

Giorgia Scarpellino

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Date of birth: 25/10/1993

WORK EXPERIENCE

University of Pavia, Department of Biology and Biotechnology

City: Pavia | Country: Italy

[01/03/2023 - Current] **Researcher (RTDA) in Physiology**

Leading research on Ca²⁺ signaling and NO production in cerebral endothelium.
Currently studying the mechanosensitive ion channels Piezo1 in neurovascular coupling.

IIT (Istituto Italiano di Tecnologia)

City: Milan | Country: Italy

[07/07/2025 - Current] **Affiliated Researcher Center for Nano Science and Technology (CNST)**

Collaborating with Dr. M.R. Antognazza on photoactive polymers for angiogenesis modulation

University of Turin, Turin Cell Physiology Lab

City: Turin | Country: Italy

[01/05/2022 - 28/02/2023] **Post-Doctoral Fellow**

Investigated P2X purinergic receptors in tumor vascularization.

University of Münster, Institute of Physiology II

City: Münster | Country: Germany

[01/11/2021 - 30/04/2022] **Visiting Researcher**

Led the DAAD-funded project on P2X receptors and cell migration (2D/3D models).

University of Turin, Turin Cell Physiology Lab

City: Turin | Country: Italy

[01/10/2020 - 30/09/2021] **Post-Doctoral Fellow**

Investigated purinergic signaling in normal endothelial cells conditioned by breast, prostate, and renal carcinoma cancer cell lines.

University of Turin, Turin Cell Physiology Lab

City: Turin | Country: Italy

[01/10/2017 - 30/09/2020] **PhD Student**

Studied purinergic signaling in tumor vascularization.

CAREER BREAK

[02/06/2024 - 01/11/2024] **Maternity Leave (5 months, mandatory leave).**

TEACHING & MENTORING ACTIVITY

[01/10/2024 - Current] **Lecturer for "Cellular and Molecular Physiology" (MSc, Univ. Pavia)**

Module Coordinator (24 hours – 3 CFU) within the course *Cellular and Molecular Physiology*. Topics covered: membrane transporters; fundamental properties of ion channels; major ion channel types and families; dynamics and physiological roles of calcium signaling.

[01/10/2025 - Current] **Officially Appointed Scientific Supervisor and Funding Holder of a Research Fellowship in Physiology**

for the project entitled "Investigation of Calcium Signalling in Human Microvascular Endothelial Cells", awarded to Dr. Valentina Brunetti. This research fellowship was established to ensure the continuity of the scientific activities initiated during Dr. Brunetti's PhD programme. Specifically, it supported the continuation of experimental studies on the role of mechanosensitive Piezo1 channels in the human cerebral microvascular endothelium and their potential involvement in neurovascular coupling.

[30/04/2025 - Current] **Membership of Academic Committees**

Chair of the selection committee for a research fellowship in "Calcium signaling in human cerebral microvascular endothelial cells" (D.D. no. 645, 05/08/2025; committee appointed by D.D. no. 63, 27/08/2025), Dept. Biology and Biotechnology "L. Spallanzani", Univ. Pavia. Responsible for drafting the call, defining eligibility and evaluation criteria, assessing applications, and preparing official minutes.

[01/10/2020 - 30/09/2023] **Teaching Assistant (Univ. Turin, San Luigi Gonzaga University Hospital & City of Health and Science University Hospital)**

for the course "Human Body Functioning", Physiology module, coordinated by Prof. Raffaella Rastaldo, Bachelor's Degree in Nursing.

Teaching Assistant (Univ. Turin, Dept. Life Sciences and Systems Biology)

for the course "Cellular and Molecular Biophysics", under the supervision of Prof. Fiorio Pla, Master's Degree in Industrial Biotechnology. About 50 students/year.

[01/03/2023 - 30/09/2025] **Co-supervision of PhD student (Cellular and Molecular Physiology Laboratory, Univ. Pavia)**

Research assistance and support activities, including co-supervision of the PhD thesis of **Valentina Brunetti** (PhD Programme in Biomedical Sciences), at the Cellular and Molecular Physiology Laboratory, University of Pavia.

[02/03/2026 - 31/03/2026] **External Tutor**

Responsible supervisor for the 150 hour-curricular internship of Ms. Jamaica Pierotti, Bachelor's Degree Programme in Biomedical Sciences, University of Ferrara.
Thesis title: *Il canale meccanosensibile Piezo1 nell'endotelio dei microvasi cerebrali umani*.

