2023 Edition

ANNUAL REPORT

Department of Biomedical Sciences UNIPD

UNIVERSITÀ DEGLI STUDI DI PADOVA

Table of contents

DSB IN NUMBERS

All data presented in this chapter refer to the Department's picture as of December 31st, 2023.

Data related to staff members and funding were provided by the Department's administration. Data on funding include research projects of competitive funding calls and University-Business collaborations.

The following statistics purposely exclude activities and personnel traceable to our Department's research groups/members that are managed by third parties so as to streamline the data collection process.

These 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);
- Centro Studi per la Neurodegenerazioni (CESNE).

Data on publications were retrieved from the repository IRIS using the list of permanent staff members ("personale strutturato") of the Department. The process is automatized, and data was retrieved on 25th September, 2024 searching simultaneously for the following criteria: field "year" is "2023"; field "authors" includes DSB permanent staff members; and field "type" is "01.01 - Articolo in rivista".

Staff

As of December 31st, 2023 the departmental staff was structured as follows:

Staff categories	Nr.
PhD students	78
Research Fellows (Borsisti)	37
Postdoc (Assegnisti)	41
Research Assistants (Tecnici)	25
Administrative Assistants (PTA)	25
Researchers	32
Associate Professors	45
Full Professors	13
TOT.	**296**

115
EARLY STAGE RESEARCHERS[1]

131
EXPERIENCED RESEARCHERS[2]

Funding

In 2023 the overall funding value of the DSB was **€ 24.838.373,29**, including active research projects[3] granted through competitive calls and University-Business collaborations.
Specifically, **98%** of the overall funding available in the Department (equal to **€ 24.393.587,29)** derives from competitive calls, while **2%** of the overall funding (equal to **€ 498.786,00**) derives from University-Business collaborations.

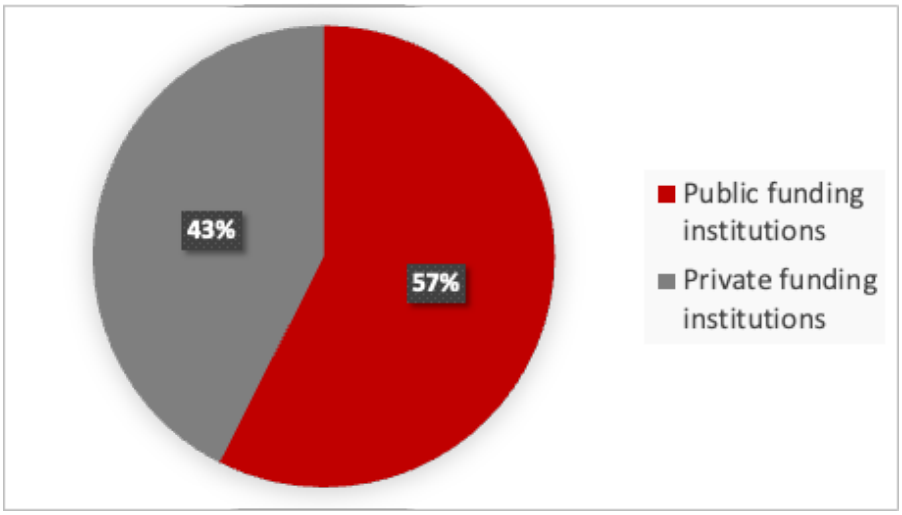
Funding sources 2023

The main source of funding in 2023 granted through competitive calls was **public funding institutions** with **€ 13.559.758,54** (**57,47%**), against the **€ 10.033.828,75** (**42,53%**) allocated by the **private sector**. This denotes an increase in the public sector contribution compared to the previous year.

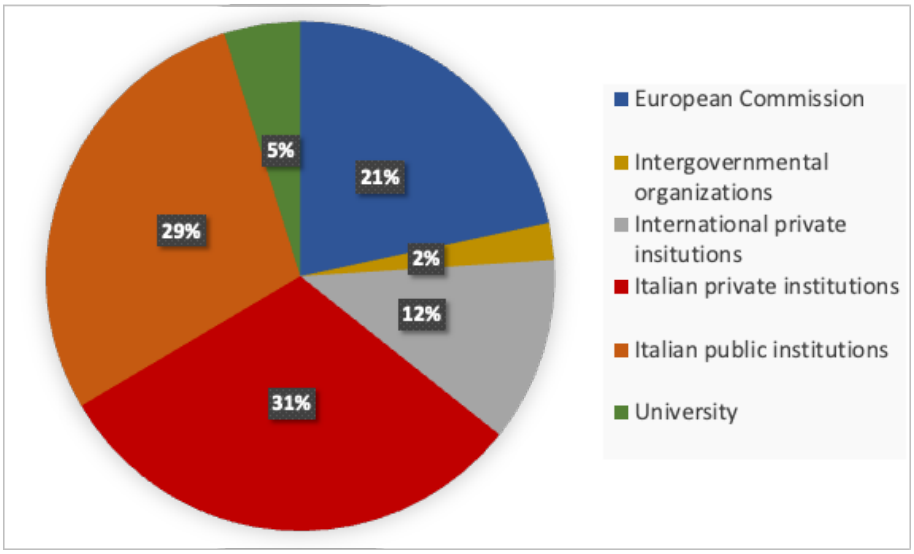
[1] *Early Stage Researchers* are defined as those who are in the first four years (or full time equivalent) of their research careers, starting from when they obtained a degree entitling them to embark on a PhD program.

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

[3] This value is the sum of the overall funding assigned to all the projects active in 2023, disregarding the fact that the project duration might be longer than that specific year.



Our main funders are **Italian private institutions** (providing **€ 7.271.784,75**), followed by **Italian public institutions** (**€ 6.758.592,40**) and the **European Commission** (**€ 5.105.374,12**). The other sources of funding were **International private institutions** (**€ 2.762.044,00**), the **University of Padova** (**€ 1.143.437,52**) and **Intergovernmental organizations** (**€ 552.354,50**).



Of the total amount, **92,43%** (**€ 21.808.727,66**) comes from funded research projects awarded to the Department's permanent personnel, while **7,57%** (**€ 1.784.859,63**) comes from funded research projects awarded to the Department's non-permanent personnel.

Active projects in 2023

In 2023 our department hosted 121 ongoing research projects that started between 2017 and 2023 for a total value of **€ 24.339.587,29**, and 13 commercial projects that started between 2021 and 2023 for a total value of **€ 498.786,00**.[5]

The total figure of all the fundings managed during 2023 corresponds to **€ 24.838.373,29**. Progetti di Rilevante Interesse Nazionale (PRIN) 2020 and 2022 projects were the most numerous (45), followed by Fondazione AFM Telethon projects (10), Marie Sklodowska-Curie Action projects (8) and Progetti di Rilevante Interesse Nazionale (PRIN) PNRR (8) projects. This clearly shows a predominance of National fundings over European or International projects.

Sector	Funding institution	Project type	N. projects	Amount	Total/Funding institution	%
PU	European Commission	COST Action	1	€260.498,81	€5.105.374,12	21,64%
		Horizon 2020 - CSA	1	€122.500,00		
		Horizon 2020 - RIA	3	€913.822,75		
		Horizon Europe	1	€133.400,00		
		Marie Sklodowska-Curie Action	8	€3.675.152,56		
PU	Intergovernmental organizations	Agenzia Spaziale Europea ESA	1	€40.000,00	€552.354,50	2,34%
		European Molecular Biology Laboratory - EMBL	3	€245.294,50		
		Office of Naval Research (ONR)	1	€267.060,00		
PR	International private insitutions	Cure Alzheimer's Fund	1	€98.879,00	€2.512.044,00	10,65%
		European Molecular Biology Organization - EMBO	2	€172.275,00		
		Fondazione AFM Telethon	10	€956.650,00		
		Fondazione Leducq	2	€1.284.240,00		
PR	Italian private institutions	Fondazione AIRC per la Ricerca sul Cancro	5	€2.782.000,00	€7.521.784,75	31,87%
		Fondazione CARIPARO	6	€1.716.000,00		

[5] For the purposes of this document, PNRR projects are not included in the calculation.

		CARIPLO Telethon	1	€250.000,00		
		Fondazione Fondazione AIRC per la Ricerca sul Cancro per la Ricerca sul Cancro	3	€2.105.000,00		
		Fondazione Human Technopole	1	€106.000,00		
		Fondazione Italiana di Ricerca per la SLA - AriSLA	1	€46.999,00		
		Fondazione Telethon	6	€515.785,75		
PU	Italian public institutions	Agenzia Spaziale Italiana ASI	1	€16.000,00	€6.758.592,40	28,65%
		Progetti di Rilevante Interesse Nazionale (PRIN)	20	€3.481.090,00		
		Progetti di Rilevante Interesse Nazionale (PRIN) 2022	25	€2.298.570,40		
		Progetti di Rilevante Interesse Nazionale (PRIN) PNRR	8	€888.690,00		
		Ricerca sanitaria finalizzata	1	€74.242,00		
PU	University	MSCA Seal of Excellence@UniPD 2021	3	€300.000,00	€1.143.437,52	4,85%
		Supporting Talent in ReSearch@University of Padua - STARS	5	€843.437,52		
	Total		**120**	**€23.593.587,29**	**€23.593.587,29**	**100%**

Of the total amount of the ongoing competitive research projects, a share corresponding to **€ 1.884.192,00** has newly hired staff as a P.I.,[6] making the contribution of new members of the Department to **7,72 %** of the overall budget.

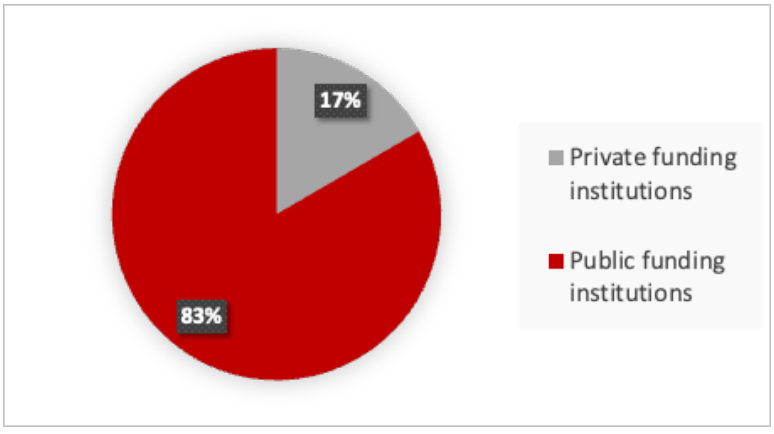
Projects started in 2023

In 2023 our Department was awarded **47 competitive research projects** and **7 commercial projects** for a total of **54 projects** and an overall value of **€ 4.896.883,96**. The largest funding (**€ 3.187.260,40**) was received from **Italian public institutions (Progetti di Rilevante Interesse Nazionale PRIN calls 2022 and PNRR)** with **33 winning proposals**.

[6] The label "newly hired staff" includes both new hires and career transitions.

Funding institution	Project type (2023)	N. projects	Amount	Total/Funding institution	%
European Commission	COST Action	1	€260.498,81	€260.498,81	5,63%
Intergovernmental organizations	European Molecular Biology Laboratory - EMBL	1	€91.875,00	€358.935,00	7,76%
	Office of Naval Research (ONR)	1	€267.060,00		
International private insitutions	European Molecular Biology Organization - EMBO	2	€172.275,00	€626.725,00	13,55%
	Fondazione AFM Telethon	6	€454.450,00		
Italian private institutions	Fondazione Italiana di Ricerca per la SLA - AriSLA	1	€46.999,00	€191.678,75	4,14%
	Fondazione Telethon	2	€144.679,75		
Italian public institutions	Progetti di Rilevante Interesse Nazionale (PRIN) 2022	25	€2.298.570,40	€3.187.260,40	68,91%
	Progetti di Rilevante Interesse Nazionale (PRIN) PNRR	8	€888.690,00		
Total		**47**	**€4.625.097,96**	**€4.625.097,96**	**100%**

The main source of competitive funding of 2023 was **public funding institutions** with **€ 3.853.693,21** (**83,32%**), against **€ 771.404,75** (**16,68%**) allocated by the **private sector**.

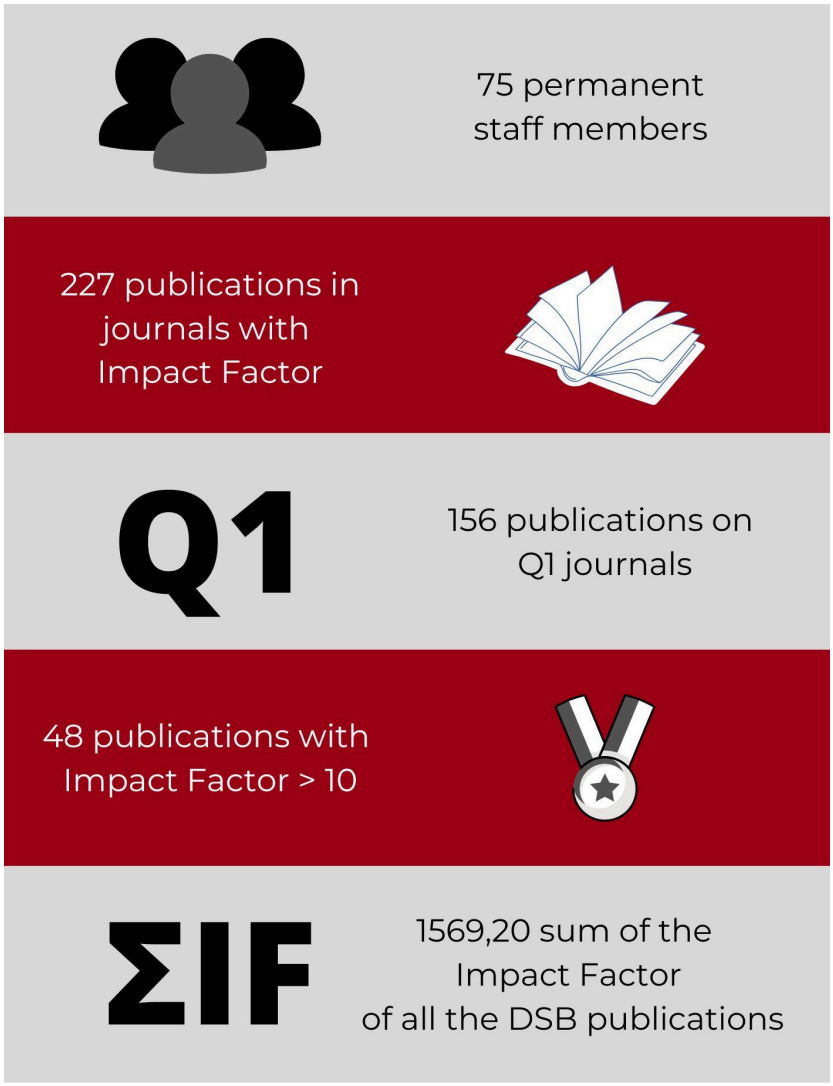


Concerning commissioned research collaborations, in 2023 the Department was awarded with **7 commercial projects** for an overall value of **€ 271.786,00**. Specifically, the Department has established more collaborations with **National entities** (**4 projects**) than with **International entities** (**3 projects**), although, in terms of funding, the Department has received more sums from **International entities € 165.000,00** than from **National entities € 106.786,00**.

In 2023 the overall funding awarded to newly hired staff was **€ 1.084.497,00** including both research projects granted through competitive calls (for an overall value of **€ 969.497,00**) and University-Business collaborations (for a total of **€ 115.000,00**), making the contribution of new members of the Department to **22,15%** of the overall new budget.

Funding institution	Project type	N. projects	Amount	Total/Funding institution	%
Italian private institutions	Fondazione Italiana di Ricerca per la SLA - AriSLA	1	€46.999,00	€46.999,00	4,85%
Italian public institutions	Progetti di Rilevante Interesse Nazionale (PRIN) 2022	7	€655.587,00	€922.498,00	95,15%
	Progetti di Rilevante Interesse Nazionale (PRIN) PNRR	3	€266.911,00		
Total		**11**	**€969.497,00**	**€969.497,00**	**100%**

Publications



By comparing these results with those of the previous year, more publications were produced overall (215 in 2022 vs 227 in 2023), the general Impact Factor (I.F.) increased. In 2023, 156 papers were published in Q1 journals in comparison to 2022 (157 in 2022 vs 156 in 2023) and the sum of the I.F. has decreased by more than 100 points (1877,05 in 2022 vs 1569,20 in 2023). The number of publications with I.F. higher than 10 slightly decreased, but this is in line with the general decrease in the total number of publications.

Third mission and Public engagement activities

Third mission and Public engagement play an increasing and significant role in our Department.

In 2023 the overall funding value of the Third mission was **€ 65.663,05**. The main source of funding was the **University of Padova (80,2 %)** followed by **Italian private institutions (19,8 %).**

The Department promotes the valorization of knowledge, through patents and spin-offs. In 2023 the Department filed **1 patent request**, requested **3 patent extensions** and pre-authorized the establishment of **2 spin-off companies**.

The Department also manages important **databases** such as:

1. The UNIPD node of ELIXIR: a European infrastructure providing advanced tools for life-science data analysis, including genomic, proteomic, and metabolomic data. Several DSB-maintained resources are globally recognized, particularly in structural biology and intrinsically disordered proteins (IDPs).
2. MobiDB: aggregates data on IDPs, combining predictions, experimental evidence, and curated annotations. It integrates with key databases like UniProtKB and InterPro, offering a comprehensive view of protein disorder.
3. DisProt: provides manually curated, experimentally verified annotations of protein disorder, adhering to the MIADE standard, and supports initiatives like CAID for evaluating prediction methods.
4. PED: focuses on structural ensembles of IDPs, adhering to FAIR principles. It links with resources like BMRB and SASBDB, using techniques like SAXS and NMR for modeling.
5. APICURON: credits scientific contributions beyond publications, promoting recognition for biocuration and tools development.
6. DOME: registry standardizes machine learning study validation, enhancing reproducibility and transparency.

