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Decreto Rettore Università di Roma “La Sapienza” n 2250/2021 del 06.08.2021

Elisa Messina

Curriculum Vitae

Roma

12/10/2021

Part I – General Information

Full Name	ELISA
Date of Birth	MESSINA
Citizenship	ITALIAN

Part II – Education

Type	Year	Institution	Notes (Degree, Experience)
University Graduation	1981	University “La Sapienza” of Rome	Medicine and Surgery (pre-degree training and thesis in Biological Chemistry).
Pre-doctorate Research internship	1977-83	Dept. of Biochemistry, University “La Sapienza” of Rome	Development of new approaches for the evaluation of radical oxygen species release from inflammatory cells. Research in purine metabolism (purification and kinetics of human HGPRT).
Pre-doctorate research internship	1981-93	Laboratory of Clinical Pathology, Sapienza University of Rome University “La Sapienza” of Rome	Research in the field of angiotensin-mediated activation in inflammatory cells.
Pre-doctorate research internship	1977	Summer student at the Department of Biochemistry (School of Medicine), Cardiff University (UK)	Characterization of vitamin B6 enzymatic complex.
Post-graduate studies			
PhD in Pediatric Sciences	1993-97	University “La Sapienza” of Rome	PhD thesis title: Surfactant protein A-producing cells in human fetal lung are good targets for recombinant adenovirus-mediated gene transfer.
Specialty in Pediatrics	1981-1985	University “La Sapienza” of Rome	Pediatric Immuno-allergology training and Neonatal intensive care clinical activity.
Specialty in Neonatology	1987-89	University “La Sapienza” of Rome	Neonatal intensive care clinical activity.

Master in Neonatology	1986	University “La Sapienza” of Rome	Neonatal intensive care clinical activity.
Abilitazione Scientifica Nazionale (ASN) 06/N1 II Fascia.	2014		Abilitata con validità dal 09/06/2014 al 09/06/2023

Part III – Appointments

IIIA – Academic Appointments

Start	End	Institution	Position
01/03/2019	30/04/2019	Stanford Cardiovascular Institute Stanford University (CA, USA)	Invited Instructor Scientist
06//2006	09/2006	Division of Cardiology, Johns Hopkins University, Baltimore, MD, USA	Visiting Scientist Comando ai sensi art 20CCNLint CCNL 98/01 per la dir Medica e Vet. per lo svolgimento del Prog .di Coll. con il Dip. di Cardiologia presso JHU (USA).
31/05/2005	30/09/2005	Division of Cardiology, Johns Hopkins University, Baltimore, MD, USA	Visiting Scientist Comando ai sensi art 20CCNLint CCNL 98/01 per la dir Medica e Vet. per lo svolgimento del Prog .di Coll. con il Dip. di Cardiologia presso JHU (USA).
11/11/2004	22/12/2004	Division of Cardiology, Johns Hopkins University, Baltimore, MD, USA	Visiting Scientist Comando ai sensi art 20CCNLint CCNL 98/01 per la dir Medica e Vet. per lo svolgimento del Prog .di Coll. con il Dip. di Cardiologia presso JHU (USA).
01/2004	02/2004	New York Medical College (Walhalla)	Visiting Scientist

IIIB – Clinical Appointments

Start	End	Institution	Position
11/2013	Today	Division of Pediatric Cardiology, Policlinico Umberto I, Sapienza	Pediatric Medical Doctor

		University of Rome	
09/2002	10/2003	Department of Experimental Medicine, Policlinico Umberto I, Sapienza University of Rome	Medical Doctor, Medical manager
1998	2003	Scientific adviser at the Bambino Gesù Hospital, Rome.	Collaboration for oncological, pharmacological and regenerative medicine research activity
01/1985	02/1985	Mogadishu University Hospital	Voluntary Pediatric Medical Doctor
1983	09/2002	Division of Neonatal Intensive Care Unit, Policlinico Umberto I, Sapienza University of Rome	Pediatric Medical Doctor

Part IV – Teaching experience

Year	Institution	Lecture/Course
2004-2007	Sapienza University of Rome	Contract Professor of Molecular Medicine, Master degree in Pharmaceutical Biotechnology, School of Medicine.
2002-2004	Sapienza University of Rome	Contract Professor of General Pathology, Course in Scientific Information of Drugs, School of Medicine.
2014-2019	Division of Pediatric Cardiology, Policlinico Umberto I, Sapienza University of Rome	Instructor in “New applications of regenerative Cardiology to congenital heart defects”, Master course of Pediatric Cardiology
03-05/2019	Stanford Cardiovascular Institute Stanford University (CA, USA)	Instructor and mentoring in cardiac remodeling and regeneration for PhD and Post-doctoral students

