

FRANCESCO LODOLA

Center for Nano Science and Technology - IIT@PoliMi, Via Pascoli 70/3, Milano, 20133, Italy.

Phone: +39 02 23999831, Mobile: +39 3288353363, E-mail: francesco.lodola@iit.it

PROFILE

I am a physiologist with more than 10 years of experience in cardiovascular research. Over the years, I have developed a strong interest in biophysics and acquired a hands-on experience in both basic and translational research.

My main goal is to investigate and elucidate problems in physiology and medicine of the cardiovascular system harnessing their translational potential through multidisciplinary and groundbreaking approaches.

SCIENTIFIC PRODUCTION

26 peer-reviewed publications (eight as the first author, three as the corresponding author) and 44 scientific communications at National and International meetings. H-index: 16, with ca. 870 total citations (Scopus). Scopus ID: 53878010000, Research ID: J-8129-2018, ORCID ID: 0000-0002-3506-5619.

EDUCATION

2018/04 - National Scientific Habilitation for the role of Associate Professor in BIO13 - Applied Biology (sector 05/F1) by Italian Ministry of Education University and Research.

2012/02 - PhD in Physiology and Neuroscience. University of Pavia, Italy.

2007/04 - Master's Degree in Biotechnology. University of Pavia, Italy.

2004/12 - Bachelor's Degree in Biotechnology. University of Pavia, Italy.

2001/07 - Scientific High School Diploma. Liceo Scientifico Niccolò Copernico, Pavia, Italy.

RESEARCH EXPERIENCE

2015/12 – Present - Post Doc researcher at the Center for Nano Science and Technology - IIT@PoliMi, Milan, Italy.

2015/08 – 2015/09 - Visiting researcher at the Spanish National Centre for Cardiovascular Research (CNIC), Madrid, Spain.

2012/03 – 2015/11 - Post Doc researcher at the Molecular Cardiology, IRCCS Fondazione Salvatore Maugeri, Pavia, Italy.

2008/11 – 2012/02 - PhD student at the Dipartimento di Fisiologia – Sezione di Fisiologia Generale, Università di Pavia, Italy.

2008/02 – 2008/10 - Graduate research assistant at the Dipartimento di Fisiologia – Sezione di Fisiologia Umana, Università di Pavia, Italy.

2007/05 – 2008/01 - Graduate research assistant at the Dipartimento di Fisiologia – Sezione di Fisiologia Generale, Università di Pavia, Italy.

2006/11 – 2006/12 - Visiting researcher at the Departamento de Ciencias Biologicas - Facultad de Ciencias Exactas, Universidad Nacional de La Plata, Argentina.

LECTURING AND TUTORING ACTIVITY

Lecturer in Cellular & Molecular Physiology (A.Y. 2011-2012, Faculty of Sciences, University of Pavia) and in Experimental Biology (A.Y. 2011-2012, Interfaculty MM.FF.NN., University of Pavia).

Thesis tutor and advisor for several students enrolled in either a bachelor's or master's degree programme at University of Pavia, Italy and Politecnico di Milano, Italy.

EDITORIAL ACTIVITY

Review Editor for Frontiers in Cellular Neuroscience and Frontiers in Physiology, ad hoc reviewer for Journal of Cellular Physiology.

FUNDING

2019/05 – Present - Co-PI of the coordinating unit of the EU - Future and Emerging Technologies (FET) project Light and Organic Nanotechnology for Cardiovascular Disease (LION-HEARTED) funded from the European Union's Horizon 2020 FETOPEN 2018-2020 programme under grant agreement N° 828984; funding: € 2,904,413.75.

HONORS AND AWARDS

2018 - Travel grant award funded by the Italian Society of Cardiovascular Research (SIRC) to attend the 4th SIRC Forum "New Roads in Cardiovascular Research", Rome, Italy.

2017 - Highlighted Paper in Circulation Research with an editorial written by Dr. S. Nattel.

2014 - i) Research fellowship funded by TELETHON: "Creazione e studio di cellule iPS derivate da modelli murini CASQ2". ii) Highlighted Paper in Circulation with an editorial written by Dr. R. J. Hajjar and Dr. A. R. Lyon.

2012 - i) Educational grant award for young researchers offered by Malesci to attend the 73rd SIC Congress, Rome, Italy; Research fellowship funded by Ministero della Salute (Bando Giovani Ricercatori): "Mouse and Human induced pluripotent stem cells for myocardial diseases" ii) Research fellowship funded by Fondazione Leducq: "Caratterizzazione elettrofisiologica nel modello murino della forma recessiva di CPVT umana".