The Department has carried out a series of Public Engagement activities, to share with the public a wide range of topics, ranging from studies at the molecular level, to preclinical models of disease, up to the clinical field with final tests on patients.
The events held in 2023, are the following:

	Event description
1.	Brain Awareness Week “Giovani ricercatori discutono di Neuroscienze”: A series of seminars aimed at the public and held by young researchers, to illustrate aspects of neuroscience research
2.	Science4All 2023: The largest public event of the University of Padua, which meets the citizens, with thousands of visitors. The DSB contributed with 9 stands animated by researchers and two talks.
3.	Science4All 2023 – educational: The part of Science4All dedicated to primary and middle schools. The classes are hosted within the university; kids become researchers for a day.
4.	Progetto Terza Missione (Bando 2022) – MoocForSchool: The project is a MOOC (Massive Open Online Course) dedicated to the training of teachers (primary and middle schools) but open and free for all, entitled "Questione di cellule” (“Cells matters"). The aim is to promote the training of teachers in cellular biology, to improve the teaching of scientific subjects in compulsory school. The course was launched in April 2003 and has received great success, with hundreds of enrolled teachers.
5.	Progetto Terza Missione (Bando 2023) - One Health: stili di vita e di salute globale: The project for a second edition of the MOOC "Questione di cellule” has been proposed, within a larger project (One health), in collaboration with 4 other departments.The course will be expanded inserting a new module about the relationship between disease, health and prevention; a revision is also planned to improve the accessibility and usability of the contents.
6.	DSB per le scuole: Educational workshops on various scientific topics, aimed at primary and middle school students. carried out throughout the school year at the direct request of the schools, they are designed to be engaging and interactive. In 2023, the participation was 516 students.
7.	Dietro le quinte della ricerca scientifica: Is the project aimed at students in the fourth year of high school. Designed with the unconditional contribution of the Pfizer Foundation, in 2023 it involved 46 students from 15 schools in the Veneto region.
8.	Facciamo conoSCIENZA: Online meetings aimed at high school students. Held by PhD students and young researchers, who simply describe their research topics and their professional path.
9.	HANDS4RARE_percorsi scuole: Hands4rare is the biennial project proposed by the DSB on the occasion of Rare Disease Day. In 2023, a series of information meetings in schools were proposed in preparation for the event scheduled for February 2024.
10.	Roundtable during the 2023 Departmental Retreat: "Nutrizione e Movimento”

Prizes and Recognitions

- 2023: Bernardi Paolo, Rasola Andrea and Ciscato Francesco (CNR): the patent named "Sviluppo del peptide ACPP-HK2 (Activatable Cell Penetrating Peptide targeting HexoKinase 2) come potenziale molecola ad attività anti-tumorale" has received a money prize in the Medtech category of the competition “Intellectual Property Award 2023” issued by the Italian Ministry of Enterprises and Made in Italy.
- 2023: Sandri Marco: Highly Cited Researcher by CLARIVATE, which recognizes the true pioneers in their fields over the last decade, demonstrated by the production of multiple highly cited papers that rank in the top 1% by citations for field and year in the Web of Science™. Of the world’s scientists and social scientists, Highly Cited Researchers truly are one in 1.000.
- 2023: Sandri Marco: Biology and Biochemistry Leader Award for 2023 by Research. Com, which Ranks the Top Scientists in the field of Biology and Biochemistry in the world.
- 2023: Sandri Marco: Alfredo Margreth prize for the Muscle Biology and Physiopathology conferred by National Academy of Lincei, the oldest scientific Academy in the world.

RESEARCH

Research areas

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

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

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

Research groups

The tables below illustrate the activities of the DSB research groups, taking into consideration parameters such as staff members, publications, funded projects and University-Business collaborations as of December 31st, 2023.

The list of **keywords** on each group's research field were taken from the Principal Investigator's ORCID profile, whenever available, or suggested by the PI.

The **members** of each group include:

a) permanent staff ("*personale strutturato"*), reported based on data provided by the Director's Office;
b) non-permanent staff (*"personale non strutturato"*) active as of December 31st, 2023 or under contract for at least 3 months during the reference period;
c) collaborators working at the premises of the Department for at least 75% of their work effort and suggested by the PI;
d) PhD Student students from all PhD Student programs, as suggested by the PI.

The list of **research projects** was provided by the Department's Research Office and refers to competitive projects granted to a member of the research group and directly managed by the Department in 2023. Activities managed by third parties were purposely excluded, with the underlying intention of streamlining the data collection process and the statistics. Among these third parties are:

- 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):
- Centro Studi per la Neurodegenerazione (CESNE);
- Other foundations.

University-Business collaborations are listed based on data provided by the Department's Research Office.

The list of publications was compiled by searching the **repository IRIS** for the publications of the Department's permanent staff members (*personale strutturato*). The process is automatized and data was retrieved on 25th September, 2024 searching simultaneously for the following criteria:

- field "year" is "2023";
- field "authors" includes DSB permanent staff members;
- field "type" is "01.01 - Articolo in rivista".

For information and data on CNR affiliates please refer to the CNR affiliate's website, linked in their related tables.

Cell Signaling

Laboratories	***PI***
Ca2+ signalling and organelle biology lab	Prof. P. Pizzo
Pharmacobiology of Natural Compounds	Dr. L. Biasutto
Phosphorylation Signaling in Health and Disease	Prof. M. Ruzzene
Post-transcriptional gene regulation in cancer cells	Dr. D.M. D'Agostino
Redox Signaling in Pathophysiological Conditions	Prof. M.P. Rigobello

Computational and Structural Biology

Laboratories	***PI***
BioComputing UP	Prof. S.C.E. Tosatto
Structural Biochemistry (non Protein crystallography e Cryo-EM)	Prof. R. Steiner
Protein interactions and dynamics	Prof. M. Fuxreiter
Macromolecular complexes and Membrane contact sites	Prof. Tito Cali'

Inflammation and Immunity

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

Medical Biotechnology

Laboratories	***PI***
Extracellular Matrix (Ecm) Pathobiology	Prof. M. Onisto
Immune nano-technology	Dr. L.G. Delogu
Mass Spectrometry and Proteomics	Prof. G. Arrigoni
Nano-biotechnology and nano-biomedicine	Prof. E. Papini

Peptides and Antibodies	Prof. O. Marin

Mitochondrial Pathophysiology

Laboratories	***PI***
Mitochondria in Cell Death and Cancer	Prof. P. Bernardi/ Prof. A. Rasola
Mitochondrial Calcium Signaling	Prof. R. Rizzuto
Mitochondrial medicine	Prof. C.F. Viscomi
Aging signaling pathways	Prof. M. Giorgio
Oxidative metabolism in cardiac disease	Prof.ssa Kaludercic
Regulation of the Mitochondrial Proteome	Prof. G. Szabadkai

Muscle Physiology in Health and Disease

Laboratories	***PI***
Autonomic Control of Cardiac Function	Prof. M. Mongillo
Muscle Contractility And Neuromuscular Plasticity	Prof. M. Narici
Pathophysiology of Striated Muscles	Prof. P. Volpe
Signaling pathways that control protein homeostasis in muscles	Prof. M. Sandri
Paolocci's lab	Prof. Paolocci

Neuroscience

Laboratories	***PI***
Circuit formation and function in the brain	Dr. C. Lodovichi
Enlightening Brain Mechanisms	Dr. M. Dal Maschio
Migraine Pathophysiology	Prof. D. Pietrobon

Modulators and actuators of synaptic plasticity in healthy and diseased brains	Prof. M. Mainardi
Molecular and cellular mechanisms of neurodegenerative and neuromuscular diseases	Prof. A. Bertoli
Neuronal networks physiology and neurotechnologies (NeuroChip lab)	Prof. S. Vassanelli
Neuron-glia signaling in brain function and dysfunction	Dr. G. Deidda
Neuroparalysis and Neuroregeneration Lab	Prof. O. Rossetto
Pathogenesis of neurological and neuromuscular diseases	Prof. M. Pennuto
Astrocyte-neuron interaction in physiology and pathology (Astrolábos lab)	Dr. M. Zonta

Physical Activity, Nutrition, and Health

Laboratories	***PI***
Nutrition and Exercise Lab (NUTEXlab)	Prof. A. Paoli

Adaptive Immunity

Laboratories	***PI***
Reactive Oxygen Species and Cytotoxic Immunity	Prof. D. D. Martinvalet

Cell Signaling

1 Ca^{2+} signalling and organelle biology lab

Principal Investigator	Prof. Paola Pizzo ORCID https://orcid.org/0000-0001-6077-3265 Scopus 35597536700 WoS ID T-4874-2018 Google Scholar Paola Pizzo
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 Ciocci Pardo Alejandro — RTD/A Lia Annamaria — RTD/A (From May 2023) Redolfi Nelly — Technician Santalla Manuela — CNR Post-Doc Paloma Garcia Casas — Post-Doc Arnst Nikita — PhD Student Bedetta Martina — PhD Student Kachappilly Neha — PhD Student Bertocco Ambra — PhD Student Sonda Sonia — PhD Student Rossini Michela — PhD Student Basso Emy — CNR researcher Filadi Riccardo — CNR researcher Greotti Elisa — CNR researcher Pendin Diana — CNR researcher Paulo Magalhães — Technician Gintoli Michele — CNR Technologist (From July 2023)
Research projects active in 2023	1. Titolare: Pizzo - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN2017) - Titolo: A shape to fit the needs: how cells rearrange their organelle composition and architecture during development and stress - Fonte di finanziamento: Italian public institutions 2. Titolare: Pozzan/Fasolato - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN2017) - Titolo: Early dysfunctions of intercellular signalling in brain disorders - Fonte di finanziamento: Italian public institutions

	3. Titolare: Pizzo - Tipo progetto: Cure Alzheimer's Fund - Titolo: Extracellular ATP is a key factor in promoting Alzheimer's disease neuroinflammation - Fonte di finanziamento: International private institutions 4. Titolare: Pizzo (Ciocci Pardo) - Tipo progetto: MSCA Seal of Excellence@UniPD 2021 - Titolo: HEARTzheimer "Role of Presenilin 2 in cardiovascular physiology: possible implications for Alzheimer's" - Fonte di finanziamento: University 5. Titolare: Pizzo - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: Purinergic checkpoints in neuroinflammation and Alzheimer's disease: extracellular ATP and the P2X7 receptor as main drivers of neurodegeneration - Fonte di finanziamento: Italian public institutions 6. Titolare: Pizzo, Filadi - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) PNRR - Titolo: Deciphering membrane contacts in neurodegenerative disorders by dynamic chemogenetic reporters - Fonte di finanziamento: Italian public institutions
Publications 2023	Garcia-Casas P, Rossini M, Filadi R, Pizzo P (2023). Mitochondrial Ca2+ signal and Alzheimer's disease: too much or too little? Cell Calcium, 113:102757. Filadi R, De Mario A, Audano M, Romani P, Pedretti S, Cardenas C, Dupont S, Mammucari C, Mitro N, Pizzo P (2023). Sustained IP3-linked Ca2+ signaling promotes progression of breast cancer cells by regulating fatty acid metabolism. Frontiers in Cell and Developmental Biology, 11:1071037. Barazzuol L, Cieri D, Facchinello N, Cali' T, Washbourne P, Argenton F, Pizzo P (2023). Unravelling Presenilin 2 functions in a knock out zebrafish line to shed light into Alzheimer's disease pathogenesis. Cells, 12(3), 376. Lia A, Sansevero G, Chiavegato A, Sbrissa M, Pendin D, Mariotti L, Pozzan T, Berardi N, Carmignoto G, Fasolato C, Zonta M (2023). Rescue of astrocyte activity by the calcium sensor STIM1 restores long-term synaptic plasticity in female mice modelling Alzheimer's disease. Nat Commun., 14(1):1590. Lia A, Di Spiezio A, Speggiorin M and Zonta M (2023) Two decades of astrocytes in neurovascular coupling. *Frontiers in Network Physiology*. 10.3389/fnetp.2023.1162757 Lia A, Di Spiezio A, Vitalini L, Tore M, Puja G and Losi G (2023) Ion Channels and Ionotropic Receptors in Astrocytes: Physiological Functions and Alterations in Alzheimer's Disease and Glioblastoma. *Life* doi: 10.3390/life13102038 Di Sante M, Antonucci S, Pontarollo L, Cappellaro I, Segat F, Deshwal S, Greotti E, Grilo LF, Menabò R, Di Lisa F, Kaludercic N. Monoamine

	oxidase A-dependent ROS formation modulates human cardiomyocyte differentiation through AKT and WNT activation. Basic Res Cardiol. 2023 Jan 20;118(1):4. doi: 10.1007/s00395-023-00977-4. Furlan S, Paradiso B, Greotti E, Volpe P, Nori A. Calsequestrin in Purkinje cells of mammalian cerebellum. Acta Histochem. 2023 Feb;125(2):152001. doi: 10.1016/j.acthis.2023.152001.

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 Clara Villa Villafane — CNR research fellow
Research projects active in 2023	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 2023	

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	Protein phosphorylation, Protein kinases, Protein phosphatases, Post-translational modifications, Normal and pathological signaling pathways, Biochemistry of cancer cells, Rare diseases
Members	Ruzzene Maria — Associate professor Salvi Mauro — Associate professor Borgo Christian — RTDA Sarno Stefania — Associate Professor Cesaro Luca — Technician
Research projects active in 2023	1. Titolare: Ruzzene. Tipo progetto BIRD 2023. Titolo: . "Poirier-Bienvenu neurodevelopmental syndrome (POBINDS): disease mechanisms and molecular targets" Fonte di finanziamento: Università 2. Titolare: Salvi. Tipo progetto BIRD 2022. Titolo: “Role of Fam20C in the breast cancer microenvironment”. Fonte di finanziamento: Università.
Publications 2023	Cesaro L., Zuliani A., Bosello Travain V., Salvi M. Exploring Protein Kinase CK2 Substrate Recognition and the Dynamic Response of Substrate Phosphorylation to Kinase Modulation. Kinases Phosphatases 2023, 1(4), 251-264. Borgo C., Cesaro I., Hirota T., Kuwata K., D’Amore C., Ruppert T., Blatnik R., Salvi M., Pinna L.A. Analysis of the phosphoproteome of CK2α(-/-)/Δα’ C2C12 myoblasts compared to the wild type cells. Open Biology, 13(2):220220 (2023). Salvi M., Editorial: Kinases and Phosphatases: the challenge of a new journal entirely focused on post-translational modifications**.** Kinases and Phosphatases, 1(1), 1-3 (2023). Quezada Meza, C.P.; Ruzzene, M. Protein Kinase CK2 and SARS-CoV-2: An Expected Interplay Story. Kinases Phosphatases 2023, 1, 141–150

4 - Post-transcriptional gene regulation in cancer cells

Principal Investigator	Dr. Donna Mia D’Agostino ORCID https://orcid.org/0000-0002-3451-5622 Scopus 7005814670 WoS ID AAW-1765-2021
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Keywords	T-cell leukemia, complex retrovirus, noncoding RNA, alternative splicing, circulating biomarkers

Members	D'Agostino Donna Mia	Associate professor
Publications 2023	Silic-Benussi M, Sharova E, Corradin A, Urso L, Raimondi V, Cavallari I, Buldini B, Francescato S, Minuzzo SA, D'Agostino DM, Ciminale V. Repurposing Verapamil to Enhance Killing of T-ALL cells by the mTOR Inhibitor Everolimus. Antioxidants (Basel). 2023;12(3):625. doi: 10.3390/antiox12030625.	

5 - Redox Signaling in Pathophysiological Conditions

Principal Investigator	Prof. Maria Pia Rigobello ORCID https://orcid.org/0000-0003-2586-3251 Scopus 7003633359 Google Scholar Maria Pia Rigobello	
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Keywords	Glutathione; Thioredoxin system; Glutaredoxin, Antioxidants; Oxidative Stress; Reactive Oxygen Species; Redox Regulation; Bioactive peptides	
Members	Rigobello Maria Pia Scalcon Valeria Tonolo Federica Folda Alessandra	Associate professor RTD/A Guest RTD-A Technician
Research projects active in 2023	1. Titolare: Rigobello - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: New mEtal-baSed agenTs against Orphan tumoRs. Acronym: NESTOR - Fonte di finanziamento: Italian public institutions 2. Titolare: Scalcon - Tipo progetto: SID 2022 - Titolo: "Bioactive molecules from food by-products: from their uptake to effects on cellular metabolism" - Fonte di finanziamento: Università 3. Titolare: Rigobello - Tipo progetto: RUA-PON - Titolo: "Dal food waste allo sviluppo di alimenti funzionali in sinergia tra ricerca ed azienda: i sottoprodotti della lavorazione lattiero-casearia come fonte di molecole bioattive"- Fonte di finanziamento: Ministero dell'Università e della Ricerca (MUR) ex DM 1062/2021	
Publications 2023	Scalcon V, Bonsignore R, Aupič J, Thomas SR, Folda A, Heidecker AA, Pöthig A, Magistrato A, Casini A, Rigobello MP. (2023) Exploring the Anticancer Activity of Tamoxifen-Based Metal Complexes Targeting	

	Mitochondria. J Med Chem. 66:9823-9841. doi: 10.1021/acs.jmedchem.3c00617 Tonolo F, Grinzato A, Bindoli A, Rigobello MP. (2023) From In Silico to a Cellular Model: Molecular Docking Approach to Evaluate Antioxidant Bioactive Peptides. Antioxidants (Basel) ;12(3):665. doi: 10.3390/antiox12030665.

Computational and Structural Biology

6 - BioComputing UP

Principal Investigator	Prof. Silvio Tosatto ORCID https://orcid.org/0000-0003-4525-7793 Scopus 9242408800 WoS ID B-2840-2009 Google Scholar Silvio Tosatto	
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Keywords	Bioinformatics and Computational Biology; Modeling; Simulation; RNA; Bioinformatics; Statistics; Proteins; Protein Structure; Molecular Dynamics Simulation; Protein-Protein Interactions, data infrastructure	
Members	Tosatto Silvio	Full professor
	Battistella Diana	Technician
	Monzon Alexander	RTD/A
	Nugnes Maria Victoria	Post-Doc
	Bouhraoua Kamel Eddine Adel	PhD Student (DPG)
	Camagni Giorgia Francesca	PhD Student BMCS (DPG)
	Chinestrad Patricio	Research fellow MSCA REFRACT
	Clementel Damiano	PhD Student BMCS (DPG)
	Del Conte Alessio	PhD Student BMCS (DPG)
	Gregoris Francesco	PhD student
	Kordevani Fatemeh	Research fellow
	Mahmoud Saida Saad Mohamed	Post-Doc
	Pradelli Franco	PhD Student BMCS (DPG)
	Quaglia Federica	Post-Doc CNR
	Santillan Julia Yamila	Research fellow MSCA REFRACT
	Tenorio Ku Luiggi Gianpiere	Research fellow
	Bevilacqua Martina	PhD Student
	Fernandez Alberti Sebastian	Research fellow IDPfun

	Rodriguez Sawicki Luciana	Research fellow MSCA
	Leonardi Emanuela	RTD/B
	Minervini Giovanni	RTD/B
	Piovesan Damiano	Professore associato
	Micetic Ivan	Technician
	Falconieri Antonella	Post-Doc
	Ghafouri Hamidreza	PhD Student
	Mehdiabadi Mahta	PhD Student
	Arrías Paula Nazarena	Post-Doc
	Attafi Omar	PhD Student
	Mozaffari Soroush	Research Fellow
	Peralta Estefania	Research Fellow MSCA REFRACT
	Lombardo Jose	Research Fellow MSCA REFRACT
	Padilla Franzotti Carla	Research Fellow MSCA REFRACT
	Diaz Nestor	Research Fellow MSCA REFRACT
	Lorenzano Pablo	Research Fellow MSCA REFRACT
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	Simonetti Franco	Research Fellow MSCA IDPfun
	Alonso Macarena	Research Fellow MSCA IDPfun
	Chiappinelli Matias	Research Fellow MSCA REFRACT
	Ruggero Roberta	Research Fellow
	Aspromonte Maria Cristina	RTD/A
	Alberto Gallo	Technician
	Federico Cambise	Technician
Research projects active in 2023	1. Titolare: Tosatto - Tipo progetto: Marie Sklodowska-Curie Action - Titolo: REFRACT - Repeat protein Function, Refinement, Annotation and Classification of Topologies - Fonte di finanziamento: European Commission 2. Titolare: Tosatto - Tipo progetto: Fondazione AIRC per la Ricerca sul Cancro - Titolo: Towards a mechanistic understanding of von Hippel-Lindau syndrome in different tissues - Fonte di finanziamento: Italian private institutions 3. Titolare: Tosatto - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: Protein bioinformatics for human health - Fonte di finanziamento: Italian public institutions 4. Titolare: Tosatto - Tipo progetto: Horizon 2020 - RIA - Titolo: CONVERGE - Connect and align ELIXIR Nodes to deliver sustainable FAIR life-science data management services - Fonte di finanziamento: European Commission 5. Titolare: Tosatto - Tipo progetto: Horizon 2020 - CSA - Titolo: PhasAGE - Excellence Hub on Phase Transitions in Aging and Age-Related Disorders - Fonte di finanziamento: European Commission 6. Titolare: Tosatto - Tipo progetto: European Molecular Biology Laboratory - EMBL - Titolo: PLATFORMS - Fonte di finanziamento: Intergovernmental organizations 7. Titolare: Tosatto - Tipo progetto: European Molecular Biology Laboratory - EMBL - Titolo: Improving IDP tools interoperability and integration into ELIXIR - Fonte di finanziamento:	