[01/03/2023 - Current] **Academic Supervision & Thesis Advising**

Thesis advisor and internship supervisor at the Cellular and Molecular Physiology Laboratory, University of Pavia, for the following students:

- **Martina Chiesa** – M.Sc. in Applied Experimental Biology. Thesis title: *Il ruolo del canale meccanosensibile Piezo1 nella regolazione della funzione microvascolare dell'endotelio cerebrale umano*

A.A. 2025/2026

- **Giulia Piccirillo** – B.Sc. in Biological Sciences. Thesis title: *I canali meccanosensibili Piezo1 nelle cellule endoteliali cerebrali umane: segnali di Ca^{2+} e ruolo nell'omeostasi microvascolare.*

A.A. 2025/2026

- **Giulia Manocchio** – M.Sc. in Applied Experimental Biology. Thesis title: *I canali meccanosensibili Piezo1 come regolatori emergenti dell'omeostasi microvascolare cerebrale.*

A.A. 2024/2025

- **Simona Clementi** – M.Sc. in Applied Experimental Biology. Thesis title: *Il canale meccanosensibile Piezo1 promuove il rilascio di monossido di azoto mediante la genesi di segnali globali di Ca^{2+} in una linea di endotelio cerebrovascolare umano, hCMEC/D3.*

A.A. 2024/2025

- **Francesca Dell'Era** – B.Sc. in Biological Sciences. Thesis title: *Il canale lisosomiale TRPML1 genera segnali di calcio e rilascio di monossido d'azoto in cellule endoteliali di microvasi cerebrali umani*

A.A. 2024/2025

- **Alice Picariello** – B.Sc. in Biological Sciences. [Thesis to be defended in September 2026]

A.A. 2025/2026

- **Riccardo Pinna** – B.Sc. in Biological Sciences. [Thesis to be defended in September 2026]

A.A. 2025/2026

[01/03/2023 - 29/02/2024] Student Mentoring & Co-Supervision

Supported research activities and co-supervised the thesis work of students at the *Cellular and Molecular Physiology Laboratory*, University of Pavia:

- **Valentina Brunetti** – Ph.D. Programme in Biomedical Sciences. PhD thesis title: *Unveiling Ca^{2+} dynamics into a model of human cerebrovascular endothelial cell line: implications for neurovascular coupling*

A.A. 2024/2025

- **Sara Acerbi** – B.Sc. in Biological Sciences. Thesis title: *Il ruolo del canale TRPML1 nella genesi di segnali intracellulari di Ca^{2+} in una linea cellulare endoteliale del microcircolo cerebrale umano.*

A.A. 2023/2024

- **Davide Ardizzi** – B.Sc. in Biological Sciences. Thesis title: *Il canale meccanosensibile Piezo1 promuove il rilascio di monossido di azoto mediante la genesi di segnali globali di Ca^{2+} in una linea di endotelio cerebrovascolare umano, hCMEC/D3.*

A.A. 2023/2024

- **Dalila Parachini** – M.Sc. in Applied Experimental Biology. Thesis title: *TRPML1 lisosomiale innesca segnali globali di Ca²⁺ nelle cellule endoteliali cerebrovascolari umane*

A.A. 2023/2024

Supported research activities and co-supervised the thesis work of students at the *Turin Cell Physiology Laboratory*, University of Turin:

- **Elisa Quarta** – M.Sc. in Cellular and Molecular Biology. Thesis title: *P2X7R-Mediated Purinergic Signaling in Breast Tumor-Derived Endothelial Cells*

A.A. 2020/2021

- **Giulia Lo Piano** – M.Sc. in Cellular and Molecular Biology. Thesis title: *Purinergic P2X receptors in tumor vascularization: BzATP-induced functional role on tumor endothelial cells migration.*

A.A. 2021/2022

- **Micol Duso** – M.Sc. in Cellular and Molecular Biology, A.Y. 2021/2022. Thesis title: *P2X Receptors in Tumor Vascularization: Key Mediators Between Tumor and Endothelial Cells*

A.A. 2021/2022

- **Joana Rita de Almeida Vieira** – Erasmus student, A.Y. 2018/2019. Research internship project title: *Purinergic Signaling in Tumor Vascularization.*

A.A. 2021/2022

[01/10/2019 - 30/09/2020]

Teaching Collaboration

in the development of innovative teaching methodologies for preparatory courses for degree programmes in Medicine and Surgery, Dentistry, Biotechnology, Biological Sciences, and Pharmacy, carried out for the Luigi Lagrange Scientific Training School, Turin.