2008 - Research fellowship funded by Regione Lombardia: "Functional studies of aquaporin water channels in the human and rodent digestive tube".

MEMBERSHIPS

Member of the Italian Society of Physiology (SIF) and the Italian Society of Cardiovascular Research (SIRC).

LANGUAGES

Italian – Native speaker.

English – Good knowledge of the language, written and spoken.

INFORMATIC PROFICIENCY

Proficient in Microsoft Windows operating systems and Microsoft Office suite, experienced with patch-clamp electrophysiology data acquisition and analysis software (Axon PClamp) and data analysis and graphing software (ImageJ, Origin and Graphpad).

PEER-REVIEWED PUBLICATIONS

1. Tullii G., Giona F., **Lodola F.**, Bonfadini S., Bossio C., Varo S., Desii A., Criante L., Sala C., Pasini M., Verpelli C., Galeotti F. and Antognazza M.R. *High Aspect Ratio semiconducting polymer pillars for 3D cell cultures*. ACS applied materials & interfaces 2019. In press [I.F. 8.10](#)
2. **Lodola F.***, Rosti V., Tullii G., Desii A., Tapella L., Catarsi P., Lim D., Moccia F. and Antognazza M.R. *Conjugated polymers optically regulate the fate of Endothelial Colony Forming Cells*. Sci Adv. 2019, [*Corresponding author](#). In press [I.F. 12.8](#)
3. **Lodola F.***, Vurro V., Crasto S., Di Pasquale E. and Lanzani G. *Optical Pacing of Human Induced Pluripotent Stem Cell-Derived Cardiomyocytes Mediated by a Conjugated Polymer Interface*. Adv Healthcare Mater. 2019 May 8:e1900198. doi: 10.1002/adhm.201900198. [*Corresponding author](#). [I.F. 5.6](#)
4. Antognazza M.R., Abdel Aziz I. and **Lodola F.*** *Use of Exogenous and Endogenous Photomediators as Efficient ROS Modulation Tools: Results and Perspectives for Therapeutic Purposes*. Oxidative Medicine and Cellular Longevity. Oxid Med Cell Longev. 2019 Mar 31;2019:2867516. doi: 10.1155/2019/2867516. [*Corresponding author](#). [I.F. 4.9](#)
5. Di Maria F., **Lodola F.**, Zucchetti E., Benfenati F. and Lanzani G. *The evolution of artificial light actuators in living systems: from planar to nanostructured interfaces*. Chem Soc Rev. 2018 Jul 2;47(13):4757-4780. [I.F. 40.2](#)
6. Zuccolo E., Di Buduo C.A., **Lodola F.**, Orecchioni S., Scapellino G., Kheder D.A., Poletto V., Guerra G., Bertolini F., Balduini A., Rosti V. and Moccia F. *Stromal cell-derived factor-1 α promotes endothelial colony forming cell migration through the Ca²⁺-dependent activation of the extracellular signal-regulated kinase 1/2 and phosphoinositide 3-kinase/AKT pathways*. Stem Cells Dev. 2018 Jan 1;27(1):23-34. doi: 10.1089/scd.2017.0114. [I.F. 3.3](#)
7. Bongianino R., Denegri M., Mazzanti A., **Lodola F.**, Vollero A., Boncompagni S., Fasciano S., Rizzo G., Mangione D., Barbaro S., Di Fonso A., Napolitano C., Auricchio A., Protasi F. and Priori S.G. *Allele specific silencing of mutant mRNA rescues ultrastructural and arrhythmic phenotype in mice carriers of the R4496C mutation in the Ryanodine Receptor gene (RYR2)*. Circ Res. 2017 Aug 18;121(5):525-536. doi: 10.1161/CIRCRESAHA.117.310882. [I.F. 15.2](#)
8. **Lodola F.**, Martino N., Tullii G., Lanzani G. and Antognazza M.R. *Conjugated polymers mediate effective activation of the Mammalian Ion Channel Transient Receptor Potential Vanilloid 1*. Sci Rep. 2017 Aug 16;7(1):8477. doi: 10.1038/s41598-017-08541-6. [I.F. 4.1](#)
9. **Lodola F.**, Laforenza U., Cattaneo F., Ruffinatti F.A., Poletto V., Massa M., Tancredi R., Zuccolo E., Kheder D.A., Riccardi A., Biggiogera M., Rosti V., Guerra G. and Moccia F. *VEGF-induced intracellular Ca²⁺ oscillations are weaker and do not stimulate proliferation in tumor-derived endothelial colony forming cells*. Oncotarget. 2017 Aug 14;8(56):95223-95246. doi: 10.18632/oncotarget.20255. [I.F. 5.2](#)