	Intergovernmental organizationsdi finanziamento: Italian public institutions 8. Titolare: Piovesan - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: PLANS: Proximity Ligation And Nanopore Sequencing for the characterization of native RNA-protein interactions - Fonte di finanziamento: Italian public institutions 9. Titolare: Tosatto - Tipo progetto: COST Action - Titolo: Non-globular proteins in the era of Machine Learning - Fonte di finanziamento: European Commission 10. Titolare: Tosatto - Tipo progetto: European Molecular Biology Laboratory - EMBL - Titolo: ML-STANDARDS - Fonte di finanziamento: Intergovernmental organizations 11. Titolare: Tosatto - Tipo progetto: European Molecular Biology Laboratory - EMBL - Titolo: BIOSCHEMAS - Fonte di finanziamento: Intergovernmental organizations 12. Titolare: Tosatto - Tipo progetto: PNRR IR - Titolo: ELIXIRxNextGenerationIT - Fonte di finanziamento: Ministero della Ricerca 13. Titolare: Tosatto - Tipo progetto: MSCA RISE - Titolo: IDPfun - Fonte di finanziamento: European Commission
University-Business collaborations active in 2023	1. Titolare: Tosatto - Tipo progetto: Commerciale - Titolo: “Ottavo rinnovo Commercial Licence Agreement Sanofi-aventis recherche & developpement Rep. 40/2016 n° 154157-CW389929 - Licence of the Ring software” 2. Other project covered by a confidentiality agreement
Publications 2023	Aleksander, S.A., J. Balhoff, S. Carbon, J.M. Cherry, H.J. Drabkin, D. Ebert, M. Feuermann, et al. "The Gene Ontology Knowledgebase in 2023." Genetics 224, no. 1 (2023). https://doi.org/10.1093/genetics/iyad031. Arrías, P.N., A.M. Monzon, D. Clementel, S. Mozaffari, D. Piovesan, A.V. Kajava, and S.C.E. Tosatto. "The Repetitive Structure of DNA Clamps: An Overlooked Protein Tandem Repeat." Journal of Structural Biology 215, no. 3 (2023). https://doi.org/10.1016/j.jsb.2023.108001. Camagni, G.F., G. Minervini, and S.C.E. Tosatto. "Structural Characterization of Hypoxia Inducible Factor α—Prolyl Hydroxylase Domain 2 Interaction through MD Simulations." International Journal of Molecular Sciences 24, no. 5 (2023). https://doi.org/10.3390/ijms24054710. Conte, A.D., M. Mehdiabadi, A. Bouhraoua, A. Miguel Monzon, S.C.E. Tosatto, and D. Piovesan. "Critical Assessment of Protein Intrinsic Disorder Prediction (CAID) - Results of Round 2." Proteins: Structure, Function and Bioinformatics 91, no. 12 (2023): 1925–34. https://doi.org/10.1002/prot.26582. Del Conte, A., A. Bouhraoua, M. Mehdiabadi, D. Clementel, A.M. Monzon,

S.C.E. Tosatto, D. Piovesan, et al. "CAID Prediction Portal: A Comprehensive Service for Predicting Intrinsic Disorder and Binding Regions in Proteins." Nucleic Acids Research 51, no. W1 (2023): W62–69. https://doi.org/10.1093/nar/gkad430.

Del Conte, A., A.M. Monzon, D. Clementel, G.F. Camagni, G. Minervini, S.C.E. Tosatto, and D. Piovesan. "RING-PyMOL: Residue Interaction Networks of Structural Ensembles and Molecular Dynamics." Bioinformatics 39, no. 5 (2023). https://doi.org/10.1093/bioinformatics/btad260.

Escobedo, N., A.M. Monzon, M.S. Fornasari, N. Palopoli, and G. Parisi. "Combining Protein Conformational Diversity and Phylogenetic Information Using CoDNaS and CoDNaS-Q." Current Protocols 3, no. 5 (2023). https://doi.org/10.1002/cpz1.764.

Gehin, C., M.A. Lone, W. Lee, L. Capolupo, S. Ho, A.M. Adeyemi, E.H. Gerkes, et al. "CERT1 Mutations Perturb Human Development by Disrupting Sphingolipid Homeostasis." Journal of Clinical Investigation 133, no. 10 (2023). https://doi.org/10.1172/JCI165019.

Hatos, A., J.M.C. Teixeira, S. Barrera-Vilarmau, A. Horvath, S.C.E. Tosatto, M. Vendruscolo, and M. Fuxreiter. "FuzPred: A Web Server for the Sequence-Based Prediction of the Context-Dependent Binding Modes of Proteins." Nucleic Acids Research 51, no. W1 (2023): W198–206. https://doi.org/10.1093/nar/gkad214.

Leonardi, E., M.C. Aspromonte, D. Drongitis, E. Bettella, L. Verrillo, R. Polli, M. McEntagart, et al. "Expanding the Genetics and Phenotypic Spectrum of Lysine-Specific Demethylase 5C (KDM5C): A Report of 13 Novel Variants." European Journal of Human Genetics 31, no. 2 (2023): 202–15. https://doi.org/10.1038/s41431-022-01233-4.

Martínez-Pérez, E., M. Pajkos, S.C.E. Tosatto, T.J. Gibson, Z. Dosztanyi, and C. Marino-Buslje. "Pipeline for Transferring Annotations between Proteins beyond Globular Domains." Protein Science 32, no. 7 (2023). https://doi.org/10.1002/pro.4655.

Mészáros, B., A. Hatos, N. Palopoli, F. Quaglia, E. Salladini, K. Van Roey, H. Arthanari, et al. "Minimum Information Guidelines for Experiments Structurally Characterizing Intrinsically Disordered Protein Regions." Nature Methods 20, no. 9 (2023): 1291–1303. https://doi.org/10.1038/s41592-023-01915-x.

Monzon, A.M., P.N. Arrías, A. Elofsson, P. Mier, M.A. Andrade-Navarro, M. Bevilacqua, D. Clementel, et al. "A STRP-Ed Definition of Structured Tandem Repeats in Proteins." Journal of Structural Biology 215, no. 4 (2023). https://doi.org/10.1016/j.jsb.2023.108023.

Paysan-Lafosse, T., M. Blum, S. Chuguransky, T. Grego, B.L. Pinto, G.A. Salazar, M.L. Bileschi, et al. "InterPro in 2022." Nucleic Acids Research

	51, no. D1 (2023): D418–27. https://doi.org/10.1093/nar/gkac993. Piol, D., L. Tosatto, E. Zuccaro, E.N. Anderson, A. Falconieri, M.J. Polanco, C. Marchioretti, et al. "Antagonistic Effect of Cyclin-Dependent Kinases and a Calcium-Dependent Phosphatase on Polyglutamine-Expanded Androgen Receptor Toxic Gain of Function." Science Advances 9, no. 1 (2023). https://doi.org/10.1126/sciadv.ade1694. Piovesan, D., A. Del Conte, D. Clementel, A.M. Monzon, M. Bevilacqua, M.C. Aspromonte, J.A. Iserte, F.E. Orti, C. Marino-Buslje, and S.C.E. Tosatto. "MobiDB: 10 Years of Intrinsically Disordered Proteins." Nucleic Acids Research 51, no. 1 D (2023): D438–44. https://doi.org/10.1093/nar/gkac1065. Psomopoulos, F., C. Coble, L.J. Castro, J. Harrow, and S.C.E. Tosatto. "A Roadmap for Defining Machine Learning Standards in Life Sciences." In Artificial Intelligence For Science: A Deep Learning Revolution, 399–410, 2023. https://doi.org/10.1142/9789811265679_0022. Rocca, M.S., G. Minervini, C. Vinanzi, A. Bottacin, F. Lia, C. Foresta, M. Pennuto, and A. Ferlin. "Mutational Screening of Androgen Receptor Gene in 8224 Men of Infertile Couples." Journal of Clinical Endocrinology and Metabolism 108, no. 5 (2023): 1181–91. https://doi.org/10.1210/clinem/dgac671. Vos, N., J. Reilly, M.W. Elting, P.M. Campeau, D. Coman, Z. Stark, T.Y. Tan, et al. "DNA Methylation Episignatures Are Sensitive and Specific Biomarkers for Detection of Patients with KAT6A/KAT6B Variants." Epigenomics 15, no. 6 (2023): 351–67. https://doi.org/10.2217/epi-2023-0079.

7 - Structural Biochemistry (non Protein crystallography e Cryo-EM)

Principal Investigator	Prof. Steiner Roberto ORCID https://orcid.org/0000-0001-7084-9745 Scopus 7402618778
Contact information	roberto.steiner@unipd.it 049 827 6409
Members	Steiner Roberto — Full professor Di Palma Michele — PhD Student Pozzer Lisa Sof
Research projects	1. Titolare: Steiner - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: Molecular basis of kinesin-1 motor

active in 2023	activation by light chain sequestration and its modulation in mitochondrial transport - Fonte di finanziamento: Italian public institutions 2. Titolare: Steiner - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) PNRR - Titolo: Predictive rationalization and manipulation of cargo recruitment by the regulatory light chains of the ubiquitous kinesin-1 motor protein - Fonte di finanziamento: Italian public institutions
Publications 2023	Neutron crystallographic refinement with REFMAC5 from the CCP4 suite. Catapano L, Long F, Yamashita K, Nicholls RA, Steiner RA, Murshudov GN. Acta Crystallogr D Struct Biol. 2023 Dec 1;79(Pt 12):1056-1070. doi: 10.1107/S2059798323008793. Epub 2023 Nov 3. Evolutionary adaptation from hydrolytic to oxygenolytic catalysis at the α/β-hydrolase fold. Bui S, Gil-Guerrero S, van der Linden P, Carpentier P, Ceccarelli M, Jambrina PG, Steiner RA. Chem Sci. 2023 Sep 18;14(38):10547-10560. doi: 10.1039/d3sc03044j. eCollection 2023 Oct 4. Cysteine Enrichment Mediates Co-Option of Uricase in Reptilian Skin and Transition to Uricotelism. Mori G, Liuzzi A, Ronda L, Di Palma M, Chegkazi MS, Bui S, Garcia-Maya M, Ragazzini J, Malatesta M, Della Monica E, Rivetti C, Antin PB, Bettati S, Steiner RA, Percudani R. Mol Biol Evol. 2023 Sep 1;40(9):msad200. doi: 10.1093/molbev/msad200. The CCP4 suite: integrative software for macromolecular crystallography. Agirre J, Atanasova M, Bagdonas H, Ballard CB, Baslé A, Beilsten-Edmands J, Borges RJ, Brown DG, Burgos-Mármol JJ, Berrisford JM, Bond PS, Caballero I, Catapano L, Chojnowski G, Cook AG, Cowtan KD, Croll TI, Debreczeni JÉ, Devenish NE, Dodson EJ, Drevon TR, Emsley P, Evans G, Evans PR, Fando M, Foadi J, Fuentes-Montero L, Garman EF, Gerstel M, Gildea RJ, Hatti K, Hekkelman ML, Heuser P, Hoh SW, Hough MA, Jenkins HT, Jiménez E, Joosten RP, Keegan RM, Keep N, Krissinel EB, Kolenko P, Kovalevskiy O, Lamzin VS, Lawson DM, Lebedev AA, Leslie AGW, Lohkamp B, Long F, Malý M, McCoy AJ, McNicholas SJ, Medina A, Millán C, Murray JW, Murshudov GN, Nicholls RA, Noble MEM, Oeffner R, Pannu NS, Parkhurst JM, Pearce N, Pereira J, Perrakis A, Powell HR, Read RJ, Rigden DJ, Rochira W, Sammito M, Sánchez Rodríguez F, Sheldrick GM, Shelley KL, Simkovic F, Simpkin AJ, Skubak P, Sobolev E, Steiner RA, Stevenson K, Tews I, Thomas JMH, Thorn A, Valls JT, Uski V, Usón I, Vagin A, Velankar S, Vollmar M, Walden H, Waterman D, Wilson KS, Winn MD, Winter G, Wojdyr M, Yamashita K. Acta Crystallogr D Struct Biol. 2023 Jun 1;79(Pt 6):449-461. doi: 10.1107/S2059798323003595. Epub 2023 May 30. Introduction to the virtual thematic issue on room-temperature biological

	crystallography. Steiner RA. IUCrJ. 2023 May 1;10(Pt 3):248-250. doi: 10.1107/S2052252523002968. (jointly published also in Acta Crystallogr D Struct Biol. 2023 Apr 1;79(Pt 4):268-270. doi: 10.1107/S2059798323002449. and in Acta Crystallogr F Struct Biol Commun. 2023 Apr 1;79(Pt 4):79-81. doi: 10.1107/S2053230X23002935.

8 - Protein interactions and dynamics

Principal Investigator	Prof. Monika Fuxreiter Scopus 6601999581 Google Scholar Monika Fuxreiter
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Keywords	Protein interactions; Fuzziness; Phase Separation
Members	Monika Fuxreiter — Full professor Keshavarzmirzamohammadi Melika — Research fellow Jackson Jake — Research fellow Ricardo Sanchez Rodriguez — RTD/A
Research projects active in 2023	1. Titolare: Fuxreiter - Tipo progetto: Fondazione AIRC per la Ricerca sul Cancro - Titolo: Aberrant condensates as drug-targets for cancer - Fonte di finanziamento: Italian private institutions 2. Titolare: Fuxreiter - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: Supramolecular assemblies in cell invasion as targets for cancer therapy - Fonte di finanziamento: Italian public institutions
Publications 2023	Lim CM, González Díaz A, Fuxreiter M, Pun FW, Zhavoronkov A, Vendruscolo M. (2023) Multiomic prediction of therapeutic targets for human diseases associated with protein phase separation *Proc Natl Acad Sci U S A*. 120(40):e2300215120. Gönczi M., Teixeira JMC, Barrera-Vilarmau S., Mediani L. , Antoniani F. , Nagy TM, Fehér K., Ráduly Z., Ambrus V., Tőzsér J., Barta E., Kövér KE., Csernoch L., Carra S. , Fuxreiter M. (2023) Alternatively spliced exon regulates context-dependent MEF2D higher-order assembly during myogenesis Nature Communications 14, 1329 (1-13). M. Vendruscolo, M Fuxreiter (2023) Towards sequence-based principles for protein phase separation predictions. Curr Opin Chem Biol. 75, 102317. doi: 10.1016/j.cbpa.2023.102317.

	Hatos A, Teixeira JM, Barrera-Vilarmau S, Horvath A, Tosatto SCE, Vendruscolo M, Fuxreiter M. (2023) FuzPred: a web server for the sequence-based prediction of the context-dependent binding modes of proteins *Nucleic Acids Res*. gkad214. doi: 10.1093/nar/gkad214

9 - Macromolecular complexes and Membrane contact sites

Principal Investigator	Prof. Tito Cali' ORCID https://orcid.org/0000-0002-8901-1659 Scopus ID 14622289000 Google Scholar: https://scholar.google.com/citations?view_op=list_works&hl=it&hl=it&user=ObqIXFsAAAAJ&sortby=pubdate
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Keywords	Organelle Contact sites, SPLICS, SPLIT Fluorescent Proteins, Genetically encoded reporters for organelle contact sites, Mitochondria, Calcium, PMCA, Membrane protein complexes, Neurodegenerative diseases
Members	Calì Tito — Associate professor Barazzuol Lucia — Post-doc Tykhonenko Tetiana — Post-doc Adamantia Deligiannopoulou — Phd student
Research projects active in 2023	1. Titolare: Calì - Tipo progetto: European Molecular Biology Organization - EMBO - Titolo: EMBO SOLIDARITY GRANT - Tikhonenko - Fonte di finanziamento: International private institutions 2. Titolare: Calì - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: Discovering how signalling pathways coordinate intracellular organelle communication - Fonte di finanziamento: Italian public institutions
Publications 2023	ATP2B2 de novo variants as a cause of variable neurodevelopmental disorders that feature dystonia, ataxia, intellectual disability, behavioral symptoms, and seizures. Poggio E, et al Genet Med. 2023 Sep 4;25(12):100971 Ca(2+) signalling: A common language for organelles crosstalk in Parkinson's disease. Peggion C, Barazzuol L, Poggio E, Calì T, Brini M. Cell Calcium. 2023 Nov;115:102783. doi: 10.1016/j.ceca.2023.102783. SERCA2 phosphorylation at the heart of the disease. Brini M. and Cali T.

	Cell Calcium. 2023. PMID: 37572431. Sorcin promotes migration in cancer and regulates the EGF-dependent EGFR signaling pathways. Tito C, Genovese I, Giamogante F, Benedetti A, Miglietta S, Barazzuol L, Cristiano L, Iaiza A, Carolini S, De Angelis L, Masciarelli S, Nottola SA, Familiari G, Petrozza V, Lauriola M, Tamagnone L, Ilari A, Calì T, Valdivia HH, Valdivia CR, Colotti G, Fazi F. Cell Mol Life Sci. 2023 Jul 13;80(8):202. doi: 10.1007/s00018-023-04850-4. Perturbation of the host cell Ca(2+) homeostasis and ER-mitochondria contact sites by the SARS-CoV-2 structural proteins E and M. Poggio E, Vallese F, Hartel AJW, Morgenstern TJ, Kanner SA, Rauh O, Giamogante F, Barazzuol L, Shepard KL, Colecraft HM, Clarke OB, Brini M, Calì T. Cell Death Dis. 2023 Apr 29;14(4):297. doi: 10.1038/s41419-023-05817-w. Unraveling Presenilin 2 Functions in a Knockout Zebrafish Line to Shed Light into Alzheimer's Disease Pathogenesis. Barazzuol L, Cieri D, Facchinello N, Calì T, Washbourne P, Argenton F, Pizzo P. Cells. 2023 Jan 19;12(3):376. doi: 10.3390/cells12030376.

