

Maria Paola Santini, PhD

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

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<https://www.ncbi.nlm.nih.gov/myncbi/1JQt5jfumdd9gk/bibliography/public/>

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<https://icahn.mssm.edu/profiles/maria-paola-santini>

EDUCATION

2001 - 2005

European Molecular Biology Laboratories, University of Heidelberg (Germany)

Doctor of Philosophy, PhD in Molecular Biology, Magna cum Laude

Designed and developed the study analyzing the role of Insulin like growth factor pro-peptides in cardiac regeneration and revascularization in ischemic disease

Supervisor: Prof. Nadia Rosenthal

Thesis Link <https://archiv.ub.uni-heidelberg.de/volltextserver/7012/>

1991- 1997

University of Rome La Sapienza, Italy

Bachelor of Science in Biology (laurea in Scienze Biologiche ordinamento 5 anni),

Major: Biotechnology, Minor: Molecular Biology

Discovered the role of BCL-2 in modulating specific membrane lipid expression in oxidative stress conditions

Supervisor: Prof. Fabio Virgili

GPA: 104/110

RESEARCH EXPERIENCE

2024- Present

University of Pavia, Department of Molecular Medicine

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

- Leading the research investigating the role of cardiac stromal/mesenchymal progenitor cell populations expressing the platelet-derived growth factor receptor alpha (PDGFR α) in orthogonal Cre/Lox-Dre/Rox transgenic systems during cardiac ischemia. Use of -omics techniques and ex vivo/in vitro cellular models
- Leading the research on the role of *Mest1*, *Cxcl9* and *Runx1* in regulating PDGFR α cell populations in skeletal muscle diseases and aging
- Lecturer of master, PhD and Bachelor students at interdisciplinary courses
- Instructing research assistants, PhD students and postdocs in laboratory techniques and theses, manuscripts writing and data analysis

2024-Present

Icahn School of Medicine at Mount Sinai, NYC

Adjunct Assistant Professor of Medicine

- Contributing to the development of studies on the effects of calcineurin inhibitors to podocytes biomechanic
- Serving as reviewer of manuscripts and grant applications (American Heart Association)

2022-2024

Icahn School of Medicine at Mount Sinai, NYC

Assistant Professor of Medicine

- Awarded the American Heart Association Career Development Award
- Leading the research investigating the mechanisms inducing progenitor cells expressing PDGFR α to fibro-adipogenic diseases in the cardiac and renal tissues using network analysis, transgenic technologies and high content imaging analyses.

- Instructing research assistants, PhD students and postdocs in laboratory techniques and theses, manuscripts writing and analysis

2019- 2022 **Icahn School of Medicine at Mount Sinai, NYC**
Instructor of Medicine

- Leading the research investigating the role of cardiac stromal mesenchymal progenitor cells expressing PDGFR α in large animal models of cardiac ischemia
- Developed technical approaches to study the role of HDAC9 in Endothelial-Mesenchymal Transition (EndoMT) mechanisms during atherosclerotic plaque formation (manuscript published in JCI)
- Analyzed the role of cardiac reprogramming in vascular regeneration by inducing hind limb ischemia to mice and measuring blood flow using Laser Doppler (manuscript published in Molecular Therapy)

2014 - 2019 **Icahn School of Medicine at Mount Sinai, NYC**
Leducq funded Postdoctoral fellow

- Discovered the dual role of PDGFR α stromal progenitor cells in tissue revascularization and fibrosis in physiological and pathological conditions in ischemic murine skeletal muscle through the use of several transgenic mouse models, including cell lineage tracking, ablation of cells and *Brainbow* cell progeny differentiation analysis by Cre-Lox-induced recombination (published in Cell Reports)
- Instructed medical students, research assistants and assisted rotating PhD students on microscopy, flow cytometry, cell culture maintenance, hind limb ischemia induction and data analysis
- Published 3 articles in peer-reviewed and top-tier journals on the dual function of mesenchymal stromal progenitor cells in regenerating tissues and major artery.

2007- 2013 **National Heart and Lung Institute, Imperial College London, UK**
British Heart Foundation funded Postdoctoral Fellow

2010- 2013 **Magdi Yacoub Institute**
Affiliated Senior Research Fellow

- Led research project studying the role mediated by Serum Glucocorticoid Kinase 1 in cardiac revascularization by knockout murine models, induction of myocardial infarction in mice and adenovirus mediated modulation of in vitro assay of vessel formation (tubulogenesis) with murine endothelial cells
- Analyzed the role of the insulin-like growth factor pro-peptide IGF-1Ea in mediating embryonic stem cell differentiation into mature cardiomyocytes by developing lentiviral delivery system and assessing DMSO treatments to induce stem cell differentiation
- Set and delivered IGF-1Ea gene by gene therapy in murine models of myocardial infarction and isoproterenol-induced cardiac dysfunction to alleviate cardiovascular diseases
- Published 13 articles in peer-reviewed journals about cardiac regeneration, tissue revascularization and mechanisms of differentiation of ESC-derived cardiomyocytes
- Obtained funding as Co-PI (Project grant from the British Heart Foundation 2009-2013) and awarded a Career fellowship from the Magdi Yacoub Institute
- Supervised successfully 3 PhD students and one postdoc (PhD award and publications)

