

Maria Paola Santini, PhD

Ricercatore Docente Tenure-Track (Tenure-Track Assistant Professor) and Adjunct Assistant Professor

(Citizenship: Italian)

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<https://icahn.mssm.edu/profiles/maria-paola-santini>
<https://medicinamolecolare.dip.unipv.it/en/research/research-teams-and-topics/human-physiology/translational-and-regenerative-medicine-group>

EDUCATION AND TRAINING

2014 – 2019	Leducq funded Postdoctoral fellow Icahn School of Medicine at Mount Sinai, Cardiovascular Research Center NY, USA
2017-2018	Special volunteer appointment NIH/NHBLI, Bethesda, Maryland, USA
2010- 2013	Affiliated Senior Research Fellow Magdi Yacoub Institute, Heart Science Center, Harefield, UK
2007- 2013	British Heart Foundation funded Postdoctoral Fellow National Heart and Lung Institute, Imperial College London, London, UK
2001 – 2005	Doctor of Philosophy, PhD in Molecular Biology, Magna cum Laude European Molecular Biology Laboratories, University of Heidelberg, Heidelberg, DE Supervisor: Prof. Nadia Rosenthal Thesis Link https://archiv.ub.uni-heidelberg.de/volltextserver/7012/
1999-2001	Associate Researcher Cutaneous Biology Research Centre, Mass General Hospital, Harvard Medical School, Boston, USA
1997-1999	Associate Researcher Department of Dermatology, University of Rochester, Rochester, NY, USA
1991- 1997	Bachelor of Science University of Rome La Sapienza, Rome, Italy Major: Biotechnology, Minor: Molecular Biology Supervisor: Prof. Fabio Virgili GPA: 104/110

ACADEMIC APPOINTMENTS

2024- Present	Tenure-Track Assistant Professor (Ricercatore-Docente Tenure Track) University of Pavia, Department of Molecular Medicine, Pavia, Italy
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2024-Present	Adjunct Assistant Professor of Medicine Icahn School of Medicine at Mount Sinai, Division of Nephrology, NY, USA
2022-2024	Assistant Professor of Medicine Icahn School of Medicine at Mount Sinai, Division of Nephrology, NY, USA
2019- 2022	Instructor of Medicine Icahn School of Medicine at Mount Sinai, Cardiovascular Research Center, NY, USA

GAPS

2005-2007	Working part-time at the Children Hospital Bambino Gesù' to take care of family members' health
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QUALIFICATIONS AND CERTIFICATIONS

2022-2032	National Italian Scientific Qualification as Associate Professor of Applied Biology (Ministerial Decree # 589/2021)
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RESEARCH AND SCHOLARLY ACTIVITIES

Santini's laboratory investigates the underlying molecular and cellular events that contribute to the development and progression of multiorgan fibrosis in cardiovascular ischemic diseases, vascular remodeling and kidney nephrotoxicity. Using gene therapies, *in situ* modulation of specific cell populations, and advanced genomic technologies, we discovered the potential therapeutic function of the insulin-like growth factor 1 isoforms, the dichotomous role of PDGFR α populations during muscle ischemia and specific pathways uncoupling fibrosis from chronic maladaptive cardiac diseases. Our methodologies combine cell culture, gene transfer using AAVs, heart and kidney imaging and function measurements, network systems analyses, experimental models of heart, kidney and skeletal muscle diseases, and site directed mutagenesis. Our laboratory promotes inclusiveness and implements diversity by employing trainees from under-represented communities and by teaching a culture of humility and equitable values.

RESEARCH FUNDING

1. ACTIVE RESEARCH SUPPORT

2024- Present	Research Excellence Ministerial Fund Award <u>PI</u> , Department of Molecular Medicine, University of Pavia Total support 100,000 Euros
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2. PAST RESEARCH SUPPORT

2022-2025	Stromal Cardiac Cells: Role in fibrosis and tissue regeneration <u>PI</u> , AHA, Career Development Award, 926672
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Total support \$231,000

Note: resigned in August 2024 because moving to EU as Tenure-Track Assistant Professor

2022-2024	Biomechanical drivers of cystogenesis <u>Co-I</u> , NIH/NIDDK, 1R01DK131047 Total cost by IC \$583,428
2022-2024	Mechanosensitive determinants of podocytes physiology <u>Co-I</u> , NIH/NIDDK, 1R01DK118222 Total cost by IC \$415,158
2022-2024	Plasminogen in glomerular disease progression <u>Co-I</u> , NIH/NIDDK, 1R01DK126477 Total cost by IC \$533,918
2020-2021	Therapeutic Mechanisms of Cardiac Progenitors in Ischemic Cardiomyopathy <u>Co-I</u> , NIH/NHLBI, R01HL135093 Total cost by IC \$840,689
2018-2020	Toward Therapeutic Manipulation of Endothelial to Mesenchymal Transition <u>Postdoctoral Fellow</u> , NIH/NHLBI 5R01HL135093 Total cost by IC \$423,750
2013-2018	Cellular and Molecular Targets to Promote Therapeutic Cardiac Regeneration <u>Postdoctoral Fellow</u> , Leducq Foundation Total support \$6,000,000
2010 – 2013	mIGF-1 and embryonic stem cells <u>PI</u> , The Magdi Yacoub Institute fellow support # HSC24509 Total support 30,000 GBP
2010-2013	Regeneration of the heart with cell and gene therapy <u>Named Postdoctoral Fellow</u> , Project Grant # PG/08/111/26226, British Heart Foundation (BHF) Total support 225,890 GBP
2009 – 2012	SGK1 and 3 in IGF-1 signaling and cardiac repair. <u>Co-PI</u> , Project Grant # PG/10/019, British Heart Foundation (BHF) Total support 257,456 GBP

