

CURRICULUM VITAE

- GRAZIELLA MESSINA -

Personal data

Name GRAZIELLA MESSINA

Birth place Milan, Italy

Birth date October 1, 1974

Professional address Associate Professor
Department of Biosciences
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Education

March 2004 **Ph.D.** in Cellular and Developmental Biology, “*Sapienza*”
University of Rome- Italy Thesis Title: “Densità
cellulare e differenziamento muscolare scheletrico: il
ruolo di p27Kip1”.

December 1999 **Undergraduate** Biology Degree with honors (110/110 cum
laude), “*Sapienza*” *University of Rome- Italy* Thesis title: " La
corretta espressione del programma differenziativo miogenico
richiede la presenza e l'attività di p27Kip1 ", supervisor Prof.
Franco Tatò, Dipartimento di Biologia Cellulare e dello Sviluppo
- Sezione Scienze Microbiologiche.

Professional Experience

April 1, 2014 **Associate Professor** (SSD BIO/17- Histology) at the
Department of BioSciences, University of Milan, Italy.

December 1, 2008 **Assistant Professor** (RU, SSD BIO/17- Histology) and
Principal Investigator at the *Department of BioSciences,*
University of Milan, Italy.

- January 2008 **Young Researcher fellowship** (3 years) from the **FIRB** (Fondo per gli investimenti della ricerca di base) for researching on “Stem cells in cardiovascular diseases: from biology to clinical application” at the *San Raffaele Scientific Institute, Milan, Italy*. Supervisor: Prof. Giulio Cossu.
- 2006-2007 **Fellowship from the MDA** (Muscular Dystrophy Association) Grant for researching on “Pericytes of human post-natal skeletal muscle for the cell therapy of muscular dystrophy”, at the *San Raffaele Scientific Institute, Milan, Italy*. Supervisor: Prof. Giulio Cossu.
- 2004-2006 **Post-doctoral Grant (Assegno di Ricerca)** from “*Sapienza*” *University of Rome- Italy* for researching on “Regulation of Myogenic Differentiation in vitro and transforming mechanisms by oncogenic retroviruses”, at the *San Raffaele Scientific Institute, Milan, Italy*. Supervisor: *Prof. Giulio Cossu*.

Teaching activity - Course Instruction

Member of the boarding School of PhD in Molecular Biology of the Cell - University of Milan.

2014- present: *Developmental Biology* course for the Bachelor degree in Biology; *Cell Differentiation and Cell Therapies* course for the Master degree in Biologia Applicata alla Ricerca Biomedica; *Cellular and Animal Biotechnology* course for the Bachelor degree in Biotechnology. **Total hours of teaching: 128 hours(16 CFU)**

2008-2014: *Cytology/Histology* (practice observations and exercises) and *Developmental Biology* courses for the Bachelor’s degree in Biology at the University of Milan (Italy); *Cell Differentiation and Cell Therapies* course for the Master’s degree in Biologia Applicata alla Ricerca Biomedica: **Total hours of teaching: 64 (8 CFU)**

2000-2008: Lectures in the course of Virology at the University of Rome (Italy)

Teaching activity - Trainee supervision

- Giovanni Maroli, Chiara Vezzali, Valentina Taglietti, Enrico Caruso: (PhD students), Biological and Molecular Sciences, University of Milan
- Giuliana Rossi: (PhD student), International PhD in Molecular and Cellular Biology at the San Raffaele Scientific Institute-Milan (supervisor) (2010-present)
- Martina Ragazzi: undergraduate student in Biology, Univ. Milan (2009-2010)
- Chiara Bonfanti: undergraduate student in Biology, Univ. Milan (2008-2009)
- Sara Benedetti: (PhD student), Univ. Rome (supervisor Prof. G.Cossu). (2008-present)
- Sara Benedetti: undergraduate student in Biology, Univ. Milan (supervisor Prof. G.Cossu) (2005-2007)

- Eleonora Lapi: undergraduate student in Biology, Univ. Milan (supervisor Dr. M. Grossi) (2000-2002)

Peer Review

Manuscript Reviewer for: *Cell Death and Differentiation, Cell Death and Disease, BBA, Developmental Biology, Development*

