

# Curriculum Vitae

**Marco Sandri, M.D.**

Full Professor

Department of Biomedical Science  
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## Personal information

Born: 5 November 1967, Padova, Italy.  
Citizenship: Italian.  
Marital Status: Married

## Education

08/1996. Medical Doctor graduated with honours, University of Padova.  
12/2001 Specialist (PhD equivalent) in Pathology, University of Padova, Italy.

## Research experience

- 1989-2000. Internship, Department of Biomedical Science, University of Padova, laboratory of Prof. Ugo Carraro. Experience in biochemistry, cell cultures, histochemistry, molecular biology, and in vivo experiments on rats and mice.
- 1996-2000. Fellowship, Institute of Experimental and Laboratory medicine, University of Padova. Experience in haematology, in particular on leukemic cells. Methods: cell culture, flow cytometry, RT-PCR, cell proliferation assay, cell death assay.
- 2001-2002. Postdoc, Department of Biomedical Science, University of Padova, laboratory of Prof. S. Schiaffino. Experience in molecular biology and in vivo gene delivery on skeletal muscles of rat and mouse.
- 2002-2005. Postdoc, Department of Cell Biology, Harvard Medical School, laboratory of Prof. AL Goldberg. Experience in molecular biology, biochemistry and cell culture.
- 2005-2009. Assistant Telethon Scientist, Dulbecco Telethon Institute at Venetian Institute of Molecular Medicine (VIMM), Padova.
- 2006- 2013. Assistant Professor, Department of Biomedical Science, Medical School, University of Padova, Padova.
- 2006-present. Group Leader at Venetian Institute of Molecular Medicine (VIMM), Padova.
- 2010-2015. Associate Telethon Scientist, Dulbecco Telethon Institute at Venetian Institute of Molecular Medicine (VIMM), Padova
- 2011-present. Adjunct Professor, Department of Medicine, Faculty of Medicine, McGill University, Montreal, Canada.
- 2013- 2014. Associate Professor, Department of Biomedical Science, Medical School, University of Padova, Padova.
- 2013-2015. Principal Investigator at TIGEM, Napoli.

2013-present. Chair of the CIR-Myo, Interdepartmental Research Center of Myology. University of Padova, Padova

2014-present Full Professor Department of Biomedical Science, Medical School, University of Padova, Padova.

2015-present. Vice Chair of the Department of Biomedical Science, Medical School, University of Padova, Padova.

### **Awards and Prizes**

1997. "Luigi Casati" prize, conferred by National Academy of Lincei.

2003. "Terme Euganee Award" on Skeletal Muscle Regeneration, Reconstruction and Engineering

2004. Selected between the five finalist for the world-wide award "Young Cell Signaller 2004" on "Regulation and therapeutic potential of the PI3-kinase/PKB signalling pathway".

2005. Dulbecco Telethon Institute carrier award (Assistant Level)

2006. "Best Poster" prize at "4<sup>th</sup> International symposium on Autophagy" Mishima, Japan

2007. "Best Poster" prize at "4<sup>th</sup> Cachexia Conference", St. Petersburg, USA.

2008. "Best Poster" prize at "Autophagy in stress, development and disease" Gordon Conference, Ventura, USA

2009. "Best Poster" prize at "5<sup>th</sup> Cachexia Conference", Barcelona, ESP.

2010 Dulbecco Telethon Institute carrier award (Associate level)

2017 ERC of LS3 Cellular and Developmental Biology panel member.

### **Editorial board of:**

PLOS ONE

Skeletal Muscle Journal

### **Teaching experience**

2004-present Lecturer in General Pathology at Nurse School, University of Medicine, Padova (IT)

2004-2005 Lecturer in Physiology at School of Laboratory Technician, University of Medicine, Padova (IT)

2007-2012 Lecturer in General Pathology at Nutritional School, University of Medicine, Padova (IT)

2009-2013 Lecturer in General Pathology at Medical School, University of Padova (IT)

2014-present Lecturer in Clinical Pathology at Medical School, University of Padova (IT)

2015-present Lecturer in Physiopathology at Medical School, University of Padova (IT)

### **Invited Speaker at International Meeting**

I have been invited as speaker at the following international conferences:

1. "7<sup>th</sup> Terme Euganee Meeting on Rehabilitation" 2003 Padova, (Italy);
2. "Regulation and therapeutic potential of the PI3-kinase/PKB signalling pathway" 2004, Dundee (UK);
3. "FISV" 2004 Riva del Garda, Trento (Italy).
4. "3<sup>rd</sup> Cachexia Meeting" 2005, Rome, Italy;
5. EMBO/FEBS workshop "The Molecular and Cellular Mechanisms underlying Skeletal Muscle Formation and Repair"; EMBO workshop 2005, Fontevraud, France;
6. "2<sup>nd</sup> Myores Congress" 2006, Prague, Czech Republic;
7. "Gutmann Memorial, 30-year after The Long Lasting Denervated Muscle" 2007, Padova, (Italy);
8. "2<sup>nd</sup> Italian meeting of Italian Society for Space Biomedicine and Biotechnology" 2007 Bari, Italy;
9. "XXVI European Muscle Conference" 2007, Stockholm, Sweden;
10. Marie Curie Symposium "The ubiquitin-proteasome system in cardiovascular disease" 2007, Hamburg, Germany;
11. Gordon Conference "Autophagy in stress, development and disease" 2008, Ventura, Los Angeles, USA;
12. Cold Spring Harbor Laboratory "Molecular Mechanisms Modulating Skeletal Muscle Mass and Function", 2008, Long Island, New York, USA;

13. "2008 Spring Padua Muscle Days Functional Recovery of Muscle Tissue" 2008, Padova, Italy;
14. "FISV" 2008 Riva del Garda, Trento (Italy);
15. "XXVII European Muscle Conference" 2008, Oxford, UK;
16. EMBO Conference "The molecular and cellular mechanisms regulating skeletal muscle development and regeneration" 2009 Barcelona, Spain;
17. Gordon Conference "Oxidative Stress & Disease." 2009, Ciocco, Lucca, Italy;
18. 38<sup>th</sup> Annual Meeting of the American Aging Association" Workshop "Protein Quality and Aging" 2009, Phoenix, AZ, USA;
19. "XXVIII European Muscle Conference". 2009 Lille, France.
20. EMBO conference "Autophagy. Cell Biology, Physiology and Pathology" 2009, Monte Verita, Ascona, Switzerland.
21. 7<sup>th</sup> Annual Scientific Sessions of the Society for Heart and Vascular Metabolism. "Cardiac metabolism in health and disease. Mitochondria and Oxidative Stress." 2009, Padova, Italy.
22. Gordon Conference "Autophagy in Stress Development and Disease." 2010, Ciocco, Lucca, Italy.;
23. 1<sup>st</sup> International Congress of Translational Research in Human Nutrition "Protein-energy metabolism in aging and chronic diseases: role of nutrition and physical activity" 2010, Clermont-Ferrand, France.
24. XX world congress of the International Society of Heart Research (ISHR) World Congress. 2010, Tokyo, Japan.
25. International conference IFR 83 2010 "Oxidative Metabolism in Health and Diseases", 2010, Paris, France.
26. Heart Failure Association Winter Research Meeting 2011, Les Diablerets, Switzerland.
27. IRB Barcelona BioMed Conference on "Mitochondrial autophagy". 2011, Barcelona, Spain
28. Experimental Biology 2011, American Physiological Society, Environmental and Exercise Physiology Section, "Autophagy in Skeletal Muscle" session, Washington, USA
29. Fourth International Congress of Myology "Myology2011", Lille, France.
30. American Diabetes Association's 71<sup>st</sup> Scientific Session "Autophagy, Ageing and Metabolic Control" session, 2011, San Diego, USA.
31. The 61<sup>st</sup> Annual Scientific Meeting of the British Society for Research on Ageing (BSRA). "*The Science of Ageing – Global Progress*" 2011, Brighton, UK.
32. EMBO Meeting 2011, Autophagy in disease & development, Vienna, Austria.
33. "XXX European Muscle Conference". 2011 Berlin, Germany.
34. International Conference on Muscle Wasting 2011. "Molecular Mechanisms of Muscle Growth and Wasting in Health and Disease". 2011, Monte Verita, Ascona, Switzerland.
35. Gordon Conference "Autophagy in Stress Development and Disease." 2012, Ventura, USA
36. 7<sup>th</sup> Ascona International Workshop on Cardiomyocyte Biology, "Cardiac Pathway of Differentiation, Metabolism and Contraction". 2012, Monte Verita, Ascona, Switzerland.
37. 15<sup>th</sup> International Biochemistry of Exercise Congress (IBEC). 2012, Stockholm, Sweden.
38. Cancer Cachexia Conference. 2012, Boston, USA.
39. 57<sup>th</sup> Annual Meeting of the German Society of Neuropathology and Neuroanatomy (DGNN). 2012, Erlangen, Germany.
40. "XXXI European Muscle Conference". 2012 Rhodes, Greece
41. Symposium "Skeletal Muscle Dysfunction in the Critical ill". 2012, Montreal, Canada.
42. Experimental Biology (EB) 2013, American Physiological Society, Environmental and Exercise Physiology Section, "Mitochondrial Dynamics and Turnover with exercise". 2013 Boston, USA.
43. V Covian Symposium. 2013 Ribeirão Preto, Brazil.
44. AIM - Associazione Italiana di Miologia. 2013, Stresa, Italy.
45. EMBO Workshop - Molecular Mechanisms of muscle growth and wasting in health and disease. 2013, Monte Verita, Ascona, Switzerland.
46. ABCD 2013, Ravenna, Italy
47. EMBL conference, Myofibrillar Z-disk Structure and Dynamics. 2013, EMBL Hamburg, Germany.
48. ENMC European Neuro-Muscular Center . 201<sup>st</sup> ENMC International Workshop. Autophagy in Muscle Dystrophies, translational approach. 2013, Naarden, The Netherlands.
49. Keystone Symposia, Growth and wasting in Heart and Skeletal Muscle. 2014, Santa Fe, New Mexico, USA
50. Advances in Skeletal Muscle Biology in Health and Disease. 2014, Gainesville, Florida, USA
51. 93<sup>rd</sup> Annual Meeting of the German Physiological Society (DPG 2014). 2014, Mainz, Germany.
52. EMBO conference. Molecular biology of muscle development and regeneration. 2014, Acaya (Lecce) Italy