OTHER EMPLOYMENT HISTORY

1999-2001 **Associate Researcher**, Cutaneous Biology Research Centre, Mass General Hospital
Harvard Medical School, Boston, USA
Studied the role of calcineurin in keratinocytes proliferation and differentiation

1997-1999 **Associate Researcher**, Department of Dermatology, University of Rochester, Rochester, NY, USA
Studied the role of retinoic X receptor in human skin function and its interaction with RARs

QUALIFICATIONS AND CERTIFICATIONS

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

LICENSURES AND MEMBERSHIPS

2022- IACUC protocol 2020000168 animal work
2020-2024 Member of the society for regenerative biology (Founders: Ken Poss and Elly Tanaka)
2019- Alumna of the British Heart Foundation (BHF)
2018-2024 Member of the New York Academy of Sciences
2018- Member of the American Heart Association
2013 - 2018 Project Licence # 70/7507 UK Home Office regulated animal work
2012 - 2017 Personal Licence # 70/20847 UK Home Office regulated animal work
2014- Alumna of the European Molecular Biology Laboratories (EMBL)
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

INDEPENDENT FUNDING

PAST SUPPORT

2010 - 2013 **mIGF-1 and embryonic stem cells**
PI, The Magdi Yacoub Institute fellow support # HSC24509, UK
We will evaluate in vitro the effects of IGF-1Ea expression on ESC-CM growth, hypertrophy, survival and function in physiological and pathological conditions.

2009 - 2012 **SGK1 and 3 in IGF-1 signaling and cardiac repair.**
Co-PI, Project Grant # PG/10/019, British Heart Foundation (BHF), UK
The purpose of this study is to analyze in detail the signaling pathways activated by IGF-1Ea overexpression. We hypothesize that SGK1 and SGK3 are involved in cardiomyocyte and endothelial cell survival and their protection from adverse stimuli, such as myocardial infarct.

2010-2013 **Regeneration of the heart with cell and gene therapy**
Named Postdoctoral Fellow, Project Grant # PG/08/111/26226, British Heart Foundation (BHF), UK
This project aims to elucidate the possible therapies to repair ischemic heart with cell and gene therapy. Endogenous injection of specific factors and ESC-derived cardiomyocytes will determine the contribution to revascularization and decreased cell death and inflammation.

2013-2018 **Cellular and Molecular Targets to Promote Therapeutic Cardiac Regeneration**
Postdoctoral Fellow, Leducq Fondation
The rationale for this network lies in the characterization of resident cardiac stem cell and in the understanding of mechanisms promoting but also limiting cardiac regeneration.

- 2018-2020** **Toward Therapeutic Manipulation of Endothelial to Mesenchymal Transition**
Postdoctoral Fellow, NIH/NHLBI 5R01HL135093
This project will shift current paradigms and firmly establish the role of Endothelial to Mesenchymal Transition (EndoMT), and the therapeutic opportunities for EndMT manipulation in adult CVD.
- 2020 - 2021** **Therapeutic Mechanisms of Cardiac Progenitors in Ischemic Cardiomyopathy**
Co-I, NIH/NHLBI, R01HL135093
We will examine the roles of cardiac progenitor cells (CPCs) in heart failure as a foundation for understanding their endogenous regenerative potential. Our program uses innovative delivery vectors and state of the art genomics technologies to examine CPC biology, reparative potential and impacts after myocardial function.
- 2022-2024** **Stromal Cardiac Cells: Role in fibrosis and tissue regeneration**
PI, AHA, Career Development Award, 926672
This study aims to analyze the function and role of cardiac mesenchymal stromal cells in the heart during physiological and clinically relevant pathological conditions (ischemia/reperfusion). We will undertake a detailed characterization of these populations at the molecular and cellular level in both the murine and human heart, and relate their function to distinct mechanisms of fibrosis and revascularization
- 2022-2024** **Biomechanical drivers of cystogenesis**
Co-I, NIH/NIDDK, 1R01DK131047
The goal is to combine computational modeling and cell biology approaches to study the role of cell biomechanics that underlie polycystic kidney disease progression
- 2022-2024** **Mechanosensitive determinants of podocytes physiology**
Co-I, NIH/NIDDK, 1R01DK118222
Kidney podocytes play an important role in kidney filtration. We identified a previously unknown protein, called nebullette, as a key component of the podocyte filtration machinery, and we propose to test its role in maintenance of the specialized structure of podocytes during health and disease.
- 2022-2024** **Plasminogen in glomerular disease progression**
Co-I, NIH/NIDDK, 1R01DK126477
Our preliminary data identified plasminogen as a mediator of podocyte injury and a potential therapeutic target in progressive glomerular disease. The proposed research will advance the currently available knowledge of glomerular disease pathogenesis and serve as a platform for the development of novel therapeutic agents.
- TO SUBMIT**
- 2025-2028** **Control of fibrotic response in cardiovascular diseases**
We identified cells and molecular signaling that may control cardiac fibrosis and heart dysfunction following an ischemic event. With this proposal, our lab aims to create a cardiac-specific molecular and cellular database of fibrotic mechanisms using systems biology and translational medicine approaches to investigate the possibility of developing new therapeutics for heart failure and cardiac function restoration.
- 2025-2028** **Defining the therapeutic importance of IGF-1 splice variants**
We will define the therapeutic functions of insulin like growth factor peptides in modulating cardiac hypertrophy and the balance between the fibrotic and revascularization response of fibro-adipogenic cells