Grant reviewer for: *AFM-Genethon, MIUR*

Awards and Honors

- 2006 **Honorary Mention**- Postdoctoral Category –Best poster competition, for the best work from the Society for Muscle Biology- Frontiers in Myogenesis – Callaway Garden, Georgia, USA
- 2000 **Fellowship from the Pasteur Institute**-Cenci Bolognetti Foundation, for a research project developed in the Prof. Franco Tatò laboratory (Virology Unit)

Other activities

1. Consultant for the AdStem Biotech (<http://www.adstem.eu/>; David Sassoon david.a.sassoon@gmail.com)

2. Since May 27, 2014 I am the **Responsible for the welfare and care of the animals of the Departmental Animal Facilities**. For this purpose I attended the following courses:

Dicembre 2005, Milano Italia: Corso di Sperimentazione Animale organizzato da IACUC HSR, Milano (Italia)

-Novembre 2012, Milano Italia: Corso di Base Per Ricercatori e Personale Impegnato nella Sperimentazione Animale, organizzato dall'IZSLER (Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna).

-Luglio 2014, Gargnano Italia: “I dibattiti aperti nella sperimentazione animale. Cosa cambia con il D.Lgs 26/2014?”, organizzato dall'IZSLER (Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna).

Funding ID

Funded grants

- **2009-2011:** three-year start-up grant **PUR 2009** from MIUR- 4.500 €. Applicant's role: PI. ID:12/01/006/62
- **2012-2015:** Ministero dell'Istruzione, Università e Ricerca - Bando Giovani Ricercatori- **FIRB Futuro in Ricerca**. "Role of the transcription factor Nfix in muscle regeneration" - 3-years project, 478,200 € Graziella Messina's role: PI
ID: RBFR10YNGH_001
- **2012-2017 ERC StG2011-** Ideas- Role of the transcription factor Nfix in muscular dystrophies" RegeneratioNfix- - 5-years project, 1.386.945,00 € Graziella Messina's role: PI ID: 280611
- **2013-2014 Fondazione Fibrosi Cistica- FFC#5/2013-** "Vessel associated progenitor cells as a promising cell-based approach to treat Cystic Fibrosis disease"- 1-year project, 60.000€, Graziella Messina's role: PI
- **2015-2017 Ministero della salute- Finalizzata- Giovane Ricercatore 2011** "Role of HMGB1 redox forms in satellite cells bioactivities and skeletal muscle regeneration" 3-years project" 150.000 €, Graziella Messina's role: Partner (UO2)
GR-2011-02351814
- **2015-2016 Fondazione Fibrosi Cistica- FFC#6/2015** – "Evaluation of the biological and therapeutic properties of Mesoangioblasts- vessel associated progenitor cells- in the cell based Therapy of the Cystic Fibrosis disease"- 1-year project, 60.000€, Graziella Messina's role: PI
- **2016-2019 AFM-Telethon #200002-** "Study of the multiple functions of Nfix in Muscular Dystrophies: a focus on macrophage biology"- 3-years project, 70.000€, Graziella Messina's role: PI
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Publications

Total n. of publications: 26

Book chapter: 1

N. of publications as First author: 6

N. of publications as Senior and corresponding author: 6

h-index: 17

Sum of Times cited: 1451

High profile Journals in which I have published: *Cell, Nature Cell Biology, Developmental Cell, Genes and Development, J Clinical Investigation, Nature Communications, Cell Reports*

1. **Messina G.**, Blasi C., La Rocca SA, Pompili M., Calconi A. and M. Grossi. "p27Kip1 Acts Downstream of N-Cadherin-mediated Cell Adhesion to Promote Myogenesis beyond Cell Cycle Regulation".

