Members	Lucia Gemma Delogu Assistant Professor (RTDB)
Projects	- *Wound Healiing In Space: Key challenges towards Intelligent and Enabling Sensing platformrs (WHISKIES)* (ESA) - *Multifunctional nanotools for advanced cancer diagnostic* (PRIN)
Publications	Bordoni, Valentina, Giacomo Reina, Marco Orecchioni, Giulia Furesi, Stefanie Thiele, Chiara Gardin, Barbara Zavan, et al. 'Stimulation of Bone Formation by Monocyte-Activator Functionalized Graphene Oxide *in Vivo*'. *Nanoscale* 11, no. 41 (2019): 19408–21. https://doi.org/10.1039/C9NR03975A. Gazzi, Arianna, Laura Fusco, Anooshay Khan, Davide Bedognetti, Barbara Zavan, Flavia Vitale, Acelya Yilmazer, and Lucia Gemma Delogu. 'Photodynamic Therapy Based on Graphene and MXene in Cancer Theranostics'. *Frontiers in Bioengineering and Biotechnology* 7 (25 October 2019): 295. https://doi.org/10.3389/fbioe.2019.00295. Keshavan, Sandeep, Paolo Calligari, Lorenzo Stella, Laura Fusco, Lucia Gemma Delogu, and Bengt Fadeel. 'Nano-Bio Interactions: A Neutrophil-Centric View'. *Cell Death & Disease* 10, no. 8 (August 2019): 569. https://doi.org/10.1038/s41419-019-1806-8. McCauley, Mark D., Flavia Vitale, J. Stephen Yan, Colin C. Young, Brian Greet, Marco Orecchioni, Srikanth Perike, et al. 'In Vivo Restoration of Myocardial Conduction With Carbon Nanotube Fibers'. *Circulation: Arrhythmia and Electrophysiology* 12, no. 8 (August 2019). https://doi.org/10.1161/CIRCEP.119.007256. Mijiritsky, Eitan, Letizia Ferroni, Chiara Gardin, Oren Peleg, Alper Gultekin, Alper Saglanmak, Lucia Gemma Delogu, et al. 'Presence of ROS in Inflammatory Environment of Peri-Implantitis Tissue: In Vitro and In Vivo Human Evidence'. *Journal of Clinical Medicine* 9, no. 1 (23 December 2019): 38. https://doi.org/10.3390/jcm9010038. Rive, Corvin, Giacomo Reina, Prerana Wagle, Emanuele Treossi, Vincenzo Palermo, Alberto Bianco, Lucia Gemma Delogu, Matthias Rieckher, and Björn Schumacher. 'Improved Biocompatibility of Amino-Functionalized Graphene Oxide in *Caenorhabditis Elegans*'. *Small* 15, no. 45 (November 2019): 1902699. https://doi.org/10.1002/smll.201902699.

11 - Nano-biotechnology and nano-biomedicine

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Members	Emanuele Papini — Associate Professor Tavano Regina — Researcher (ric. universitario)
Projects	-
Publications	Caponetti, Valeria, Jakub W. Trzcinski, Andrea Cantelli, Regina Tavano, Emanuele Papini, Fabrizio Mancin, and Marco Montalti. 'Self-Assembled Biocompatible Fluorescent Nanoparticles for Bioimaging'. *Frontiers in Chemistry* 7 (28 March 2019): 168. https://doi.org/10.3389/fchem.2019.00168. Castellani, Chiara, Marny Fedrigo, Regina Tavano, Rekha Cappellini, Chiara Fedeli, Maddalena Mognato, Mona M.A. Abdel-Mottaleb, et al. 'Tumor-Facing Hepatocytes Significantly Contribute to Mild Hyperthermia-Induced Targeting of Rat Liver Metastasis by PLGA-NPs'. *International Journal of Pharmaceutics* 566 (July 2019): 541–48. https://doi.org/10.1016/j.ijpharm.2019.06.004. Vescovo, Giorgio, Chiara Castellani, Marny Fedrigo, Grazia Maria Virzì, Giovanni Maria Vescovo, Regina Tavano, Michela Pozzobon, and Annalisa Angelini. 'Stem Cells Transplantation Positively Modulates the Heart-Kidney Cross Talk in Cardiorenal Syndrome Type II'. *International Journal of Cardiology* 275 (January 2019): 136–44. https://doi.org/10.1016/j.ijcard.2018.10.038.

12 - Peptides and Antibodies

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Publications	Tonolo, Federica, Alessandra Folda, Luca Cesaro, Valeria Scalcon, Oriano Marin, Stefania Ferro, Alberto Bindoli, and Maria Pia Rigobello. 'Milk-Derived Bioactive Peptides Exhibit Antioxidant Activity through the Keap1-Nrf2 Signaling Pathway'. *Journal of Functional Foods* 64 (January 2020): 103696. https://doi.org/10.1016/j.jff.2019.103696. Tonolo, Federica, Laura Moretto, Stefania Ferro, Alessandra Folda, Valeria Scalcon, Michele Sandre, Federico Fiorese, Oriano Marin, Alberto Bindoli, and Maria Pia Rigobello. 'Insight into Antioxidant Properties of Milk-derived Bioactive Peptides in Vitro and in a Cellular Model'. *Journal of Peptide Science* 25, no. 5 (May 2019): e3162. https://doi.org/10.1002/psc.3162.

13 - Protein engineering

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Members	Negro Alessandro Associate Professor
Projects	-
Publications	Tunesi, Marta, Ilaria Raimondi, Teresa Russo, Laura Colombo, Edoardo Micotti, Edoardo Brandi, Pamela Cappelletti, et al. 'Hydrogel-Based Delivery of Tat-Fused Protein Hsp70 Protects Dopaminergic Cells in Vitro and in a Mouse Model of Parkinson's Disease'. *NPG Asia Materials* 11, no. 1 (December 2019): 28. https://doi.org/10.1038/s41427-019-0128-8.

Mitochondrial Pathophysiology

14 - Mitochondria in Cell Death and Cancer

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Contact	paolo.bernardi@unipd.it 049 827 6365 website	andrea.rasola@unipd.it 049 827 6064 website
Keywords	Apoptosis; Cell Culture; Oxidative Stress; Cancer Research; Cancer Cells; Pharmacology; Cell Biology; Developmental Biology; Tumor Metabolism; Cancer Biology; Chaperone; Mitochondria; Signal Transduction	
Members	Bernardi Paolo Rasola Andrea Giorgio Valentina Petronilli Valeria D'Agostino Donna Mia Cannino Giuseppe Carraro Michela Snchez-Martin Carlos Smolina Natalia Urbani Andrea Trevisan Elena Carrer Andrea Galber Chiara Laquatra Claudio Stocco Anna	Full Professor Associate Professor CNR researcher CNR researcher Researcher (ric. universitario) Postdoc Postdoc Postdoc Postdoc Postdoc Technician PhD Candidate PhD Candidate PhD Candidate PhD Candidate
Projects	- *The dual function of F-ATP synthase in tumor cell metabolism and survival* (AIRC - Bernardi) - *Targeting Mitochondria to Treat Heart Disease* (Fondazione Leducq - Bernardi) - *A TRAP on the road to tumor growth: targeting the pro-neoplastic functions of the mitochondrial chaperone TRAP1* (AIRC - Rasola) - *A mitochondrial therapy for muscular dystrophies* (Telethon - Bernardi) - *TRAPping the metabolic adaptations of plexiform neurofibroma* (Johns Hopkins University - Rasola) - *Channel formation by mitochondrial ATP synthase: Mechanisms and regulation* (PRIN - Bernardi) - *Targeting the mitochondrial chaperone TRAP1 to inhibit plexiform neurofibroma growth* (Children Tumor Foundation - Rasola/Masgras)	