HONORS AND AWARDS

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, 1000\$
2006	Young Scientist Communication Award, among finalists
2005	Marie Curie Scholarship, 500 euros
1999	Kligman Scholarship, 1000\$

INSTITUTIONAL RESPONSABILITIES

MEETING ORGANIZATION:

2019-2021	Cardiovascular Research Center, Icahn School of Medicine at Mount Sinai, USA Moderator of Trainee-Speaker sessions (>20 attendees). Promoted interaction of the invited speakers with young faculties and trainees for scientific advices and career directions
2010	Heart Science Centre/Harefield Hospital, UK, Internal Seminar Series Organizer Weekly seminar (>40 attendees). Organized data club and journal club for students, postdocs and group leaders
2010	Heart Science Centre/Harefield Hospital, UK External Seminar Series Organizer International invited speakers (>40 attendees). Organized and listed annually the invitations for international speakers and their interaction with the scientific community at the Heart Science Center

COMMITTEE MEMBERSHIP:

2007 – 2013	- Heart Science Centre, UK Health and Safety Committee Group Representative, organizing laboratory safety inspections, writing SOP and permits for the laboratory
	- Imperial College London, UK Interview panelist committee member for interviewing graduate and postdoctoral scientists

REVIEWING AND EDITORIAL WORK

2021-present	<u>Study section</u> , American Heart Association Career Development Award Cardiology Committee
2024-present	<u>Study section</u> , American Heart Association Transformational Award Project Cardiology Committee

Ad Hoc Grant Review:

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

Ad Hoc Manuscript Review:

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:

2009 - 2010 Analytical Assessment of MRes Project Reports, Biomedical Sciences, Imperial College London, UK

TRAINEES SUPERVISION

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, Anthony Mendoza, Biomedical Master student

2019-2020 **Icahn School of Medicine at Mount Sinai, NY, USA**
Role Supervisor, Seran Kahyaoglu, Associate Researcher

2017-2018 **Icahn School of Medicine at Mount Sinai, NY, USA**
Role Supervisor, Taylor Alison Thomas, Graduate medical student

2011-2014 **Imperial College London, London UK**
Role Supervisor, Tommaso Poggioli, 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, Jonas Lexow, 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, Elham Zarrinpashneh, Postdoctoral Fellow
Current Status/Employment: Medical Affairs Manager, Teheran, Iran

2008-2011 **Imperial College London, London UK**
Role Supervisor, Bhawana Poudel, 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, Ozge Tasdemir, Undergraduate summer student
Current Status/Employment: Postdoctoral Fellow, Harvard Medical School, USA

Summer 2003 **EMBL, Monterotondo, Italy**
Role Supervisor, Misha Capecci, Undergraduate summer student
Current Status/Employment: Artist, USA

TEACHING ACTIVITIES

2009-2013

Imperial College London, London, UK

Topic: Transgenic Mouse Model and Regenerative Medicine

PhD student course, work closely with 5-10 students each year

Assisted in the development of lectures and assessments to develop knowledge in transgenic technologies. Provided manuscripts for reference

2011

Heart Science Center, Harefield, UK

Topic: Scientific prospective in cardiovascular diseases

MBBS 4th year student course, worked with 20 students

Provided lectures to develop knowledge in transgenic technologies in cardiac studies