MBC, 2005 March, vol 16, 1469-1480

IF: 6.448

2. Travaglione S*, **Messina G***, Fabbri A., Falzano L., Giammarioli A.M., Grossi M., Rufini S. and Fiorentini C.

"Cytotoxic necrotizing factor 1 hinders skeletal muscle differentiation in vitro by perturbing the activation/deactivation balance of Rho GTPases". ***equally contributed** *Cell Death Diff*, 2005 Jan, 12 (1): 78-86

IF: 7.152

3. Dellavalle, M. Sampaolesi, R.Tonlorenzi, E. Tagliafico, B. Sacchetti, L. Perani, Innocenzi A., B. G. Galvez, **G. Messina**, R. Morosetti, S. Li, G. Peretti, J. S. Chamberlain, W. E. Wright, Y. Torrente, S. Ferrari, P. Bianco, and G. Cossu. "Pericytes of human skeletal muscle are myogenic precursors distinct from satellite cells"

Nat Cell Biol. 2007 Mar;9(3):255-67

IF: 17.7

4. L. Castaldi, C. Serra, F. Moretti, **G. Messina**, R. Paoletti, M. Sampaolesi, Torgovnick, M. Baiocchi, F. Padula, A. Pisaniello, M. Molinaro, G. Cossu, M. Levrero and M. Bouché. "Bisperoxovanadium, a phospho-tyrosine phosphatase inhibitor, reprograms myogenic cells to acquire a pluripotent, circulating phenotype". *Faseb J*, 2007 July 17

IF: 7.049

5. Biressi S.*, **Messina G.***, Tagliafico E., Collombat P., Monteverde S., Broccoli V., Mansouri A., Cusella-De Angelis M.G., Tajbakhsh S., Ferrari S. and G. Cossu.

“The homeobox-gene ARX is a positive regulator of embryonic myogenesis” *Cell Death Diff.* 2007 Oct 12 ***equally contributed**
IF: 7.548

6. **Messina G.**, Sirabella D., Monteverde S., Galvez G.B., Tonlorenzi R., Schnapp E., DeAngelis L., Brunelli S., Relaix F., Buckingham M. and G. Cossu . “Skeletal Muscle Differentiation Of Embryonic Mesoangioblasts Requires Pax3 Activity” *Stem Cells*, 2008 Oct 9
IF: 7.741

7. Hoshiya H, Kazuki Y, Abe S, Takiguchi M, Kajitani N, Watanabe Y, Yoshino T, Shirayoshi Y, Higaki K, **Messina G**, Cossu G, Oshimura M.
“A highly Stable and Nonintegrated Human Artificial Chromosome (HAC) Containing the 2.4 Mb Entire Human Dystrophin Gene”.
Mol Ther. 2008 Nov 25
IF: 5.97

8. **Messina G** and G Cossu. “The origin of embryonic and fetal myoblasts: a role of Pax3 and Pax7”
GENES & DEVELOPMENT 2009; 23:902–905
IF: 12.075

9. Lagha M, Brunelli S, **Messina G**, Cumano A, Kume T, Relaix F and Buckingham ME.
“Pax3:Foxc2 Reciprocal Repression in the Somite Modulates Muscular versus Vascular Cell Fate Choice in Multipotent Progenitors”
Dev Cell, 17, 2009; 892–899
IF: 13.363

10. Tedesco FS, Dellavalle A, Diaz-Manera J, **Messina G** and Cossu G.
“Repairing skeletal muscle: regenerative potential of skeletal muscle stem cells”
J Clin Invest. 2010;120, 11-19
IF: 14.152

11. **Messina, G**, Biressi, S, Monteverde S, Magli A, Cassano M, Perani L, Roncaglia E, Tagliafico E, Starnes L, Campbell CE, Grossi M, Goldhamer DJ, Gronostajski RM, Cossu G. 2010
“Nfix regulates fetal specific transcription in developing skeletal muscle”.
Cell 2010_140, 554-566
IF: 32.401