Inflammation and Immunity

10 - Inflammation and immunity

Principal Investigator	Prof. Antonella Viola ORCID https://orcid.org/0000-0002-0125-9271 WoS ID A-4321-2015 Google Scholar Antonella Viola
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Keywords	Immunology; Immune Response; Innate Immunity; Immunotherapy; Inflammasome; Angiogenesis; Stromal Cells

Members	Viola Antonella Canton Marcella Molon Barbara Angioni Roberta Testa Alessandra Maria Francisca Carolina Venegas Celedon Marin Annachiara Fietta Anna Zanrè Eleonora Baldisseri Elena	Full professor Associate professor Associate professor RTD/A Post-Doc Post-Doc PhD Student PhD Student PhD Student PhD Student
Research projects active in 2023	1. Titolare: Viola - Tipo progetto: Fondazione Human Technopole - Titolo: COVIDIamo: tracing the dynamics of COVID19 at single-cell multi-omic resolution for drug repurposing and biomarker identification - Fonte di finanziamento: Italian private institutions 2. Titolare: Angioni - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: oxygeNAtioN, reprOgrAmming and stem ceLL targetIng: A therapeutic triad agaiNst triple negative breast canCEr (NANOALLIANCE) - Fonte di finanziamento: Italian public institutions 3. Titolare: Viola - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: High definition profiling of ovarian cancer ascites for the identification of prognostic biomarkers and immunotherapeutic targets: an integrative cell of origin-guided approach - Fonte di finanziamento: Italian public institutions 4. Titolare: Viola - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) PNRR - Titolo: Exploring the mitochondrial (dys)function in tissue-specific and systemic aging - Fonte di finanziamento: Italian public institutions	
Publications 2023	RAGE engagement by SARS-CoV-2 enables monocyte infection and underlies COVID-19 severity. Angioni, R., Bonfanti, M., Caporale, N., ...Viola, A.,Testa, G. Cell Reports Medicine, 2023, 4(11), 101266. OPA1 drives macrophage metabolism and functional commitment via p65 signaling. Sánchez-Rodríguez, R., Tezze, C., Agnellini, A.H.R., ...Viola, A., Molon, B. Cell Death and Differentiation, 2023, 30(3), pp. 742–752. Oxidative Stress by the Mitochondrial Monoamine Oxidase B Mediates Calcium Pyrophosphate Crystal-Induced Arthritis. Arthritis Rheumatol. 2023, Venegas F.C., Sanchez-Rodríguez R, Luisetto R, Angioni R, Viola A, Canton M	

Medical Biotechnology

11 - Extracellular Matrix (Ecm) Pathobiology

Principal Investigator	Prof. Maurizio Onisto ORCID https://orcid.org/0000-0002-1191-7418 Scopus 6701645133 WoS ID K-5281-2014 Google Scholar Maurizio Onisto
Contact information	maurizio.onisto@unipd.it 049 827 6093 website
Keywords	PCR; Cell Biology; mRNA; DNA; Metastasis; Cancer Research; Matrix Metalloproteinase; Gelatinases; Zymography; ECM remodeling; Heparanase; inflammation; fibrosis; Tumor Invasion
Members	Onisto Maurizio — Associate professor Spina Michele — Senior Masola Valentina — RTD-A
Research projects active in 2023	1. Titolare:Masola- Tipo progetto: BIRD 2022 - Titolo: "A New Peritoneal Dialysis (PD) Solution for Congestive Heart Failure (PD-Heart)"- Fonte di finanziamento: Università 2. Titolare: Onisto - Tipo progetto: RUA-PON - Titolo:Nuove Soluzioni Biocompatibili per la Dialisi Peritoneale – SolBioDP] - Fonte di finanziamento: Ministero dell'Università e della Ricerca (MUR) ex DM 1062/2021
Publications 2023	Greco N, Onisto M, Alibardi L. Protein extracts from regenerating lizard tail show an inhibitory effect on human cancer cells cultivated in-vitro. Ann Anat. 2023; 250:152115. doi: 10.1016/j.aanat.2023.152115. Epub 2023 Jun 12. PMID: 37315628. Franchi M, Karamanos KA, Cappadone C, Calonghi N, Greco N, Franchi L, Onisto M, Masola V. Colorectal Cancer Cell Invasion and Functional Properties Depend on Peri-Tumoral Extracellular Matrix. Biomedicines. 2023;11(7):1788. doi: 10.3390/biomedicines11071788. PMID: 37509428; PMC10376217 Koutsakis C, Franchi M, Tavianatou AG, Masola V, Karamanos NK. Studying the Effects of Glycosaminoglycans in Cell Morphological Aspect with Scanning Electron Microscopy. Methods Mol Biol. 2023;2619:99-106. doi: 10.1007/978-1-0716-2946-8_8. PMID: 36662465.

12 - Immune nano-technology

Principal Investigator	Dr. Lucia Gemma Delogu ORCID https://orcid.org/0000-0002-2329-7260 Scopus 26428706900 WoS ID AAM-9078-2020 Google Scholar Lucia Gemma Delogu
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Keywords	2D materials, human and environmental health, biomedical applications, air pollution, microplastics, single cell mass cytometry
Members	Delogu Lucia Gemma — Associate professor Giro Linda — Research Fellow Gazzi Arianna — Post-Doc Fusco Laura — Global Fellow, Post-Doc
Research projects active in 2023	1. Titolare: Delogu - Tipo progetto: Agenzia Spaziale Europea ESA - Titolo: Wound Healiing In Space: Key challenges towards Intelligent and Enabling Sensing platformrs (WHISKIES) - Fonte di finanziamento: Intergovernmental organizations 2. Titolare: Fusco - Tipo progetto: Marie Sklodowska-Curie Action - Titolo: SEE: mapping the skin-immune interactionsof novel 2D materials MXENES - Fonte di finanziamento: European Commission 3. Titolare: Delogu - Tipo progetto: Supporting Talent in ReSearch@University of Padua - STARS - Titolo: DETECTION - Fonte di finanziamento: University 4. Titolare: Delogu - Tipo progetto: Horizon Europe - Titolo: Towards MXenes' biomedical applications by high-dimensional immune MAPping - Fonte di finanziamento: European Commission 5. Titolare: Delogu - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: WoundXene: chronic wound regeneration by MXenes-based 3D-printed patches - Fonte di finanziamento: Italian public institutions
Publications 2023	Synergized photothermal therapy and magnetic field induced hyperthermia via bismuthene for lung cancer combinatorial treatment Yilmazer, A., Eroglu, Z., Gurcan, C., ... Delogu, L.G., Metin, O. Materials Today Bio, 2023, 23, 100825 Exploiting Mass Spectrometry to Unlock the Mechanism of Nanoparticle-Induced Inflammasome Activation Gupta, G., Kaur, J., Bhattacharya, K., ..Delogu L.G.. Persson, M., Fadeel, B. ACS Nano, 2023, 17(17), pp. 17451–17467

	V4C3 MXene Immune Profiling and Modulation of T Cell-Dendritic Cell Function and Interaction Fusco, L., Gazzi, A., Shuck, C.E., ... Gogotsi, Y., Delogu, L.G. *Small Methods*, 2023, 7(8), 2300197 Low Dose of Ti3C2 MXene Quantum Dots Mitigate SARS-CoV-2 Infection Yilmazer, A., Alagarsamy, K.N., Gokce, C., ... Unal, M.A., Dhingra, S. *Small Methods*, 2023, 7(8), 2300044

13 - Mass Spectrometry and Proteomics

Principal Investigator	Prof. Giorgio Arrigoni ORCID https://orcid.org/0000-0002-4103-2733 Scopus 7006116502 WoS ID A-3535-2014 Google Scholar Giorgio Arrigoni
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Keywords	Proteomics; Mass Spectrometry; Liquid Chromatography; Proteins; Method Development; Electrophoresis; Protein Purification; Chromatography; Analytical Method Development; High-Performance Liquid Chromatography
Members	Arrigoni Giorgio — Associate professor Rocca Giulia — PhD Student Battisti Ilaria — Post-Doc
Research projects active in 2023	1. Titolare: Arrigoni - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: "Unravelling the molecular and phenotypic effects of whole genome duplication and its impact on stress adaptation in plants" - Fonte di finanziamento: Italian public institutions
Publications 2023	Antagonistic effect of cyclin-dependent kinases and a calcium-dependent phosphatase on polyglutamine-expanded androgen receptor toxic gain of function. Piol D, Tosatto L, Zuccaro E, Anderson EN, Falconieri A, Polanco MJ, Marchioretti C, Lia F, White J, Bregolin E, Minervini G, Parodi S, Salvatella X, Arrigoni G, Ballabio A, La Spada AR, Tosatto SCE, Sambataro F, Medina DL, Pandey UB, Basso M, Pennuto M. Sci Adv. 2023 Jan 6;9(1):eade1694. doi: 10.1126/sciadv.ade1694. Epub 2023 Jan 6. Modeling SILAC Data to Assess Protein Turnover in a Cellular Model of Diabetic Nephropathy. Di Camillo B, Puricelli L, Iori E, Toffolo GM, Tessari

	P, Arrigoni G. Int J Mol Sci. 2023 Feb 1;24(3):2811. doi: 10.3390/ijms24032811. PARP1 negatively regulates MAPK signaling by impairing BRAF-X1 translation. Marranci A, Prantera A, Masotti S, De Paolo R, Baldanzi C, Podda MS, Mero S, Vitiello M, Franchin C, Laezza M, Comelli L, Arrigoni G, Cervelli T, Del Pozzo G, Poliseno L. J Hematol Oncol. 2023 Apr 3;16(1):33. doi: 10.1186/s13045-023-01428-2. Proteomic tools to study phosphorylation of intrinsically disordered proteins.Spolaore B, Secco L, Rocca G, Manfioletti G, Arrigoni G, Sgarra R. Expert Rev Proteomics. 2023 Apr-Jun;20(4-6):93-107. doi: 10.1080/14789450.2023.2217359. Epub 2023 May 27. Phospho-DIGE Identified Phosphoproteins Involved in Pathways Related to Tumour Growth in Endometrial Cancer. Capaci V, Arrigoni G, Monasta L, Aloisio M, Rocca G, Di Lorenzo G, Licastro D, Romano F, Ricci G, Ura B. Int J Mol Sci. 2023 Jul 26;24(15):11987. doi: 10.3390/ijms241511987. The impact of milk storage temperatures on cheese quality and microbial communities at dairy processing plant scale. Giagnoni L, Deb S, Tondello A, Zardinoni G, De Noni M, Franchin C, Vanzin A, Arrigoni G, Masi A, Stevanato P, Cecchinato A, Squartini A, Spanu C. Food Res Int. 2023 Oct;172:113101. doi: 10.1016/j.foodres.2023.113101. Epub 2023 Jun 12. Site-Specific Ubiquitination of Tau Amyloids Promoted by the E3 Ligase CHIP. Parolini F, Ataie Kachoie E, Leo G, Civiero L, Bubacco L, Arrigoni G, Munari F, Assfalg M, D'Onofrio M, Capaldi S. Angew Chem Int Ed Engl. 2023 Dec 11;62(50):e202310230. doi: 10.1002/anie.202310230. Epub 2023 Nov 10. Subclinical Mastitis from Streptococcus agalactiae and Prototheca spp. Induces Changes in Milk Peptidome in Holstein Cattle. Vanzin A, Franchin C, Arrigoni G, Battisti I, Masi A, Squartini A, Bisutti V, Giannuzzi D, Gallo L, Cecchinato A, Pegolo S. J Agric Food Chem. 2023 Nov 8;71(44):16827-16839. doi: 10.1021/acs.jafc.3c03065. Epub 2023 Oct 27.

14 - Nano-biotechnology and nano-biomedicine

Principal Investigator	Prof. Emanuele Papini ORCID https://orcid.org/0000-0001-6033-4473 Scopus 7005536300
Contact	emanuele.papini@unipd.it 049 827 6301 website
Keywords	Nanoparticle uptake; Cell Culture; Nanobiotechnology; Macrophage; Membranes; Cytokines; Complement system; Corona protein
Members	Papini Emanuele — Associate professor Gandaglia Valentina — Project Manager Veloso Magahlaes Pedro Rafael — PhD Student Maria Morbidelli — PhD Student Fontecha Cuenca Cristina — PhD Student Tavano Regina — Researcher Pavon Regana Carlos — PhD Student
Research projects active in 2023	1. Titolare: Papini - Tipo progetto: Marie Sklodowska-Curie Action - Titolo: DIRNANO - Directing the immune response through designed nanomaterials - Fonte di finanziamento: European Commission

15 - Peptides and Antibodies

Principal Investigator	Prof. Oriano Marin ORCID https://orcid.org/0000-0002-6175-4039 Scopus 7005583157
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Keywords	Solid-phase Peptide Synthesis, Food-derived Bioactive Peptides and Proteins, Antimicrobial Peptides, Proteomics
Members	Oriano Marin — Associate professor Ferro Stefania — Technician Fiorese Federico — Research fellow
University-Business collaborations active in 2023	Istituto di ricerche farmacologiche Mario Negri - IRCCS (Milano - Italy)
Publications 2023	Fighting Pseudomonas aeruginosa Infections: Antibacterial and Antibiofilm Activity of D-Q53 CecB, a Synthetic Analog of a Silkworm Natural Cecropin B Variant. Varponi I, Ferro S, Menilli L, Grapputo A, Moret F, Mastrotto F, Marin O, Sandrelli F. Int J Mol Sci. 2023 Aug 6;24(15):12496. doi: 10.3390/ijms241512496. Epitope-Specific Anti-SerpinB3 Antibodies for SerpinB3 Recognition and Biological Activity Inhibition. Biasiolo A, Sandre M, Ferro S, Quarta S, Ruvoletto M, Villano G, Turato C, Guido M, Marin O, Pontisso P. Biomolecules. 2023 Apr 25;13(5):739. doi: 10.3390/biom13050739. Sunflower seed-derived bioactive peptides show antioxidant and anti-inflammatory activity: From in silico simulation to the animal model. Tonolo F, Coletta S, Fiorese F, Grinzato A, Albanesi M, Folda A, Ferro S, De Mario A, Piazza I, Mammucari C, Arrigoni G, Marin O, Cestonaro G, Nataloni L, Costanzo E, Lodovichi C, Rigobello MP, de Bernard M. Food Chem. 2024 May 1;439:138124. doi:0.1016/j.foodchem.2023.138124. Epub 2023 Dec 2.

Mitochondrial Pathophysiology

16 - Mitochondria in Cell Death and Cancer

Principal Investigator	Prof. Paolo Bernardi ORCID https://orcid.org/0000-0001-9187-3736 Scopus 7102271571 WoS ID C-3656-2008 Google Scholar Paolo Bernardi	Prof. Andrea Rasola ORCID https://orcid.org/0000-0003-4522-3008 Scopus 6602080491 Google Scholar Andrea Rasola
Contact	paolo.bernardi@unipd.it 049 827 6365 **website**	andrea.rasola@unipd.it 049 827 6064
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 — Full professor Rasola Andrea — Associate professor Fracasso Giulio — RTD/A Carraro Michela — RTD/A Ferrone Lavinia — Post-Doc SDB La Spina Martina — RTD/A Laquatra Claudio — Post-Doc Boscolo Nata Federica — PhD Student Ciscato Francesco — CNR Researcher Frigo Elena — PhD Student Ghasemi Firourabadi Shiva — Research fellow Scantamburlo Francesca — PhD Student Tommasin Ludovica — PhD Student Komarov Denis — PhD Student - UNIPV Masgras Ionica — CNR Researcher Trevisan Elena — Technician	
Research projects active in 2023	1. Titolare: Bernardi - Tipo progetto: Fondazione Leducq - Titolo: Targeting Mitochondria to Treat Heart Disease - Fonte di finanziamento: International private institutions 2. Titolare: Rasola - Tipo progetto: Fondazione Fondazione AIRC per la Ricerca sul Cancro per la Ricerca sul Cancro - Titolo: A TRAP on the road to tumor growth: targeting the pro-neoplastic functions of the mitochondrial chaperone TRAP1 - Fonte di finanziamento: Italian private institutions 3. Titolare: Bernardi - Tipo progetto: Fondazione Fondazione AIRC per la Ricerca sul Cancro per la Ricerca sul Cancro - Titolo: The	

	dual function of F-ATP synthase in tumor cell metabolism and survival - Fonte di finanziamento: Italian private institutions 4. Titolare: Bernardi - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: Channel formation by mitochondrial ATP synthase: Mechanisms and regulation - Fonte di finanziamento: Italian public institutions 5. Titolare: Rasola - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: TRAPping tumor growth: designing molecules to perturb the chaperone TRAP1, from enzymatic activities to cell-cell interactions (TRAP) - Fonte di finanziamento: Italian public institutions 6. Titolare: Rasola (La Spina) - Tipo progetto: MSCA Seal of Excellence@UniPD 2021 - Titolo: UniPD 2022 - Finanziamento progetto "N-F1 RACE" - "Neurofibromatosis type 1: Role of Amino acids in Cancer Eradication - Fonte di finanziamento: University 7. Titolare: Bernardi - Tipo progetto: Fondazione Telethon - Titolo: Multiround 21-24 – Round 1 2022 Track PoC" Progetto GMR22T2016 dal titolo "A mitochondrial therapy for muscular dystrophies - Fonte di finanziamento: Italian private institutions 8. Titolare: Rasola - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: The mitochondrial chaperone TRAP1 in redox biology: from biochemistry to functional effects in cancer cell models - Fonte di finanziamento: Italian public institutions
Publications 2023	E. Frigo, L. Tommasin, G. Lippe, M. Carraro, P. Bernardi, The Haves and Have-Nots: The Mitochondrial Permeability Transition Pore across Species, Cells 12 (2023) 1409. https://doi.org/10.3390/cells12101409. M. Carraro, P. Bernardi, The mitochondrial permeability transition pore in Ca2+ homeostasis, Cell Calcium 111 (2023) 102719. https://doi.org/10.1016/j.ceca.2023.102719. Boso D, Tognon M, Curtarello M, Minuzzo S, Piga I, Brillo V, Lazzarini E, Carlet J, Marra L, Trento C, Rasola A, Masgras I, Caporali L, Del Ben F, Brisotto G, Turetta M, Pastorelli R, Brunelli L, Navaglia F, Esposito G, Grassi A, Indraccolo S. Anti-VEGF therapy selects for clones resistant to glucose starvation in ovarian cancer xenografts. J Exp Clin Cancer Res. 2023 Aug 7;42(1):196. doi: 10.1186/s13046-023-02779-x. PMID: 37550722; PMCID: PMC10405561. Damanti CC, Ferrone L, Gaffo E, Garbin A, Tosato A, Contarini G, Gallingani I, Angioni R, Molon B, Borile G, Carraro E, Pillon M, Scarmozzino F, Dei Tos AP, Pizzi M, Ciscato F, Rasola A, Biffi A, Bortoluzzi S, Lovisa F, Mussolin L. Plasma small-extracellular vesicles enriched in miR-122-5p promote disease aggressiveness in pediatric anaplastic large-cell lymphoma. Cancer Commun (Lond). 2023 May;43(5):630-634. doi: 10.1002/cac2.12415. Epub 2023 Apr 4. PMID:

	37014813; PMCID: PMC10174085.