Part V - Society memberships, Awards and Honors

Year	Title
2004	Editorial by Daniel J. Garry and Cindy M. Martin. Cardiac Regeneration. Self-service at the pump. Circulation Research. 2004;95:852–854 and issue cover following the publication of the first seminal study on cardiac progenitor cells (Circ Res. 2004 Oct 29;95(9):911-21. doi: 10.1161/01.RES.0000147315.71699.51.), as official recognition by the scientific community for the achieved milestone and innovative approach in the field of cardiac physiology and regeneration.
2004-2005-2006-2009	American Heart Association (AHA) membership
2008	European Society of Cardiology (ESC); membership
2011	Award winner of the ITWIN 2011 for the best Innovation in Medicine

Part VI - Funding Information [grants as PI-principal investigator or I-investigator]

Current funding

Year	Title	Program	Grant value
2015-2018	Investigator, MEDIRAD Grant number: 755523.	Horizon 2020	€ 240.000
2019-2021	Principal Investigator, MEDIRAD Grant number: 755523.	Horizon 2020	

The applicant, while leading all the steps from the ideation to the preparation of many of national and international grants, never appears as PI but only, if any, included within the program as non-academic collaborator or non-academic expert and consultant.

Most relevant national grant as non-university collaborator:

- Project number: 2003065109_006. Title: Uso terapeutico delle cellule staminali ematopoietiche e mesenchimali nelle malattie cardiovascolari (Prin)
- Project number: 2005059793_002. Cellule staminali cardiache: proprietà biologiche per ottimizzare il loro impiego nella cardiomioplastica autologa. (Prin)
- Bando accordi internazionali. Prot. 31287 del 17/05/2012, Autologous and Eterologous Tissue Engineering Scaffolds for Cellular Cardiomyoplasty: basic and pre-clinical studies.

Most relevant international grant (in the framework of the collaboration with Prof. Edoardo Marban as non-University collaborator and following the interuniversity US-ITALY international collaboration grant)

- NIH project number: 1U54HL081028-01. Project title: Isolation & characterization of human cardiac stem cells.
- NIH project number: 5U54HL081028-02. Project title: Cellular cardiomyoplasty for acute and chronic ischemic.

Part VII – Research Activities

Keywords:

Cardiac Regenerative Medicine,

Tissue Engineering,

Cardiac Remodeling/reverse remodeling,

Tissue modelling and drug screening,

Mechanotransduction,

Silicon nanowires (SiNWs).

Past Research activities.

The initial research activity focused on the design and development of analytic assays in the field of human purine metabolism, the pathogenesis of neurological dysfunction in Lesch-Nyhan syndrome, and the evaluation of drug-induced apoptosis in pediatric tumors focusing on the effects of chronic guanine nucleotide depletion on human neuroblastoma cell lines.

Furthermore, during the PhD years the development of fetal organ explants culture approaches and the studies of their in dish differentiation, were fundamental for the development of the subsequent research studies in the cardiac regeneration field.

Current Research activities.

From 2003 onward, almost all the scientific activities, including International collaboration appointments, research activity and mentoring, are focused on cardiac regeneration, development of 3D in vitro tissue models for diseases-mechanism, drug screening/therapeutic applications and tissue-engineering.

The development of a new method (International patent number: WO2005012510, 2005-02-10) for the isolation of cardiac progenitor cells from murine and human organ culture (Messina et al. Circ Res 2004) has paved the way to a new line of research in the field of cardiac regeneration and cardiac tissue engineering. The characteristic feature of these cells is given by their spontaneous growth as cellular spheroids/micro-tissues (Cardiospheres, CSs) that recapitulate the developmental stages and differentiation process of the organ of origin thus representing a prototype of the organoids models, currently widely used in for drug screening and/or tissue development studies.

After functional evaluation of the CSs and CSs-derived cells (CDCs) in vitro and in vivo and exploitation of their translational properties, both at pre-clinical and clinical levels, numerous studies have been performed by the applicant in order to evaluate the molecular mechanism behind their regenerative capabilities. Among them the specific **autocrine-paracrine activity**, and relative signaling, **immunomodulatory properties**, **angiogenesis**, **EMT/MET**, remodeling and reverse-remodeling, pro-survival mediated pathways.