12. J Di'az-Manera, T Touvier, A Dellavalle, R Tonlorenzi, FS Tedesco, **G Messina**, M Meregalli, C Navarro, L Perani, C Bonfanti, I Illa, Y Torrente and G Cossu .
"Partial dysferlin reconstitution by adult murine mesoangioblasts is sufficient for full functional recovery in a murine model of dysferlinopathy".
Cell Death and Disease 2010 Aug 5;1:e61.
IF: 5.333
13. Magli A, Angelelli C, Ganassi M, Baruffaldi F, Matafora V, Battini R, Bachi A, **Messina G**, Rustighi A, Del Sal G, Ferrari S, Molinari S.
"Proline isomerase PIN1 represses terminal differentiation and myocyte enhancer factor 2C function in skeletal muscle cells"
J Biol Chem. 2010 Nov 5; 285(45):34518-27.
IF: 5.328
14. Innocenzi A, Latella L, **Messina G**, Simonatto M, Marullo F, Berghella L, Poizat C, Shu CW, Wang JY, Puri PL, Cossu G.
"An evolutionarily acquired genotoxic response discriminates MyoD from Myf5, and differentially regulates hypaxial and epaxial myogenesis."
EMBO Rep. 2011 Jan 7.
IF: 7.355
15. S. Crippa, M. Cassano, **G. Messina**, D. Galli, B. G. Galvez, T. Curk, C. Altomare, F. Ronzoni, J. Toelen, R. Gijssbers, Z. Debyser, S. Janssens, B. Zupan, A. Zaza, G. Cossu, and M. Sampaolesi.
"miR669a and miR669q prevent skeletal muscle differentiation in postnatal cardiac progenitors"
J Cell Biol 2011 Vol. 193 No. 7 1197–121
IF: 10.264
16. Tedesco F S, Hoshiya H, D'Antona G, Gerli M F M, **Messina G**, Antonini S, Tonlorenzi R, Benedetti S, Berghella L, Torrente Y, Kazuki Y, Bottinelli R, Oshimura M and Cossu G.
"Stem cell-mediated transfer of human artificial chromosome ameliorates muscular dystrophy".
Sci Transl Med 2011 Aug 17;3(96)
IF: 10.757
17. A. Pistocchi, G. Gaudenzi, E. Foglia, S. Monteverde, A. Moreno-Fortuny, A. Pianca¹, G. Cossu, F. Cotelli and **G. Messina**

“Conserved and divergent functions of Nfix in skeletal muscle development during vertebrate evolution”

Development 2013, (140), 1528-1536;

IF: 6.208

18. O. Cappellari, S. Benedetti, A. Innocenzi, F.S.Tedesco, A. Moreno-Fortuny, G. Ugarte, M.G. Lampugnani, **G. Messina** and G. Cossu

“DII4 and PDGF-BB reprogram committed skeletal myoblasts to pericytes without erasing myogenic memory”

Developmental Cell, 2013, (24)1–14;

IF: 12.861

19. A. Scavone, D. Capilupo, N. Mazzocchi, A. Crespi, S. Zoia, G. Campostrini, A. Bucci, R. Milanese, M. Baruscotti, S. Benedetti, S. Antonini, **G. Messina**, D. DiFrancesco and A. Barbuti

“Embryonic Stem Cell–Derived CD166+ Precursors Develop into Fully Functional Sinoatrial-Like Cells”

Circulation Research, 2013 Aug 2;113(4):389-98.

IF: 11.861

20. Pistocchi A., Fazio G., Cereda A., Ferrari L., Bettini L.R., **Messina G.**, Cotelli F., Biondi A., Selicorni A. and Massa V. “Cornelia de Lange Syndrome: NIPBL Haploinsufficiency Downregulates Canonical Wnt Pathway in Zebrafish Embryos and Patients Fibroblasts”

Cell Death and Disease, 2013 Oct 17; 4

IF: 6.044

21. Alessandra Alteri, Francesca De Vito, **Graziella Messina**, Monica Pompili, Attilio Calconi, Paolo Visca, Marcella Mottolese, Carlo Presutti, and Milena Grossi

“Cyclin D1 is a major target of miR-206 in cell differentiation and transformation”

Cell Cycle, 2013 Oct 8; 12(24)

IF: 5.321

22. Rossi G, **Messina G.**

“Comparative myogenesis in teleosts and mammals”

CMLS, 2014 Aug;71(16):3081-99

IF: 5.615

23. Bonfanti C, Rossi G, Tedesco FS, Giannotta M, Benedetti S, Tonlorenzi R, Antonini S, Marazzi G, Dejana E, Sassoon D, Cossu G, **Messina G.**

“PW1/Peg3 expression regulates key properties that determine mesoangioblast stem cell competence”

Nature Communications, 2015 Mar 9;6:6364

IF: 12.742

24. Giuliana Rossi, Stefania Antonini, Chiara Bonfanti, Stefania Monteverde, Shahrugim Tajbakhsh, Giulio Cossu, **Graziella Messina**