Publications	Bernardi, Paolo. 'Mitochondrial H+ Permeability through the ADP/ATP Carrier'. *Nature Metabolism* 1, no. 8 (August 2019): 752–53. https://doi.org/10.1038/s42255-019-0079-y. Bernardi, Paolo, and Giovanna Lippe. 'Editorial: Structure and Function of F- and V-ATPases'. *Frontiers in Physiology* 10 (3 April 2019): 358. https://doi.org/10.3389/fphys.2019.00358. Carraro, Michela, Vanessa Checchetto, Ildikó Szabó, and Paolo Bernardi. 'F- ATP Synthase and the Permeability Transition Pore: Fewer Doubts, More Certainties'. *FEBS Letters* 593, no. 13 (July 2019): 1542–53. https://doi.org/10.1002/1873-3468.13485. Chemello, Francesco, Francesca Grespi, Alessandra Zulian, Pasqua Cancellara, Etienne Hebert-Chatelain, Paolo Martini, Camilla Bean, et al. 'Transcriptomic Analysis of Single Isolated Myofibers Identifies MiR-27a-3p and MiR-142-3p as Regulators of Metabolism in Skeletal Muscle'. *Cell Reports* 26, no. 13 (March 2019): 3784-3797.e8. https://doi.org/10.1016/j.celrep.2019.02.105. D'Agostino, Donna M., Ilaria Cavallari, Maria Grazia Romanelli, and Vincenzo Ciminale. 'Post-Transcriptional Regulation of HTLV Gene Expression: Rex to the Rescue'. *Frontiers in Microbiology* 10 (22 August 2019): 1958. https://doi.org/10.3389/fmicb.2019.01958. Fochi, Stefania, Vincenzo Ciminale, Elisabetta Trabetti, Umberto Bertazzoni, Donna M. D'Agostino, Donato Zipeto, and Maria Grazia Romanelli. 'NF-KB and MicroRNA Deregulation Mediated by HTLV-1 Tax and HBZ'. *Pathogens* 8, no. 4 (10 December 2019): 290. https://doi.org/10.3390/pathogens8040290. Guo, Lishu, Michela Carraro, Andrea Carrer, Giovanni Minervini, Andrea Urbani, Ionica Masgras, Silvio C. E. Tosatto, Ildikò Szabò, Paolo Bernardi, and Giovanna Lippe. 'Arg-8 of Yeast Subunit e Contributes to the Stability of F-ATP Synthase Dimers and to the Generation of the Full-Conductance Mitochondrial Megachannel'. *Journal of Biological Chemistry* 294, no. 28 (12 July 2019): 10987–97. https://doi.org/10.1074/jbc.RA119.008775. Martorano, Laura, Margherita Peron, Claudio Laquatra, Elisa Lidron, Nicola Facchinello, Giacomo Meneghetti, Natascia Tiso, Andrea Rasola, Daniele Ghezzi, and Francesco Argenton. 'The Zebrafish Orthologue of the Human Hepatocerebral Disease Gene *MPV17* Plays Pleiotropic Roles in Mitochondria'. *Disease Models & Mechanisms* 12, no. 3 (1 March 2019): dmm037226. https://doi.org/10.1242/dmm.037226. Murphy, Elizabeth, Paolo Bernardi, Michael Cohen, Fabio Di Lisa, Michael Forte, Jeffery D. Molkentin, and Michel Ovize. 'Fondation Leducq Transatlantic Network of Excellence Targeting Mitochondria to Treat Heart Disease'. *Circulation Research* 124, no. 9 (26 April 2019): 1294–96. https://doi.org/10.1161/CIRCRESAHA.119.314893. Šileikytė, Justina, Jordan Devereaux, Jelle Jong, Marco Schiavone, Kristen Jones, Aaron Nilsen, Paolo Bernardi, Michael Forte, and Michael S. Cohen. 'Second-Generation Inhibitors of the Mitochondrial Permeability Transition Pore with Improved Plasma Stability'. *ChemMedChem* 14, no. 20 (17 October 2019): 1771–82. https://doi.org/10.1002/cmdc.201900376. Urbani, Andrea, Valentina Giorgio, Andrea Carrer, Cinzia Franchin, Giorgio Arrigoni, Chimari Jiko, Kazuhiro Abe, et al. 'Purified F-ATP Synthase Forms a Ca2+-Dependent High-Conductance Channel Matching the Mitochondrial Permeability Transition Pore'. *Nature Communications* 10, no. 1 (December 2019): 4341. https://doi.org/10.1038/s41467-019-12331-1.

15 - Mitochondrial Calcium Signaling

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Keywords		
Members	Rizzuto Rosario Pallafacchina Giorgia Ausoni Simonetta De Stefani Diego Mammucari Cristina Raffaello Anna De Mario Agnese Feno Simona Gherardi Gaia Vecellio Reane Denis Menegazzi Valentina Butera Gaia	Full Professor CNR researcher Researcher (ric. universitario) Associate Professor Associate Professor Associate Professor Postdoc Postdoc Postdoc Postdoc Technician PhD Candidate
Projects	- *Metastatic disease: the key unmet need in oncology* (AIRC) - *Skeletal muscle-specific alternative splicing of MICU1* (AFM Telethon - Raffaello) - *Mitochondrial Ca2+ upatke in the pathogenesis of familial Alzheimer's disease* (Telethon) - *Targeting mitochondria in myopathies with RyR1 and MICU1 mutations (*Telethon - Raffaello) - *The importance of megakaryocyte endoplasmic reticulum/mitochondria calcium toolkit in the path…* (CARIPLO - De Stefani) - *MICAMETAFLEX - Mitochondrial cation signaling in the control of metabolic flexibility* (STARS) - *Astrocytes in brain pathophysiology: focus om calcium signalling* (PRIN - Mammucari) - *4D molecular analysis on dynamic subcellular nanostructures by feedback-based imaging and tracking: the biochemistry of nutrient and energy sensing* (PRIN - De Stefani) - *mitoPOC- Mitochondrial ATP-sensitive potassium channel (mitoKATP): structure, function and pharmacological targeting* (STARS-CoG - De Stefani) - *Targeting the Mitochondrial Calcium Uniporter to couteract Duchenne Muscular Dystrophy* (AFM Telethon - Mammucari) - *Role of the Mitochondrial Calcium Uniporter in breast cancer* (AIRC)	

	- *Nutrition, obesity and cancer: pathophysiological aspects* (Ricerca sanitaria finalizzata)
Publications	Ausoni, Simonetta. 'Turning Science into Teaching: A Challenge for Scientists'. *MedEdPublish* 8, no. 1 (2019). https://doi.org/10.15694/mep.2019.000007.1. Canato, Marta, Paola Capitanio, Lina Cancellara, Luigi Leanza, Anna Raffaello, Denis Vecellio Reane, Lorenzo Marcucci, Antonio Michelucci, Feliciano Protasi, and Carlo Reggiani. 'Excessive Accumulation of Ca2 + in Mitochondria of Y522S-RYR1 Knock-in Mice: A Link Between Leak From the Sarcoplasmic Reticulum and Altered Redox State'. *Frontiers in Physiology* 10 (13 September 2019): 1142. https://doi.org/10.3389/fphys.2019.01142. Caroccia, Brasilina, Teresa Maria Seccia, Maria Piazza, Selene Prisco, Sofia Zanin, Maurizio Iacobone, Livia Lenzini, et al. 'Aldosterone Stimulates Its Biosynthesis Via a Novel GPER-Mediated Mechanism'. *The Journal of Clinical Endocrinology & Metabolism* 104, no. 12 (1 December 2019): 6316–24. https://doi.org/10.1210/jc.2019-00043. Favaro, Giulia, Vanina Romanello, Tatiana Varanita, Maria Andrea Desbats, Valeria Morbidoni, Caterina Tezze, Mattia Albiero, et al. 'DRP1-Mediated Mitochondrial Shape Controls Calcium Homeostasis and Muscle Mass'. *Nature Communications* 10, no. 1 (December 2019): 2576. https://doi.org/10.1038/s41467-019-10226-9. Fedeli, Chiara, Riccardo Filadi, Alice Rossi, Cristina Mammucari, and Paola Pizzo. 'PSEN2 (Presenilin 2) Mutants Linked to Familial Alzheimer Disease Impair Autophagy by Altering Ca^{2+} Homeostasis'. *Autophagy* 15, no. 12 (2 December 2019): 2044–62. https://doi.org/10.1080/15548627.2019.1596489. Feno, Simona, Gaia Butera, Denis Vecellio Reane, Rosario Rizzuto, and Anna Raffaello. 'Crosstalk between Calcium and ROS in Pathophysiological Conditions'. *Oxidative Medicine and Cellular Longevity* 2019 (24 April 2019): 1–18. https://doi.org/10.1155/2019/9324018. Gherardi, Gaia, Giulia Di Marco, Rosario Rizzuto, and Cristina Mammucari. 'Crosstalk between Mitochondrial Ca^{2+} Uptake and Autophagy in Skeletal Muscle'. *Oxidative Medicine and Cellular Longevity* 2019 (8 September 2019): 1–10. https://doi.org/10.1155/2019/1845321. Gherardi, Gaia, and Cristina Mammucari. 'Ex Vivo Measurements of Ca2+ Transients in Intracellular Compartments of Skeletal Muscle Fibers by Means of Genetically Encoded Probes'. In *Calcium Signalling*, edited by Anna Raffaello and Denis Vecellio Reane, 1925:103–9. New York, NY: Springer New York, 2019. https://doi.org/10.1007/978-1-4939-9018-4_9. Granatiero, Veronica, Marco Pacifici, Anna Raffaello, Diego De Stefani, and Rosario Rizzuto. 'Overexpression of Mitochondrial Calcium Uniporter Causes Neuronal Death'. *Oxidative Medicine and Cellular Longevity* 2019 (16 October 2019): 1–15. https://doi.org/10.1155/2019/1681254. Larrea, Delfina, Marta Pera, Adriano Gonnelli, Rubén Quintana–Cabrera, H Orhan Akman, Cristina Guardia-Laguarta, Kevin R Velasco, et al. 'MFN2 Mutations in Charcot–Marie–Tooth Disease Alter Mitochondria-Associated ER Membrane Function but Do Not Impair Bioenergetics'. *Human Molecular Genetics* 28, no. 11 (1