Furthermore, these cells have been also used by the applicant to generate 3D tissue constructs for cardiac **tissue engineering applications**. In this regard, these cardiac constructs were realized by using **tissue printing technology**. In this context, the effects of different biomaterials and microenvironment on cell differentiation and therapeutic applications has been extensively studied.

As mentioned previously, the CSs and CDCs models have been also analyzed by the applicant, for the evaluation of the molecular mechanism behind cardiac fibrosis (remodeling) focusing mainly on **Mechanosensing and mechanotransduction** pathways, aiming at the identification of strategic molecular targets for diagnostic, pharmacologic, and therapeutic applications.

Most recently, the developed 3D microtissue model has been used for the in vivo evaluation of the effects of different breast cancer **ionizing radiation** doses **on the cardiovascular system**. This study has been performed by the applicant in the context of a project (MEDIRAD Grant number: 755523, whose the candidate is the scientific responsible of the Sapienza operational unit)), funded by **HORIZON 2020**, the EU Framework Program for Research and Innovation.

Lastly, a new and innovative research line has been recently established in collaboration with the Electronics and Telecommunications Department, Sapienza University of Rome, aiming at the development and generation of **new biosensors** based on the use of **silicon nanowires (SiNWs) technology**. This approach, should allow in situ stimulation, recording, and amplification of bioelectrical signals elicited by the cultured cells but also for controlled drug delivery, with the goal to generate an innovative and compact device that allows synchronous, on-site recording of large amounts of biological data from excitable cells networks.

Patent Authorship

Method for the isolation and expansion of cardiac stem cells from biopsy (2003)

Inventors: Alessandro Giacomello, **Elisa Messina**, Massimo Battaglia, Giacomo Frati

Owner: University of Rome "la Sapienza"

Territorial covering: Italy, Europe, U.S.A., Canada, China

Application for patent n.RM2003A000376, 31/7/2003. Method for the isolation and expansion of cardiac stem cells from biopsy. International patent number: WO2005012510, 2005-02-10.

The patent led to the establishment of a Spin-Off company (CAPRICOR) which is currently funding the several research and clinical trials at the Cedar Sinai Institute in Los Angeles (directed by the Prof. E.Marbàn), which followed the clinical translation of the same technology and skills transferred by the applicant to the JHU.

Part VIII – Summary of Scientific Achievements

Product type	Number	Data Base	Start	End
Papers valid for bibliometric values/ASN [international]	50	SCOPUS e/o WOS	1996	2020
Papers [international] all	61		1978	2020
Books chapters [scientific]	4	SCOPUS e/o WOS	2007	2017

Bibliometrics:

Impact factor (IF) source: Journal citation report (<https://jcr.clarivate.com/jcr/search-results>) or Scopus if not available on Jcr. IF of the publication year.

Citation source: Scopus

Hirsh-index source: Scopus

- Total Impact factor: 223,26
- Average IF (IF/nr of publications): 4.65
- Total Citations: 4222
- Average citations per product: 84.5
- Hirsch (H) index: 25
- Normalized* H index: 1.04

*H index divided by the academic seniority (time span from graduation, PhD in 1997 = 24y)

Selected publications bibliometrics:

- Total Impact factor: 82.3
- Average IF (IF/nr of publications): 6.85
- Total Citations: 3120
- Average citations per product: 260

Part IX– Selected Publications (most cited first)

1. **Messina, E.**, De Angelis, L., Frati, G., Morrone, S., Chimenti, S., Fiordaliso, F., Salio, M., Battaglia, M., Latronico, M.V.G., Coletta, M., Vivarelli, E., Frati, L., Cossu, G., Giacomello, A. Isolation and expansion of adult cardiac stem cells from human and murine heart. (2004) *Circulation Research*, 95 (9), pp. 911-921.

IF2004: 9.972; nr citazioni: 1176 (Scopus); 1052 (wos)

- Editorial by Daniel J. Garry and Cindy M. Martin. Cardiac Regeneration. Self-service at the pump. *Circulation Research*. 2004;95:852–854.
- Circ Research issue cover

2. Smith, R.R., Barile, L., Cho, H.C., Leppo, M.K., Hare, J.M., **Messina, E.**, Giacomello, A., Abraham, M.R., Marbán, E. Regenerative potential of cardiosphere-derived cells expanded from percutaneous endomyocardial biopsy specimens. (2007) *Circulation*, 115 (7), pp. 896-908.