3. SUBMITTED

2027	Sex-Dimorphic Regulation of Glomerular Architecture by PDGFR α ⁺ Cell Populations in Acute Kidney Disease <u>Principal Investigator</u> , Access Application #2822927. Human Technopole – NF Call for Access_26-G-R2 Proposal submitted for Visium HD spatial transcriptomic analysis of sex-specific PDGFR α ⁺ stromal responses to acute kidney injury.
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4. TO SUBMIT

DYN-CARD: DYNamic regulation of CARDiac stromal domains to uncouple fibrosis from adaptive repair. Santini, PI. EU grant applications with international and national beneficiaries in place

ORIGINAL PUBLICATIONS

Theses

May 2005 **PhD theses submitted to University of Heidelberg, Heidelberg, Germany**
mIGF-1 regulates heart physiology and induces complete regeneration of infarcted myocardial tissue

1991-1997 **BSc theses submitted to University of Rome, Rome, Italy**
Overexpression of the proto-oncogene bcl-2 modulates the response to oxidative stress in human keratinocyte culture

Manuscripts in revision/resubmitted

Integrative systems biology analyses showed calcineurin inhibitors-mediated control of human podocyte biophysical and mechanical functions. Jakob Wright, Jonathan Haydock, Anthony Mendoza, Anika Hudson, Jenny Wong, Kirk N. Campbell, **Maria Paola Santini**, Evren U. Azeloglu (co-corresponding and senior author). PNAS

Manuscripts submitted

Novel ARHGEF18 variant drives glomerular dysfunction through impaired protein degradation. Nanditha Anandakrishnan, Ishan Paranjpe, Xuan Wang, Jonathan Haydak, Tielman Van Vleck, Anika Hudson, Feng Wan, Steven Chang, Stefanie DeFronzo, Zhengzhe Li, Anthony Mendoza, Ruijie Liu, Jia Fu, Weibin Zhou, Kyung Lee, **Maria Paola Santini**, Samele Marro, G. Luca Gusella, Alexander Charney, Ira Hofer, Judy Cho, Ron Do, Benjamin Glicksberg, John He, Girish Nadkarni, Evren Azeloglu. Science Advances

Manuscripts in submission

A Dynamic Cardiac PDGFR α ⁺ Cellular Domain Identifies Targetable Pathways Linking Fibrosis and Adaptive Repair. Yasamin Nasiryan, Raima Remesh, Jakob M. Wright, Prabhu Mathiyalagan, Parichitr Ayyamperumal, Seonghun Yoon, Rana Najafi, Alessandro Marins-Dos-Santos, Monia Zannatul, Parakkal Jovvian George, Kiyotake Ishikawa, Lior Zang, Evren U. Azeloglu, Per Quist, **Maria Paola Santini** (corresponding and senior author)

Original Peer-Reviewed Manuscripts and Reviews

1. Laura Lecce, Yang Xu, Bhargavi V'Gangula, Nirupama Chandel, Venu Pothula, Axelle Caudrillier, **Maria Paola Santini**, Delaine K. Ceholski, Przemek A. Gorski, Valentina