10. Zuccolo E., Dragoni S., Poletto V., Catarsi P., Guido D., Rappa A., Reforgiato M., **Lodola F.**, Lim D., Rosti V., Guerra G. and Moccia F. *Arachidonic acid-evoked Ca²⁺ + signals promote nitric oxide release and proliferation in human endothelial colony forming cells*. *Vascul Pharmacol*. 2016 Dec;87:159-171. doi: 10.1016/j.vph.2016.09.005. [I.F. 3.7](#)
11. **Lodola F.**, Morone D., Denegri M., Rutigliano L., Bongianino R., Nakahama H., Gosetti R., Rizzo G., Vollero A., Buonocore M., Napolitano C., Condorelli G., Priori S.G. and Di Pasquale E. *Adeno-associated virus-mediated CASQ2 delivery rescues phenotypic alterations in a patient-specific model of recessive Catecholaminergic Polymorphic Ventricular Tachycardia*. *Cell Death Dis*. 2016 Oct 6;7(10):e2393. doi: 10.1038/cddis.2016.304. [I.F. 6.0](#)
12. Brandalise F., Lujan R., Leone R., **Lodola F.**, Cesaroni V., Romano C., Gerber U. and Rossi P. *Distinct expression patterns of inwardly rectifying potassium currents in developing cerebellar granule cells of the hemispheres and the vermis*. *Eur J Neurosci*. 2016 Jun;43(11):1460-73. [I.F. 2.9](#)
13. Dragoni S., Reforgiato M., Zuccolo E., Poletto V., **Lodola F.**, Ruffinatti F.A., Bonetti E., Guerra G., Barosi G., Rosti V. and Moccia F. *Dysregulation of VEGF-induced pro-angiogenic Ca²⁺ oscillations in primary myelofibrosis-derived endothelial colony forming cells*. *Exp Hematol* 2015 Dec;43(12):1019-1030. [I.F. 2.3](#)
14. Moccia F., Zuccolo E., Soda T., Tanzi F., Guerra G., Mapelli L., **Lodola F.** and D'Angelo E. *Stim and Orai proteins as novel actors in neuronal Ca²⁺ signalling and excitability*. *Frontiers in Cellular Neuroscience* 2015; 9:153. [I.F. 4.6](#)
15. Dragoni S., Guerra G., Fiorio Pla A., Bertoni G., Rappa A., Poletto V., Bottino C., Aronica A., **Lodola F.**, Cinelli M.P., Laforenza U., Rosti V., Tanzi F., Munaron L. and Moccia F. *A Functional Transient Receptor Potential Vanilloid 4 (TRPV4) Channel Is Expressed In Human Endothelial Progenitor Cells*. *J Cell Physiol* 2015 Jan;230(1):95-104. [I.F. 4.1](#)
16. Denegri M., Bongianino R., **Lodola F.***, Boncompagni S., De Giusti V.C., Avelino-Cruz J.E., Liu N., Persampieri S., Curcio A., Esposito F., Pietrangelo L., Marty I., Villani L., Moyaho A., Baiardi P., Auricchio A., Protasi F., Napolitano C. and Priori S.G. *A single delivery of an adeno-associated viral construct to transfer the CASQ2 gene to knock-in mice affected by Catecholaminergic Polymorphic Ventricular Tachycardia is able to cure the disease from birth to advanced age*. *Circulation*. Jun 24;129(25):2673-81. [*Co-First Author](#). [I.F. 14.4](#)
17. Dragoni S., Laforenza U., Bonetti E., Reforgiato M., Aronica A., **Lodola F.**, Bottino C., Guido D., Rappa A., Pareek S., Tomasello M., Guarrera M.R., Cinelli M.P., Poletto V., Guerra G., Barosi G., Tanzi F., Moccia F. and Rosti V. *Enhanced expression of Stim, Orai, and TRPC transcripts and proteins in endothelial progenitor cells isolated from patients with primary myelofibrosis*. *Plos One*. 2014; 9(3):e91099. [I.F. 3.2](#)
18. Moccia F., **Lodola F.**, Dragoni S., Bonetti E., Bottino C., Guerra G., Laforenza U., Rosti V. and Tanzi F. *Ca²⁺ signalling in endothelial progenitor cells: a novel means to improve cell-based therapy and impair tumour vascularisation*. *Current Vascular Pharmacology*. 2014 Jan;12(1):87-105. [I.F. 3.0](#)