“Nfix regulates temporal progression of muscle regeneration through modulation of Myostatin expression”

Cell Reports, 2016 Mar 8; 14: 2238-2249

IF: 8.8

25. Valentina Taglietti, Giovanni Maroli, Solei Cermenati, Stefania Monteverde, Andrea Ferrante, Giulio Cossu, Monica Beltrame and **Graziella Messina**

“Nfix induces a switch in Sox6 transcriptional activity to regulate MyHC-I expression in fetal muscle

Cell Reports, 2016 17, 2354–2366

IF: 8.8

26. Rossana Tonlorenzi, Giuliana Rossi and **Graziella Messina**

“Isolation and Characterization of Vessel-Associated Stem/Progenitor Cells from Skeletal Muscle”

Methods in Molecular Biology, 2017;1556:149-177

Submitted Publications:

1. Giuliana Rossi, Stefania Antonini, Mattia Bastoni, Chiara Bonfanti, Stefania Monteverde, Anna Innocenzi, Marielle Saclier, Valentina Taglietti and Graziella Messina
“Silencing Nfix rescues Muscular Dystrophy by delaying muscle regeneration”

Publications in preparation

1. Chiara Vezzali, Chiara Bonfanti, Stefania Antonini, Daniela De Stefano, Renato Bacchetta, Christina Barone, Valeria Vilella, Marie Egan, Luigi Maiuri, Emanuela Bruscia, **Graziella Messina**

“Mesoangioblast - vessel associated progenitor cells- engraft epithelial tissues and express functional CFTR channel: prospects and promise for a cell therapy for Cystic Fibrosis”

2. Sara Benedetti, Hidetoshi Hoshiya, Martina Ragazzi, Yashuiro Kazuki, Rossana Tonlorenzi, Soraya Chaouch, Angelo Lombardo, Cesare Gargioli, Vincent Mouly, Luigi

Naldini, Mitsuo Oshimura, **Graziella Messina**, Francesco Saverio Tedesco and Giulio Cossu

“Reversible immortalization allows HAC-mediated gene correction of human dystrophic muscle progenitors”

Book Chapter

Messina G., Biressi S. and G. Cossu “Non muscle stem cells and muscle regeneration”. *Chapter of “Skeletal Muscle Repair and Regeneration”*. Springer Netherlands book, Sep2007, chapter 4: 65-85

Abroad Experiences

In the 2006 and 2007, she attended the Pasteur Institute (Paris) in Margaret Buckingham’s lab and the INSERM- Groupe Myologie (Paris) in David Sassoon’s lab as a Visiting Scientist working on two distinct projects.

Meetings as Invited Speaker

- Gordon Research Conference 2013- Myogenesis- Renaissance Tuscany II Ciocco- July 7-12 2013- with the talk: **Nfix in skeletal muscle regeneration: slow twitching fibers, slow regeneration and slower progression of the Dystrophic phenotype**
- FASEB Meeting Skeletal Muscle Satellite and Stem Cells- July 20-25, 2014 Steamboat Springs, CO with the talk **The transcription factor Nfix regulates the proper timing of muscle regeneration and the progression of Muscular Dystrophy**
- Gordon Research Conference 2015- Myogenesis- Renaissance Tuscany II Ciocco- June 21-26 2015- with the talk: **Driving Towards Fetal Myogenesis: Nfix Induces a Switch in Sox6 Transcriptional Activity Required for Fetal Muscle Fiber Specification**
- FASEB Meeting Skeletal Muscle Satellite and Regeneration 2016- July 24-29, 2016 Keystone- CO (USA)- with the talk: **Different approach to delay the progression of Muscular Dystrophy: Nfix silencing rescues the Dystrophic Phenotype**
- XV INTERNATIONAL CONFERENCE ON DUCHENNE AND BECKER MUSCULAR DYSTROPHY 18 – 19 February 2017 Ergife Palace Hotel, Rome- Italy- with the talk: **A different approach to delay the progression of Muscular Dystrophy: silencing Nfix slows twitching and regeneration of dystrophic muscles and rescues the pathologic phenotype**

Meetings (attendance with poster presentation or oral communication)

-1° FISV Congress with the poster “The role of p27^{Kip1} in myogenic differentiation and in c-Myc oncogenic transformation”, Pompili M., **Messina G.**, Tatò F. e La Rocca S.A., Riva del Garda (TN, Italy), 2-6 October 1999.