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Paggio, Angela, Vanessa Checchetto, Antonio Campo, Roberta Menabò, Giulia Di Marco, Fabio Di Lisa, Ildiko Szabo, Rosario Rizzuto, and Diego De Stefani. 'Identification of an ATP-Sensitive Potassium Channel in Mitochondria'. *Nature* 572, no. 7771 (29 August 2019): 609–13. https://doi.org/10.1038/s41586-019-1498-3.

Pendin, Diana, Rosa Norante, Andrea De Nadai, Gaia Gherardi, Nicola Vajente, Emy Basso, Nina Kaludercic, et al. 'A Synthetic Fluorescent Mitochondria-Targeted Sensor for Ratiometric Imaging of Calcium in Live Cells'. *Angewandte Chemie International Edition* 58, no. 29 (15 July 2019): 9917–22. https://doi.org/10.1002/anie.201902272.

Pietrangelo, Laura, Antonio Michelucci, Patrizia Ambrogini, Stefano Sartini, Flavia A. Guarnier, Aurora Fusella, Ilaria Zamparo, Cristina Mammucari, Feliciano Protasi, and Simona Boncompagni. 'Muscle Activity Prevents the Uncoupling of Mitochondria from Ca2+ Release Units Induced by Ageing and Disuse'. *Archives of Biochemistry and Biophysics* 663 (March 2019): 22–33. https://doi.org/10.1016/j.abb.2018.12.017.

Piroddi, Nicoletta, Paola Pesce, Beatrice Scellini, Stefano Manzini, Giulia S Ganzetti, Ileana Badi, Michela Menegollo, et al. 'Myocardial Overexpression of ANKRD1 Causes Sinus Venosus Defects and Progressive Diastolic Dysfunction'. *Cardiovascular Research* 116, no. 8 (1 July 2020): 1458–72. https://doi.org/10.1093/cvr/cvz291.

Salizzato, Valentina, Sofia Zanin, Christian Borgo, Elisa Lidron, Mauro Salvi, Rosario Rizzuto, Giorgia Pallafacchina, and Arianna Donella-Deana. 'Protein Kinase CK2 Subunits Exert Specific and Coordinated Functions in Skeletal Muscle Differentiation and Fusogenic Activity'. *The FASEB Journal* 33, no. 10 (October 2019): 10648–67. https://doi.org/10.1096/fj.201801833RR.

Scarpelli, Pedro H., Giulliana Tessarin-Almeida, Kênia Lopes Viçoso, Wania Rezende Lima, Lucas Borges-Pereira, Kamila Anna Meissner, Carsten Wrenger, et al. 'Melatonin Activates FIS 1, DYN 1, and DYN 2 *Plasmodium Falciparum* Related-genes for Mitochondria Fission: Mitoemerald- GFP as a Tool to Visualize Mitochondria Structure'. *Journal of Pineal Research* 66, no. 2 (March 2019): e12484. https://doi.org/10.1111/jpi.12484.

Scorrano, Luca, Maria Antonietta De Matteis, Scott Emr, Francesca Giordano, György Hajnóczky, Benoît Kornmann, Laura L. Lackner, et al. 'Coming Together to Define Membrane Contact Sites'. *Nature Communications* 10, no. 1 (December 2019): 1287. https://doi.org/10.1038/s41467-019-09253-3.

16 - Molecular mechanisms of aging

Principal Investigator	Prof. Marco Giorgio ORCID https://orcid.org/0000-0002-5842-6042 Google Scholar Giorgio Marco Scopus 6603620783 WoS ID I-9425-2012
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Keywords	Aging; Redox Biology; Bioenergetics; Cancer
Members	Giorgio Marco Associate Professor
Projects	-
Publications	Albiero, Mattia, Stefano Ciciliot, Serena Tedesco, Lisa Menegazzo, Marianna D'Anna, Valentina Scattolini, Roberta Cappellari, et al. 'Diabetes-Associated Myelopoiesis Drives Stem Cell Mobilopathy Through an OSM-P66Shc Signaling Pathway'. *Diabetes* 68, no. 6 (June 2019): 1303–14. https://doi.org/10.2337/db19-0080. Costantino, Sarah, Francesco Paneni, Agostino Virdis, Shafaat Hussain, Shafeeq Ahmed Mohammed, Giuliana Capretti, Alexander Akhmedov, et al. 'Interplay among H3K9-Editing Enzymes SUV39H1, JMJD2C and SRC-1 Drives P66Shc Transcription and Vascular Oxidative Stress in Obesity'. *European Heart Journal* 40, no. 4 (21 January 2019): 383–91. https://doi.org/10.1093/eurheartj/ehx615.

17 - Oxidative metabolism in cardiac disease

Principal Investigator	Prof. Fabio Di Lisa ORCID https://orcid.org/0000-0001-9757-8818 Scopus 26640371000
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Keywords	
Members	Di Lisa Fabio — Full Professor Kaludercic Nina — CNR researcher Di Sante Moises — Research Associate (RTDA) Antonucci Salvatore — Postdoc Menabo` Roberta — CNR Technician Troiano Carmen — PhD Candidate
Projects	- *Targeting Mitochondria to Treat Heart Disease* (Fondazione Leducq) - *Defective tissue repair in metabolic disorders: untangling its role and key mechanisms for novel therapeutic approaches* (PRIN)
Publications	Antonucci, Salvatore, John F. Mulvey, Nils Burger, Moises Di Sante, Andrew R. Hall, Elizabeth C. Hinchy, Stuart T. Caldwell, et al. 'Selective Mitochondrial Superoxide Generation in Vivo Is Cardioprotective through Hormesis'. *Free Radical Biology & Medicine* 134 (2019): 678–87. https://doi.org/10.1016/j.freeradbiomed.2019.01.034. Greotti, Elisa, Ilaria Fortunati, Diana Pendin, Camilla Ferrante, Luisa Galla, Lorena Zentilin, Mauro Giacca, et al. 'MCerulean3-Based Cameleon Sensor to Explore Mitochondrial Ca2+ Dynamics In Vivo'. *IScience* 16 (June 2019): 340–55. https://doi.org/10.1016/j.isci.2019.05.031. Murphy, Elizabeth, Paolo Bernardi, Michael Cohen, Fabio Di Lisa, Michael Forte, Jeffery D. Molkentin, and Michel Ovize. 'Fondation Leducq Transatlantic Network of Excellence Targeting Mitochondria to Treat Heart Disease'. *Circulation Research* 124, no. 9 (26 April 2019): 1294–96. https://doi.org/10.1161/CIRCRESAHA.119.314893. Paggio, Angela, Vanessa Checchetto, Antonio Campo, Roberta Menabò, Giulia Di Marco, Fabio Di Lisa, Ildiko Szabo, Rosario Rizzuto, and Diego De Stefani. 'Identification of an ATP-Sensitive Potassium Channel in Mitochondria'. *Nature* 572, no. 7771 (29 August 2019): 609–13. https://doi.org/10.1038/s41586-019-1498-3.