- d'Escamard, Simon Koplev, Martin Mæng Bjørklund, Johan L.M. Björkegren, Manfred Boehm, Jacob Fog Bentzon, Valentin Fuster, Ha Won Kim, Neal L. Weintraub, Andrew H. Baker, Emily Bernstein, Jason C Kovacic. Histone deacetylase 9 promotes endothelial to mesenchymal transition and an unfavorable atherosclerotic plaque phenotype. *The Journal of Clinical Investigation*, 2021, Aug 2; 131(15):e131178. doi: 10.1172/JCI131178.
2. Keerat Kaur, Yoav Hadas, Ann Anu Kurian, Magdalena M. Żak, Jimeen Yoo, Asharee Mahmood, Hanna Girard, Rinat Komargodski, Toshiro Io, **Maria Paola Santini**, Nishat Sultana, Mohammad Tofael Kabir Sharkar, Ajit Magadam, Anthony Fargnoli, Seonghun Yoon, Elena Chepurko, Vadim Chepurko, Efrat Eliyahu, Dalila Pinto, Djamel Lebeche, Jason C. Kovacic, Roger J. Hajjar, Shahin Rafii and Lior Zangi. "Partial Cardiac Reprogramming Induces Vascular Regeneration Post Muscle Ischemic Injury. *Molecular Therapy*, 2021 Jul 28: S1525-0016(21)00368-3. doi: 10.1016/j.ymthe.2021.07.014.
 3. **Maria Paola Santini**, Malide D, Hoffman G, Pandey G, D'Escamard V, Nomura-Kitabayashi A, Rovira I, Kataoka H, Ochando J, Harvey RP, Finkel T, Kovacic JC. Tissue-Resident PDGFR α ⁺ Progenitor Cells Contribute to Fibrosis versus Healing in a Context- and Spatiotemporally Dependent Manner. *Cell Reports*, 2020, Jan 14; 30 (2):555-570. (Corresponding Author)
 4. Katherine Michelis, Aya Kitabayashi, Oscar Franzén, Simon Koplev, Laura Lecce, **Maria Paola Santini**, Valentina D'Escamard, Jonathan T.L. Lee, Valentin Fuster, Roger Hajjar, Ramachandra Reddy, Joanna Chikwe, Paul Stelzer, Farzan Filsoufi, Allan Stewart, Anelechi Anyanwu, Johan L.M. Björkegren, Jason C Kovacic. CD90 identifies adventitial mesenchymal progenitor cells in adult human medium- and large-sized arteries. *Stem Cell Reports*, 2018, 11 (1):242-257.
 5. **Maria Paola Santini**, Elvira Forte, Richard Harvey, Jason Kovacic. Developmental Origin and lineage plasticity of endogenous cardiac stem cells. *Development*, 2016 Apr 15; 143 (8): 1242-1258 (Review)
 6. Tommaso Poggioli, Padmini Sarathchandra, **Maria Paola Santini**. Cell delivery for mending cardiac dysfunction. *J Vis Exp*. 2014 Jan 24;(83): e51064. (Corresponding Author)
 7. Elham Zarrinpashneh, Padmini Sarathchandra, Jonas Lexow, Tommaso Poggioli, Laurent Monassier, Florian Lang, Cesare Terraciano, Nadia Rosenthal and **Maria Paola Santini**. Knockout of SGK1 has defective endothelial cell migration and tube formation leading to lower neo-angiogenesis following myocardial infarction. *Plos One*, 2013, 8(11): e80268. (Corresponding Author)
 8. Jonas Lexow, Padmini Sarathchandra, **Maria Paola Santini** and Nadia Rosenthal. Cardiac fibrosis in tamoxifen treated *α MHC-MerCreMer* animals. *Dis Model Mech*. 2013, 6(6): 1470-1476. (Senior Author with Prof Rosenthal)
 9. Melissa Tuvron, Brigitte Escoubet, Mathias Mericskay, Luciane Lamotte, **Maria Paola Santini**, Nadia Rosenthal, Dominique Daegelen, David Tuil, Jean-François Decaux. Local expression of insulin-like growth factor 1 reverses myocardial fibrosis and inflammation, ameliorates cardiac function and extends longevity in a mouse model of dilated cardiomyopathy. *Dis Model Mech*. 2012, 5(4): 481-91.

10. Manlio Vinciguerra, Maria Paola Santini, Valerio Paziienza, William C. Claycomb, Alessandro Giuliani, Andreas G. Ladurner, Nadia Rosenthal. mIGF-1/JNK1/SirT1 signaling confers protection against oxidative stress in the heart. *Aging Cell*, 2012, 11(1): 139-149.
11. Maria Paola Santini and Nadia Rosenthal. Myocardial Regenerative properties of macrophage populations and stem cells. *Journal of Cardiovascular Translational Research*, 2012 Oct;5(5):700-12. (Review) (Corresponding Author)
12. Jonas Lexow, Tommaso Poggioli, Nadia Rosenthal, Maria Paola Santini. Combinatorial Therapies for Cardiac Regeneration. *Recent Patents in Regenerative Medicine, Bentham Science Publisher*, 2012. (Review) (Corresponding Author)
13. Bhawana Poudel, Daniel Bilbao, Padmini Sarathchandra, Renee Germack, Nadia Rosenthal, Maria Paola Santini. Increased cardiogenesis in P19-GFP teratocarcinoma cells expressing the propeptide IGF-1Ea. *Biochem. Biophys. Res. Commun.* 2011, 416 (3-4): 293-299. (Corresponding Author)
14. Maria Paola Santini, Lexow J, Borsellino G, Slonimski E, Zarrinpashneh E, Poggioli T, Rosenthal N. IGF-1Ea induces vessel formation after injury and mediates bone marrow and heart cross-talk through expression of specific cytokines. *Biochem. Biophys. Res. Commun.* 2011, 410 (2): 201-207. (Corresponding Author)
15. Pieranna Chiarella, Melanie Leuener, Christian Fasci, Ario de Marco, Maria Paola Santini, Vito M. Fazio and Alan M. Sawyer. Comparison and critical analysis of robotised technology for monoclonal antibody high-throughput production. *Biotechnology Progress*, 2011, 27 (2): 571-576.
16. Manlio Vinciguerra, Maria Paola Santini, William C. Claycomb, Andreas G. Ladurner, Nadia Rosenthal. Local IGF-1 isoform protects cardiomyocytes from hypertrophic and oxidative stresses via SirT1 activity. *AGING*, December 2009, 2(1): 43-62.
17. Lara-Pezzi E, Winn N, Paul A, McCullagh K, Slonimski E, Maria Paola Santini, Mourkioti F, Sarathchandra P, Fukushima S, Suzuki K, Rosenthal N. A naturally occurring calcineurin variant inhibits FoxO activity and enhances skeletal muscle regeneration. *J Cell Biol.*, 2007, 179(6): 1205-18.
18. Maria Paola Santini, Lana Tsao, Laurent Monassier, Catherine Theodoropoulos, Janice Carter, Enrique Lara-Pezzi, Esfir Slonimski, Patrice Delafontaine, Martin Bergman, Christian Freund, Ken Suzuki, and Nadia Rosenthal. Enhancing repair of the mammalian heart. *Circulation Research*, 2007, 12 (100): 1732-1740.
19. Maria Paola Santini, Enrique Lara Pezzi, Nadia Rosenthal. Regenerative Medicine in Cardiovascular Research: of molecules, cells and scaffolds. *The Bulletin of The British Society for Cardiovascular Research* Vol. 20 No. 4: 4-12, October 2007. (Review) (Corresponding Author)