17 - Mitochondrial Calcium Signaling

Principal Investigator	Prof. Rosario Rizzuto ORCID https://orcid.org/0000-0001-7044-5097 Scopus 7005289262 Google Scholar Rosario Rizzuto
Contact	rosario.rizzuto@unipd.it 049 827 3001 website
Keywords	Cell Signaling; Mitochondria; Ion Transporters; Skeletal Muscle; Macrophages; RNA-Based Therapy
Members	Rizzuto Rosario — Full Professor De Stefani Diego — Full Professor Mammucari Cristina — Associate Professor Raffaello Anna — Associate Professor De Mario Agnese — RTD/A Gherardi Gaia — RTD/A Kahsay Asrat Endrias — Post-Doc Piazza Ilaria — PhD Student Pain Pampa — PhD Student Kartal Ozlem — PhD Student Sbrissa Miriana — PhD Student Spinelli Francesca — PhD Student Al Saidi Aya — PhD Student Quagliata Martina — PhD Student Pallafacchina Giorgia — CNR Researcher Ausoni Simonetta — Associate Professor Menegazzi Valentina — Technician
Research projects active in 2023	1. Titolare: De Stefani - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: 4D molecular analysis on dynamic subcellular nanostructures by feedback-based imaging and tracking: the biochemistry of nutrient and energy sensing - Fonte di finanziamento: Italian public institutions 2. Titolare: Rizzuto - Tipo progetto: Fondazione AIRC per la Ricerca sul Cancro - Titolo: Metastatic disease: the key unmet need in oncology - Fonte di finanziamento: Italian private institutions 3. Titolare: Rizzuto - Tipo progetto: Ricerca sanitaria finalizzata - Titolo: Nutrition, obesity and cancer: pathophysiological aspects - Fonte di finanziamento: Italian public institutions

	4. Titolare: Rizzuto - Tipo progetto: Fondazione CARIPARO - Titolo: Sensing Cell Mechanics - Fonte di finanziamento: Italian private institutions 5. Titolare: De Stefani - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: Biochemical mechanisms and cellular consequences of mitochondrial cation flux: from bioenergetics to metabolic rewiring - Fonte di finanziamento: Italian public institutions 6. Titolare: Raffaello - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: The structural and functional role of the A-kinase anchoring protein myospryn in striated muscle - Fonte di finanziamento: Italian public institutions 7. Titolare: Rizzuto - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: "A transcriptomic interrogation of the metabolic status of breast cancers for patient stratification and identification of novel therapeutic targets" - Fonte di finanziamento: Italian public institutions 8. Titolare: De Stefani - Tipo progetto: CARIPLO Telethon - Titolo: Telethon Joint Call fo Applications" Prog. 2022-0574 "Deorphanizing and funcionalizing the mitochondrial protein TMEM65 - Fonte di finanziamento: International private institutions 9. Titolare: De Stefani - Tipo progetto: Fondazione CARIPARO - Titolo: Eccellenza id 59583 "Mitochondrial ATP-sensitive potassium channels in health and disease - MitoKATP - Fonte di finanziamento: Italian private institutions 10. Titolare: Mammucari - Tipo progetto: Fondazione AFM Telethon - Titolo: The role of mitochondrial calcium signalling in aging skeletal muscle - Fonte di finanziamento: International private institutions 11. Titolare: Mammucari - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) PNRR - Titolo: The role of mitochondrial calcium signalling in skeletal muscle structure, function, and oxidative metabolism in the elderly - Fonte di finanziamento: Italian public institutions
Publications 2023	D'Angelo D, Rizzuto R. The Mitochondrial Calcium Uniporter (MCU): Molecular Identity and Role in Human Diseases. Biomolecules. 2023 Aug 25;13(9):1304. doi: 10.3390/biom13091304. PMID: 37759703; PMCID: PMC10526485. Caroccia B, Seccia TM, Pallafacchina G, Piazza M, Caputo I, Zamberlan S, Rizzuto R, Rossi GP. Aldosterone Biosynthesis Is Potently Stimulated by Perfluoroalkyl Acids: A Link between Common Environmental Pollutants and Arterial Hypertension. Int J Mol Sci. 2023 May 27;24(11):9376. doi: 10.3390/ijms24119376. PMID: 37298327; PMCID: PMC10253916. Mason P, Rizzuto R, Iannelli L, Baccaglini F, Rizzolo V, Baraldo A, Melloni B, Maffione F, Pezzoli C, Chiozza ML, Rupolo G, Biasioli M, Liviero F, Scapellato ML, Trevisan A, Merigliano S, Scuttari A, Moretto A, Scarpa B. Comparison of Adverse Effects of Two SARS-CoV-2 Vaccines

	Administered in Workers of the University of Padova. Vaccines (Basel). 2023 May 5;11(5):951. doi: 10.3390/vaccines11050951. PMID: 37243055; PMCID: PMC10221025. Vitale I, et al.. Apoptotic cell death in disease-Current understanding of the NCCD 2023. Cell Death Differ. 2023 May;30(5):1097-1154. doi: 10.1038/s41418-023-01153-w. Epub 2023 Apr 26. PMID: 37100955; PMCID: PMC10130819. Feno S, Munari F, Gherardi G, Reane DV, D'Angelo D, Viola A, Rizzuto R, Raffaello A. Myonecrosis Induction by Intramuscular Injection of CTX. Bio Protoc. 2023 Jan 5;13(1):e4587. doi: 10.21769/BioProtoc.4587. PMID: 36789082; PMCID: PMC9901486. Marchioretti C, Zanetti G, Pirazzini M, Gherardi G, Nogara L, Andreotti R, Martini P, Marcucci L, Canato M, Nath SR, Zuccaro E, Chivet M, Mammucari C, Pacifici M, Raffaello A, Rizzuto R, Mattarei A, Desbats MA, Salviati L, Megighian A, Sorarù G, Pegoraro E, Belluzzi E, Pozzuoli A, Biz C, Ruggieri P, Romualdi C, Lieberman AP, Babu GJ, Sandri M, Blaauw B, Basso M, Pennuto M. Defective excitation-contraction coupling and mitochondrial respiration precede mitochondrial Ca2+ accumulation in spinobulbar muscular atrophy skeletal muscle. Nat Commun. 2023 Feb 6;14(1):602. doi: 10.1038/s41467-023-36185-w. PMID: 36746942; PMCID: PMC9902403. Sánchez-Vázquez VH, Martínez-Martínez E, Gallegos-Gómez ML, Arias JM, Pallafacchina G, Rizzuto R, Guerrero-Hernández A. Heterogeneity of the endoplasmic reticulum Ca²⁺ store determines colocalization with mitochondria. Cell Calcium. 2023 Jan;109:102688. doi: 10.1016/j.ceca.2022.102688. Epub 2022 Dec 11. PMID: 36538845.

18 - Mitochondrial medicine

Principal Investigator	Prof. Carlo Fiore Viscomi ORCID https://orcid.org/0000-0001-6050-0566 Scopus 57192336046 WoS ID R-1940-2016	
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Keywords	Mitochondrial disease, gene therapy, mitochondria, animal models	
Members	Viscomi Carlo Fiore Vogrig Enea Giacchin Giacomo Zuppardo Alessandro	Associate professor PhD Student PhD Student PhD Student

	Suleva Povea Cabello Kristyna Cunatova Sara Volta Costa Rodolfo	Research fellow Research fellow Trainee in Medical Genetics Senior Researcher CNR
Research projects active in 2023	1. Titolare: Viscomi - Tipo progetto: Fondazione AFM Telethon - Titolo: Harnessing mitophagy to treat mitochondrial myopathies - Fonte di finanziamento: International private institutions 2. Titolare: Fernandez-Vizarra - Tipo progetto: Fondazione AFM Telethon - Titolo: Tissue-specificity of complex III dysfunction in mitochondrial encephalomyopathies - Fonte di finanziamento: International private institutions 3. Titolare: Fernandez-Vizarra - Tipo progetto: European Molecular Biology Organization - EMBO - Titolo: EMBO Postdoctoral Fellowship - Cunatova - Fonte di finanziamento: International private institutions 4. Titolare: Viscomi - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: MitoTarget: Molecular and pharmacological approaches to target mitochondrial diseases - Fonte di finanziamento: Italian public institutions	
Publications 2023	Brischigliaro M, Cabrera-Orefice A, Arnold S, Viscomi C, Zeviani M, Fernández-Vizarra E. Structural rather than catalytic role for mitochondrial respiratory chain supercomplexes. Elife. 2023 Oct 12;12:RP88084. doi: 10.7554/eLife.88084. PMID: 37823874; PMCID: PMC10569793. Corrà S, Checchetto V, Brischigliaro M, Rampazzo C, Bottani E, Gagliani C, Cortese K, De Pittà C, Roverso M, De Stefani D, Bogialli S, Zeviani M, Viscomi C, Szabò I, Costa R. Drosophila Mpv17 forms an ion channel and regulates energy metabolism. iScience. 2023 Sep 16;26(10):107955. doi: 10.1016/j.isci.2023.107955. PMID: 37810222; PMCID: PMC10558772 Di Donfrancesco A, Berlingieri C, Giacomello M, Frascarelli C, Magalhaes Rebelo AP, Bindoff LA, Reeval S, Renbaum P, Santorelli FM, Massaro G, Viscomi C, Zeviani M, Ghezzi D, Bottani E, Brunetti D. PPAR-gamma agonist pioglitazone recovers mitochondrial quality control in fibroblasts from *PITRM1*-deficient patients. Front Pharmacol. 2023 Jul 26;14:1220620. doi: 10.3389/fphar.2023.1220620. PMID: 37576821; PMCID: PMC10415619 Nicol T, Falcone S, Blease A, Vikhe P, Civiletto G, Omairi SS, Viscomi C, Patel K, Potter PK. Tissue-specific differences in the assembly of mitochondrial Complex I are revealed by a novel ENU mutation in ECSIT. Cardiovasc Res. 2023 Oct 16;119(12):2213-2229. doi: 10.1093/cvr/cvad101. PMID: 37395010; PMCID: PMC10578914 Viscomi C, van den Ameele J, Meyer KC, Chinnery PF. Opportunities for mitochondrial disease gene therapy. Nat Rev Drug Discov. 2023 Jun;22(6):429-430. doi: 10.1038/d41573-023-00067-z. PMID: 37106085	

	Beltrà M, Pöllänen N, Fornelli C, Tonttila K, Hsu MY, Zampieri S, Moletta L, Corrà S, Porporato PE, Kivelä R, Viscomi C, Sandri M, Hulmi JJ, Sartori R, Pirinen E, Penna F. NAD^+ repletion with niacin counteracts cancer cachexia. Nat Commun. 2023 Apr 3;14(1):1849. doi: 10.1038/s41467-023-37595-6. PMID: 37012289; PMCID: PMC10070388 Brischigliaro M, Fernandez-Vizarra E, Viscomi C. Mitochondrial Neurodegeneration: Lessons from *Drosophila melanogaster* Models. Biomolecules. 2023 Feb 16;13(2):378. doi: 10.3390/biom13020378. PMID: 36830747; PMCID: PMC9953451 Legati A, Ghezzi D, Viscomi C. Mitochondrial DNA Sequencing and Heteroplasmy Quantification by Next Generation Sequencing. Methods Mol Biol. 2023;2615:381-395. doi: 10.1007/978-1-0716-2922-2_26. PMID: 36807805

19 - Aging signaling pathways

Principal Investigator	Prof. Marco Giorgio ORCID https://orcid.org/0000-0002-5842-6042 Scopus 6603620783 WoS ID I-9425-2012 Google Scholar Giorgio Marco
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Keywords	Aging; Redox signaling; Metabolism; Epigenetics
Members	Giorgio Marco — Associate Professor Persico Giuseppe — Research fellow
Research projects active in 2023	1. Titolare: Giorgio - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: A zebrafish xenograft platform to identify specific vulnerabilities in the metastatic cascade - Fonte di finanziamento: Italian public institutions
Publications 2023	SIRT6 promotes metastasis and relapse in HER2-positive breast cancer. Andreani C, Bartolacci C, Persico G, Casciaro F, Amatori S, Fanelli M, Giorgio M, Galié M, Tomassoni D, Wang J, Zhang X, Bick G, Coppari R, Marchini C, Amici A. Sci Rep. 2023.13:22000. The early-life stress induced by oxytocin inhibition in p53 knockout mouse dams increases adulthood tumorigenesis in first and second generations. Stendardo M, Renzi C, Pallavi R, Roda N, Gambino V, Casciaro F, Persico G, Giorgio M. Cancer Reports. 2023. 6:e1625. Small molecule-induced epigenomic reprogramming of APL blasts leading to antiviral-like response and c-MYC downregulation. Amatori S, Persico G, Cantatore F, Rusin M, Formica M, Giorgi L, Macedi E, Casciaro F, Errico Provenzano A, Gambardella S, Noberini R, Bonaldi T, Fusi V, Giorgio M, Fanelli M. Cancer Gene Ther. 2023. 30:671-682. Effect of the Enrichment in c-Kit Stem Cell Potential of Foetal Human Amniotic Fluid Cells: Characterization from Single Cell Analysis to the Secretome Content. Casciaro F, Beretti F, Gatti M, Persico G, Bertucci E, Giorgio M, Maraldi T. Biomedicines. 2023. 11:430. Toll-like receptor 9 signaling after myocardial infarction: Role of P66SHCA adaptor protein. Baysa A, Maghazachi A, Sand KL, Campesan M, Zaglia T, Mongillo M, Giorgio M, Di Lisa F, Gullestad L, Mariero LH, Vaage J, Valen G, Stensløkken K-O. Biochem Biophys Res Commun. 2023. 644:70-78.

20 - Oxidative metabolism in cardiac disease

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Keywords	mitochondria; reactive oxygen species; cardiac biology; heart failure; diabetic cardiomyopathy; anthracycline cardiotoxicity; cardiomyopathies
Members	Kaludercic Nina — RTD/B Arusei Ruth Jepchirchir — PhD Student Rahhali Karim — PhD Student Menabo' Roberta — CNR Technician Mena Debora — PhD student (University of Coimbra)
Research projects active in 2023	1. Titolare: Di Lisa/Kaludercic - Tipo progetto: Fondazione Leducq - Titolo: Targeting Mitochondria to Treat Heart Disease - Fonte di finanziamento: International private institutions 2. Titolare: Kaludercic - Tipo progetto: Fondazione Telethon - Titolo: “Multiround 21-24 – Round 2 2022 Track Basic” cod. GMR23T1047 “Repurposing of drugs targeting mitochondrial oxidant production to treat Duchenne-related cardiomyopathy” - Fonte di finanziamento: Italian private institutions
Publications 2023	Kaludercic N*, Arusei RJ, Di Lisa F*. Recent advances on the role of monoamine oxidases in cardiac pathophysiology. Basic Res Cardiol. 2023 Oct 4;118(1):41. doi: 10.1007/s00395-023-01012-2. *co-corresponding authors Rahhali K, Di Lisa F, Kaludercic N. IP_3 receptor trafficking at the ER-mitochondria contacts impacts on mitochondrial Ca^{2+} homeostasis and metabolism. Cell Calcium. 2023 Jan 25;110:102700. Di Sante M, Antonucci S, Pontarollo L, Cappellaro I, Segat F, Deshwal S, Greotti E, Grilo L, Menabò R, Di Lisa F, Kaludercic N. Monoamine oxidase A-dependent ROS formation modulates human cardiomyocyte differentiation through AKT and WNT activation. Basic Res Cardiol. 2023 Jan 20;118(1):4. Semenzato M, Kohr MJ, Quirin C, Menabò R, Alanova P, Alan L, Pellattiero A, Murphy E, Di Lisa F, Scorrano L. Oxidization of optic atrophy 1 cysteines occurs during heart ischemia-reperfusion and amplifies cell death by oxidative stress. Redox Biol. 2023 Jul;63:102755. Baysa A, Maghazachi AA, Sand KL, Campesan M, Zaglia T, Mongillo M, Giorgio M, Di Lisa F, Gullestad L, Mariero LH, Vaage J, Valen G, Stensløkken KO. Toll-like receptor 9 signaling after myocardial infarction:

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21 - Regulation of the Mitochondrial Proteome

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Keywords	mitochondria, nuclear encoded mitochondrial genes, transcriptional regulation, cancer, muscle disease
Members	Szabadkai Gyorgy — Associate Professor Maino Martina — Post-Doc DISCOG-DSB Menegollo Michela — Post-Doc Suman Matteo — Post-Doc Zampieri Sandra — Associate Professor DISCOG-DSB
Research projects active in 2023	1. Titolare: Szabadkai - Tipo progetto: Fondazione Fondazione AIRC per la Ricerca sul Cancro per la Ricerca sul Cancro - Titolo: Exploiting mitochondrial biogenesis pathways to stratify and target different breast cancer subtypes - Fonte di finanziamento: Italian private institutions
Publications 2023	Vitale I et al. Apoptotic cell death in disease-Current understanding of the NCCD. Cell Death Differ. 2023;30(5):1097-1154. doi: 10.1038/s41418-023-01153-w. Alzaydi MM, Abdul-Salam VB, Whitwell HJ, Russomanno G, Glynos A, Capece D, Szabadkai G, Wilkins MR, Wojciak-Stothard B. Intracellular Chloride Channels Regulate Endothelial Metabolic Reprogramming in Pulmonary Arterial Hypertension. Am J Respir Cell Mol Biol 2023

	Jan;68(1):103-115. doi: 10.1165/rcmb.2022-0111OC.

Muscle Physiology in Health and Disease

22 - Autonomic Control of Cardiac Function

Principal Investigator	Prof. Marco Mongillo ORCID https://orcid.org/0000-0002-1102-8709 Scopus 6602893697	
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Keywords	'Sympathetic neuron-cardiomyocyte' interactions Genetic and acquired cardiac arrhythmic diseases Arrhythmogenic Cardiomyopathy Cardiac Autonomic Nervous System Disease mechanisms in Amyotrophic Lateral Sclerosis Cardiac and neuronal optogenetics Calcium and GPCR signaling Animal models	
Members	Mongillo Marco Zaglia Tania Vittoria Di Mauro Guazzo Anna Moro Nicola Induja Perumal Vanaja Laura Poli Aurora Gastaldello Maria Claudia Di Salvo	Associate professor Associate professor Senior Postdoctoral fellow PhD Student Junior postdoctoral fellow Marie Curie research fellow Research Fellow Research Fellow Research fellow

Research projects active in 2023	1. Titolare: Mongillo - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: Deeply Learning to Predict Arrhythmias with Correlative Morpho-Functional Cardiac Imaging - Fonte di finanziamento: Italian public institutions 2. Titolare: Zaglia - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: Novel interrelationship among cardiomyocyte, sympathetic nervous system and gut microbiota abnormalities in the development of doxorubicin-induced cardi... - Fonte di finanziamento: Italian public institutions 3. Titolare: Zaglia - Tipo progetto: Fondazione Italiana di Ricerca per la SLA - AriSLA - Titolo: SYMP-ALS - Are sympathetic neurons additional and targetable players in Amyotrophic Lateral Sclerosis (ALS)? - Fonte di finanziamento: Italian private institutions 4. Titolare: Zaglia - Tipo progetto: Supporting Talent in ReSearch@University of Padua - STARS - Titolo: Peeping at sympathetic innervation of normal and diseased skeletal muscles through optogenetics - SKoOP - Fonte di finanziamento: University
Publications 2023	Schirone L, Vecchio D, Valenti V, Forte M, Relucenti M, Angelini A, Zaglia T, Schiavon S, D'Ambrosio L, Sarto G, Stanzione R, Mangione E, Miglietta S, Di Bona A, Fedrigo M, Ghigo A, Versaci F, Petrozza V, Marchitti S, Rubattu S, Volpe M, Sadoshima J, Frati L, Frati G, Sciarretta S. MST1 mediates doxorubicin-induced cardiomyopathy by SIRT3 downregulation. Cell Mol Life Sci. 2023 Aug 11;80(9):245. doi: 10.1007/s00018-023-04877-7. Hunt D, Mongillo M, Meo M, Zaglia T, Qanud K. Editorial: Cardiovascular neuromodulation: mechanisms and therapies. Front Cardiovasc Med. 2023 May 23;10:1214496. doi: 10.3389/fcvm.2023.1214496. eCollection 2023. Mazzaro A, Vita V, Ronfini M, Casola I, Klein A, Dobrowolny G, Sorarù G, Musarò A, Mongillo M, Zaglia T. Sympathetic neuropathology is revealed in muscles affected by amyotrophic lateral sclerosis. Front Physiol. 2023 May 12;14:1165811. doi: 10.3389/fphys.2023.1165811. eCollection 2023. Baysa A, Maghazachi AA, Sand KL, Campesan M, Zaglia T, Mongillo M, Giorgio M, Di Lisa F, Gullestad L, Mariero LH, Vaage J, Valen G, Stensløkken KO. Toll-like receptor 9 signaling after myocardial infarction: Role of p66ShcA adaptor protein. Biochem Biophys Res Commun. 2023 Feb 12;644:70-78. doi: 10.1016/j.bbrc.2022.12.085. Epub 2022 Dec 30.