18 - Regulation of the Mitochondrial Proteome

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Keywords	
Members	Gyorgy Szabadkai — Associate Professor Menegollo Michela — Postdoc
Projects	- *Targeting mitochondrial calcium handiling in core myopathies: an integrative approach towards novel therapeutic strategies* (Ricerca sanitaria finalizzata) - *Targeting mitochondria in myopathies with RyR1 and MICU1 mutations* (TELETHON) - *Exploiting mitochondrial biogenesis pathways to stratify and target different breast cancer subtypes* (AIRC)
Publications	Abeyakoon, Oshaani, Arash Latifoltojar, Fiona Gong, Marianthi-Vasiliki Papoutsaki, Rafat Chowdhury, Matthias Glaser, Hassan Jeraj, et al. 'Hyperpolarised ^{13}C MRI: A New Horizon for Non-Invasive Diagnosis of Aggressive Breast Cancer'. *BJR|case Reports* 5, no. 3 (September 2019): 20190026. https://doi.org/10.1259/bjrcr.20190026. Avnet, Sofia, Nicola Baldini, Lucie Brisson, Stine Falsig Pedersen, Paolo E. Porporato, Pierre Sonveaux, Gyorgy Szabadkai, and Silvia Pastorekova. 'Annual Meeting of the International Society of Cancer Metabolism (ISCaM): Metabolic Adaptations and Targets in Cancer'. *Frontiers in Oncology* 9 (28 November 2019): 1332. https://doi.org/10.3389/fonc.2019.01332. Bentham, Robert B., Kevin Bryson, and Gyorgy Szabadkai. 'Biclustering Analysis of Co-Regulation Patterns in Nuclear-Encoded Mitochondrial Genes and Metabolic Pathways'. In *Cancer Metabolism*, edited by Majda Haznadar, 1928:469–78. New York, NY: Springer New York, 2019. https://doi.org/10.1007/978-1-4939-9027-6_24. Blacker, Thomas S., Michael D. E. Sewell, Gyorgy Szabadkai, and Michael R. Duchen. 'Metabolic Profiling of Live Cancer Tissues Using NAD(P)H Fluorescence Lifetime Imaging'. In *Cancer Metabolism*, edited by Majda Haznadar, 1928:365–87. New York, NY: Springer New York, 2019. https://doi.org/10.1007/978-1-4939-9027-6_19. Briston, Thomas, David L. Selwood, Gyorgy Szabadkai, and Michael R. Duchen. 'Mitochondrial Permeability Transition: A Molecular Lesion with Multiple Drug Targets'. *Trends in Pharmacological Sciences* 40, no. 1 (January 2019): 50–70. https://doi.org/10.1016/j.tips.2018.11.004. Davidson, Sean M., Gyorgy Szabadkai, and Michael R. Duchen. 'Fantastic Beasts and How to Find Them—Molecular Identification of the Mitochondrial ATP-Sensitive

Potassium Channel'. *Cell Calcium* 84 (December 2019): 102100. https://doi.org/10.1016/j.ceca.2019.102100.

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Thomas, Luke W., Cinzia Esposito, Jenna M. Stephen, Ana S. H. Costa, Christian Frezza, Thomas S. Blacker, Gyorgy Szabadkai, and Margaret Ashcroft. 'CHCHD4 Regulates Tumour Proliferation and EMT-Related Phenotypes, through Respiratory Chain-Mediated Metabolism'. *Cancer & Metabolism* 7, no. 1 (December 2019): 7. https://doi.org/10.1186/s40170-019-0200-4.

Muscle Physiology in Health and Disease

19 - Autonomic Control of Cardiac Function

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Keywords	Cell Physiology; Signal Transduction; Calcium Signaling; Calcium Imaging; GPCR Signaling; Protein Kinases; Molecular Pharmacology; Optogenetics; Cardiomyocytes; Cardiovascular Physiology
Members	Mongillo Marco Associate Professor
Projects	- *Lights on cardiac sympathetic neurons: background conductor of the orchestra of harmonic heartbeats (rehersal session)? "miniHEARTWORK"* (STARS)
Publications	Pianca, Nicola, Anna Di Bona, Erica Lazzeri, Irene Costantini, Mauro Franzoso, Valentina Prando, Andrea Armani, et al. 'Cardiac Sympathetic Innervation Network Shapes the Myocardium by Locally Controlling Cardiomyocyte Size through the Cellular Proteolytic Machinery'. *The Journal of Physiology* 597, no. 14 (July 2019): 3639–56. https://doi.org/10.1113/JP276200.

20 - Chaperones in Muscle Differentiation and Disease

Principal Investigator	Prof. Luisa Gorza ORCID https://orcid.org/0000-0003-4897-400X Scopus 7003397959
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Keywords	Muscle Proteins; Molecular Chaperones; Muscle Damage
Members	Gorza Luisa — Associate Professor Vitadello Maurizio — CNR researcher
Projects	-
Publications	-

21 - Muscle Contractility And Plasticity

Principal Investigator	Prof. Marco Narici ORCID https://orcid.org/0000-0003-0167-1845 Scopus 7003787873
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Keywords	Exercise Physiology; Exercise Science; Exercise Performance; Biomechanics; Physiology; Resistance Training; Strength & Conditioning; Muscle Physiology; Human Physiology; Physical Fitness
Members	Marco Narici — Full Professor Giuseppe De Vito — Full Professor Blaauw Bert — Associate Professor Murgia Marta — Researcher (ric. universitario) Toniolo Luana — Researcher (ric. universitario) Franchi Martino — Research Associate (RTDA) Marcucci Lorenzo — Postdoc Nogara Leonardo — Postdoc Canato Marta — Technician Germinario Elena — Technician
Projects	- *Novel developments in studies of Ca2+ entry mechanisms: relevance to skeletal muscle function and diseases* (PRIN - Narici/Reggiani) - *Sviluppo di un sistema indossabile integrato nel vestiario per il monitoraggio dell'acido lattico nel sudore durante l'esercizio fisico in ambito sportivo (LactISport)* (FSE) - *MyoAktivation* (STARS - Blaauw) - *Ablation of the maladaptive ER stress response restores diaphragm function and insulin resistance in SEPN1-related myopathies* (Ricerca sanitaria finalizzata - Blaauw) - *MARS-PRE: MARcartori biologici e funzionali per la biomedicina aStronautica di PREcisione* (ASI) - *Neuromuscular ageing: mechanisms and functional implications (NeuAge)* (PRIN) - *Heart FI-RE - HEART Fine REgulation through mechanosensing in myosin filaments: merging theory and experiments into a multi-scale heart simulator* (Seal of Excellence - Reggiani)
Publications	Baraldo, Martina, Alessia Geremia, Marco Pirazzini, Leonardo Nogara, Francesca Solagna, Clara Türk, Hendrik Nolte, et al. 'Skeletal Muscle MTORC1 Regulates Neuromuscular Junction Stability'. *Journal of Cachexia, Sarcopenia and Muscle* 11, no. 1 (February 2020): 208–25. https://doi.org/10.1002/jcsm.12496. Cancellara, Lina, Silvia Quartesan, Luana Toniolo, Carlo Reggiani, Francesco

Mascarello, Luca Melotti, Maura Francolini, Lisa Maccatrozzo, and Marco Patruno. 'Age-Dependent Variations in the Expression of Myosin Isoforms and Myogenic Factors during the Involution of the Proximal Sesamoidean Ligament of Sheep'. *Research in Veterinary Science* 124 (June 2019): 270–79. https://doi.org/10.1016/j.rvsc.2019.04.006.

Capri, Miriam, Cristina Morsiani, Aurelia Santoro, Manuela Moriggi, Maria Conte, Morena Martucci, Elena Bellavista, et al. 'Recovery from 6-month Spaceflight at the International Space Station: Muscle-related Stress into a Proinflammatory Setting'. *The FASEB Journal* 33, no. 4 (April 2019): 5168–80. https://doi.org/10.1096/fj.201801625R.

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Favaro, Giulia, Vanina Romanello, Tatiana Varanita, Maria Andrea Desbats, Valeria Morbidoni, Caterina Tezze, Mattia Albiero, et al. 'DRP1-Mediated Mitochondrial Shape Controls Calcium Homeostasis and Muscle Mass'. *Nature Communications* 10, no. 1 (December 2019): 2576. https://doi.org/10.1038/s41467-019-10226-9.

Fitze, Daniel P, Martino Franchi, Werner L Popp, Severin Ruoss, Silvio Catuogno, Karin Camenisch, Debora Lehmann, et al. 'Concentric and Eccentric Pedaling-Type Interval Exercise on a Soft Robot for Stable Coronary Artery Disease Patients: Toward a Personalized Protocol'. *JMIR Research Protocols* 8, no. 3 (27 March 2019): e10970. https://doi.org/10.2196/10970.