20. Maria Paola Santini, Nadine Winn and Nadia Rosenthal. Signaling Pathways in cardiac regeneration. *Novartis Foundation Symposium* 2006, 274: 228-38; discussion 239-43, 272-6. (*Conference Review*)
21. Nadia Rosenthal, Maria Paola Santini and Antonio Musaro'. Growth Factor Enhancement of Cardiac Regeneration. *Cell Transplantation*, 2006, Volume 15: 41-45, Supplement 1. (*Review*)
22. Maria Paola Santini, Talora C., Seki T., Bolgan L., Dotto GP. Cross talk between calcineurin, Sp1/Sp3 and NFAT in control of p21^{WAF1/CIP1} expression in keratinocyte differentiation. *PNAS*, 2001, 98 (17): 9575-9580.
23. Virgili F., Maria Paola Santini, Canali R., Polakowska R.R., Haake A., and Perozzi G. Bcl-2 overexpression in the HaCaT cell line is associated with a different membrane fatty acid composition and sensitivity to oxidative stress. *Free Rad. Biol. & Med.*, 1998, 24 (1): 93-101.

Book Editor

1. Santini Maria Paola, Ciciliot Stefano, Vinciguerra Manlio (editors). **Manuale di Biologia Cellulare e di Genetica (Cell Biology and Genetics)**. Minerva Medica, 2026. ISBN 978-88-5532-402-1.

Book Chapters

1. Rana Najafi and Maria Paola Santini. Replicazione del DNA e Stabilita' Genomica (DNA Replication and Genomic Stability). **Manuale di Biologia Cellulare e di Genetica (Cell Biology and Genetics)**. Minerva Medica, 2026, Edited by Santini Maria Paola, Ciciliot Stefano, Vinciguerra Manlio, Chapter 5: 82-104.
2. Raima Remesh and Maria Paola Santini. Il Nucleo Cellulare: Struttura e Meccanismi di Trasporto (The Cell Nucleus: Structure and Mechanisms of Transport). **Manuale di Biologia Cellulare e di Genetica (Cell Biology and Genetics)**. Minerva Medica, 2026, Edited by Santini Maria Paola, Ciciliot Stefano, Vinciguerra Manlio, Chapter 10: 192-206.
3. Yasamin Nasiriyani and Maria Paola Santini. La Genetica Mendeliana (Mendelian Genetics). **Manuale di Biologia Cellulare e di Genetica (Cell Biology and Genetics)**. Minerva Medica, 2026, Edited by Santini Maria Paola, Ciciliot Stefano, Vinciguerra Manlio, Chapter 20: 384-395.
4. Maria Paola Santini, and Nadia Rosenthal. Stem Cells and the Regenerating Heart. *Essentials of Stem Cell Biology*, Second Edition, Elsevier Academic Press, Edited by Robert Lanza and Anthony Atala 2013, Chapter 52: 595-601.
5. Maria Paola Santini, Bhawana Poudel and Nadia Rosenthal. Stem Cells and the Regenerating Heart. *Essentials of Stem Cell Biology*, Second Edition, Elsevier Academic Press, Edited by Robert Lanza, John Gearhart, Brigid Hogan, and Douglas Melton. 2009, Chapter 31: 259-264.

6. Nadia Rosenthal, Nadine Winn and Maria Paola Santini. IGF-1, muscle progenitors and heart failure. *Cardiovascular Regeneration and Stem Cell Therapy*, edited by Annarosa Leri, Piero Anversa and William Frishman. Blackwell Publishing, 2007, Part III chapter 15: 149-158.
7. Nadia Rosenthal and Maria Paola Santini. Stem Cells and the Regenerating Heart. *Essentials of Stem Cell Biology*, Elsevier Academic Press, Edited by Robert Lanza, 2005, Chapter 29: 217-220.
8. Nadia Rosenthal and Maria Paola Santini. Stem Cells and the Regenerating Heart. *Handbook of Stem Cells*, Elsevier Academic Press, Edited by Robert Lanza. 2004, Volume 2: 449-455.