-EMBO Workshop, “Molecular Genetics of Muscle Development and Neuromuscular Diseases” with the communication “A unique role for p27^{Kip1} in the differentiation of normal and myc-transformed myogenic cells”, La Rocca A., Pompili M., **Messina G.** and Tatò F., Kloster Isree (Germany) September 26 – October 01 1999

-Workshop CORTONA April 2000 with the communication “Density-dependent myogenic differentiation: the role of p27^{Kip1}”, **Messina G.**, La Rocca A. e Tatò F., Cortona (AR, Italy) 6-8 April 2000.

-Workshop CORTONA April 2002 with the communication “Density-dependent myogenic differentiation: the role of p27^{Kip1}”, **Messina G.**, M. Grossi. e Tatò F., Cortona (AR, Italy) 11-13 April 2002.

- 4° FISV Congress with the communication “Density-dependent myogenic differentiation: the role of p27^{Kip1}”, **Messina G.**, Grossi M. e F. Tatò, Riva del Garda (TN, Italy), 20-23 September 2002.

- 5° FISV Congress with the poster "Cytotoxic necrotizing factor 1 hinders skeletal muscle differentiation *in vitro* by perturbing the activation/deactivation balance of Rho GTPases", Travaglione S., **Messina G.**, Fabbri A., Falzano L., Giammarioli A.M., Rufini S., Grossi M. e Fiorentini C., Rimini (Italy), 10-13 October 2003.

- 31° National Congress of the Italian Pharmacology with the poster “*Escherichia Coli* cytotoxic necrotizing factor 1 (CNF1) impairs muscle cell differentiation in C2C12 cell”, Travaglione S., **Messina G.**, Fabbri A., Falzano L., Giammarioli A.M., Rufini S., Grossi M., Malorni W. e Fiorentini C., Trieste (Italy), 26-29 June 2003.

- Gordon Research Conference on Myogenesis with the poster “Role of p27^{Kip1} in myogenic differentiation”, **Messina G.**, Tatò F. and M. Grossi, Il Ciocco, Castelvecchio Pascoli (Italy), 16-21 May 2004.

- 7° Fisv Congress with the communication “The molecular basis of skeletal myoblast diversification The role of Nuclear Factor I (NFI) family of Transcription Factor”, **G. Messina**, S.Biressi, M. Grossi, S.Tajbakhsh, St.Ferrari, G.Cossu Riva del Garda (Italy), 22-25 September 2005

- Frontiers in Myogenesis- Society for Muscle Biology- with the poster “The molecular basis of skeletal myoblast diversification The role of Nuclear Factor I (NFI) family of Transcription Factor”, **G. Messina**, S.Biressi, M. Grossi, S.Tajbakhsh, St.Ferrari, G.Cossu, Callaway Garden, Georgia, USA.

- FASEB Summer Research Conference- Skeletal Muscle Satellite Cells and Stem Cells- with the communication “Role of the Nuclear Factor1 (NF1) transcription factor in the regulation of fetal myogenesis”, **G Messina**, S Biressi S Monteverde, M Grossi, S. Tajbakhsh, S Ferrari, R Gonostajski and G Cossu. Indian Wells, California, July 14-19, 2007

- Frontiers in Myogenesis- Society for Muscle Biology- with the poster “NFIX regulates fetal specific transcription in developing skeletal muscle” **Messina, G.**, Biressi, S., Monteverde, S., Magli, A., Pistocchi, A., Gargioli, C., Campbell, C. E., Tagliafico, E., Grossi, M., Cotelli, F., Goldhamer, D. J., Gronostajski, R.M. and Cossu, G. New York (USA), Columbia University, May 28- June 2, 2009

- FASEB Summer Research Conference- Skeletal Muscle Satellite Cells and Stem Cells, with the poster “NFIX regulates fetal specific transcription in developing and post-natal skeletal muscle” **Messina, G.**, Biressi, S., Rossi G. Monteverde, S., Magli, A., Cassano M., Perani L., Roncaglia E., Campbell, C., Tagliafico, E., Grossi, M., Goldhamer, D. J., Gronostajski, R.M. and Cossu, G. Charefee, Phoenix (AZ, USA), July 19-23, 2010

- EMBO Conference 2011- Wiesbaden, May 10-15, 2011 with the poster “PW1 regulates mesoangioblast properties and identity”
Chiara Bonfanti, Francesco Saverio Tedesco, Sara Benedetti, Laura Perani, Giovanna Marazzi, David Sassoon, Giulio Cossu and **Graziella Messina**.