53. CIM Conference on Inflammation and Metabolism. 2014, Copenhagen, Denmark
54. Special Interest Meeting. Molecular Insight into Muscle Function and Protein Aggregate Myopathies. 2014, Potsdam, Germany.
55. 13<sup>th</sup> International Congress on Neuromuscular Diseases. 2014, Nice, France.
56. Society for Free Radical Research-Europe (SFRR-E) Meeting 2014, Paris, France
57. 65<sup>th</sup> SIF National Congress, (Italian Society of Physiology). 2014 Anacapri, Italy
58. Fall Meeting of the International Graduate School in Molecular Medicine Ulm. 2014, Ulm, Germany
59. 9<sup>th</sup> International Conference on Strength Training (ICST). 2014, Abano Terme (Padova), Italy
60. Australian Physiological Society Meeting 2014, University of Queensland, Brisbane, Australia
61. Experimental Biology 2015, American Physiological Society, Environmental and Exercise Physiology Section, “Autophagy in Muscle”, Boston, USA
62. Neurosciences in Critical Care International Symposium (NICIS). 2015, Paris, France
63. Physiology 2015, Cardiff, UK
64. EMBO Workshop -Molecular Mechanisms of muscle growth and wasting in health and disease. 2015, Monte Verita, Ascona, Switzerland.
65. 8th International Conference on Cachexia, Sarcopenia and Muscle Wasting. 2015, Paris, France
66. FRIAS Black Forest Winter Conference on “Autophagy Membrane Trafficking & Dynamics in Ageing and Disease. 2016. Friburg, Germany
67. 1<sup>st</sup> INEM International Symposium, Proteostasis in Growth & Disease. 2016, Paris, France
68. Myology 2016. 5<sup>th</sup> International Congress of Myology. 2016. Lyon, France
69. 7<sup>th</sup> Proteasome & Autophagy Workshop. 2016 Clermont-Ferrand, France
70. XXII world congress of the International Society of Heart Research (ISHR) World Congress. 2016, Buenos Aires, Argentina
71. SSIEM (Society for the Study of Inborn Errors of Metabolism) annual symposium. 2016, Roma, Italia
72. 3<sup>rd</sup> Cancer Cachexia Conference. 2016, Washington, USA
73. 1<sup>st</sup> International Conference on targeting Skeletal Muscle Oxidative Metabolism to Treat Human Disease. 2016, London, UK.
74. 16<sup>th</sup> Fondation IPSEN Meeting “Hormone, metabolism and the benefits of exercise”. 2016, Paris, France
75. 9<sup>th</sup> International Conference on Cachexia, Sarcopenia & Muscle Wasting. 2016, Berlin, Germany
76. Padua-Innsbruck Joint Meeting 2016 “Mitochondria in Health & Disease”. 2016, Innsbruck, Austria
77. Advance in Skeletal Muscle Biology in Health and Disease. 2017, Gainesville, Florida, USA
78. 53 Congresso Associazione Italiana Neuropatologia e Neurobiologia clinica. Workshop: I meccanismi dell'autofagia nelle patologie del sistema nervoso e del muscolo. 2017, Padova, Italy
79. Gordon Conference “Myogenesis” Advanced mechanisms of growth and repair in myogenesis” 2017, Ciocco, Lucca, Italy.
80. 4<sup>th</sup> Ottawa International Conference on Neuromuscular Disease & Biology. 2017, Ottawa, Canada
81. FEPS 2017, the joint meeting of the Federation of European Physiological Societies and the Austrian Physiological Society. 2017, Wien, Austria
82. 4<sup>th</sup> ShanghaiTech- SIAS BioForum. Advances and Perspectives in Integrative Biology of Cellular Processes. 2017, Shanghai, China.
83. SFEIM. La 6<sup>e</sup> edition du livre “Inborn Metabolic Diseases - Diagnosis and Treatment”. 2017, Paris, France
84. 10<sup>th</sup> International Conference on Cachexia, Sarcopenia & Muscle Wasting. 2017, Rome, Italy.
85. EMBO Workshop. Lysosome and Metabolism. 2018, Pozzuoli, Napoli, Italy
86. Muscle Development Regeneration and Disease. 2018, Berlin, Germany
87. 8<sup>th</sup> Proteasome and Autophagy Congress. 2018, Clermont Ferrand, France