Published Abstracts (Conferences)

1. Jacob M Wright, Anthony Mendoza, Jonathan C Haydak, Jenny Wong, Linda M Rehaume, Kirk N Campbell, Evren U Azeloglu, Maria Paola Santini. Integrative systems analyses reveal calcineurin inhibitor-mediated control of human podocytes biophysics and physiology. October 2024, Journal of the American Society of Nephrology, 35.
2. Nanditha Anandakrishnan, Jonathan C Haydak, Anika Hudson, Anika Hudson, Maria Paola Santini, John Cijiang He, Girish N Nadkarni, Evren U Azeloglu. Novel variants of ARHGEF 18 increases susceptibility to Adriamycin-induced podocyte injury. October 2024, Journal of the American Society of Nephrology, 35 (10S).
3. Maria Paola Santini, Kiyo Ishikawa, Evren Azeloglu. Igf-1 signaling and nuclear localization of Pdgfralpha tyrosine kinase activity control the fibrotic response of mesenchymal stromal cells to myocardial ischemia. August 2023, Circulation Research, Volume 133.
4. A Mendoza, Maria Paola Santini, J Wong, LM Rehume, J Viel, KN Campbell, Evren Azeloglu. Integrative systems analysis of calcineurin inhibitor action on podocytes and proximal tubular epithelial cells. November 2023, Journal of the American Society of Nephrology, 34 (11S), 724.
5. Maria Paola Santini, K Ishikawa, E Azeloglu, Circulation 146 (Suppl_1), A12013-A12013. Nuclear Localization of PDGFR α Tyrosine Kinase represents a novel mechanism controlling the fibrotic response of Mesenchymal Stromal cells to Myocardial Ischemia.
6. Keerat Kaur, Asharee Mahmood, Hanna Girard, Ann Anu Kurian, Magdalena Zak, Maria Paola Santini, Elena Chepurko, Vadim Chepurko, Djamel Lebeche, Jason C Kovacic, Roger J Hajjar, Shahin Rafii, Lior Zangi. Combinatorial modified mRNA induces cardiovascular regeneration post-muscle ischemic injury. April 2021, Molecular Therapy, 29 (4): 53.
7. Katherine Michelis, Aya Kitabayashi, Laura Lecce, Maria Paola Santini, Valentina D'Escamard, Oscar Franzén, Johan LM Björkegren, Valentin Fuster, Ramachandra Reddy, Joanna Chikwe, Paul Stelzer, Farzan Filsoufi, Allan Stewart, Ani Anyanwu, Jason Kovacic. CD90 marks a population of adventitial mesenchymal stem cells in the

human aorta that exhibit diminished angiogenic potential in patients with ascending aortic aneurysms. March 2017, Journal of the American College of Cardiology, Volume 69, Issue Supplement 11, Page:1999

8. **Maria Paola Santini**, Bhawana Poudel, Tommaso Poggioli, Daniel Bilbao Elham, Zarrinpashneh, Padmini Sarathchandra, Nadia Rosenthal. Attenuation of Post-infarct Cardiac Hypertrophy by Allogeneic Cell-mediated Supplemental Igf-1 Propeptide Delivery. November 2012, Circulation, Volume 126, Issue 21 Supplement, Page: A9386.
9. E Lara-Pezzi, AC Paul, K McCullagh, E Slominski, **Maria Paola Santini**, N Winn, F Mourkioti, E Perlas, PJ Barton, N Rosenthal. Calcineurin isoforms in striated muscle regeneration. February 2006, Heart, Volume 92, Issue 2.
10. P LaCelle, **Maria Paola Santini**, B Graf, R Polakowska. A biologically active DR5 type of retinoic acid response element (RARE) controls human transglutaminase type 1 gene promoter activity in epidermal keratinocytes. April 1999, Journal of Investigative Dermatology, Volume 112, Issue 4, Page: 635.
11. **Maria Paola Santini**, P LaCelle, B Graff, R Polakowska. Role of C-terminal tyrosine residues in RXR function. April 1999, Journal of Investigative Dermatology, Volume 112, Issue 4, Page:562.

HONORS AND AWARDS

2025	Certificate of recognition for serving the AHA research peer-review committee of Fellowship Cardiology 6 and TPA Cardiology
2024-present	First classified in the public selection for a tenure track researcher at the University of Pavia, Protocol # 0200558; Announcement # 1134/2023
2022-2024	Career Development Award, American Heart Association (\$231,000)
2010-2013	The Magdi Yacob Institute Career Support on stem cell biology (30,000 GBP)
2010	Keystone Scholarship, \$1,000
2006	Young Scientist Communication Award, among finalists
2005	Marie Curie Scholarship, 500 euros
1999	Kligman Scholarship, \$1,000

LICENSURES

2025 - present	Protocol authorization #344/2025-PR, Italian Department of Health
2022 - 2025	IACUC protocol 2020000168
2007 - 2013	Project License # 70/7507 UK Home Office
2007 - 2013	Personal License # 70/20847 UK Home Office
2007 - 2013	UK GM Activity New Class 1 Projects # GMSC-07-01 and GMSC-07-02
2007 - 2013	UK Work Registration Radiological Risk Assessment # HAR CTE-001