23 - 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	Narici Marco — Full Professor De Vito Giuseppe — Full Professor Blaauw Bert — Associate professor Murgia Marta — Associate professor Toniolo Luana — Associate professor Franchi Martino — RTD/B Martino Giovanni — RTD/A Gonnelli Federica — Post-Doc Marcucci Lorenzo — Associate professor Motanova Evgeniia — PhD Student Nogara Leonardo — RTD/A Paganini Matteo — Post-Doc Zorzato Sabrina — PhD Student Cosimo De Napoli — PhD Student Mauro Montesel — Research fellow Giorgia Piccoli — Research fellow Georgia Ana Dumitras — Post-Doc Laura Cussonneau — Post-Doc Caputo Ornella — Post-Doc Sarto Fabio — Post-Doc Muller Brusco Clarissa — Post-Doc Camargo Scarpelli Maíra — Post-Doc Cerullo Giuseppe — Post-Doc Germinario Elena — Technician Bozzato Matteo — Research fellow
Research projects active in 2023	1. Titolare: Narici - Tipo progetto: Agenzia Spaziale Italiana ASI - Titolo: The MDS on LDC: Tissue Sharing Programme - Fonte di finanziamento: Italian public institutions 2. Titolare: Narici - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: Neuromuscular ageing: mechanisms and functional implications (NeuAge) - Fonte di finanziamento: Italian public institutions 3. Titolare: Franchi - Tipo progetto: Progetti di Rilevante Interesse

	Nazionale (PRIN) - Titolo: "Neuromuscular impairment in aging: a longitudinal study of structural and functional mechanistic bases of age-related alterations (Trajector-AGE)" - Fonte di finanziamento: Italian public institutions 4. Titolare: Narici - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: "Inactivity induced neuromuscular impairment through different ages: from children, to young and middle age adults (InactivAge)" - Fonte di finanziamento: Italian public institutions 5. Titolare: Blaauw - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: Attenuating the stress of the endoplasmic reticulum as a strategy to cure the multi-minicore disease - Fonte di finanziamento: Italian public institutions 6. Titolare: Blaauw - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) PNRR - Titolo: Understanding and targeting cancer and cancer-related muscle atrophy. - Fonte di finanziamento: Italian public institutions 7. Titolare: De Vito - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: Motoneuron plasticity throughout human life: non-invasive studies (MOPLAST) - Fonte di finanziamento: Italian public institutions 8. Titolare: De Vito - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) PNRR - Titolo: Unravelling the neural mechanisms underlying muscle weakness: the importance of early detection and treatment through a novel home-based intervention. - Fonte di finanziamento: Italian public institutions 9. Titolare: Franchi - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: Mapping the development of the neural control and functional structure of muscles in very preterm and full-term neonates: new tools for understanding motor ontogenesis and early diagnosis of neuromotor diseases - NEO-MUSCLE-MAP - Fonte di finanziamento: Italian public institutions 10. Titolare: Franchi - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) PNRR - Titolo: The countermeasures to the neuromuscular impairments induced by inactivity and disuse across different ages (ReActive-AGE) - Fonte di finanziamento: Italian public institutions 11. Titolare: Nogara - Tipo progetto: BIRD2023 - Titolo: Contractility and metabolics properties of ex-vivo skeletal muscle as a function of piperine derivatives fiber type selectivity. 12. Titolare: De Vito - Tipo progetto: JPI Appetite Titolo: Innovative plant Protein fibre and Physical activity solutions to address poor appEtite and prevenT undernutrITion in older adults. Fonte di Finanziamento: EU ERA-HDHL
Publications 2023	Marchioretti C, Zanetti G, Pirazzini M, Gherardi G, Nogara L, Andreotti R, Martini P, Marcucci L, Canato M, Nath SR. 2023. Defective excitation-contraction coupling and mitochondrial respiration precede mitochondrial Ca2+ accumulation in spinobulbar muscular atrophy

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Baraldo M, Zorzato S, Dondjang AHT, Geremia A, Nogara L, Dumitras AG, Canato M, Marcucci L, Nolte H, Blaauw B. 2022. Inducible deletion of raptor and mTOR from adult skeletal muscle impairs muscle contractility and relaxation. *The Journal of Physiology* 600:5055–5075.

Krause M, De Vito G. Type 1 and Type 2 Diabetes Mellitus: Commonalities, Differences and the Importance of Exercise and Nutrition. Nutrients. 2023 Oct 7;15(19):4279.

Pratt J, Pessanha L, Narici M, Boreham C, De Vito G. Handgrip strength asymmetry as a new biomarker for sarcopenia and individual sarcopenia signatures. Aging Clin Exp Res. 2023 Nov;35(11):2563-2571.

Pratt J, Whitton L, Ryan A, Juliusdottir T, Dolan J, Conroy J, Narici M, De Vito G, Boreham C. Genes encoding agrin (AGRN) and neurotrypsin (PRSS12) are associated with muscle mass, strength and plasma C-terminal agrin fragment concentration. Geroscience. 2023 Jun;45(3):1289-1302.

de Lemos Muller CH, Moritz CEJ, Schroeder HT, Battastini AMO, Reischak-Oliveira A, de Bittencourt Júnior PIH, De Vito G, Krause M. Influence of body composition and cardiorespiratory fitness on plasma HSP72, norepinephrine, insulin, and glucose responses to an acute aerobic exercise bout performed in the fed state. Cell Stress Chaperones. 2023 Nov;28(6):721-729.

Cronin K, Foley S, Cournane S, De Vito G, Kerin F, Farrell G, Delahunt E. The architectural characteristics of the hamstring muscles do not differ between male and female elite-level rugby union players. Front Physiol. 2023 Jan 27;14:1129061.

Kerin F, O'Flanagan S, Coyle J, Curley D, Farrell G, Persson UM, De Vito G, Delahunt E. Are all hamstring injuries equal? A retrospective analysis of time to return to full training following BAMIC type 'c' and T-junction injuries in professional men's rugby union. Scand J Med Sci Sports. 2024 Feb;34(2):e14586.

Monte A, Franchi M V. Regional muscle features and their association with knee extensors force production at a single joint angle. *Eur J Appl Physiol* 123: 2239–2248, 2023.

Franchi M V., Narici M V. Imaging of Skeletal Muscle Mass: Ultrasound. *Neuromethods* 204: 65–84, 2023.

Götschi T, Snedeker JG, Fitze DP, Sarto F, Spörri J, Franchi M V. Three-dimensional mapping of ultrasound-derived skeletal muscle shear wave velocity. *Front Bioeng Biotechnol* 11, 2023.

	Franchi M V., Badiali F, Sarto F, Müller P, Müller NG, Rehfeld K, Monti E, Rankin D, Longo S, Lund J, Hökelmann A, Narici M. Neuromuscular Aging: A Case for the Neuroprotective Effects of Dancing. Gerontology (2023). doi: 10.1159/000524843. Hinks A, Franchi M V., Power GA. Ultrasonographic measurements of fascicle length overestimate adaptations in serial sarcomere number. *Exp Physiol* 108: 1308–1324, 2023. Hinks A, Hawke TJ, Franchi M V., Power GA. The importance of serial sarcomere addition for muscle function and the impact of aging. *J Appl Physiol* 135: 375–393, 2023. Peek K, Franchi M, Lemmink K, Balsom P, Meyer T. Quality Criteria for Studies Assessing the Acute Effects of Heading: Results from a UEFA Expert Panel. *Sport. Med.* (December 27, 2023). Fitze DP, Franchi M V., Peterhans L, Frey WO, Spörri J. Reliability of panoramic ultrasound imaging and agreement with magnetic resonance imaging for the assessment of lumbar multifidus anatomical cross-sectional area. *Sci Rep* 13, 2023. Fitze DP, Franchi M V., Ellenberger L, Peterhans L, Fröhlich S, Frey WO, Spörri J. Lumbar Multifidus Morphology in Youth Competitive Alpine Skiers and Associated Sex, Age, Biological Maturation, Trunk Stability, and Back Complaints. *Sports Health* 15: 886–894, 2023. Götschi T, Franchi M V., Schulz N, Fröhlich S, Frey WO, Snedeker JG, Spörri J. Altered regional 3D shear wave velocity patterns in youth competitive alpine skiers suffering from patellar tendon complaints - a prospective case-control study. *Eur J Sport Sci* 23: 1068–1076, 2023. Sarto F, Bottinelli R, Franchi M V., Porcelli S, Simunič B, Pišot R, Narici M V. Pathophysiological mechanisms of reduced physical activity: Insights from the human step reduction model and animal analogues. *Acta Physiol (Oxf)* 238, 2023. Sirago G, Candia J, Franchi M V., Sarto F, Monti E, Toniolo L, Reggiani C, Giacomello E, Zampieri S, Hartnell LM, De Vito G, Sandri M, Ferrucci L, Narici M V. Upregulation of Sarcolemmal Hemichannels and Inflammatory Transcripts with Neuromuscular Junction Instability during Lower Limb Unloading in Humans. *Biol 2023, Vol 12, Page 431* 12: 431, 2023. Sirago G, Pellegrino MA, Bottinelli R, Franchi M V., Narici M V. Loss of neuromuscular junction integrity and muscle atrophy in skeletal muscle disuse. *Ageing Res Rev* 83, 2023. Valli G, Sarto F, Casolo A, Vecchio A Del, Franchi M V, Narici M V, De Vito G. Lower limb suspension induces threshold-specific alterations of motor units properties that are reversed by active recovery. *J. Sport Heal. Sci.* (

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24 - Pathophysiology of Striated Muscles

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Keywords	Cell Biology; Muscle Contraction; Skeletal Muscle; Skeletal Muscle Fibers; Muscular Dystrophy; Sarcoglycanopathies; Rare Diseases; Folding Defective Proteins; Small Molecule Therapy; Animal Models; Heart Development;
Members	Volpe Pompeo — Associate professor Sandona' Dorianna — Associate professor Murgia Marta — Associate professor Nori Alessandra — Researcher Campione Marina — CNR Researcher Dazzo Emanuela — CNR Researcher Scano Martina — Post doc Dalla Barba Francesco — PhD Student Benetollo Alberto — PhD Student Caccin Paola — Technician Carotti Marcello — Technician Furlan Sandra — CNR Technician
Research projects active in 2023	1. Titolare: Sandonà - Tipo progetto: Fondazione AFM Telethon - Titolo: CFTR correctors to treat sarcoglycanopathy, a repurposing story - Fonte di finanziamento: International private institutions 2. Titolare: Sandonà - Tipo progetto: Fondazione Telethon - Titolo: Repurposing CFTR correctors in Allan Herndon Dudley syndrome - Fonte di finanziamento: Italian private institutions 3. Titolare: Sandonà - Tipo progetto: Fondazione Telethon - Titolo: 3D modelling of rare muscular diseases, a powerful platform for basic studies and drug validation - Fonte di finanziamento: Italian private institutions
University-Business collaborations active in 2023	Framework agreement with the Department oF Proteomics and Signal Transduction, Max-Planck-Institute of Biochemistry (Marta Murgia)
Publications 2023	Calsequestrin in Purkinje cells of mammalian cerebellum.S. Furlan, B. Paradiso, E. Greotti, P. Volpe and A. Nori. Acta Histochemica 125, 152001, 1-11, 2023. Familial Mesial Temporal Lobe Epilepsy: Clinical Spectrum and Genetic Evidence for a Polygenic Architecture. Harris RV, Oliver KL, Perucca P, Striano P, Labate A, Riva A, Grinton BE, Reid J, Hutton J, Todaro M, O'Brien TJ, Kwan P, Sadleir LG, Mullen SA, Dazzo E, Crompton DE, Scheffer IE, Bahlo M, Nobile C, Gambardella A, Berkovic SF. Ann Neurol. 94:825-835 (2023). doi: 10.1002/ana.26765. Muscle Fiber Phenotype: A Culprit of Abnormal Metabolism and Function in Skeletal Muscle of Humans with Obesity. Nathan Serrano, Jon-Philippe K. Hyatt, Joseph A. Houmard, Marta Murgia, Christos S. Katsanos

	(2023).. AMERICAN JOURNAL OF PHYSIOLOGY: ENDOCRINOLOGY AND METABOLISM, ISSN: 0193-1849, doi: 10.1152/ajpendo.00190.2023 Plasma proteome profiling of healthy subjects undergoing bed rest reveals unloading-dependent changes linked to muscle atrophy. Marta Murgia, Lorenza Brocca, Elena Monti, Martino V. Franchi, Maximilian Zwiebel, Sophia Steigerwald, Emiliana Giacomello, Roberta Sartori, Sandra Zampieri, Giovanni Capovilla, Mladen Gasparini, Gianni Biolo, Marco Sandri, Matthias Mann and Marco V. Narici (2023). JOURNAL OF CACHEXIA, SARCOPENIA AND MUSCLE, vol. 14, p. 439-451, ISSN: 2190-6009, doi: 10.1002/jcsm.13146 Modeling Sarcoglycanopathy in Danio rerio. Dalla Barba F, Soardi M, Mouhib L, Risato G, Akyürek EE, Lucon-Xiccato T, Scano M, Benetollo A, Sacchetto R, Richard I, Argenton F, Bertolucci C, Carotti M, Sandonà D. Int J Mol Sci. 2023 Aug 11;24(16):12707. doi: 10.3390/ijms241612707. Synthesis and Evaluation of Bithiazole Derivatives As Potential α-Sarcoglycan Correctors. Ribaudo G, Carotti M, Ongaro A, Oselladore E, Scano M, Zagotto G, Sandonà D, Gianoncelli A. ACS Med Chem Lett. 2023 Jul 28;14(8):1049-1053. doi: 10.1021/acsmedchemlett.3c00046. eCollection 2023 Aug 10. Recent advances and current limitations of available technology to optically manipulate and observe cardiac electrophysiology. Marchal GA, Biasci V, Yan P, Palandri C, Campione M, Cerbai E, Loew LM, Sacconi L. Pflugers Arch. 2023 Nov;475(11):1357-1366. doi: 10.1007/s00424-023-02858-0. Epub 2023 Sep 28. Optogenetic manipulation of cardiac repolarization gradients using sub-threshold illumination. Marchal GA, Biasci V, Loew LM, Biggeri A, Campione M, Sacconi L. Front Physiol. 2023 May 5;14:1167524. doi: 10.3389/fphys.2023.1167524. eCollection 2023.

25 - Signaling pathways that control protein homeostasis in muscles

Principal Investigator	Prof. Marco Sandri Scopus 7006653510 Google Scholar Marco Sandri
Contact	marco.sandri@unipd.it 049 792 3264 website
Keywords	Muscle wasting; muscle growth, mitochondria, autophagy, ubiquitin proteasome, ageing sarcopenia, cancer cachexia inherited muscle disease, neuromuscular junction

Members	Sandri Marco	Full Professor
	Armani Andrea	Post-Doc
	Franco Romero Anais	Post-Doc
	Sartori Roberta	RTDa
	Pagliarusco Tommaso	Research fellow
	Perazzolo Eleonora	Research fellow
	Esposito Martina	PhD Student
	Ferrarese Giulia	PhD Student
	Tezze Caterina	Research fellow
	Steffan Davide	Post-Doc
	Masiero Giulio	PhD Student
	Turco Eloisa	PhD Student
	Pezzini Camilla	Post-Doc
	Scalabrin Marco	Post-Doc
	Romanello Vanina Natalia	RTD/B
Research projects active in 2023	1. Titolare: Sandri - Tipo progetto: Fondazione AIRC per la Ricerca sul Cancro - Titolo: Understanding bmp signalling in cancer cachexia - Fonte di finanziamento: Italian private institutions 2. Titolare: Sandri - Tipo progetto: Fondazione AFM Telethon - Titolo: Dissecting the role of an uncharacterized FoxO-dependent gene that controls autophagy and ageing - Fonte di finanziamento: International private institutions 3. Titolare: Armani - Tipo progetto: Marie Sklodowska-Curie Action - Titolo: Myo_LysoZOOM: An insight into lysosomal signature in muscle wasting - Fonte di finanziamento: European Commission 4. Titolare: Sandri - Tipo progetto: Fondazione CARIPARO - Titolo: Progetto di Eccellenza id 59566 "Exploring the neglected genome to discover new longevity-related genes - Fonte di finanziamento: Italian private institutions 5. Titolare: Sandri - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: DISSECTING MECHANISMS THAT CAUSE CANCER CACHEXIA - Fonte di finanziamento: Italian public institutions	
Publications 2023	Mina E, Wyart E, Sartori R, Angelino E, Zaggia I, Rausch V, Maldotti M, Pagani A, Hsu MY, Friziero A, Sperti C, Menga A, Graziani A, Hirsch E, Oliviero S, Sandri M, Conti L, Kautz L, Silvestri L, Porporato PE. FK506 bypasses the effect of erythroferrone in cancer cachexia skeletal muscle atrophy. Cell Rep Med. 2023 Dec 19;4(12):101306. doi: 10.1016/j.xcrm.2023.101306. Tezze C, Sandri M*, Tessari P*. Anabolic Resistance in the Pathogenesis of Sarcopenia in the Elderly: Role of Nutrition and Exercise in Young and Old People. Nutrients. 2023 Sep 20;15(18):4073. doi: 10.3390/nu15184073. * Co-corresponding Authors Leduc-Gaudet JP, Miguez K, Cefis M, Faitg J, Moamer A, Chaffer TJ, Reynaud O, Broering FE, Shams A, Mayaki D, Huck L, Sandri M, Gouspillou G, Hussain SNA. Autophagy ablation in skeletal muscles	

worsens sepsis-induced muscle wasting, impairs whole-body metabolism, and decreases survival iScience. 2023 Jul 25;26(8):107475. doi: 10.1016/j.isci.2023.107475. eCollection 2023 Aug 18.

Franco-Romero A, Leduc-Gaudet JP, Hussain SN, Gouspillou G, Sandri M. PHAF1/MYTHO is a novel autophagy regulator that controls muscle integrity. Autophagy. 2023 Jun 12:1-3. doi: 10.1080/15548627.2023.2224206-

Tezze C, Amendolagine FI, Nogara L, Baraldo M, Ciciliot S, Arcidiacono D, Zaramella A, Masiero G, Ferrarese G, Realdon S, Blaauw B, Detienne G, Beliën AT, Sandri M*, Mercken EM*.A combination of metformin and galantamine exhibits synergistic benefits in the treatment of sarcopenia. JCI Insight. 2023 Aug 8;8(15):e168787. doi: 10.1172/jci.insight.168787. * Co-corresponding Authors

Monti E, Sarto F, Sartori R, Zanchettin G, Löfler S, Kern H, Narici MV, Zampieri S. C-terminal agrin fragment as a biomarker of muscle wasting and weakness: a narrative review. J Cachexia Sarcopenia Muscle. 2023 Apr;14(2):730-744. doi: 10.1002/jcsm.13189.