Flück, Martin, Manuel Kramer, Daniel P. Fitze, Stephanie Kasper, Martino V. Franchi, and Paola Valdivieso. 'Cellular Aspects of Muscle Specialization Demonstrate Genotype – Phenotype Interaction Effects in Athletes'. *Frontiers in Physiology* 10 (8 May 2019): 526. https://doi.org/10.3389/fphys.2019.00526.

Franchi, Martino V., Lynn Ellenberger, Marie Javet, Björn Bruhin, Michael Romann, Walter O. Frey, and Jörg Spörri. 'Maximal Eccentric Hamstrings Strength in Competitive Alpine Skiers: Cross-Sectional Observations From Youth to Elite Level'. *Frontiers in Physiology* 10 (18 February 2019): 88. https://doi.org/10.3389/fphys.2019.00088.

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22 - Pathophysiology of Striated Muscles

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Keywords	Cell Biology; Muscle Contraction; Skeletal Muscle; Muscle; Skeletal Muscle Fibers
Members	Volpe Pompeo — Associate Professor Sandona' Dorianna — Associate Professor Campione Marina — CNR researcher Nori Alessandra — Researcher (ric. universitario) Ravara Barbara — Postdoc Soardi Michela — Postdoc Furlan Sandra — CNR Technician Caccin Paola — Technician Carotti Marcello — Technician Scano Martina — PhD Candidate
Projects	- *Microgravity-induced gene expression in a nerve-muscle coculture model - NEMUCO* (ASI) - *Novel zebrafish models of sarcoglycanopathy. Swimming toward a cure* (MDA - Sandoná)
Publications	Bonilla, Ingrid M., Andriy E. Belevych, Stephen Baine, Andrei Stepanov, Louisa Mezache, Tom Bodnar, Bin Liu, et al. 'Enhancement of Cardiac Store Operated Calcium Entry (SOCE) within Novel Intercalated Disk Microdomains in Arrhythmic Disease'. *Scientific Reports* 9, no. 1 (December 2019): 10179. https://doi.org/10.1038/s41598-019-46427-x.

23 - Signaling pathways that control protein homeostasis in muscles

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Keywords	Cognitive Neuroscience; Neuroimaging; Brain Imaging; Psychophysiology; Memory; Learning and Memory
Members	Sandri Marco — Full Professor Romanello Vanina — Postdoc
Projects	- *Controlling BMP/MUSA 1 axis to prevent cancer cachexia* (AIRC) - *Understanding bmp signalling in cancer cachexia* (AIRC) - *Deciphering a novel link between the ubiquitin proteasome system and mitochondrial function to control muscle mass* (AFM Telethon - Romanello) - *Regulation of skeletal muscle function by PINK - 1 - Parkin mitophagy pathway* (McGill University Health Centre - Sandri/Romanello) - *Novel player in the control of Metabolism. Focus on Proteostasis, Mitochondria and Peroxisomes - ProMeMix* (STARS-CoG - Sandri/Romanello) - *Defining the Contribution of Calcium and Mitochondria to Age-Related Muscle Loss* (CARIPARO - Sandri/Romanello)
Publications	Baraldo, Martina, Alessia Geremia, Marco Pirazzini, Leonardo Nogara, Francesca Solagna, Clara Türk, Hendrik Nolte, et al. 'Skeletal Muscle MTORC1 Regulates Neuromuscular Junction Stability'. *Journal of Cachexia, Sarcopenia and Muscle* 11, no. 1 (February 2020): 208–25. https://doi.org/10.1002/jcsm.12496. Chemello, Francesco, Francesca Grespi, Alessandra Zulian, Pasqua Cancellara, Etienne Hebert-Chatelain, Paolo Martini, Camilla Bean, et al. 'Transcriptomic Analysis of Single Isolated Myofibers Identifies MiR-27a-3p and MiR-142-3p as Regulators of Metabolism in Skeletal Muscle'. *Cell Reports* 26, no. 13 (March 2019): 3784-3797.e8. https://doi.org/10.1016/j.celrep.2019.02.105. De Toni, Luca, Alexander I. Agoulnik, Marco Sandri, Carlo Foresta, and Alberto Ferlin. 'INSL3 in the Muscolo-Skeletal System'. *Molecular and Cellular Endocrinology* 487 (May 2019): 12–17. https://doi.org/10.1016/j.mce.2018.12.021. Favaro, Giulia, Vanina Romanello, Tatiana Varanita, Maria Andrea Desbats, Valeria Morbidoni, Caterina Tezze, Mattia Albiero, et al. 'DRP1-Mediated Mitochondrial Shape Controls Calcium Homeostasis and Muscle Mass'. *Nature Communications* 10, no. 1 (December 2019): 2576. https://doi.org/10.1038/s41467-019-10226-9. Galazzo, Laura, Leonardo Nogara, Francesca LoVerso, Antonino Polimeno, Bert Blaauw, Marco Sandri, Carlo Reggiani, and Donatella Carbonera. 'Changes in the Fraction of Strongly Attached Cross Bridges in Mouse Atrophic and Hypertrophic Muscles as Revealed by Continuous Wave Electron Paramagnetic Resonance'. *American Journal*

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Romanello, Vanina, Marco Scalabrin, Mattia Albiero, Bert Blaauw, Luca Scorrano, and Marco Sandri. 'Inhibition of the Fission Machinery Mitigates OPA1 Impairment in Adult Skeletal Muscles'. *Cells* 8, no. 6 (15 June 2019): 597. https://doi.org/10.3390/cells8060597.

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Neuroscience

24 - Circuit formation and function in the brain

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Keywords	cAMP; Olfaction; Olfactory Perception; Signaling Pathways; Electrophysiology; Neurobiology; Calcium Imaging; In Vivo Electrophysiology; Adult Neurogenesis; Neural Plasticity
Members	Claudia Lodovichi CNR researcher
Projects	Information on Lodovichi's research activities and publications are available at: http://www.in.cnr.it/index.php/it/9-people/70-claudia-lodovichi
Publications	

25 - Genetics of focal epilepsies

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Keywords	-
Members	Carlo Nobile CNR researcher
Projects	Information on Nobile's research activities and publications are available at: http://www.in.cnr.it/index.php/it/9-people/74-carlo-nobile
Publications	

26 - Migraine Pathophysiology

Principal Investigator	Prof. Daniela Pietrobon ORCID https://orcid.org/0000-0002-5148-8670 Google Scholar Daniela Pietrobon Scopus 7003670065
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Keywords	Neuroscience; Neurological Diseases; Neurobiology; Neurophysiology; Electrophysiology; Patch-Clamp Electrophysiology; Cellular Neuroscience; Synaptic Transmission; Synapses; Neurotransmission
Members	Daniela Pietrobon — Full Professor Marchionni Ivan — Research Associate (RTDA) Tottene Angelita — Technician
Projects	- *Cellular and circuit mechanisms of migraine: a multiscale approach* (PRIN)
Publications	Iure, Antonio de, Petra Mazzocchetti, Guendalina Bastioli, Barbara Picconi, Cinzia Costa, Ivan Marchionni, Giorgio Casari, Alessandro Tozzi, Daniela Pietrobon, and Paolo Calabresi. 'Differential Effect of FHM2 Mutation on Synaptic Plasticity in Distinct Hippocampal Regions'. *Cephalalgia* 39, no. 10 (September 2019): 1333–38. https://doi.org/10.1177/0333102419839967. Marchionni, Ivan, Michelle Oberoi, Ivan Soltesz, and Allyson Alexander. 'Ripple-related Firing of Identified Deep CA1 Pyramidal Cells in Chronic Temporal Lobe Epilepsy in Mice'. *Epilepsia Open* 4, no. 2 (June 2019): 254–63. https://doi.org/10.1002/epi4.12310. Melone, Marcello, Chiara Ciriachi, Daniela Pietrobon, and Fiorenzo Conti. 'Heterogeneity of Astrocytic and Neuronal GLT-1 at Cortical Excitatory Synapses, as Revealed by Its Colocalization With Na+/K+-ATPase α Isoforms'. *Cerebral Cortex* 29, no. 8 (22 July 2019): 3331–50. https://doi.org/10.1093/cercor/bhy203. Pietrobon, Daniela, and K. C. Brennan. 'Genetic Mouse Models of Migraine'. *The Journal of Headache and Pain* 20, no. 1 (December 2019): 79. https://doi.org/10.1186/s10194-019-1029-5. Tottene, Angelita, Morgana Favero, and Daniela Pietrobon. 'Enhanced Thalamocortical Synaptic Transmission and Dysregulation of the Excitatory–Inhibitory Balance at the Thalamocortical Feedforward Inhibitory Microcircuit in a Genetic Mouse Model of Migraine'. *The Journal of Neuroscience* 39, no. 49 (4 December 2019): 9841–51. https://doi.org/10.1523/JNEUROSCI.1840-19.2019.