EDUCATION & PROFESSIONAL QUALIFICATIONS

[12/06/2026 - Current]

National Scientific Qualification for the functions of Associate Professor in the Competition Sector 05/D1 – Physiology (SSD: BIOS-06/A), Call D.D. 1796/2023

[01/10/2021 - 30/09/2023]

Subject Matter Expert (Univ. Turin)

for the course “Physiology”, Bachelor's Degree in Sport and Exercise Sciences (SUISM). *Channel B, Prof. Genova.*

A.A. 2021/2022

A.A. 2022/2023

[01/10/2021 - 30/09/2023]

Subject Matter Expert (Univ. Turin, San Luigi Gonzaga University Hospital)

for the Physiology module of the course “Human Body Functioning”, Bachelor's Degree in Nursing. *Channel A, Prof. Rastaldo.*

A.A. 2021/2022

A.A. 2022/2023

[01/10/2021 - 30/09/2023] **Subject Matter Expert (Univ. Turin, City of Health and Science University Hospital)**

for the Physiology module of the course “Human Body Functioning”,
Bachelor’s Degree in Nursing. *Channel A, Prof. Rastaldo*

A.A. 2021/2022

A.A. 2022/2023

[01/10/2017 - 12/04/2021] **PhD in Complex Systems for Life Sciences**

University of Turin, Turin, Italy.

Thesis title: Purinergic Calcium Signals in Tumor Vascularization

[01/10/2015 - 28/07/2017] **Master's Degree in Experimental and Applied Biology**

University of Pavia, Pavia, Italy.

Thesis title: L’ SDF1 α

promuove lamigrazione delle cellule endoteliali formanti colonia attraverso l’attivazione di segnali intracellulari di Ca²⁺

Final grade: 110/110 Cum Laude

[01/10/2012 - 22/07/2015] **Bachelor’s Degree in Biological Sciences**

University of Eastern Piedmont

Thesis title: Propoli e proprietà rigenerative: l’origine geografica può influenzarle?

Final grade: 107/110

PROFESSIONAL PROFILE

Technical & Research Skills

- **Cell Culture:** Primary and immortalized endothelial/epithelial cells (healthy and tumor-derived), 2D/3D co-cultures.
- **Ion & Live Cell Imaging:** Ca²⁺, pH, ROS, NO; organelle-specific probes (Fura-2 AM, GEM-CEPIA, GEM-GECO1, 2B-D3mCer3+16).
- **Mechanical Stimulation:** Laminar shear stress combined with live cell imaging for mechanotransduction studies.
- **Functional Assays:** Migration (single-cell, wound healing, transwell), cytotoxicity, proliferation, viability; 3D assays (invasion, sprouting, tubulogenesis).
- **Molecular Techniques:** Transfections, protein quantification, Western blot, immunofluorescence.
- **Advanced Platforms:** Hydrogels with tunable stiffness/elasticity (100 Pa–32 kPa), precise pH and pO₂ control.
- **Data Analysis & Software:** MetaFluor®, MetaMorph®, pCLAMP, IgorPro, Origin, ImageJ, Amira, Excel, GraphPad Prism; transcriptomics & GSEA.

AWARDS

2023 – Best Poster Presentation Award

for the poster “The Removal of Extracellular Na⁺ Induces Intracellular Ca²⁺ Oscillations in Human Cerebral Microvascular Endothelial Cells: Emerging Evidence for a Na⁺-Sensitive GPCR”, presented at the 24th National Congress of the Italian Society for Cardiovascular Research (SIRC), 18–20 October 2023, Imola, Italy.

2022 – DAAD Research Fellowship (Deutscher Akademischer Austauschdienst, German Academic Exchange Service)

for the research project *“Endothelial Purinergic P2X Receptors as Sensors of the Tumor Microenvironment”*, conducted at the Institute of Physiology II, Cell Migration Laboratory (Prof. Albrecht Schwab), University of Münster Medical Center (UKM), Münster, Germany, from 1 November 2021 to 31 March 2022.

SIRC Award 2020

for the oral presentation *“Purinergic Calcium Signals in Tumor-Derived Endothelium”* at the 5th SIRC Forum *“New Roads in Cardiovascular Research: Cardiovascular Research at the Time of COVID-19”*, 16 October 2020.

PROFESSIONAL TRAINING

[16/05/2022 - 18/05/2022]

25th School of Physiology and Biophysics

Participant in the 25th School of Physiology and Biophysics, organized by the Italian Physiological Society (SIF), entitled *“Communicating Science”* (16–18 May 2022, Villa Orlandi, Anacapri, Italy).

[28/05/2019 - 31/05/2019]

23rd School of Physiology and Biophysics

Participant in the 23rd School of Physiology and Biophysics, organized by the Italian Physiological Society (SIF), entitled *“Physiology and Biophysics of Membrane Transport and Intracellular Signaling: Experimental Strategies and Methodological Approaches”* (28–31 May 2019, Department of Biosciences, Biotechnology and Biopharmaceutics, University of Bari Aldo Moro, Bari, Italy).