MEMBERSHIPS AND ALUMNI ASSOCIATIONS

2020-2024	Member of the society for regenerative biology (Founders: Ken Poss and Elli Tanaka)
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2022-Present	Member of the European Society of Cardiology, Professional Member # 1263574
2019-Present	Alumna of the British Heart Foundation (BHF)
2018-2024	Member of the New York Academy of Sciences
2018-Present	Member of the American Heart Association, Professional Member # 250397712
2014-Present	Alumna of the European Molecular Biology Laboratories (EMBL)

INSTITUTIONAL RESPONSABILITIES

1. MEETING ORGANIZATION:

2019-2021	Moderator of Trainee-Speaker sessions (>20 attendees). Cardiovascular Research Center, Icahn School of Medicine at Mount Sinai, NY, USA
2010	Organizer Weekly seminar (>40 attendees) Heart Science Centre, Harefield, UK, Internal Seminar Series
2010	Organizer International invited speakers (>40 attendees) Heart Science Centre, Harefield, UK External Seminar Series

2. COMMITTEE REPRESENTATIVE:

2025-Prsent	- President of VIVA Phd Committee University of Pavia, IT
2025	- Recruitment Committee for Postdoctoral Fellow University of Pavia, IT
2022-2023	- Member of Master Students Examination Icahn School of Medicine at Mount Sinai, New York, NY, USA
2007 – 2013	- Health and Safety Committee Heart Science Centre, Harefield, UK
	- Interview panelist Imperial College London, London, UK

3. REVIEWING AND EDITORIAL WORK

2024-present	<u>Study section</u> , American Heart Association Transformational Project Award, Cardiology Committee
2024-present	<u>Study section</u> , American Heart Association Pre-and Post-doc Awards, Cardiology 6 Committee

2021-present Study section, American Heart Association Career Development Award
Cardiology Committee

Ad Hoc Grant Review:

2014 Biotechnology and Biological Sciences Research Council (BBSRC)
2012 European Research Council (ERC): Young Investigator Award for Starting
Grants

Ad Hoc Manuscript Review:

2025 Frontiers in Physiology
2022-2024 Scientific Reports
2022 Frontiers in Genetics section RNA
2012 Journal of Cardiovascular Therapeutics
2011 Journal Molecular & Medicine Cardiology (JMMC)

Master Student Theses Review:

2022 Analytical Assessment of Master Project Theses, Biomedical Engineering,
Icahn School of Medicine at Mount Sinai, NY, NY, USA
2009 – 2010 Analytical Assessment of MRes Project Reports, Biomedical Sciences,
Imperial College London, UK

TRAINEES SUPERVISION

2025-Present **University of Pavia, Department of Molecular Medicine, Pavia, IT**
Role Supervisor, Rana Najafi, Master student

2025 **University of Pavia, Department of Molecular Medicine, Pavia, IT**
Role Supervisor, Elena Armenio, Undergraduate student
Bachelor's degree in September 2015

2025-2026 **University of Pavia, Department of Molecular Medicine, Pavia, IT**
Role Supervisor, Yasamin Nasiriyani, Master student

2024-Present **University of Pavia, Department of Molecular Medicine, Pavia, IT**
Role Supervisor, Raima Remesh, PhD student

2022-2024 **Icahn School of Medicine at Mount Sinai, NY, USA**
Role Co-supervisor, Anika Hudson, Associate Researcher

2022 **Icahn School of Medicine at Mount Sinai, NY, USA**
Role Co-supervisor, Benjamin Lin, Associate Researcher

2022-2023	Icahn School of Medicine at Mount Sinai, NY, USA Role Co-supervisor, <u>Anthony Mendoza</u> , Biomedical Master student
2019-2020	Icahn School of Medicine at Mount Sinai, NY, USA Role Supervisor, <u>Seran Kahyaoglu</u> , Associate Researcher
2017-2018	Icahn School of Medicine at Mount Sinai, NY, USA Role Supervisor, <u>Taylor Alison Thomas</u> , Graduate medical student
2011-2014	Imperial College London, London UK Role Supervisor, <u>Tommaso Poggioli</u> , PhD student, https://spiral.imperial.ac.uk/handle/10044/1/24547 Current Status/Employment: Consultant, Boston Consulting Group, USA
2009-2013	Imperial College London, London UK Role Supervisor, <u>Jonas Lexow</u> , PhD student https://spiral.imperial.ac.uk/handle/10044/1/11091 Current Status/Employment: Head of the Research Governance and Quality Dept. at the MRC Unit, Gambia, Africa
2009-2013	Imperial College London, London UK Role Supervisor, <u>Elham Zarrinpashneh</u> , Postdoctoral Fellow Current Status/Employment: Medical Affair Manager, Teheran, Iran
2008-2011	Imperial College London, London UK Role Supervisor, <u>Bhawana Poudel</u> , PhD student https://spiral.imperial.ac.uk/handle/10044/1/6901 Current Status/Employment: Supervisor, MNB Microfinance, Germany
Summer 2004	EMBL, Monterotondo, Italy Role Supervisor, <u>Ozge Tasdemir</u> , Undergraduate summer student Current Status/Employment: Postdoctoral Fellow, Harvard Medical School, USA
Summer 2003	EMBL, Monterotondo, Italy Role Supervisor, <u>Misha Capecchi</u> , Undergraduate summer student Current Status/Employment: Artist, USA