IF2007: 12.755; nr citazioni: 898 (Scopus); 828 (wos)

3. Chimenti, I., Smith, R.R., Li, T.-S., Gerstenblith, G., **Messina, E.**, Giacomello, A., Marbán, E. Relative roles of direct regeneration versus paracrine effects of human cardiosphere-derived cells transplanted into infarcted mice. (2010) *Circulation Research*, 106 (5), pp. 971-980.

IF2010: 9.504; nr citazioni: 484 (Scopus); 460 (wos)

4. Gaetani, R., Doevendans, P.A., Metz, C.H.G., Alblas, J., **Messina, E.**, Giacomello, A., Sluijter, J.P.G. Cardiac tissue engineering using tissue printing technology and human cardiac progenitor cells (2012) *Biomaterials*, 33 (6), pp. 1782-1790.

IF2012: 7.604; nr citazioni: 244 (Scopus); 225 (wos)

5. Gaetani, R., Feyen, D.A.M., Verhage, V., Slaats, R., **Messina, E.**, Christman, K.L., Giacomello, A., Doevendans, P.A.F.M., Sluijter, J.P.G. Epicardial application of cardiac progenitor cells in a 3D-printed gelatin/hyaluronic acid patch preserves cardiac function after myocardial infarction. (2015) *Biomaterials*, 61, pp. 339-348.

IF 2015: 8.387; nr citazioni: 168 (Scopus); 166 (wos)

6. Forte, E., Chimenti, I., Rosa, P., Angelini, F., Pagano, F., Calogero, A., Giacomello, A., **Messina, E.** EMT/MET at the crossroad of stemness, regeneration and oncogenesis: The Ying-Yang equilibrium recapitulated in cell spheroids. (2017) *Cancers*, 9 (8).

IF 2017: 5.326; nr citazioni: 39 (Scopus); 41 (wos)

7. Forte, E., Miraldi, F., Chimenti, I., Angelini, F., Zeuner, A., Giacomello, A., Mercola, M., **Messina, E.** TGFβ-dependent epithelial-to-mesenchymal transition is required to generate cardiospheres from human adult heart biopsies (2012) *Stem Cells and Development*, 21 (17), pp. 3081-3090.

IF2013: 4.67; nr citazioni: 31 (Scopus); 31 (wos)

8. Chimenti, I., Massai, D., Morbiducci, U., Beltrami, A.P., Pesce, M., **Messina, E.** Stem Cell Spheroids and Ex Vivo Niche Modeling: Rationalization and Scaling-Up (2017) *Journal of Cardiovascular Translational Research*, 10 (2), pp. 150-166.

IF 2017: 2.337; nr citazioni: 19 (Scopus); 18 (wos)

9. Altomare, C., Barile, L., Marangoni, S., Rocchetti, M., Alemanni, M., Mostacciuolo, G., Giacomello, A., **Messina, E.**, Zaza, A. Caffeine-induced Ca²⁺ signaling as an index of cardiac progenitor cells differentiation. (2010) *Basic Research in Cardiology*, 105 (6), pp. 737-749.

IF2010: 6.128; nr citazioni: 19 (Scopus); 17 (wos)

10. Chimenti, I., Pagano, F., Angelini, F., Siciliano, C., Mangino, G., Picchio, V., De Falco, E., Peruzzi, M., Carnevale, R., Ibrahim, M., Biondi-Zoccai, G., **Messina, E.**, Frati, G. Human lung spheroids as in Vitro niches of lung progenitor cells with distinctive paracrine and plasticity properties. (2017) *Stem Cells Translational Medicine*, 6 (3), pp. 767-777.
IF 2017: 4.929; nr citazioni: 18 (Scopus); 17 (wos).
11. Gaetani, R., Zizzi, E.A., Deriu, M.A., Morbiducci, U., Pesce, M., **Messina, E.** When Stiffness Matters: Mechanosensing in Heart Development and Disease. (2020) *Frontiers in Cell and Developmental Biology*, 8, 25 May.
IF 2020: 6.684; nr citazioni: 13 (Scopus); 13 (wos)
12. Salvi, M., Morbiducci, U., Amadeo, F., Santoro, R., Angelini, F., Chimenti, I., Massai, D., **Messina, E.**, Giacomello, A., Pesce, M., Molinari, F. Automated Segmentation of Fluorescence Microscopy Images for 3D Cell Detection in human-derived Cardiospheres. (2019) *Scientific Reports*, 9 (1).
IF 2019: 3.998; nr citazioni: 10 (Scopus); 11 (wos)