27 - Molecular and cellular mechanisms of neurodegenerative and neuromuscular diseases

Principal Investigator	Prof. Alessandro Bertoli ORCID https://orcid.org/0000-0003-1202-0191 Google Scholar Alessandro Bertoli Scopus 7005055131 WoS ID C-1903-2014
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Keywords	Biochemistry; Prion Protein; Molecular Biology; Neuroscience; Protein Aggregation; Biotechnology; Neurodegeneration
Members	Alessandro Bertoli — Researcher (ric. universitario) Lopreiato Raffaele — Researcher (ric. universitario) Sartori Geppo — Researcher (ric. universitario) Massimino Maria Lina — CNR researcher Tonello Fiorella — CNR researcher
Projects	- *Per fare il vino ci vuole il lievito! Le biotecnologie per i nuovi ceppi, dall'isolamento alla produzione industriale* (FSE - Lopreiato) - *Nuove strategie per la tracciabilità dei lieviti di uso enologico mediante profiling genomico e metabolico* (FSE - Lopreiato)
Publications	Alessio, Enrico, Lisa Buson, Francesco Chemello, Caterina Peggion, Francesca Grespi, Paolo Martini, Maria L Massimino, et al. 'Single Cell Analysis Reveals the Involvement of the Long Non-Coding RNA Pvt1 in the Modulation of Muscle Atrophy and Mitochondrial Network'. *Nucleic Acids Research* 47, no. 4 (28 February 2019): 1653–70. https://doi.org/10.1093/nar/gkz007. De Mario, Agnese, Caterina Peggion, Maria Lina Massimino, Rosa Pia Norante, Alessandra Zulian, Alessandro Bertoli, and Maria Catia Sorgato. 'The Link of the Prion Protein with Ca2+ Metabolism and ROS Production, and the Possible Implication in Aβ Toxicity'. *International Journal of Molecular Sciences* 20, no. 18 (19 September 2019): 4640. https://doi.org/10.3390/ijms20184640. Norante, Peggion, Rossi, Martorana, De Mario, Lia, Massimino, and Bertoli. 'ALS-Associated SOD1(G93A) Decreases SERCA Pump Levels and Increases Store-Operated Ca2+ Entry in Primary Spinal Cord Astrocytes from a Transgenic Mouse Model'. *International Journal of Molecular Sciences* 20, no. 20 (17 October 2019): 5151. https://doi.org/10.3390/ijms20205151.

28 - Neuronal Networks and Neurotechnologies

Principal Investigator	Prof. Stefano Vassanelli ORCID https://orcid.org/0000-0003-0389-8023 Google Scholar Stefano Vassanelli Scopus 6602922285
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Keywords	Neuroscience; Neuron; Synapses; Neurobiology; Electrophysiology; Neurobiology and Brain Physiology; Synaptic Plasticity; Neurophysiology; Cellular Neuroscience; Neural Plasticity
Members	Vassanelli Stefano — Associate Professor Cecchetto Claudia — Postdoc Leparulo Alessandro — Postdoc Maschietto Marta — Technician
Projects	- *SYNCH-A SYnaptically connected brain-silicon Neural Closed-loop Hybrid system* (FET- Proact) - *GRACE - hiGh-Resolution imAging of the barrel CortEx through VSD and LFP recordings* (MSCA-IF) - *Neureka - A smart, hybrid neural-computo device for drug discovery* (FET-Open Neureka) - *Autonomous In-vivo Brain-Machine-Interface in 28nm-CMOS technology with Ultrasound-based Power-Harvester and Communication-Link (Brain28nm)* (PRIN)
Publications	Mahmud, Mufti, and Stefano Vassanelli. 'Open-Source Tools for Processing and Analysis of In Vitro Extracellular Neuronal Signals'. In *In Vitro Neuronal Networks*, edited by Michela Chiappalone, Valentina Pasquale, and Monica Frega, 22:233–50. Cham: Springer International Publishing, 2019. https://doi.org/10.1007/978-3-030-11135-9_10.

29 - Neuron-glia signaling in brain function and dysfunction

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Keywords	
Members	Carmignoto Piergiorgio — CNR researcher Gómez-Gonzalo Marta — CNR researcher Losi Gabriele — CNR researcher Zonta Micaela — CNR Technologist Chiavegato Angela — Technician
Projects	Information on Carmignoto's research activities and publications are available at: http://www.in.cnr.it/index.php/it/9-people/62-piergiorgio-carmignoto
Publications	

30 - Neuroparalysis and Neuroregeneration Lab

Principal Investigator	Prof. Ornella Rossetto ORCID https://orcid.org/0000-0002-6113-3857 Google Scholar Rossetto Ornella Scopus 7003372229
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Keywords	Botulinum neurotoxins, neuromuscular junction, peripheral nerve regeneration, Drosophila Neurophysiology and Behavior
Members	Rossetto Ornella — Associate Professor Megighian Aram — Associate Professor Rigoni Michela — Researcher (ric. universitario) Pirazzini Marco — Research Associate (RTDA) Negro Samuele — Postdoc Zanetti Giulia — Postdoc Simonato Morena — CNR Technician D'Este Giorgia — PhD Candidate Stazi Marco — PhD Candidate Fabris Federico — PhD Candidate Bruzzone Matteo — PhD Candidate
Projects	- *RES-ENDO - REgulation of Sprouting by signalling ENDOsomes in fast and slow motoneurons paralyzed by botulinum neurotoxins* (CARIPARO - Pirazzini) - *Signaling at the neuromuscular junction during aging* (AFM Telethon - Pirazzini) - *Investigating the role of the Excitation-Contraction-Coupling machinery in SBMA muscle pathology* (Kennedy's Disease Association - Pirazzini)
Publications	Baraldo, Martina, Alessia Geremia, Marco Pirazzini, Leonardo Nogara, Francesca Solagna, Clara Türk, Hendrik Nolte, et al. 'Skeletal Muscle MTORC1 Regulates Neuromuscular Junction Stability'. *Journal of Cachexia, Sarcopenia and Muscle* 11, no. 1 (February 2020): 208–25. https://doi.org/10.1002/jcsm.12496. Frighetto, Giovanni, Mauro A. Zordan, Umberto Castiello, and Aram Megighian. 'Action-Based Attention in *Drosophila Melanogaster*'. *Journal of Neurophysiology* 121, no. 6 (1 June 2019): 2428–32. https://doi.org/10.1152/jn.00164.2019. Negro, Zanetti, Mattarei, Valentini, Megighian, Tombesi, Zugno, et al. 'An Agonist of the CXCR4 Receptor Strongly Promotes Regeneration of Degenerated Motor Axon Terminals'. *Cells* 8, no. 10 (30 September 2019): 1183. https://doi.org/10.3390/cells8101183. Rossetto, Ornella, and Cesare Montecucco. 'Tables of Toxicity of Botulinum and Tetanus Neurotoxins'. *Toxins* 11, no. 12 (22 November 2019): 686.

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Zanetti, Giulia, Samuele Negro, Aram Megighian, Andrea Mattarei, Florigio Lista, Silvia Fillo, Michela Rigoni, Marco Pirazzini, and Cesare Montecucco. 'A CXCR4 Receptor Agonist Strongly Stimulates Axonal Regeneration after Damage'. *Annals of Clinical and Translational Neurology* 6, no. 12 (December 2019): 2395–2402. https://doi.org/10.1002/acn3.50926.