- Frontiers in Myogenesis- Society for Muscle Biology - NewYork (USA), June 4-8 2012, with the communication “PW1 regulates mesoangioblast competence: a pre-screening molecule for the mesoangioblast based Muscular Dystrophy Therapy”
Chiara Bonfanti, Francesco Saverio Tedesco, Sara Benedetti, Laura Perani, Giovanna Marazzi, David Sassoon, Giulio Cossu and **Graziella Messina**

- EMBO Meeting- Molecular Biology of Muscle Development and Regeneration- Acaya-Lecce- Italy, May 14-18 2014 with the communication “PW1 regulates mesoangioblast competence: a pre-screening molecule for the mesoangioblast based Muscular Dystrophy Therapy”
Chiara Bonfanti, Francesco Saverio Tedesco, Sara Benedetti, Laura Perani, Giovanna Marazzi, David Sassoon, Giulio Cossu and **Graziella Messina**

Courses related to Good Animal Practice:

.1 Corso base per ricercatori e personale impegnato nella sperimentazione animale – IZSLER 21 Novembre- 06 Dicembre 2012

Scientific Activity

My scientific activity is focused on the study and characterization of the mechanisms that regulate skeletal muscle development during both pre-natal and post-natal period. Using both myogenic and vessel-associated progenitor cells (Mesoangioblasts) as

models, I have always been interested in the study of the role of the cell cycle regulators, signal transduction molecules and transcription factors in specification and differentiation of skeletal muscle in normal and pathogenic conditions, such as in Muscular Dystrophies. Most recently, I have recently started a completely new line of investigation of the function of transplanted Mesoangioblasts in repopulating the respiratory epithelium in models of Cystic Fibrosis.

I earned my **PhD degree** (2004) in **Cellular and Developmental Biology** with a project conducted in the laboratory of the late Prof. Franco Tatò (“Sapienza” University of Rome, Italy). Tatò’s lab was very well known in the field of oncogenes and in particular for having elucidated the mechanisms by which oncogenic retroviruses interfere with myogenesis. Within this topic, I decided to focus on the mechanisms controlling normal myogenesis, and in particular, the molecules controlling cell cycle exit, a requirement for myogenic differentiation, in order to better understand how these oncogenic retroviruses act. My studies demonstrated the existence of a tight cross-talk between cell cycle and myogenic regulators, leading to two first authorship publications in good impact journals in the field of cell biology (*Messina et al., MBC 2005; Travaglione*, Messina* et al., Cell Death Diff, 2005; * co-first authors*). In order to combine my background in **cell biology** with a solid foundation in **developmental biology**, for my **postdoctoral training** (2004-2007), I joined the laboratory of Prof. Giulio Cossu, a well-known embryologist, at the San Raffaele Scientific Institute (Milan-Italy). In the Cossu laboratory, I began to study the molecules responsible for myoblast diversification (Biressi*, Messina* et al., *Cell Death Diff, 2007; * co-first authors*) during mouse development (embryonic and fetal myoblasts). This work led to the identification of the transcription factor Nfix as a master molecular switch that specifically repress expression of embryonic genes and activates fetal genes in developing muscle. This study led to first authorship publication on *Cell* (*Messina et al., Cell, 2010*). For this work, I was awarded the Honorary Mention for the best work from the Society for Muscle Biology- Frontiers in Myogenesis – Callaway Garden, Georgia, USA (2006). During these years, I also studied a class of vessel associated progenitor cells, termed “Mesoangioblasts”, isolated and characterized in Cossu laboratory. Mesoangioblasts when delivered intra-arterially to different dystrophic animal models resulted in a dramatic functional amelioration of the dystrophic phenotype. Within this topic, I focused on the identification of molecules potentially responsible for myogenic commitment of Mesoangioblasts. I carried out this work by studying Pax3 in collaboration with Margaret Buckingham, working for some months (2006 and 2007) in her lab at the Pasteur Institute (Paris). This work resulted in a first author publication (*Messina et al., Stem Cells, 2008*). Subsequently, I studied the possible function of Pw1 in Mesoangioblasts in collaboration with David Sassoon, performing experiments in his lab at INSERM- Groupe Myologie at Hopital Salpêtrière (Paris). The results have led to a manuscript now in press on Nature Communications where I am senior and corresponding author.