19. Di Pasquale E., **Lodola F.***, Miragoli M., Denegri M., Avelino-Cruz J.E., Buonocore M., Nakahama H., Portararo P., Bloise R., Napolitano C., Condorelli G. and Priori S.G. *CaMKII inhibition rectifies arrhythmic phenotype in a patient-specific model of Catecholaminergic Polymorphic Ventricular Tachycardia*. Cell Death Dis 4: e843; doi:10.1038/cddis.2013.369. *Co-First Author. [I.F. 5.2](#)
20. Dragoni S., Laforenza U., Bonetti E., **Lodola F.**, Bottino C., Guerra G., Borghesi A., Stronati M., Rosti V., Tanzi F. and Moccia F. *Canonical Transient Receptor Potential 3 channel triggers VEGF-induced intracellular Ca²⁺ oscillations in endothelial progenitor cells isolated from umbilical cord blood*. Stem Cells Dev. 2013 Oct 1;22(19):2561-80. [I.F. 4.2](#)
21. Liu N., Denegri M., Dun W., Boncompagni S., **Lodola F.**, Protasi F., Napolitano C., Boyden P.A. and Priori S.G. *Abnormal propagation of calcium waves and ultrastructural remodeling in recessive catecholaminergic polymorphic ventricular tachycardia*. Circ Res. 2013 Jul 5;113(2):142-52. [I.F. 11.8](#)
22. Brunello L., Slabaugh J.L., Radwanski P.B., Ho H.T., Belevych A.E., Lou Q., Chen H., Napolitano C., **Lodola F.**, Priori S.G., Fedorov V.V., Volpe P., Fill M., Janssen P.M. and Györke S. *Decreased RyR2 refractoriness determines myocardial synchronization of aberrant Ca²⁺ release in a genetic model of arrhythmia*. Proc Natl Acad Sci USA. 2013 Jun 18;110 (25):10312-7. [I.F. 9.8](#)
23. Moccia F., Dragoni S., **Lodola F.**, Bonetti E., Bottino C., Guerra G., Laforenza U., Rosti V. and Tanzi F. *Store-dependent Ca²⁺ entry in endothelial progenitor cells as a perspective tool to enhance cell-based therapy and adverse tumour vascularisation*. Curr Med Chem. 2012 Dec 1;19(34):5802-18. [I.F. 4.0](#)
24. **Lodola F.**, Laforenza U., Bonetti E., Lim D., Dragoni S., Bottino C., Ling Ong H., Guerra G., Ganini C., Massa M., Manzoni M., Ambudkar I.S., Genazzani A.A., Rosti V., Pedrazzoli P., Tanzi F., Moccia F. and Porta C. *Store-operated Ca²⁺ entry is remodelled and controls in vitro angiogenesis in endothelial progenitor cells isolated from tumoral patients*. Plos One. 2012; 7(9):e42541. [I.F. 3.7](#)
25. Moccia F., Bonetti E., Dragoni S., Fontana J., **Lodola F.**, Berra Romani R., Laforenza U., Rosti V. and Tanzi F. *Hematopoietic progenitor and stem cells circulate by surfing on intracellular Ca²⁺ waves: a novel target for cell-based therapy and anti-cancer treatment?* Current Signal Transduction Therapy. 2012 May; 7(2):161-176. [I.F. 0.6](#)
26. Dragoni S., Laforenza U., Bonetti E., **Lodola F.**, Bottino C., Bongio G.C., Berra Romani R., Guerra G., Pedrazzoli P., Rosti V., Tanzi F. and Moccia F. *Vascular endothelial growth factor stimulates endothelial colony forming cells proliferation and tubulogenesis by inducing oscillations in intracellular Ca²⁺ concentration*. Stem Cells. 2011 Nov; 29(11):1898-907. [I.F. 7.8](#)