TEACHING ACTIVITIES

2025-Present	University of Pavia, Pavia, Italy Topic: Biology, <u>Medical Students</u> , over 1000 students, 75 hours hybrid in-person and online teaching
2009-2013	Imperial College London, London, UK Topic: Transgenic Mouse Model and Regenerative Medicine <u>PhD student course</u> , work closely with 5-10 students each year

- 2011 **Heart Science Center, Harefield, UK**
 Topic: Scientific prospective in cardiovascular diseases
MBBS 4th year student course, worked with 20 students
- 2008 **St George University, London, UK**
 Topic: Regenerative Medicine in Cardiovascular Research
MBBS 4th year student course, worked with 10 students

INVITED SEMINARS/CONFERENCES

1. ACADEMIA

- 2025 - Therapeutic control of fibrotic response mediated by mesenchymal stromal cells in ischemic diseases. Organizer Professor Elisabeth Cartwright, Department of Cardiovascular Research, University of Manchester, Manchester, UK
- 2023 - Role of Mesenchymal Stromal Cells and Tyrosine Kinase Pathways in Multiorgan Diseases. Organizer Professor Bottinelli, Department of Molecular Medicine, University of Pavia, Pavia, IT
- 2022 - Cellular and molecular function of mesenchymal stromal cells in cardiovascular diseases. Organizer Yale University, CT, USA
 - Healing properties of stromal mesenchymal cells expressing PDGFR α in regenerating and non-regenerating mammalian organs. Organizer Dr. Paul Yu, CVRC, MGH, Harvard Medical School, MA, USA
 - Healing properties of stromal mesenchymal cells expressing PDGFR α in the heart and vasculature of vertebrates. Organizer CVRTI, University of Utah, Salt Lake City, USA
- 2021 - Mechanisms of mammalian regeneration. Organizer New York Medical College, NY, USA
- 2019 - Cardiovascular Diseases and regenerative tools. Organizer Dr. Valentin Fuster, The Cardiovascular Institute at Mount Sinai Hospital, NY, USA
- 2010-2013 - Stem Cells Seminars Network at Imperial College London, London, UK
 Organizer Professor Sara Rankin
 - Stem Cells Club at the Cancer Research Institute, London, UK
 Organizer Professor Dominique Bonnet
 - Seminar at Hammersmith Campus, Imperial College London, London, UK. Organizer Professor Francesco Dazzi

2. CONFERENCES

- Basic Cardiovascular Science, The American Heart Association International Conference, July 2023. Poster presentation: Igf-1 signaling and nuclear localization of Pdgfr α tyrosine kinase activity control the fibrotic response of mesenchymal stromal cells to myocardial ischemia. **Abstract published on Circulation Research.**
- The American Heart Association International Conference, Chicago, IL. November 4-7, 2022. Poster presentation: Nuclear Localization of PDGFR α Tyrosine Kinase Represents a Novel

Mechanism Controlling the Fibrotic Response of Mesenchymal Stromal Cells to Myocardial Ischemia. **Abstract published on the journal Circulation**

- The New York Stem Cell Foundation Conference, October 18-19 2021. New York City, USA. Poster Presentation: Healing properties of mesenchymal progenitor stromal cells in the vertebrate heart
- New York Academy of Sciences, Adult Stem Cells and Regenerative Medicine, March 14, 2019, New York City, USA. Poster presentation: Yin-Yang function of tissue resident PDGFR α + progenitor cells during regeneration
- Leducq Meeting, Cellular and Molecular Targets to Promote Therapeutic Cardiac Regeneration, New York City, USA, 12-13 April 2018. Oral Presentation: Tissue resident PDGFR α + progenitor cells contribute to fibrosis versus healing in a context- and spatiotemporally dependent manner
- Leducq Meeting, Cellular and Molecular Targets to Promote Therapeutic Cardiac Regeneration, Washington, DC, USA, 2-3 March 2016. Oral Presentation: Healing properties of PDGFR α cells during regenerative processes
- Leducq Meeting, Cellular and Molecular Targets to Promote Therapeutic Cardiac Regeneration, Paris, France, 20-21 January 2015. Oral Presentation: The role of PDGFR α cells in physiological and pathological conditions
- British Heart Foundation, National Heart and Lung Institute presentation Meeting, London, UK, March 6-7 2013. Invited poster presentation: Attenuation of post-infarct cardiac remodelling by cell-mediated supplemental IGF-1 propeptide delivery. **Invited by the British Heart Foundation**
- American Heart Association Conference, Los Angeles, USA, November 3-7 2012. Oral presentation: Attenuation of Post-infarct Cardiac Hypertrophy by Allogeneic Cell-mediated Supplemental IGF-1 Pro-peptide Delivery. **Abstract published on the journal Circulation**
- BITs 4th Annual World Congress of Regenerative Medicine and Stem Cells, Beijing, China, December 4-7 2011. Oral Presentation: IGF-1EA-mediated cardiac repair: stem cells for vessels and therapeutic factor delivery. **Invited by the BITs organizing Committee**
- Cardiovascular Development and Repair, Keystone Symposia, Keystone, Colorado, USA, February 28-March 5 2010. Oral presentation: Cells and Factors for Cardiac Regeneration: mIGF-1-Mediated Cross-Talk between the Heart and the Bone Marrow. **Awarded Travel Scholarship (1000\$)**
- Leducq Meeting, Transatlantic Network of Excellence for Cardiac Regeneration, Imperial College London, London, UK, 5-6 September 2008. Oral Presentation: Regeneration of the Mammalian heart with cell-based Therapies
- Eumorphia 3rd Annual Meeting: Understanding Human Disease through Mouse Genetics, Cardiovascular Young Scientist Communication Award, February 22-24 2006, Barcelona,