Since 2009, I established my own group at the University of Milan-Department of BioSciences- where in 2014 I got a permanent position as Associate Professor.

The main research topics in my lab are now on the study of the transcription factor Nfix in muscle development and regeneration with particular interests in:

1. the study of the molecular mechanisms regulating Nfix expression

2. the identification of different targets of Nfix in both pre-natal and post-natal period through a genome-wide ChiP-seq analysis
3. the role of Nfix in muscle regeneration, in the biology of macrophages and in the progression of Muscular dystrophies
4. the role of HMGB1 in muscle regeneration (topic in collaboration with Prof. Marco Bianchi- san Raffaele Institute)

For these topics I was founded by the ERC Starting Grant 2011 on a project named RegeneratioNfix.

Recently, I started a completely new research line on the possible use of the Mesoangioblasts for the Cystic Fibrosis disease in the light of the impressive MAB engraftment that we observed in the epithelium of lung, trachea and intestine following systemic cell delivery. The Italian Cystic Fibrosis Foundation founded this project that has been considered completely new in this field.

In addition, I am involved in **collaborative studies with different research groups:**

Dr. Shahragim Tajbakhsh - Stem Cells & Development, Dept. of Developmental Biology Institut Pasteur- Paris

Prof. Margaret Buckingham - Department of Developmental Biology, URA CNRS 257 Pasteur Institute- Paris

Prof. David Goldhammer - University of Connecticut Stem Cell Institute, USA

Dr. Richard Gronostaski- Department of Biochemistry, Developmental Genomics Group, State University of New York at Buffalo, NY USA

Dr. Emanuela Bruscia- Yale University School of Medicine

Dr. David Sassoon – Director Myology Group Inserm Université Paris VI/Pierre et Marie Curie; PARIS, FRANCE;

Prof. Marco Bianchi- San Raffaele Scientific Institute, Milan, Italy

Dr.ssa Emilié Venereau- San Raffaele Scientific Institute, Milan, Italy

Prof. Enrico Tagliafico - Dipartimento di Scienze Biomediche Università di Modena e Reggio Emilia; Italy

Prof. Roberto Bottinelli- Dipartimento di Fisiologia Università di Pavia; Italy

Dr.ssa Nicoletta Pedemonte- Gaslini Institute- Genova (Italy)

Dr.ssa Emanuela Bruscia- University of Yale- New Haven- CT (USA)

Prof. Marie Egan- University of Yale- New Haven- CT (USA)

Prof. Franco Cotelli- Dipartimento di BioScienze- Università degli Studi di Milano- Italy;

Prof.ssa Chiara Tonelli- Dipartimento di BioScienze- Università degli Studi di Milano- Italy;

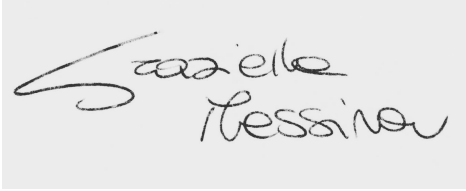
Prof. Roberto Mantovani- Dipartimento di BioScienze- Università degli Studi di Milano- Italy;

Dr. Andrea Barbuti- Dipartimento di BioScienze- Università degli Studi di Milano- Italy;

Dr.ssa Monica Beltrame- Dipartimento di BioScienze- Università degli Studi di Milano- Italy.

Yours Faithfully,

Dr Graziella Messina, PhD

A handwritten signature in black ink on a light gray background. The signature consists of two lines: the first line reads "Graziella" and the second line reads "Messina". The handwriting is cursive and fluid.