2008

St George University, London, UK

Topic: Regenerative Medicine in Cardiovascular Research

MBBS 4th year student course, worked with 10 students

Provided a lecture to develop knowledge in regenerative medicine

INVITED SEMINARS/CONFERENCES

ACADEMIA

2023

- Role of Mesenchymal Stromal Cells and Tyrosine Kinase Pathways in Multiorgan Diseases. Organizer Department of Molecular Medicine, University of Pavia

2022

- Cellular and molecular function of mesenchymal stromal cells in cardiovascular diseases. Organizer Yale University

2022

- Healing properties of stromal mesenchymal cells expressing PDGFR α in regenerating and non-regenerating mammalian organs. Organizer CVRC, MGH, Harvard Medical School

- Healing properties of stromal mesenchymal cells expressing PDGFR α in the heart and vasculature of vertebrates. Organizer CVRTI, University of Utah

2021

- Mechanisms of mammalian regeneration. Organizer New York Medical College

2019

- Cardiovascular Diseases and regenerative tools. Organizer The Cardiovascular Institute at Mount Sinai Hospital

2010-2013

- Stem Cells Seminars Network at Imperial College London. Organizer Professor Sara Rankin

- Stem Cells Club at the Cancer Research Institute. Organizer Professor Dominique Bonnet

- Seminar at the Hammersmith Campus Organizer Professor Francesco Dazzi

CONFERENCES

1. 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.**
2. 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**
3. 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

4. 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
5. 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
6. 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
7. 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
8. 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**
9. 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 Propeptide Delivery. **Abstract published on the journal Circulation**
10. 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**
11. 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\$)**
12. 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
13. 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**
14. 11th Weinstein Cardiovascular Development Conference, Tucson, Arizona, USA, 19-22 May 2005. Poster Presentation: Enhancing cardiac regeneration with growth factors
15. 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)**
16. 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
17. Cardiovascular Development meeting, International University of Baeza, Baeza, Spain, October 23-26 2005. Oral presentation: Growth factor enhancement cardiac regeneration

18. 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
19. 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
20. 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\$)**
21. 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**
22. 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
23. 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

PUBLIC ENGAGEMENT

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|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2017 | Supporting Mount Sinai Health System. Organizer Mount Sinai Development Office
<i>Contributed to lectures to potential donors about cardiac fibrosis to sponsor our laboratory at Mount Sinai</i> |
| 2011-2012 | Supporting stem cell research. Organizer Magdi Yacoub Institute
<i>Delivered lectures to potential donors about research on stem cells and the possible therapeutic benefits to support the Magdi Yacoub Institute</i> |
| 2010-2011 | Mending Broken Heart Appeal. Organizer British Heart Foundation
<i>Delivered lectures to potential donors about cardiac regeneration signaling. Promotion of charity for supporting UK cardiovascular research.</i> |

ORIGINAL PUBLICATIONS

Theses

- | | |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| May 2005 | PhD theses submitted to University of Heidelberg, Heidelberg, Germany
<i>mIGF-1 regulates heart physiology and induces complete regeneration of infarcted myocardial tissue</i> |
| 1991-1997 | BSc theses submitted to University of Rome, Rome, Italy
<i>Overexpression of the proto-oncogene bcl-2 modulates the response to oxidative stress in human keratinocyte culture</i> |

Manuscripts in preparation

- i) Nuclear localization of PDGFR α Tyrosine Kinase and supplementation of regenerative molecules control the balance between fibrosis and revascularization mechanisms of mesenchymal stromal cells to myocardial ischemia. **Maria Paola Santini**, Kiyotake Ishikawa, Lior Zangi, Sheongun Yoon, Evren Azeloglu. **(Corresponding and senior author)**. To submit to Circulation
- ii) Integrative systems biology analyses showed calcineurin inhibitors-mediated control of human podocyte biophysical and mechanical functions. Anthony Mendoza, Jakob Wright, Jonathan Haydock, Anika Hudson, Jenny Wong, Linda M. Rehaume, Kirk N. Campbell, **Maria Paola Santini**, Evren U. Azeloglu **(Corresponding and senior author)**. To submit to PNAS

Original Peer- Reviewed Articles

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. Žak, Jimeen Yoo, Asharee Mahmood, Hanna Girard, Rinat Komargodski, Toshiro Io, **Maria Paola Santini**, Nishat Sultana, Mohammad Tofael Kabir Sharkar, Ajit Magadum, Anthony Fagnoli, 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 *aMHC-MerCreMer* animals. **Dis Model Mech**. 2013, 6(6): 1470-1476. **(Senior Author with Prof Rosenthal)**

9. **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. (*Book Chapter*)
10. Melissa Touvron, 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.
11. 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.
12. **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**)
13. 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**)
14. 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**)
15. **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**)
16. 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.
17. **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. (*Book Chapter*)
18. 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.
19. 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.
20. **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.

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PRESS RELEASE AND PUBLIC INTEREST OF MY WORK

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