SCIENTIFIC OUTREACH & PUBLIC ENGAGEMENT

[01/12/2025 - Current]

Community Involvement

Engaged in **“terza missione” and public engagement activities** at University of Pavia, organizing interactive science workshops for elementary school students (Istituto Comprensivo di Andorno Micca, BI).

[01/01/2026 - Current]

Open Science

Active member of the **Open Science Community Torino (OSCT)**, promoting transparency, reproducibility, and accessibility of scientific research — key principles that enhance trust and collaboration in both academic and industrial contexts.
https://osc-international.com/osc-torino-members/?filter_osc_e60cd=OSC%20Torino

Science Communication

- Developed and delivered scientific presentations to diverse audiences, including undergraduate students, young researchers, and international conference participants.
- Experienced in mentoring junior researchers and MSc/BSc students, promoting scientific curiosity and understanding of experimental design.
- Participant in the 25th School of Physiology and Biophysics, organized by the Italian Physiological Society (SIF), entitled *“Communicating Science”* (16–18 May 2022, Villa Orlandi, Anacapri, Italy).

ACADEMIC ACTIVITY

[01/10/2021 - Current]

Scientific Peer-Review Activities

- Remote Reviewer, **European Research Council (ERC)**, Consolidator Grant 2026.

- Reviewer for journals including *Journal of Cellular Physiology*, *Cancers*, *Cells*, *Molecular Biology Reports*, *International Journal of Molecular Sciences*.

[12/10/2024 - Current] **Editorial Activities**

- **Guest Editor** for the scientific journal *Life*. Special Issue title: “Channel Proteins and Transporters in Human Health and Disease”
- **Review Editor** for *Frontiers in Cellular Neuroscience – Cellular Neurophysiology and Frontiers in Molecular Biosciences – Cellular Biochemistry*.

[01/06/2017 - Current] **Scientific Memberships**

- Italian Physiological Society (SIF)
- Italian Society of Cardiovascular Research (SIRC)
- Junge Physiologen (Germany)

NATIONAL & INTERNATIONAL CONFERENCES

Oral Presentations

- “The mechanosensitive Piezo1 channels as emerging regulator of brain microvascular homeostasis”. Presentazione orale al 75° SIF National Conference. 17-19 settembre 2025, Torino, Italia.
- “The removal of extracellular Na⁺ induces intracellular Ca²⁺ oscillations in human cerebral microvascular endothelial cells: emerging evidence for a Na⁺-sensitive GPCR”. Presentazione orale al 4° Junior European Calcium Society Meeting (JECS). 5 ottobre 2023. Online meeting.
- “The removal of extracellular Na⁺ induces intracellular Ca²⁺ oscillations in human cerebral microvascular endothelial cells: emerging evidence for a Na⁺-sensitive GPCR”. Presentazione orale al 73° SIF National Conference. 6-8 settembre 2023, Pisa, Italia.
- “Preliminary characterization of calcium signals in human cerebral microvascular endothelial cells”. Presentazione orale al 16° Annual Meeting of Young Researchers in Physiology (YRP 2023), organizzato dalla Società Italiana di Fisiologia (SIF). 21-23 giugno, 2023. Bertinoro (FC), Italia.
- “P2X receptors in tumor vascularization: key mediators in the crosstalk between tumor and endothelial cells”. Presentazione orale all’11° Simposio dei Giovani Fisiologi (Società Tedesca di Fisiologia “Deutsche Physiologische Gesellschaft – DPG”). 1 aprile 2022, Essen, Germania.
- “Modulation of endothelial P2X receptors by tumor microenvironment and cancer cells”. Presentazione orale al 14° Annual Meeting of Young Researchers in Physiology (YRP 2021), organizzato dalla Società Italiana di Fisiologia (SIF). 29-31 luglio, 2021. Bertinoro (FC), Italia.
- “Purinergic Calcium Signals in Tumor-Derived Endothelium”. Presentazione orale al V Forum SIRC (Società Italiana di Ricerca Cardiovascolare) “New roads in cardiovascular research” (online meeting). 16 ottobre 2020. **SIRC Award 2020.**

PUBLICATIONS

Pre-Prints

- Federico Alessandro Ruffinatti, **Giorgia Scarpellino**, Luca Visentin. Bash modules for the remote analysis of RNA-Seq data. 2025, Repository: *Preprints*. doi:10.20944/preprints202507.0213.v1.
- Visentin L, **Scarpellino G**, Munaron L, Ruffinatti FA. Profiling the Expression of Transportome Genes in cancer: A systematic approach, 2023. Repository: bioRxiv.

doi: doi.org/10.1101/2023.07.18.549498.