31 - Pathogenesis of neurological and neuromuscular diseases

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Keywords	Neurodegeneration; Brain; Neurodegenerative Diseases; Neuroscience; Proteins; Neurobiology; Alzheimer's Disease; Immunohistochemistry; Cell Culture; Neurobiology and Brain Physiology
Members	Maria Pennuto — Associate Professor Zuccaro Emanuela — Postdoc Lia Federica — PhD Candidate Marchioretti Caterina — PhD Candidate
Projects	- *Dissecting the molecular logics of neurodegeneration in SBMA and the molecular mechanisms of PACAP* (Akira Arimura Foundation) - *Targeting AR CO-Regulators to attenuate spinal and bulbar muscular atrophy* (AFM Telethon) - *MOVEMeNt-Decoding alpha motor neurons diversity and selective vulnerability to disease* (MSCA-IF) - *Targeting epigenetic modifiers of androgen receptor activity and toxicity in SBMA* (NIH) - *The interplay between the "RNA/protein quality control system" and "exosomes" as a spreading mechanism in amyotrophic lateral sclerosis* (PRIN) - *Alternative translation initiation as a novel strategy to block toxicity of the mutant Androgen Receptor in SBMA* (Telethon) - *MOSAIC - Decoding diversity and eclectic vulnerability of alpha motor neuron classes in the adult spinal cord* (STARS-StG - Zuccaro)
Publications	Casci, Ian, Karthik Krishnamurthy, Sukhleen Kour, Vadreenath Tripathy, Nandini Ramesh, Eric N. Anderson, Lara Marrone, et al. 'Muscleblind Acts as a Modifier of FUS Toxicity by Modulating Stress Granule Dynamics and SMN Localization'. *Nature Communications* 10, no. 1 (December 2019): 5583. https://doi.org/10.1038/s41467-019-13383-z. Cicardi, Maria Elena, Riccardo Cristofani, Valeria Crippa, Veronica Ferrari, Barbara Tedesco, Elena Casarotto, Marta Chierichetti, et al. 'Autophagic and Proteasomal Mediated Removal of Mutant Androgen Receptor in Muscle Models of Spinal and Bulbar Muscular Atrophy'. *Frontiers in Endocrinology* 10 (20 August 2019): 569. https://doi.org/10.3389/fendo.2019.00569. Greensmith, L., P.F. Pradat, G. Sorarù, and M. Pennuto. '241st ENMC International

	Workshop: Towards a European Unifying Lab for Kennedy's Disease. 15–17th February, 2019 Hoofddorp, The Netherlands'. *Neuromuscular Disorders* 29, no. 9 (September 2019): 716–24. https://doi.org/10.1016/j.nmd.2019.07.008. Meroni, Marco, Valeria Crippa, Riccardo Cristofani, Paola Rusmini, Maria Elena Cicardi, Elio Messi, Margherita Piccolella, et al. 'Transforming Growth Factor Beta 1 Signaling Is Altered in the Spinal Cord and Muscle of Amyotrophic Lateral Sclerosis Mice and Patients'. *Neurobiology of Aging* 82 (October 2019): 48–59. https://doi.org/10.1016/j.neurobiolaging.2019.07.001.

32 - Plasticity In Pathology

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Keywords	Neuron; EEG; Neurological Diseases; Neurophysiology; Electroencephalography; Plasticity; Molecular Biology; Neurobiology; Cell Biology; Neuroscience
Members	Caleo Matteo Full Professor
Projects	- *Modulation of neuron-astrocyte signalling combined with motor training as an innovative approach to enhance recovery after stroke -aSTROke* (CARIPARO) - *Physiological neuronal activity in the control of glioma progression and tumor microenvironment* PRIN (2019)
Publications	Agrimi, Jacopo, Cristina Spalletti, Carlotta Baroni, Gizem Keceli, Guangshuo Zhu, Angela Caragnano, Marco Matteucci, et al. 'Obese Mice Exposed to Psychosocial Stress Display Cardiac and Hippocampal Dysfunction Associated with Local Brain-Derived Neurotrophic Factor Depletion'. *EBioMedicine* 47 (September 2019): 384–401. https://doi.org/10.1016/j.ebiom.2019.08.042. Alia, Claudia, Marco Terrigno, Irene Busti, Federico Cremisi, and Matteo Caleo. 'Pluripotent Stem Cells for Brain Repair: Protocols and Preclinical Applications in Cortical and Hippocampal Pathologies'. *Frontiers in Neuroscience* 13 (6 August 2019): 684. https://doi.org/10.3389/fnins.2019.00684. Allegra Mascaro, Anna Letizia, Emilia Conti, Stefano Lai, Antonino Paolo Di Giovanna, Cristina Spalletti, Claudia Alia, Alessandro Panarese, et al. 'Combined Rehabilitation Promotes the Recovery of Structural and Functional Features of Healthy Neuronal Networks after Stroke'. *Cell Reports* 28, no. 13 (September 2019): 3474-3485.e6. https://doi.org/10.1016/j.celrep.2019.08.062. Del Grosso, Ambra, Lucia Angella, Ilaria Tonazzini, Aldo Moscardini, Nadia Giordano, Matteo Caleo, Silvia Rocchiccioli, and Marco Cecchini. 'Dysregulated Autophagy as a New Aspect of the Molecular Pathogenesis of Krabbe Disease'. *Neurobiology of Disease* 129 (September 2019): 195–207. https://doi.org/10.1016/j.nbd.2019.05.011. Pellegrini, Davide, Ambra del Grosso, Lucia Angella, Nadia Giordano, Marialaura Dilillo, Ilaria Tonazzini, Matteo Caleo, Marco Cecchini, and Liam A. McDonnell. 'Quantitative Microproteomics Based Characterization of the Central and Peripheral Nervous System of a Mouse Model of Krabbe Disease'. *Molecular & Cellular Proteomics* 18, no. 6 (June 2019): 1227–41. https://doi.org/10.1074/mcp.RA118.001267. Testa, Giovanna, Marco Mainardi, Francesco Olimpico, Laura Pancrazi, Antonino

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33 - Enlightening Brain Mechanisms

Principal Investigator	Dr. Marco Dal Maschio ORCID https://orcid.org/0000-0003-0150-6647 Scopus 650669295 WoS ID G-3871-2017
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Keywords	Systems Neuroscience; Sensori-motor integrations; Functional Brain Imaging; Psychophysics; Psychobiology; Light-based Technologies; Optogenetics
Members	Dal Maschio Marco — Assistant Professor (RTDB) Miletto Petrazzini Maria Elena — PostDoc (STARS STG)
Projects	- *How do we know what we don't know?: using zebrafish to study the evolutionary roots of metacognition - MetaZeb* (STARS StG Miletto Petrazzini)
Publications	Kunst, Michael, Eva Laurell, Nouwar Mokayes, Anna Kramer, Fumi Kubo, António M. Fernandes, Dominique Förster, Marco Dal Maschio, and Herwig Baier. 'A Cellular-Resolution Atlas of the Larval Zebrafish Brain'. *Neuron* 103, no. 1 (July 2019): 21-38.e5. https://doi.org/10.1016/j.neuron.2019.04.034.

Physical Activity and Health

34 - Environmental and respiratory physiology

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Keywords	Bioscience; Pedagogy and Education; Teacher Education; Respiratory Mechanics; Muscle Function; Teacher Training; Academic Writing; Nutrition; Respiratory Physiology; Antimicrobials
Members	Bosco Gerardo — Associate Professor Rubini Alessandro — Researcher (ric. universitario)
Projects	-
Publications	Bassetto, Franco, G. Bosco, T. Brambullo, E. Kohlscheen, I. Tocco Tussardi, V. Vindigni, and C. Tiengo. 'Hyperbaric Oxygen Therapy in Plastic Surgery Practice: Case Series and Literature Overview'. *Il Giornale Di Chirurgia* 40, no. 4 (August 2019): 257–75. Biddeci, Giada, Gerardo Bosco, Elena Varotto, Marco Corradin, Giulia Geranio, Gloria Tridello, Marta Pillon, et al. 'Osteonecrosis in Children and Adolescents With Acute Lymphoblastic Leukemia: Early Diagnosis and New Treatment Strategies'. *Anticancer Research* 39, no. 3 (March 2019): 1259–66. https://doi.org/10.21873/anticanres.13236. Bosco, Gerardo, Edoardo Ostardo, Alex Rizzato, Giacomo Garetto, Matteo Paganini, Giorgio Melloni, Giampiero Giron, Lodovico Pietrosanti, Ivo Martinelli, and Enrico Camporesi. 'Clinical and Morphological Effects of Hyperbaric Oxygen Therapy in Patients with Interstitial Cystitis Associated with Fibromyalgia'. *BMC Urology* 19, no. 1 (December 2019): 108. https://doi.org/10.1186/s12894-019-0545-6. Bosco, Gerardo, Antonio Paoli, Alex Rizzato, Giuseppe Marcolin, Maria Teresa Guagnano, Christian Doria, Suwas Bhandari, Tiziana Pietrangelo, and Vittore Verratti. 'Body Composition and Endocrine Adaptations to High-Altitude Trekking in the Himalayas'. In *Advancements and Innovations in Health Sciences*, edited by Mieczyslaw Pokorski, 1211:61–68. Cham: Springer International Publishing, 2019. https://doi.org/10.1007/5584_2019_414. Fontanella, Chiara Giulia, Elisa Belluzzi, Marco Rossato, Eleonora Olivotto, Giovanni Trisolino, Pietro Ruggieri, Alessandro Rubini, et al. 'Quantitative MRI Analysis of Infrapatellar and Suprapatellar Fat Pads in Normal Controls, Moderate and End-Stage Osteoarthritis'. *Annals of Anatomy - Anatomischer Anzeiger* 221 (January 2019): 108–14. https://doi.org/10.1016/j.aanat.2018.09.007. Fontanella, Chiara Giulia, Claudia Salmaso, Ilaria Toniolo, Niccolò de Cesare,

Alessandro Rubini, Giulia Maria De Benedictis, and Emanuele Luigi Carniel. 'Computational Models for the Mechanical Investigation of Stomach Tissues and Structure'. *Annals of Biomedical Engineering* 47, no. 5 (May 2019): 1237–49. https://doi.org/10.1007/s10439-019-02229-w.