Spain. Oral Presentation: mIGF-1 signalling in cardiac hypertrophy and regeneration.
Finalist at the Young Investigator Award

- 11th Weinstein Cardiovascular Development Conference, Tucson, Arizona, USA, 19-22 May 2005. Poster Presentation: Enhancing cardiac regeneration with growth factors
- ESH-EBMT Eurocord Conference on Stem Cell Research, Cascais, Portugal, 15-18 April 2005. Poster Presentation: IGF1Ea isoform in cardiac regeneration and stem cell biology.
Awarded Travel Scholarship (500 euros)
- Gordon Research Conference, Insulin-like growth factors in physiology and diseases, Ventura, California, USA, February 27-March 4 2005. Poster presentation: mIGF-1 function in the heart: towards cardiac regeneration
- Cardiovascular Development meeting, International University of Baeza, Baeza, Spain, October 23-26 2005. Oral presentation: Growth factor enhancement cardiac regeneration
- Combio 2004, Australian Society for Biochemistry and Molecular Biology, Perth, Australia, 26-30 September, 2004. Oral presentation: Local IGF-1 function in the heart: remodeling in physiological and pathological conditions 6th Course in Organ Transplantation, University of Padova, Padova, Italy, April 11-16 2005. Oral Presentation: IGF-1 and Cardiac Regeneration
- Keystone Symposia, Molecular Biology of Cardiac Disease X3, Keystone, Colorado, USA, March 7-12 2004. Poster Presentation: IGF-1: from physiology to pathology, a new therapeutic frontier
- 60th Annual Meeting of the Society for Investigative Dermatology, Chicago, Illinois, May 5–9, 1999. Oral presentation: Role of C-terminal tyrosine residues in RXR function. Abstract published on the journal of investigative dermatology. **Awarded Kligman's Travel Scholarship (1000\$)**
- University of Rochester, Poster Session sponsored by the Graduate Studies Office. February 27, 1999, University of Rochester, Rochester, USA. Poster presentation: Tyrosine residues at C-terminus domain regulate the activity of human Retinoic X Receptor b. **Abstract published on the Journal of Investigative Dermatology**
- Society for Free Radical Research Europe, Summer Meeting, Abano Terme, Italy, June 26-28 1997. Poster Presentation: Bcl-2 overexpression in the HaCaT cell line leads to a higher unsaturation of membrane fatty acids and decrease the sensitivity to oxidative stress
- International Conference “Oxidative stress and redox regulation”, May 21-24, 1996, Paris, France. Poster presentation: Bcl-2 expression is associated with a different fatty acid membrane composition and susceptibility to oxidation in cultured epithelial cells

3. PUBLIC ENGAGEMENT

2017

Supporting Mount Sinai Health System. Organizer Mount Sinai Development Office. *Contributed to lectures to potential donors about cardiac fibrosis to sponsor our laboratory at Mount Sinai*

- 2011-2012** **Supporting stem cell research. Organizer Magdi Yacoub Institute**
Delivered lectures to potential donors about research on stem cells and the possible therapeutic benefits to support the Magdi Yacoub Institute
- 2010-2011** **Mending Broken Heart Appeal. Organizer British Heart Foundation**
Delivered lectures to potential donors about cardiac regeneration signaling. Promotion of charity for supporting UK cardiovascular research.

PRESS RELEASE AND PUBLIC INTEREST OF MY WORK

Press release in reference to the manuscript: Maria Paola Santini, Lana Tsao, Laurent Monassier, Catherine Theodoropoulos, Janice Carter, Enrique Lara-Pezzi, Esfir Slonimski, Patrice Delafontaine, Martin Bergman, Christian Freund, Ken Suzuki, and Nadia Rosenthal. Enhancing repair of the mammalian heart. *Circulation Research*, 2007, 2 (100): 1732-1740.

- 2006** CITY, DAILY DIVULGATIVE ITALIAN NEWSPAPER, YEAR 6, NUMBER 95, MAY 26, 2006. Article title: "Generated a mouse that survive the infarct. It has the heart that repair itself"
- 2006** NATIONAL ITALIAN NEWSPAPER "LA REPUBBLICA", SCIENCE AND TECHNOLOGY SECTION MAY 26, 2006. Article title "Stem cells, generated the super-mice: after myocardial infarction the heart is self-healing"

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Maria Paola Santini