CONFERENCE ABSTRACTS PUBLISHED ON INDEXED JOURNALS

1. Guerra G., **Lodola F.**, Laforenza U., Cattaneo F., Poletto V., Zuccolo E., Biggiogera M., Rosti V., Tafuri D. and Moccia F. *VEGF-induced intracellular Ca²⁺ oscillations are weaker and do not stimulate proliferation in tumor-derived endothelial colony forming cells*. 2017. IJAE Vol. 122 (suppl 1); 106.
2. Catalucci D., Ceriotti P., **Lodola F.**, Novelli V., Bang ML., Napolitano C. and Priori S.G. *A novel molecular approach to correct L-type calcium channel dysfunction associated with Brugada syndrome*. June 2017. Europace 19 (suppl 3); 142.
3. Bongianino R., Vollero A., **Lodola F.**, Denegri M., Boncompagni S., Fasciano S., Mazzanti A., Mangione D., Barbaro S., Rizzo G., Auricchio A., Napolitano C., Protasi F. and Priori S.G. (2016). *Allele Specific Silencing Prevents Malignant Arrhythmias and Ultrastructural Abnormalities in Ryanodine Receptor Mutant Mice*. Circulation. 2016 Nov 11. Volume 134, Supplement 1.
4. Rusconi F., Ceriotti P., Miragoli M., Di Pasquale E., Carullo P., Salvarani N., Rocchetti M., Rossi S., **Lodola F.**, Caprari S., Viggiani G., Cazade M., Kunderfranco P., Chemin J., Bang M.L., Polticelli F., Zaza A., Napolitano C., Priori S.G., Condorelli G. and Catalucci D. *Therapeutic Modulation Of Cardiac Function By Selective Peptidomimetic-Mediated Targeting Of The L-Type Calcium Channel Machinery*. Vascular Pharmacology. 2015 Dec 31. 75; 55-56.
5. **Lodola F.**, Di Pasquale E., Bongianino R., Denegri M., Rutigliano L., Buonocore M., Bloise R., Condorelli G., Napolitano C. and Priori S.G. (2015). *Efficacy of a biological therapy for recessive Catecholaminergic Polymorphic Ventricular Tachycardia in human induced pluripotent stem cells-derived cardiomyocytes*. 2015 Jun 24. Europace 17(suppl 3); 166:167.
6. Curcio A., Denegri M., **Lodola F.**, Bongianino R., Persampieri S., Avelino-Cruz J.E., Liu N., Napolitano C., Indolfi C. and Priori S.G. *CaMKII inhibition prevents ventricular and supraventricular tachyarrhythmias in a murine model of recessive CPVT*. European Heart Journal. 2014; 35:262.
7. Denegri M., Bongianino R., **Lodola F.**, Boncompagni S., Liu N., Avelino-Cruz J.E., De Giusti V.C., Curcio A., Pietrangelo L., Villani L., Protasi F., Auricchio A., Napolitano C. and Priori S.G. *Viral gene transfer is able to revert phenotypical manifestation of recessive Catecholaminergic Polymorphic Ventricular Tachycardia in highly symptomatic adult knock-in mice*. Circulation. 2013 Nov 26. Volume 128, Issue 22 Supplement.
8. Denegri M., Avelino-Cruz J.E., De Giusti V.C., **Lodola F.**, Curcio A., Bongianino R., Leccioli V., Boncompagni S., Protasi F., Auricchio A., Napolitano C. and Priori S.G. *Adeno-Associated Viral gene delivery of calsequestrin 2 protects adult calsequestrin 2-R33Q knock-in mice from developing ventricular tachycardias*. Circulation. 2012 Nov 10. Volume 126, Issue 21 Supplement.
9. Dragoni S., Laforenza U., Bonetti E., **Lodola F.**, Rosti V., Tanzi F. and Moccia F. (2011). *Role of canonical transient receptor potential 3 channel in the calcium oscillations induced by vascular*

endothelial growth factor in endothelial colony forming cells harvested from umbilical cord blood. Proceedings of The Physiological Society. 2011; 25:35.

10. **Lodola F.**, Bonetti E., Laforenza U., Dragoni S., Guerra G., Rosti V., Pedrazzoli P., Tanzi F., Porta C and Moccia F. (2011). *Store-operate Ca^{2+} entry is over-expressed in endothelial colony forming cells isolated from patients suffering of Renal Cellular Carcinoma.* Proceedings of The Physiological Society. 2011; 25:35.
11. Dragoni S., Bonetti E., Laforenza U., **Lodola F.**, Guerra G., Rosti V., Tanzi F. and Moccia F. *VEGF induces endothelial progenitor cells to proliferate by eliciting oscillations in intracellular Ca^{2+} concentration.* Angiogenesis. 2011; 14:94.

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Milan, July 19, 2019

Francesco Lodola