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Mrakic-Sposta, Simona, Alessandra Vezzoli, Alex Rizzato, Cinzia Della Noce, Sandro Malacrida, Michela Montorsi, Matteo Paganini, Pasqua Cancellara, and Gerardo Bosco. 'Oxidative Stress Assessment in Breath-Hold Diving'. *European Journal of Applied Physiology* 119, no. 11–12 (December 2019): 2449–56. https://doi.org/10.1007/s00421-019-04224-4.

Nasole, Emanuele, Vincenzo Zanon, Paolo Marcolin, and Gerardo Bosco. 'Middle Ear Barotrauma during Hyperbaric Oxygen Therapy; a Review of Occurrences in 5,962 Patients'. *Undersea & Hyperbaric Medicine: Journal of the Undersea and Hyperbaric Medical Society, Inc* 46, no. 2 (May 2019): 101–6.

Verratti, Vittore, Danilo Bondi, Tereza Jandova, Enrico Camporesi, Antonio Paoli, and Gerardo Bosco. 'Sex Hormones Response to Physical Hyperoxic and Hyperbaric Stress in Male Scuba Divers: A Pilot Study'. In *Advances in Biomedicine*, edited by Mieczyslaw Pokorski, 1176:53–62. Cham: Springer International Publishing, 2019. https://doi.org/10.1007/5584_2019_384.

35 - Health, Sport and Exercise Sciences

Principal Investigator	Prof. Antonio Paoli ORCID https://orcid.org/0000-0003-0474-4229 Google Scholar Antonio Paoli Scopus 24081140700 WoS ID A-6151-2015
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Keywords	Sports Science; Exercise Science; Exercise Performance; Nutrition; Exercise Physiology; Metabolism; Exercise Testing; Strength & Conditioning; Sport Physiology; Muscle Physiology
Members	Paoli Antonio — Full Professor Marcolin Giuseppe — Assistant Professor (RTDB) Moro Tatiana — Assistant Professor (RTDB) Bondì Michela — Technician
Projects	- *ACTLIFE: is active lifestyle enough for health and wellbeing?* (PRIN)
Publications	Barbalho, Matheus, Victor Silveira Coswig, James Steele, James P. Fisher, Antonio Paoli, and Paulo Gentil. 'Evidence for an Upper Threshold for Resistance Training Volume in Trained Women': *Medicine & Science in Sports & Exercise* 51, no. 3 (March 2019): 515–22. https://doi.org/10.1249/MSS.0000000000001818. Bellafiore, Marianna, Antonino Bianco, Giuseppe Battaglia, Maria Silvia Naccari, Giovanni Caramazza, Johnny Padulo, Karim Chamari, Antonio Paoli, and Antonio Palma. 'Training Session Intensity Affects Plasma Redox Status in Amateur Rhythmic Gymnasts'. *Journal of Sport and Health Science* 8, no. 6 (November 2019): 561–66. https://doi.org/10.1016/j.jshs.2016.04.008. Bianco, Antonino, Anna Rita Filippi, João Breda, Vincenza Leonardi, Antonio Paoli, Luca Petrigna, Antonio Palma, and Garden Tabacchi. 'Combined Effect of Different Factors on Weight Status and Cardiometabolic Risk in Italian Adolescents'. *Italian Journal of Pediatrics* 45, no. 1 (December 2019): 32. https://doi.org/10.1186/s13052-019-0619-9. Bosco, Gerardo, Antonio Paoli, Alex Rizzato, Giuseppe Marcolin, Maria Teresa Guagnano, Christian Doria, Suwas Bhandari, Tiziana Pietrangelo, and Vittore Verratti. 'Body Composition and Endocrine Adaptations to High-Altitude Trekking in the Himalayas'. In *Advancements and Innovations in Health Sciences*, edited by Mieczyslaw Pokorski, 1211:61–68. Cham: Springer International Publishing, 2019. https://doi.org/10.1007/5584_2019_414. Brightwell, Camille R., Melissa M. Markofski, Tatiana Moro, Christopher S. Fry, Craig Porter, Elena Volpi, and Blake B. Rasmussen. 'Moderate-intensity Aerobic Exercise Improves Skeletal Muscle Quality in Older Adults'. *Translational Sports Medicine* 2, no. 3 (April 2019): 109–19. https://doi.org/10.1002/tsm2.70.

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Marcolin, Giuseppe, Fausto Antonio Panizzolo, Elena Biancato, Matteo Cognolato, Nicola Petrone, and Antonio Paoli. 'Moderate Treadmill Run Worsened Static but Not Dynamic Postural Stability of Healthy Individuals'. *European Journal of Applied Physiology* 119, no. 4 (April 2019): 841–46. https://doi.org/10.1007/s00421-019-04073-1.

Moro, Tatiana, Camille R. Brightwell, Danielle E. Phalen, Colleen F. McKenna, Samantha J. Lane, Craig Porter, Elena Volpi, Blake B. Rasmussen, and Christopher S. Fry. 'Low Skeletal Muscle Capillarization Limits Muscle Adaptation to Resistance Exercise Training in Older Adults'. *Experimental Gerontology* 127 (November 2019): 110723. https://doi.org/10.1016/j.exger.2019.110723.

Panizzolo, Fausto A., Chiara Bolgiani, Laura Di Liddo, Eugenio Annese, and Giuseppe Marcolin. 'Reducing the Energy Cost of Walking in Older Adults Using a Passive Hip Flexion Device'. *Journal of NeuroEngineering and Rehabilitation* 16, no. 1 (December 2019): 117. https://doi.org/10.1186/s12984-019-0599-4.

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Paoli, Antonio, Pasqualina Cancellara, Pierluigi Pompei, and Tatiana Moro. 'Ketogenic Diet and Skeletal Muscle Hypertrophy: A Frenemy Relationship?' *Journal of Human Kinetics* 68, no. 1 (21 August 2019): 233–47. https://doi.org/10.2478/hukin-2019-0071.

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Petrigna, Luca, Bettina Karsten, Giuseppe Marcolin, Antonio Paoli, Giuseppe D'Antona, Antonio Palma, and Antonino Bianco. 'A Review of Countermovement and Squat Jump Testing Methods in the Context of Public Health Examination in Adolescence: Reliability and Feasibility of Current Testing Procedures'. *Frontiers in Physiology* 10

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Petrigna, Luca, Ewan Thomas, Ambra Gentile, Antonio Paoli, Simona Pajaujiene, Antonio Palma, and Antonino Bianco. 'The Evaluation of Dual-Task Conditions on Static Postural Control in the Older Adults: A Systematic Review and Meta-Analysis Protocol'. *Systematic Reviews* 8, no. 1 (December 2019): 188. https://doi.org/10.1186/s13643-019-1107-4.

Sarto, Fabio, Davide Grigoletto, Elisabetta Baggio, Antonio Paoli, and Giuseppe Marcolin. 'Do Lower Limb Previous Injuries Affect Balance Performance? An Observational Study in Volleyball Players'. *Physical Therapy in Sport* 37 (May 2019): 49–53. https://doi.org/10.1016/j.ptsp.2019.02.009.

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Tinsley, Grant M, M Lane Moore, Austin J Graybeal, Antonio Paoli, Youngdeok Kim, Joaquin U Gonzales, John R Harry, Trisha A VanDusseldorp, Devin N Kennedy, and Megan R Cruz. 'Time-Restricted Feeding plus Resistance Training in Active Females: A Randomized Trial'. *The American Journal of Clinical Nutrition* 110, no. 3 (1 September 2019): 628–40. https://doi.org/10.1093/ajcn/nqz126.

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