Part X– Other Publications (used for bibliometric values)

1. Belviso, I., Angelini, F., Di Meglio, F., Picchio, V., Sacco, A.M., Nocella, C., Romano, V., Nurzynska, D., Frati, G., Maiello, C., **Messina, E.**, Montagnani, S., Pagano, F., Castaldo, C., Chimenti, I. The microenvironment of decellularized extracellular matrix from heart failure myocardium alters the balance between angiogenic and fibrotic signals from stromal primitive cells. (2020) *International Journal of Molecular Sciences*, 21 (21), pp. 1-18.
IF: 5.923; nr citazioni: 2
2. Pagliarosi, O., Picchio, V., Chimenti, I., **Messina, E.**, Gaetani, R. Building an Artificial Cardiac Microenvironment: A Focus on the Extracellular Matrix. (2020) *Frontiers in Cell and Developmental Biology*, 8, 04 September.
IF: 6.684; nr citazioni: 4 (Scopus); 3 (wos)
3. Costanzo, E.D., Giacomello, A., **Messina, E.**, Natalini, R., Pontrelli, G., Rossi, F., Smits, R., Twarogowska, M. A discrete in continuous mathematical model of cardiac progenitor cells formation and growth as spheroid clusters (Cardiospheres). (2018) *Mathematical Medicine and Biology*, 35 (1), pp. 121-144.
IF: 1.392; nr citazioni: 5 (Scopus)
4. Pesce, M., **Messina, E.**, Chimenti, I., Beltrami, A.P. Cardiac mechanoperception: A life-long story from early beats to aging and failure. (2017) *Stem Cells and Development*, 26 (2), pp. 77-90.
IF: 2017: 3.315; nr citazioni: 13 (Scopus); 13 (wos)
5. Pagano, F., Angelini, F., Castaldo, C., Picchio, V., **Messina, E.**, Sciarretta, S., Maiello, C., Biondi-Zoccai, G., Frati, G., Meglio, F.D., Nurzynska, D., Chimenti, I. Normal versus Pathological Cardiac Fibroblast-Derived Extracellular Matrix Differentially Modulates Cardiosphere-Derived Cell Paracrine Properties and Commitment. (2017) *Stem Cells International*, 2017.

IF: 2017: 3.315; nr citazioni: 13 (Scopus); 13 (wos)

6. Mauretti, A., Rossi, F., Bax, N.A.M., Miano, C., Miraldi, F., Goumans, M.J., **Messina, E.**, Giacomello, A., Bouten, C.V.C., Sahlgren, C. Spheroid three-dimensional culture enhances Notch signaling in cardiac progenitor cells. (2017) *MRS Communications*, 7 (3), pp. 496-501.
IF2017: 3.008; nr citazioni: 13 (Scopus)
7. Angelini, F., Ionta, V., Rossi, F., Pagano, F., Chimenti, I., **Messina, E.**, Giacomello, A. Exosomes isolation protocols: Facts and artifacts for cardiac regeneration. (2016) *Frontiers in Bioscience - Scholar*, 8 (2), pp. 303-311.
IF2016: 3.18; nr citazioni: 7 (Scopus)
8. Angelini, F., Ionta, V., Rossi, F., Miraldi, F., **Messina, E.**, Giacomello, A. Foetal bovine serum-derived exosomes affect yield and phenotype of human cardiac progenitor cell culture. (2016) *BioImpacts*, 6 (1), pp. 15-24.
IF2016: 3.318; nr citazioni: 13 (Scopus); 14 (wos)
9. Gaetani, R., Feyen, D.A.M., Doevendans, P.A., Gremmels, H., Forte, E., Fledderus, J.O., Ramjankhan, F.Z., **Messina, E.**, Sussman, M.A., Giacomello, A., Sluijter, J.P.G. Different types of cultured human adult Cardiac Progenitor Cells have a high degree of transcriptome similarity. (2014) *Journal of Cellular and Molecular Medicine*, 18 (11), pp. 2147-2151.
IF 2014: 4.014; nr citazioni: 29 (Scopus); 27 (wos)
10. Chimenti, I., Gaetani, R., Forte, E., Angelini, F., De Falco, E., Zoccai, G.B., **Messina, E.**, Frati, G., Giacomello, A. Serum and supplement optimization for EU GMP-compliance in cardiospheres cell culture. (2014) *Journal of Cellular and Molecular Medicine*, 18 (4), pp. 624-634.
IF 2014: 4.014; nr citazioni: 25 (Scopus); 23 (wos)
11. D'Elia, P., Ionta, V., Chimenti, I., Angelini, F., Miraldi, F., Pala, A., **Messina, E.**, Giacomello, A. Analysis of pregnancy-associated plasma protein a production in human adult cardiac progenitor cells. (2013) *BioMed Research International*, 2013.
IF2013: 3.276; nr citazioni: 12 (Scopus); 13 (wos)
12. Chimenti, I., Forte, E., Angelini, F., **Messina, E.**, Giacomello, A. Biochemistry and biology: Heart-to-heart to investigate cardiac progenitor cells (2013) *Biochimica et Biophysica Acta - General Subjects*, 1830 (2), pp. 2459-2469.
IF2013: 3.829; nr citazioni: 7 (Scopus); 7 (wos)
13. Chimenti, I., Gaetani, R., Barile, L., Forte, E., Ionta, V., Angelini, F., Frati, G., **Messina, E.**, Giacomello, A. Isolation and expansion of adult cardiac stem/progenitor cells in the form of cardiospheres from human cardiac biopsies and murine hearts. (2012) *Methods in Molecular Biology*, 879, pp. 327-338.
IF2012: 0.753; IF 1.17 nr citazioni: 47 (Scopus);