Beltrà M, Pöllänen N, Fornelli C, Tonttila K, Hsu MY, Zampieri S, Moletta L, Corrà S, Porporato PE, Kivelä R, Viscomi C, Sandri M, Hulmi JJ, Sartori R*, Pirinen E*, Penna F*. NAD+ repletion with niacin counteracts cancer cachexia. Nat Commun. 2023 Apr 3;14(1):1849. doi: 10.1038/s41467-023-37595-6. * Co-corresponding Authors

Leduc-Gaudet JP, Franco-Romero A, Cefis M, Moamer A, Broering FE, Milan G, Sartori R, Chaffer TJ, Dulac M, Marcangeli V, Mayaki D, Huck L, Shams A, Morais JA, Duchesne E, Lochmuller H, Sandri M*, Hussain SNA*, Gouspillou G*. MYTHO is a novel regulator of skeletal muscle autophagy and integrity. Nat Commun. 2023 Mar 2;14(1):1199. doi: 10.1038/s41467-023-36817-1. * Co-corresponding authors

Marchioretti C, Zanetti G, Pirazzini M, Gherardi G, Nogara L, Andreotti R, Martini P, Marcucci L, Canato M, Nath SR, Zuccaro E, Chivet M, Mammucari C, Pacifici M, Raffaello A, Rizzuto R, Mattarei A, Desbats MA, Salviati L, Megighian A, Sorarù G, Pegoraro E, Belluzzi E, Pozzuoli A, Biz C, Ruggieri P, Romualdi C, Lieberman AP, Babu GJ, Sandri M, Blaauw B, Basso M, Pennuto M. Defective excitation-contraction coupling and mitochondrial respiration precede mitochondrial Ca2+ accumulation in spinobulbar muscular atrophy skeletal muscle. Nat Commun. 2023 Feb 6;14(1):602. doi: 10.1038/s41467-023-36185-w

Murgia M, Brocca L, Monti E, Franchi MV, Zwiebel M, Steigerwald S, Giacomello E, Sartori R, Zampieri S, Capovilla G, Gasparini M, Biolo G, Sandri M, Mann M, Narici MV. Plasma proteome profiling of healthy subjects undergoing bed rest reveals unloading-dependent changes linked to muscle atrophy. J Cachexia Sarcopenia Muscle. 2023 Feb;14(1):439-451. doi: 10.1002/jcsm.13146.

26 - Paolocci's lab

Principal Investigator	Prof. Nazareno Paolocci ORCID https://orcid.org/0000-0001-7011-997X Scopus 6701685289 Google Scholar Nazareno Paolocci
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Keywords	
Members	Paolocci Nazareno Associate Professor
Research projects active in 2023	1. Titolare: Paolocci Marcucci - Tipo progetto: Marie Sklodowska-Curie Action - Titolo: Heart Fi-Re - HEART Fine REgulation through mechanosensing in myosin filaments: merging theory and experiments into a multi-scale heart simulator - Fonte di finanziamento: European Commission

Neuroscience

27 - Circuit formation and function in the brain

Principal Investigator	Dr. Claudia Lodovichi ORCID https://orcid.org/0000-0002-0490-4846 Scopus 6505957685
Contact	claudia.lodovichi@unipd.it 049 792 3222 website
Keywords	Neuronal network dynamics and brain rhythms, in health and disease; In vivo, electrophysiology and two-photon imaging; optogenetics, behaviour.
Members	Lodovichi Claudia CNR Senior Scientist Brondi Marco CNR Post-Doc Di Soccio Antonio PhD student Albanesi Marica PhD student Tausani Lorenzo Research fellow
Publications 2023	Bruzzone, Matteo; Chiarello, Enrico; Maset, Andrea; Megighian, Aram; Lodovichi, Claudia; dal Maschio, Marco Light-Based Neuronal Circuit Probing in Living Brains at High Resolution: Constraints and Layouts for

	Integrating Neuronal Activity Recording and Modulation in Three Dimensions 2023. Book chapter in All-Optical Methods to Study Neuronal Function. DOI https://dx.doi.org/10.1007/978-1-0716-2764-8_3. Lodovichi C, Ratto GM. Control of circadian rhythm on cortical excitability and synaptic plasticity.Front Neural Circuits. 2023 Mar 30;17:1099598. doi: 10.3389/fncir.2023.1099598. eCollection 2023.PMID: 37063387 Berardi N, Lodovichi C, Tognini P, Sansevero G Common tune, different players: emerging molecular guiding factors in development and activity dependent remodelling of different neural circuits.Front Neural Circuits. 2023 Jun 8;17:1221634. doi: 10.3389/fncir.2023.1221634. Brondi M, Lodovichi C. Cranial Window for Acute and Chronic Optical Access to Record Neuronal Network Dynamics in the Olfactory Bulb. Methods Mol Biol. 2023;2710:131-148. doi: 10.1007/978-1-0716-3425-7_11.PMID: 37688730 Agrimi J, Bernardele L, Sbaiti N, Canato M, Marchionni I, Oeing CU, Vignoli B, Canossa M, Kaludercic N, Lodovichi C, Dal Maschio M, Paolocci Male violence disrupts estrogen receptor β signaling in the female hippocampus.bioRxiv. 2023 Sep 23:2023.09.23.559092. doi: 10.1101/2023.09.23.559092. Preprint.PMID: 37790349.

28 - Enlightening Brain Mechanisms

Principal Investigator	Dr. Marco Dal Maschio ORCID https://orcid.org/0000-0003-0150-6647 Scopus 650669295 WoS ID G-3871-2017	
Contact	marco.dalmaschio@unipd.it 049 827-6483 website	
Keywords	Systems Neuroscience; Sensori-motor integrations; Functional Brain Imaging; Psychophysics; Psychobiology; Light-based Technologies; Optogenetics	
Members	Dal Maschio Marco Agrimi Jacopo Lombardi Fabrizio Topal Kement Salamanca Marco Facchinello Nicola Ratto Gian Michele Ivan Marchionni	Associate professor Post-Doc Post-Doc Post-Doc PhD Student - PNC CNR Researcher CNR Researcher PTA UNIPD

Research projects active in 2023	1. Titolare: Agrimi - Tipo progetto: Marie Sklodowska-Curie Action - Titolo: PINK: Intimate partner violence disrupts the brain-heart axis in women - Fonte di finanziamento: European Commission 2. Titolare: Lombardi - Tipo progetto: Marie Sklodowska-Curie Action - Titolo: BRAINCIP: Brain-wide Criticality and Information Processing - Fonte di finanziamento: European Commission 3. Titolare: Lombardi - Tipo progetto: STARS-STG - Titolo: BRAINCIP: Brain-wide Criticality and Information Processing - Fonte di finanziamento: UNIPD 4. PRIN2022, tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: “Analysis of low-dimensional dynamics in biological and artificial neural networks” - Fonte di finanziamento: Italian public institutions 5. PRIN2020, tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: “Free energy principle and the brain: neuronal and phylogenetic mechanisms of Bayesian inference” - Fonte di finanziamento: Italian public institutions
Publications 2023	Light-Based Neuronal Circuit Probing in Living Brains at High Resolution: Constraints and Layouts for Integrating Neuronal Activity Recording and Modulation in Three Dimensions. Bruzzone M, Chiarello E, Maset A, Megighian A, Lodovichi C, dal Maschio M. 2023 Feb 21. In: Papagiakoumou E, editor. All-Optical Methods to Study Neuronal Function [Internet]. New York: Humana; 2023. Chapter 3. Spectrally Focused Stimulated Raman Scattering (sf-SRS) Microscopy for Label-Free Investigations of Molecular Mechanisms in Living Organisms. Váczi T, Himics L, Bruzzone M, Veres M, dal Maschio M. 2023 Feb 21. In: Papagiakoumou E, editor. All-Optical Methods to Study Neuronal Function [Internet]. New York: Humana; 2023. Chapter 13.

29 - Migraine Pathophysiology

Principal Investigator	Prof. Daniela Pietrobon ORCID https://orcid.org/0000-0002-5148-8670 Scopus 7003670065 Google Scholar Daniela Pietrobon
Contact	daniela.pietrobon@unipd.it 049 827 6052 website
Keywords	Neuroscience; Neurological Diseases; Neurobiology; Neurophysiology;

	Electrophysiology; Synaptic Transmission; Migraine
Members	Pietrobon Daniela — Full Professor Cancedda Enzo — PhD Student Zarin Zadeh Maral — Research fellow Vitale Marina — PhD Student
Research projects active in 2023	1. Titolare: Pietrobon - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: Cellular and circuit mechanisms of migraine: a multiscale approach - Fonte di finanziamento: Italian public institutions 2. Titolare: Pietrobon - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: Mechanisms of susceptibility to cortical spreading depression in migraine: a multiscale approach - Fonte di finanziamento: Italian public institutions
Publications 2023	Vitale M, Tottene A, Zarin Zadeh M, Brennan KC, Pietrobon D. Mechanisms of initiation of cortical spreading depression. J Headache Pain 2023 24:105 Conti F, Pietrobon D. Astrocytic glutamate transporters and migraine. Neurochem Res 2023 48:1167-1179

30 - Modulators and actuators of synaptic plasticity in healthy and diseased brains

Principal Investigator	Prof. Marco Mainardi ORCID https://orcid.org/0000-0003-2001-1287 Scopus 26424686300 Google Scholar Marco Mainardi
Contact	marco.mainardi@unipd.it 049 827 6055
Keywords	Neuroscience; patch-clamp; learning and memory; environmental enrichment; adeno associated viral vectors; genetically encoded probes; confocal microscopy; behavioral testing
Members	Mainardi Marco — Associate Professor De La Ossa Guerra Josè Gustavo — Research fellow Ferrara Valentina — Research fellow
Research projects active in 2023	1. Titolare: Mainardi - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: ROAD MAPS – Revealing determinants Of Alzheimer's Disease via Multilevel Analysis of Potentiated Synapses - Fonte di finanziamento: Italian public

	institutions 2. Titolare: Mainardi - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) PNRR - Titolo: Discovering the Effectors of LIfestyle-driven Memory enhancement via InflammaTion - DELIMIT - Fonte di finanziamento: Italian public institutions
Publications 2023	Sale A, Noale M, Cintoli S, Tognoni G, Braschi C, Berardi N, Maggi S, Maffei L; Train the Brain Consortium*. “Long-term beneficial impact of the randomised trial 'Train the Brain', a motor/cognitive intervention in mild cognitive impairment people: effects at the 14-month follow-up.” Age and Ageing 2023 May 1;52(5):afad067. doi: 10.1093/ageing/afad067. *Marco Mainardi is a member of the “Train the Brain” consortium. De Vincentiis S, Baggiani M, Merighi F, Cappello V, Lopane J, Di Caprio M, Costa M, Mainardi M, Onorati M, Raffa V. “Low Forces Push the Maturation of Neural Precursors into Neurons.” Small 2023 Apr 14 19(30):2205871. doi: 10.1002/smll.202205871. Pacifico P, Testa G, Amodeo R, Mainardi M, Tiberi A, Convertino D, Arevalo JC, Marchetti L, Costa M, Cattaneo A, Capsoni S. “Human TrkAR649W mutation impairs nociception, sweating and cognitive abilities: a mouse model of HSAN IV”. Human Molecular Genetics 2023 32(8):1380-400. doi: 10.1093/hmg/ddac295.

31 - Molecular and cellular mechanisms of neurodegenerative and neuromuscular diseases

Principal Investigator	Prof. Alessandro Bertoli ORCID https://orcid.org/0000-0003-1202-0191 Scopus 7005055131 WoS ID C-1903-2014 Google Scholar Alessandro Bertoli	
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Keywords	Biochemistry; Molecular Biology; Neuroscience; Protein Aggregation; Biotechnology; Amyotrophic Lateral Sclerosis; Neurodegeneration; Genetically Modified Mouse Models; Yeast	
Members	Bertoli Alessandro Lopreiato Raffaele Sartori Geppo Granuzzo Sara Righetto Francesca	Associate Professor Assistant Professor Assistant Professor PhD Student PhD Student

	Massimino Maria Lina IN-CNR Researcher Tonello Fiorella IN-CNR Researcher
University - Business collaborations active in 2023	1. Titolare: Lopreiato - Tipo progetto: Commerciale - Titolo: Contratto c/terzi ITALIANA BIOTECNOLOGIE SRL Rep. 64/2023 "Costruzione e caratterizzazione funzionale di ceppi di lievito geneticamente modificati per applicazioni fermentative industriali"
Publications 2023	Doni D , Cavion F, Bortolus M, Baschiera E, Muccioli S, Tombesi G, D'Ettorre F, Ottaviani D, Marchesan E, Leanza L, Greggio E, Ziviani E, Russo A, Bellin M, Sartori G, Carbonera D, Salviati L, Costantini P (2023). Human frataxin, the Friedreich ataxia deficient protein, interacts with mitochondrial respiratory chain. CELL DEATH & DISEASE, vol. 14, ISSN: 2041-4889, doi: 10.1038/s41419-023-06320-y Ancora C, Marchi M, Bonardi CM, Sartori G, Lopreiato R, Zuccarello D, D'Errico I, Nosadini M, Sartori S, Boniver C, Toldo I, Salviati L (2023). Electroclinical features in two novel STRADA patients and a functional yeast assay for the validation of missense STRADA mutations. PEDIATRIC NEUROLOGY, vol. 148, p. 152-156, ISSN: 0887-8994, doi: 10.1016/j.pediatrneurol.2023.08.018 Granuzzo S, Righetto F, Peggion C, Bosaro M, Frizzarin M, Antoniali P, Sartori G, Lopreiato R (2023). Sulphate Uptake Plays a Major Role in the Production of Sulphur Dioxide by Yeast Cells during Oenological Fermentations. FERMENTATION, vol. 9, ISSN: 2311-5637, doi: 10.3390/fermentation9030280 Peggion C, Massimino ML, Pereira D, Granuzzo S, Righetto F, Bortolotto R, Agostini J, Sartori G, Bertoli A, Lopreiato R (2023). Structural Integrity of Nucleolin Is Required to Suppress TDP-43-Mediated Cytotoxicity in Yeast and Human Cell Models. INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES, vol. 24, ISSN: 1422-0067, doi: 10.3390/ijms242417466 Stella R, Bonadio RS, Cagnin S, Andreotti R, Massimino ML, Bertoli A, Peggion C. (2023) Secreted Metabolome of ALS-Related hSOD1(G93A) Primary Cultures of Myocytes and Implications for Myogenesis CELLS, 12(23): 2751. doi: 10.3390/cells12232751. Montoya-Gómez A, Tonello F, Spolaore B, Massimino ML, Montealegre-Sánchez L, Castillo A, Rivera Franco N, Sevilla-Sánchez MJ, Solano-Redondo LM, Mosquera-Escudero M, Jiménez-Charris E. (2023) Pllans-II: Unveiling the Action Mechanism of a Promising Chemotherapeutic Agent Targeting Cervical Cancer Cell Adhesion and Survival Pathways. CELLS, 12(23): 2715. doi: 10.3390/cells12232715. Tonello F. (2023) Secretory Phospholipases A2, from Snakebite

	Envenoming to a Myriad of Inflammation Associated Human Diseases-What Is the Secret of Their Activity? INTERNATIONAL JOURNAL OF MOLECULAR SCIENCES, 24(2): 1579. doi: 10.3390/ijms24021579. Spisni E, Valerii MC, Massimino ML. (2023) Essential Oil Molecules Can Break the Loop of Oxidative Stress in Neurodegenerative Diseases. Biology (Basel), 12(12): 1504. doi: 10.3390/biology12121504.

32 - Neuronal networks physiology and neurotechnologies (NeuroChip lab)

Principal Investigator	Prof. Stefano Vassanelli ORCID https://orcid.org/0000-0003-0389-8023 Scopus 6602922285 Google Scholar Stefano Vassanelli
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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 — RTD/A Cancedda Enzo — PhD Student Leparulo Alessandro — Technician Maschietto Marta — Technician Amato Leonardo — Research fellow
Research projects active in 2023	1. Titolare: Vassanelli - Tipo progetto: Horizon 2020 - RIA - Titolo: SYNCH-A SYnaptically connected brain-silicon Neural Closed-loop Hybrid system - Fonte di finanziamento: European Commission 2. Titolare: Vassanelli - Tipo progetto: Horizon 2020 - RIA - Titolo: Open Neureka A smart, hybrid neural-computo device for drug discovery - Fonte di finanziamento: European Commission 3. Titolare: Vassanelli - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: Autonomous In-vivo Brain-Machine-Interface in 28nm-CMOS technology with Ultrasound-based Power-Harvester and Communication-Link (Brain28nm) - Fonte di finanziamento: Italian public institutions 4. Titolare: Cecchetto - Tipo progetto: PNRR-MSCA Young Researchers 2022 - TItolo: Evoked NEUronal PAtterns Generated by Electrical and Sensory stimulation in mice somatosensory

	cortex - Fonte di finanziamento: Ministero dell'Università e della Ricerca (MUR)
Publications 2023	Tzouvadaki I, Gkoupidenis P, Vassanelli S, Wang S, Prodromakis T. Interfacing Biology and Electronics with Memristive Materials. Adv Mater. 2023 Aug;35(32):e2210035. doi: 10.1002/adma.202210035. Epub 2023 Jun 29. PMID: 36829290. M. Fabietti et al., "Early Detection of Alzheimer's Disease From Cortical and Hippocampal Local Field Potentials Using an Ensembled Machine Learning Model," in IEEE Transactions on Neural Systems and Rehabilitation Engineering, vol. 31, pp. 2839-2848, 2023, doi: 10.1109/TNSRE.2023.3288835.