- Capitani C, Iorio J, Lastraioli E, Durant C, Bagni G, Chioccioli Altadonna G, Colasurdo **Scarpellino G**, Fraser SP, Becchetti A, Djamgoz MBA, Arcangeli A. An integrin centered complex coordinates ion transport and pH to regulate f-actin organization and cell migration in breast cancer. 2024, Repository: bioRxiv. doi: doi.org/10.1101/2024.07.02.601509

Publications in International Peer-Reviewed Journals

1. Sánchez-Pluma EK, et al. (2026). *IJMS*. doi:10.3390/ijms27094016
2. Moccia F, et al. (2026). *IJMS*. doi:10.3390/ijms27031421
3. **Scarpellino G**, et al. (2025). *Front Physiol*. doi:10.3389/fphys.2025.1733266.
4. Cristallini C, et al. (2026). *Biomater Adv*. doi:10.1016/j.bioadv.2025.214523.
5. Brunetti V, [...], **Scarpellino G** (2025). *Cell Calcium*. doi:10.1016/j.ceca.2025.103067.
6. Cristallini C, et al. (2025). *Bioact Mater*. doi:10.1016/j.bioactmat.2025.04.008.
7. Scorza S, et al. (2025). *Vasc Pharmacol*. doi:10.1016/j.vph.2024.107458.
8. Soda T, [...], **Scarpellino G** (2025). *Curr Neuropharmacol*. doi:10.2174/011570159X349872250124124612.
9. Ruffinatti FA, et al. (2024). *J Funct Biomater*. doi:10.3390/jfb15100303.
10. Soda T, et al. (2024). *J Neurosci Meth*. doi:10.1016/j.jneumeth.2024.110248.
11. **Scarpellino G**, et al. (2024). *IJMS*. doi:10.3390/ijms25169071.
12. Negri S, et al. (2024). *Vasc Pharmacol*. doi:10.1016/j.vph.2024.107335.
13. **Scarpellino G**, et al. (2024). *Vasc Pharmacol*. doi:10.1016/j.vph.2024.107352.
14. Chinigò G, et al. (2024). *Vasc Pharmacol*. doi:10.1016/j.vph.2024.107311.
15. Munaron L, et al. (2024). *Journal of Physiology*. doi:10.1113/JP284422.
16. Brunetti V, et al. (2024). *Biomedicines*. doi:10.3390/biomedicines12040880.
17. Brunetti V, [...], **Scarpellino G** (2024). *Front. Physiol*. doi:10.3389/fphys.2024.1426783.
18. Moccia F, [...], **Scarpellino, G**. (2023). *IJMS*. doi:10.3390/ijms242316765.
19. Moccia F, et al. (2023). *Journal of Clinical Medicine*. doi:10.3390/jcm12165295.
20. Ruffinatti FA, et al. (2023). *Physiology*. doi:10.1152/physiol.00010.2023.
21. Berra-Romani R, et al. (2023). *Cells*. doi:10.3390/cells12131732.
22. Luganini A, et al. (2023). *mBio*. doi:10.1128/mbio.00749-23.
23. Cristallini C, et al. (2022). *Vasc Pharmacol*. doi:10.1016/j.vph.2022.107073.
24. Visentin L, et al. (2022). *Biology*. doi:10.3390/biology11091346.
25. **Scarpellino G**, et al. (2022). *Cancers*. doi:10.3390/cancers14112743.
26. Petrillo S, et al. (2022). *Front Physiol*. doi:10.3389/fphys.2021.813547.
27. **Scarpellino G**, et al. (2020). *Rev. Physiol. Biochem. Pharmacol*. doi: 10.1007/112_2020_32.
28. Mussano F, et al. (2019). *Applied Surface Science*. doi:10.1016/j.apsusc.2019.145112.
29. **Scarpellino G**, et al. (2019). *Cancers*. doi:10.3390/cancers11060766.
30. **Scarpellino G**, et al. (2019). *Recent Pat. Anticancer Drug Discov*. doi: 10.2174/1574892814666190116122256.
31. Zuccolo E, et al. (2019). *Journal of cellular physiology*. doi:10.1002/jcp.26953.
32. Zuccolo E, et al. (2019). *Journal of cellular physiology*. doi:10.1002/jcp.27234.
33. Zuccolo E, et al. (2018). *Oncotarget*. doi:10.18632/oncotarget.25785
34. Zuccolo E, et al. (2018). *Stem Cells and Development*. doi:10.1089/scd.2017.0114.