14. Chimenti, I., Forte, E., Angelini, F., Giacomello, A., **Messina, E.** From ontogenesis to regeneration: Learning how to instruct adult cardiac progenitor cells. (2012) *Progress in Molecular Biology and Translational Science*, 111, pp. 109-137.
IF2012: 2.322; nr citazioni: 21 (Scopus); 19 (wos)
15. Chimenti, I., Rizzitelli, G., Gaetani, R., Angelini, F., Ionta, V., Forte, E., Frati, G., Schussler, O., Barbetta, A., **Messina, E.**, Dentini, M., Giacomello, A. Human cardiosphere-seeded gelatin and collagen scaffolds as cardiogenic engineered bioconstructs. (2011) *Biomaterials*, 32 (35), pp. 9271-9281.
IF2011: 7.404; nr citazioni: 39 (Scopus); 42 (wos)
16. Forte, E., Chimenti, I., Barile, L., Gaetani, R., Angelini, F., Ionta, V., **Messina, E.**, Giacomello, A. Cardiac Cell Therapy: The Next (Re)Generation. (2011) *Stem Cell Reviews and Reports*, 7 (4), pp. 1018-1030.
IF2011: 3.739; nr citazioni: 27 (Scopus); 24 (wos)
17. Carr, C.A., Stuckey, D.J., Tan, J.J., Tan, S.C., Gomes, R.S.M., Camelliti, P., **Messina, E.**, Giacomello, A., Ellison, G.M., Clarke, K. Cardiosphere-derived cells improve function in the infarcted rat heart for at least 16 weeks - an mri study. (2011) *PLoS ONE*, 6 (10).
IF2011: 4.092; nr citazioni: 57 (Scopus); 45 (wos)
18. Campan, M., Lionetti, V., Aquaro, G.D., Forini, F., Matteucci, M., Vannucci, L., Chiuppesi, F., di Cristofano, C., Faggioni, M., Maioli, M., Barile, L., **Messina, E.**, Lombardi, M., Pucci, A., Pistello, M., Recchia, F.A. Ferritin as a reporter gene for in vivo tracking of stem cells by 1.5-T cardiac MRI in a rat model of myocardial infarction. (2011) *American Journal of Physiology - Heart and Circulatory Physiology*, 300 (6), pp. H2238-H2250.
IF2011: 3.708; nr citazioni: 71 (Scopus); 59 (wos)
19. Fabrizi, C., Angelini, F., Chimenti, I., Pompili, E., Somma, F., Gaetani, R., **Messina, E.**, Fumagalli, L., Giacomello, A., Frati, G. Thrombin and thrombin-derived peptides promote proliferation of cardiac progenitor cells in the form of cardiospheres without affecting their differentiation potential. (2011) *Journal of biological regulators and homeostatic agents*, 25 (2 Suppl), pp. S43-51.
IF2011: 5.183; nr citazioni: 15 (Scopus);
20. Barile, L., Cerisoli, F., Frati, G., Gaetani, R., Chimenti, I., Forte, E., Cassinelli, L., Spinardi, L., Altomare, C., Kizana, E., Giacomello, A., **Messina, E.**, Ottolenghi, S., Magli, M.C. Bone marrow-derived cells can acquire cardiac stem cells properties in damaged heart. (2011) *Journal of Cellular and Molecular Medicine*, 15 (1), pp. 63-71.
IF2011: 4.125; nr citazioni: 25 (Scopus); 23 (wos)
21. Gaetani, R., Rizzitelli, G., Chimenti, I., Barile, L., Forte, E., Ionta, V., Angelini, F., Sluijter, J.P., Barbetta, A., **Messina, E.**, Frati, G. Cardiospheres and tissue engineering for myocardial regeneration: Potential for clinical application. (2010) *Journal of Cellular and Molecular Medicine*, 14 (5), pp. 1071-1077.
IF2010: 4.608; nr citazioni: 32 (Scopus); 33 (wos)