33 – Neuron and Glia signaling in brain function and dysfunction

Principal Investigator	Dr. Gabriele Deidda ORCID https://orcid.org/0000-0002-0721-4971 Google Scholar Gabriele Deidda Scopus 55332049100
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Keywords	cerebral stroke, plasticity, behaviour, GABA, in vivo, electrophysiology, calcium imaging
Members	Deidda Gabriele — RTD/A Beretta Emanuela — PhD Student Gianmarco Cuboni — PhD Student Giulio Morri — PhD Student Vignozzi Livia — PhD Student Stefano Varani — Post-Doc Allegra Manuela — CNR Researcher Mariotti Letizia — CNR Researcher
Research projects active in 2023	1. Titolare: Deidda - Tipo progetto: Fondazione CARIPARO - Titolo: Modulation of neuron-astrocyte signalling combined with motor training as an innovative approach to enahance recovery after stroke -aSTROke - Fonte di finanziamento: Italian private institutions 2. Titolare: Deidda - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: Physiological neuronal activity in the

	control of glioma progression and tumor microenvironment - Fonte di finanziamento: Italian public institutions
Publications 2023	Fabris F, Varani S, Tonellato M, Matak I, Šoštarić P, Meglić P, Caleo M, Megighian A, Rossetto O, Montecucco C, Pirazzini M. Facial neuromuscular junctions and brainstem nuclei are the target of tetanus neurotoxin in cephalic tetanus. JCI Insight. 2023 Jun 8;8(11):e166978. Lia A., Sansevero G., Chiavegato A., Sbrissa M., Pendin D., Mariotti L., Pozzan T., Berardi N., Carmignoto G., Fasolato C. and Zonta M. Rescue of astrocyte activity by the calcium sensor STIM1 restores long-term synaptic plasticity in female mice modelling Alzheimer's disease. Nat. Commun. 14, 1590 (2023). https://doi.org/10.1038/s41467-023-37240-2

34 - Neuroparalysis and Neuroregeneration Lab

Principal Investigator	Prof. Ornella Rossetto ORCID https://orcid.org/0000-0002-6113-3857 Scopus 7003372229 Google Scholar Rossetto Ornella	
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Keywords	Botulinum neurotoxins, neuromuscular junction, peripheral nerve regeneration, peripheral neuropathies, Drosophila Neurophysiology and Behavior	
Members	Rossetto Ornella Megighian Aram Rigoni Michela Richter Sandy Varani Stefano Baggio Chiara Tonellato Marika Amoretti Stefano D'Este Giorgia Schiavone Giorgia Tonellato Marika Zainotto Marica Pirazzini Marco Fabris Federico D'Este Giorgia Negro Samuele Simonato Morena	Associate professor Associate professor Associate professor Post-Doc Post-Doc Research fellow PhD Student PhD Student Post-Doc PhD Student PhD Student PhD Student Associate professor Post-Doc Post-Doc Post-Doc CNR Technician

	Montecucco Cesare Emeritus
Research projects active in 2023	1. Titolare: Rossetto - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: "Modulating synaptic neurotransmission to reactivate the immune reaction against brain tumors" - Fonte di finanziamento: Italian public institutions 2. Titolare: Pirazzini - Tipo progetto: Supporting Talent in ReSearch@University of Padua - STARS - Titolo: CRAFTER - Fonte di finanziamento: University 3. Titolare: Rigoni - Tipo progetto: Progetto Eccellenza CARIPARO. Titolo: “CXCR4: a marker of neurotransmission failure and a target for neuromuscular function recovery”. Fonte di finanziamento: Italian private institutions 4. Titolare: Rigoni - Tipo progetto: Arisla Pilot Grant. Titolo: “Boosting regeneration in ALS motor neurons by targeting the periphery.” Fonte di finanziamento: Italian private institutions 5. Responsabile di unità: Rigoni - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: “A 3D BIOprinted SpinAl cord Model to reach functional meaningful and clinically translatable rEgeneration (3D-BIOSAME)”. Fonte di finanziamento: Italian public institutions
University - Business collaboration active in 2023	1. Titolare: Pirazzini - Tipo progetto: Commerciale - Titolo: Contratto di ricerca c/terzi Fastox Pharma SA Rep. 196/2022 "Effect of postsynaptic inhibitors on bont action - PHASE 2"
Publications 2023	Leka O, Wu Y, Zanetti G, Furler S, Reinberg T, Marinho J, Schaefer JV, Plückthun A, Li X, Pirazzini M, Kammerer RA. A DARPin promotes faster onset of botulinum neurotoxin A1 action. Nat Commun. 2023 Dec 18;14(1):8317. Rossetto O, Pirazzini M, Montecucco C. Three players in the 'toxic affair' between botulinum neurotoxin type A and neurons. Trends Neurosci. 2023 Sep;46(9):695-697. Fabris F, Varani S, Tonellato M, Matak I, Šoštarić P, Meglić P, Caleo M, Megighian A, Rossetto O, Montecucco C, Pirazzini M. Facial neuromuscular junctions and brainstem nuclei are the target of tetanus neurotoxin in cephalic tetanus. JCI Insight. 2023 Jun 8;8(11):e166978. Zuccaro E, Marchioretti C, Pirazzini M, Pennuto M. Introduction to the Special Issue "Skeletal Muscle Atrophy: Mechanisms at a Cellular Level". Cells. 2023 Feb 3;12(3):502. Marchioretti C, Zanetti G, Pirazzini M, Gherardi G, Nogara L, Andreotti R, Martini P, Marcucci L, Canato M, Nath SR, Zuccaro E, Chivet M, Mammucari C, Pacifici M, Raffaello A, Rizzuto R, Mattarei A, Desbats MA,

	Salviati L, Megighian A, Sorarù G, Pegoraro E, Belluzzi E, Pozzuoli A, Biz C, Ruggieri P, Romualdi C, Lieberman AP, Babu GJ, Sandri M, Blaauw B, Basso M, Pennuto M. Defective excitation-contraction coupling and mitochondrial respiration precede mitochondrial Ca^{2+} accumulation in spinobulbar muscular atrophy skeletal muscle. Nat Commun. 2023 Feb 6;14(1):602.

35 - Pathogenesis of neurological and neuromuscular diseases

Principal Investigator	Prof. Maria Pennuto ORCID https://orcid.org/0000-0001-8634-0767 Scopus 55897284500 WoS ID E-3270-2019 Google Scholar Maria Pennuto	
Contact	maria.pennuto@unipd.it 049 827 6069 website	
Keywords	Neurodegenerative Diseases; Neurobiology; Steroid hormones; cancer; post-translational modifications; aging.	
Members	Pennuto Maria Zuccaro Emanuela Marchioretti Caterina Falconieri Antonella Bincoletto Giacomo Boarolo Giulia Andreotti Roberta Aravamudhan Aishwarya Boschelle Chiara Bregolin Elisa Zito Simona Gregoris Francesco	Associate Professor RTD/A Post-doc Post-doc PhD student PhD student PhD Student PhD Student PhD Student PhD Student PhD Student PhD Student
Research projects active in 2023	1. Titolare: Pennuto - Tipo progetto: Fondazione AFM Telethon - Titolo: Targeting AR CO-Regulators to attenuate spinal and bulbar muscular atrophy - Fonte di finanziamento: International private institutions 2. Titolare: Pennuto - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: The interplay between the “RNA/protein quality control system” and “exosomes” as a spreading mechanism in amyotrophic lateral sclerosis [EX_ALS] - Fonte di finanziamento: Italian public institutions	

	3. Titolare: Pennuto - Tipo progetto: Fondazione Telethon - Titolo: Alternative translation initiation as a novel strategy to block toxicity of the mutant Androgen Receptor in SBMA - Fonte di finanziamento: Italian private institutions 4. Titolare: Zuccaro - Tipo progetto: Supporting Talent in ReSearch@University of Padua - STARS - Titolo: MOSAIC - Decoding diversity and eclectic vulnerability of alpha motor neuron classes in the adult spinal cord - Fonte di finanziamento: University 5. Titolare: Pennuto - Tipo progetto: Fondazione AIRC per la Ricerca sul Cancro - Titolo: Targeting von Hippel Lindau protein/androgen receptor functional interaction to tackle renal cell carcinoma - Fonte di finanziamento: Italian private institutions 6. Titolare: Pennuto - Tipo progetto: Fondazione AFM Telethon - Titolo: Development of a therapeutic strategy to suppress LSD1 and PRMT6-mediated toxic gain of function in SBMA - Fonte di finanziamento: International private institutions 7. Titolare: Pennuto - Tipo progetto: Fondazione AFM Telethon - Titolo: Allosteric agonism of purinergic P2X7 receptor - Fonte di finanziamento: International private institutions 8. Titolare: Pennuto - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: DEVELOPMENTAL ROLE OF THE MUTANT ANDROGEN RECEPTOR CAUSATIVE OF SPINAL AND BULBAR MUSCULAR ATROPHY (SBMA) - Fonte di finanziamento: Italian public institutions 9. Titolare: Zuccaro - Tipo progetto: Fondazione AFM Telethon - Titolo: Investigating motor neuron vulnerability in Spinal-Bulbar Muscular Atrophy (SBMA - Fonte di finanziamento: International private institutions
University - Business collaborations active in 2023	1. Titolare: Pennuto - Tipo progetto: Commerciale - Titolo: “Contratto c/terzi CNCCS Rep.82/2023 esecuzione quota ricerca Progetto B - Centro per la Ricerca di nuovi farmaci per Malattie Rare, Trascurate e della Povertà, Sp2 - Malattie rare, WP7” 2. Arvinas
Publications 2023	The value of serum creatinine as biomarker of disease progression in spinal and bulbar muscular atrophy (SBMA). Blasi L, Sabbatini D, Fortuna A, Querin G, Martinelli I, Vianello S, Bertolin C, Pareyson D, Pennuto M, Pegoraro E, Bello L, Sorarù G. Sci Rep. 2023 Oct 12;13(1):17311. doi: 10.1038/s41598-023-44419-6. PMID: 37828349. Increased SIRT3 combined with PARP inhibition rescues motor function of SBMA mice. Garcia Castro DR, Mazuk JR, Heine EM, Simpson D, Pinches RS, Lozzi C, Hoffman K, Morrin P, Mathis D, Lebedev MV, Nissley E, Han KH, Farmer T, Merry DE, Tong Q, Pennuto M, Montie HL. iScience. 2023 Jul 22;26(8):107375. doi: 10.1016/j.isci.2023.107375. eCollection 2023 Aug 18. PMID: 37599829. Spinal and bulbar muscular atrophy: From molecular pathogenesis to pharmacological intervention targeting skeletal muscle.

	Marchioretti C, Andreotti R, Zuccaro E, Lieberman AP, Basso M, Pennuto M. Curr Opin Pharmacol. 2023 Aug;71:102394. doi: 10.1016/j.coph.2023.102394. Epub 2023 Jul 16. PMID: 37463556. Introduction to the Special Issue "Skeletal Muscle Atrophy: Mechanisms at a Cellular Level". Zuccaro E, Marchioretti C, Pirazzini M, Pennuto M. Cells. 2023 Feb 3;12(3):502. doi: 10.3390/cells12030502. PMID: 36766844. Defective excitation-contraction coupling and mitochondrial respiration precede mitochondrial Ca2+ accumulation in spinobulbar muscular atrophy skeletal muscle. Marchioretti C, Zanetti G, Pirazzini M, Gherardi G, Nogara L, Andreotti R, Martini P, Marcucci L, Canato M, Nath SR, Zuccaro E, Chivet M, Mammucari C, Pacifici M, Raffaello A, Rizzuto R, Mattarei A, Desbats MA, Salviati L, Megighian A, Sorarù G, Pegoraro E, Belluzzi E, Pozzuoli A, Biz C, Ruggieri P, Romualdi C, Lieberman AP, Babu GJ, Sandri M, Blaauw B, Basso M, Pennuto M. Nat Commun. 2023 Feb 6;14(1):602. doi: 10.1038/s41467-023-36185-w. PMID: 36746942. LSD1/PRMT6-targeting gene therapy to attenuate androgen receptor toxic gain-of-function ameliorates spinobulbar muscular atrophy phenotypes in flies and mice. Prakasam R, Bonadiman A, Andreotti R, Zuccaro E, Dalfovo D, Marchioretti C, Tripathy D, Petris G, Anderson EN, Migazzi A, Tosatto L, Cereseto A, Battaglioli E, Sorarù G, Lim WF, Rinaldi C, Sambataro F, Pourshafie N, Grunseich C, Romanel A, Pandey UB, Contestabile A, Ronzitti G, Basso M, Pennuto M. Nat Commun. 2023 Feb 6;14(1):603. doi: 10.1038/s41467-023-36186-9. PMID: 36746939 Bicalutamide and Trehalose Ameliorate Spinal and Bulbar Muscular Atrophy Pathology in Mice. Galbiati M, Meroni M, Boido M, Cescon M, Rusmini P, Crippa V, Cristofani R, Piccolella M, Ferrari V, Tedesco B, Casarotto E, Chierichetti M, Cozzi M, Mina F, Cicardi ME, Pedretti S, Mitro N, Caretto A, Risè P, Sala A, Lieberman AP, Bonaldo P, Pennuto M, Vercelli A, Poletti A. Neurotherapeutics. 2023 Mar;20(2):524-545. doi: 10.1007/s13311-023-01343-x. Epub 2023 Jan 30. PMID: 36717478 Antagonistic effect of cyclin-dependent kinases and a calcium-dependent phosphatase on polyglutamine-expanded androgen receptor toxic gain of function. Piol D, Tosatto L, Zuccaro E, Anderson EN, Falconieri A, Polanco MJ, Marchioretti C, Lia F, White J, Bregolin E, Minervini G, Parodi S, Salvatella X, Arrigoni G, Ballabio A, La Spada AR, Tosatto SCE, Sambataro F, Medina DL, Pandey UB, Basso M, Pennuto M. Sci Adv. 2023 Jan 6;9(1):eade1694. doi: 10.1126/sciadv.ade1694. Epub 2023 Jan 6. PMID: 36608116.

36 - Astrocyte-neuron interaction in physiology and pathology (Astrolábos lab)

Principal Investigator	Dr. Zonta Micaela ORCID https://orcid.org/0000-0002-9982-6405 Google Scholar https://scholar.google.it/citations?user=AyyzuaMAAAAJ&hl=it Scopus https://www.scopus.com/authid/detail.uri?authorId=6603229350
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Keywords	Astrocytes, neuron-astrocyte interaction, calcium signalling, electrophysiology, Alzheimer's Disease
Members	Zonta Micaela — CNR Tehcnologist Marta Gomez-Gonzalo — CNR Researcher Chiavegato Angela — DSB Technician Alessandro Di Spiezio — CNR Post-Doc Michele Speggiorin — DSB PhD Student
Publications 2023	Lia A., Sansevero G., Chiavegato A., Sbrissa M., Pendin D., Mariotti L., Pozzan T., Berardi N., Carmignoto G., Fasolato C. and Zonta M. Rescue of astrocyte activity by the calcium sensor STIM1 restores long-term synaptic plasticity in female mice modelling Alzheimer's disease. Nat. Commun. 14, 1590 (2023). https://doi.org/10.1038/s41467-023-37240-2 Lia A, Di Spiezio A, Speggiorin M and Zonta M (2023) Two decades of astrocytes in neurovascular coupling. Frontiers in Network Physiology. 10.3389/fnetp.2023.1162757 Lia A, Di Spiezio A, Vitalini L, Tore M, Puja G and Losi G (2023) Ion Channels and Ionotropic Receptors in Astrocytes: Physiological Functions and Alterations in Alzheimer's Disease and Glioblastoma. Life doi: 10.3390/life13102038

Physical Activity, Nutrition, and Health

37 - Nutrition and Exercise Lab (NUTEXlab)

Principal Investigator	Prof. Antonio Paoli ORCID https://orcid.org/0000-0003-0474-4229 Scopus 24081140700 WoS ID A-6151-2015 Google Scholar Antonio Paoli
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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 Bosco Gerardo — Associate Professor Marcolin Giuseppe — Associate Professor Moro Tatiana — Associate Professor Erica Gobbi — Associate Professor Campa Francesco — RTDB Casolo Andrea — RTD/B Gennaro Federico — RTD/A Rizzato Alex — RTD/A Gioi Spinello — BMCS PhD Student Valeria Stircu — BMCS PhD Student Davide Charrier — BMCS PhD Student Sampieri Alessandro — BMCS PhD Student Simoni Luca — BMCS PhD Student
Research projects active in 2023	1. Titolare: Paoli - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) - Titolo: ACTLIFE: is active life style enough for health and wellbeing? - Fonte di finanziamento: Italian public institutions 2. Titolare: Bosco - Tipo progetto: Office of Naval Research (ONR) - Titolo: Co.De. 1 Compession and Decompression Stress in Diving: How are gases differentially managed in the brains of BHD and SCUBA - Fonte di finanziamento: Intergovernmental organizations 3. Titolare: Paoli - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: Glycogen depletion, nutritional ketosis and exercise fatigue: novel assessment methods and psychobiological mechanisms - Fonte di finanziamento: Italian

	public institutions 4. Titolare: Gobbi - Tipo progetto: Progetti di Rilevante Interesse Nazionale (PRIN) 2022 - Titolo: E-Hand. Empowering middle childhood Handwriting - Fonte di finanziamento: Italian public institutions
University - Business collaborations active in 2023	1. Titolare: Paoli - Tipo progetto: Commerciale - Titolo: Contratto di ricerca c/terzi IMAP srl Rep. 182/2022 "Effetti di un'attrezzatura criogenica nella risposta muscolare all'esercizio con sovraccarichi" 2. Titolare: Marcolin - Tipo progetto: Commerciale - Titolo: Contratto di ricerca c/terzi LEDRAGOMMA S.r.l. Rep. 89/2023 per lo svolgimento dell'attività di "Sviluppo di nuovi protocolli di esercizio per palloni ginnici"
Publications 2023	Rizzato A, Dalla Costa VG, Bozzato M, Paoli A, Marcolin G. Concurrent activation potentiation improves lower-limb maximal strength but not dynamic balance control in rugby players. Front Bioeng Biotechnol. 2024 Jan 5;11:1270322. doi: 10.3389/fbioe.2023.1270322 Campa F, Bongiovanni T, Rossi A, Cerullo G, Casolo A, Martera G, Trecroci A, Moro T, Paoli A. Athletic bioimpedance-based equations underestimate fat free mass components in male elite soccer players: development and validation of new soccer-specific predictive models. J Transl Med 21, 912 (2023). https://doi.org/10.1186/s12967-023-04795-z Campa F, Coratella G, Cerullo G, Stagi S, Paoli S, Marini S, Grigoletto A, Moroni A, Petri C, Andreoli A, Ceolin C, Degan R, Izzicupo P, Sergi G, Mascherini G, Micheletti Cremasco M, Marini E, Toselli S, Moro T, Paoli A. New bioelectrical impedance vector references and phase angle centile curves in 4,367 adults: The need for an urgent update after 30 years. Clin Nutr. 2023 Jul 31;42(9):1749-1758. doi: 10.1016/j.clnu.2023.07.025 Paoli A, Bianco A, Moro T, Mota JF, Coelho-Ravagnani CF. The Effects of Ketogenic Diet on Insulin Sensitivity and Weight Loss, Which Came First: The Chicken or the Egg? Nutrients. 2023; 15(14):3120. Rizzato A, Bozzato M, Zullo G, Paoli A, Marcolin G. Center of Pressure Behavior in Response to Unexpected Base of Support Shifting: A New Objective Tool for Dynamic Balance Assessment. Sensors 2023, 23, 6203. https://doi.org/10.3390/s23136203 Rizzato A, Pizzichemi M, Gobbi E, Gerardi A, Fortin C, Copcia A, Paoli A, Marcolin G. Effectiveness and therapeutic compliance of digital therapy in shoulder rehabilitation: a randomized controlled trial Journal of NeuroEngineering and Rehabilitation (2023) 20:87 https://doi.org/10.1186/s12984-023-01188-7 Paoli A, Cerullo G. Investigating the Link between Ketogenic Diet, NAFLD, Mitochondria, and Oxidative Stress: A Narrative Review. Antioxidants (Basel). 2023 May 8;12(5):1065. doi: 10.3390/antiox12051065

	Casolo A, Maeo S, Balshaw TG, Lanza MB, Martin NRW, Nuccio S, Moro T, Paoli A, Felici F, Maffulli N, Eskofier B, Kinfe TM, Folland JP, Farina D, Vecchio AD. Non-invasive estimation of muscle fibre size from high-density electromyography. J Physiol. 2023 Mar 16. doi: 10.1113/JP284170

Adaptive Immunity

38 - Reactive Oxygen Species and Cytotoxic Immunity

Principal Investigator	Prof. Denis Dominique Martinvalet
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Keywords	Cytotoxic Lymphocytes; Cancer; Glioblastoma multiforme; Reactive Oxygen Species (ROS); Tumor microenvironment; Mitochondria-ER Interorganelle communications.
Members	Martinvalet Denis — Associate Professor Cigalotto Lavinia — PhD student Andressa Brancher Roeder — PhD student Hanieh Darba — PhD student Asia Nicotra (VIMM) — Borsista Perfection Oyelola Oke — Master student
Research projects active in 2023	1. Titolare: Martinvalet - Tipo progetto: Fondazione CARIPARO - Titolo :Characterization of the mechanism of hyper production of proinflammatory - Fonte di finanziamento: Italian private institutions

Credits

Initiative:

Prof. Rosario Rizzuto - Direttore del Dipartimento

Prof. Tito Calì – Coordinatore Commissione Ricerca

Prof.ssa Dorianna Sandonà - Coordinatrice Commissione Terza Missione

Dott.ssa Silvia Pertegato – Segretario di Dipartimento

Data on staff members:

Dott.ssa Silvia Terribile – Settore Direzione

Dott.ssa Roxana Maria Florea – Settore Direzione

Data on projects:

Dott. Antonio Piscitelli – Responsabile Settore Ricerca e Terza Missione

Dott. Stefano Corradi – Settore Ricerca e Terza Missione

Data on publications:

Dott. Alessandro Pescarolo – Settore Informatico

Data on Third mission and Public engagement:

Dott.ssa Paola Caccin

Dec. 13, 2024

FOR FURTHER ENQUIRIES
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