22. Gaetani, R., Barile, L., Forte, E., Chimenti, I., Ionta, V., Di Consiglio, A., Miraldi, F., Frati, G., **Messina, E.**, Giacomello, A. New perspectives to repair a broken heart. (2009) *Cardiovascular and Hematological Agents in Medicinal Chemistry*, 7 (2), pp. 91-107.
IF2009: 4.7; nr citazioni: 22 (Scopus);
23. Chimenti, I., Gaetani, R., Barile, L., Frati, G., **Messina, E.**, Giacomello, A. c-kit cardiac progenitor cells: What is their potential? (2009) *Proceedings of the National Academy of Sciences of the United States of America*, 106 (28), pp. E78.
IF2009: 9.432; nr citazioni: 4 (Scopus); 5 (wos)
24. Gaetani, R., Ledda, M., Barile, L., Chimenti, I., De Carlo, F., Forte, E., Ionta, V., Giuliani, L., D'Emilia, E., Frati, G., Miraldi, F., Pozzi, D., **Messina, E.**, Grimaldi, S., Giacomello, A., Lisi, A. Differentiation of human adult cardiac stem cells exposed to extremely low-frequency electromagnetic fields. (2009) *Cardiovascular Research*, 82 (3), pp. 411-420.
IF2009: 5.801; nr citazioni: 92 (Scopus); 82 (wos)
25. Smith, R.R., Barile, L., **Messina, E.**, Marbán, E. Stem cells in the heart: What's the buzz all about? Part 2: Arrhythmic risks and clinical studies. (2008) *Heart Rhythm*, 5 (6), pp. 880-887.
IF2009: 4.444; nr citazioni: 45 (Scopus); 82
26. Smith, R.R., Barile, L., **Messina, E.**, Marbán, E. Stem cells in the heart: What's the buzz all about?-Part 1: Preclinical considerations. (2008) *Heart Rhythm*, 5 (5), pp. 749-757.
IF2009: 4.444; nr citazioni: 37 (Scopus);
27. Lisi, A., Ledda, M., De Carlo, F., Pozzi, D., **Messina, E.**, Gaetani, R., Chimenti, I., Barile, L., Giacomello, A., D'Emilia, E., Giuliani, L., Foletti, A., Patti, A., Vulcano, A., Grimaldi, S. Ion cyclotron resonance as a tool in regenerative medicine. (2008) *Electromagnetic Biology and Medicine*, 27 (2), pp. 127-133.
IF2008: 0.692; nr citazioni: 30 (Scopus); 27 (wos)
28. Barile, L., **Messina, E.**, Giacomello, A., Marbán, E. Endogenous Cardiac Stem Cells (2007). *Progress in Cardiovascular Diseases*, 50 (1), pp. 31-48.
IF2007: 2.781; nr citazioni: 206 (Scopus); 173 (wos)
29. Barile, L., Chimenti, I., Gaetani, R., Forte, E., Miraldi, F., Frati, G., **Messina, E.**, Giacomello, A. Cardiac stem cells: Isolation, expansion and experimental use for myocardial regeneration. (2007) *Nature Clinical Practice Cardiovascular Medicine*, 4 (SUPPL. 1), pp. S9-S14.
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