#### **Keynote Lectures/Plenary Lectures.**

1. “XXXIII European Muscle Conference”. 2014 Salzburg, Austria
2. 19<sup>th</sup> International Congress of World Muscle Society. 2014, Berlin, Germany
3. 7<sup>th</sup> European Symposium. Steps Forward in Pompe Disease. 2014, Torino, Italy
4. New Pathophysiological Mechanisms in Obesity and Type2 Diabetes. 2015 Padova, Italy.
5. Multifaceted Muscle. 2016, Montreal, Canada
6. 21<sup>th</sup> International Congress of World Muscle Society. 2016, Granada, Spain
7. 2<sup>nd</sup> Annual Research Meeting Amsterdam Movement Science, 2018, Amsterdam, Netherlands.

#### **Organizer of International Conference and Workshop**

I have organized the following international conferences:

1. XXIX European Muscle Conference. 2010, Padova, Italy.
2. Workshop MUSCLE MASS REGULATION, 2011, FP7 MYOAGE, Acaya, Lecce, Italy
3. EMBO conference, Molecular Biology of Muscle Development and Regeneration. 2014, Acaya, Lecce, Italy
4. 2014 Spring Padua Muscle Days 'Activity-dependent trophism of neurons and their target organs in aging, pathology and rehabilitation' 2014, Montegrotto, Padova, Italy.
5. 2015 Spring Padua Muscle Days 'Translational Myology in Aging and Neuromuscular Disorders' 2015, Montegrotto, Padova, Italy.
6. 2016 Spring Padua Muscle Days. Muscle Decline in Aging and Neuromuscular Disorders Mechanisms and Countermeasures. 2016, Montegrotto, Padova, Italy
7. 2018 Spring Padua Muscle Days. Giovanni Salviati Memorial. 2018, Montegrotto, Padova, Italy

### Participation in Scientific Reviews

I have reviewed papers for the following Journals: Nature, Science, Nature Medicine, Nature Genetics, Nature Cell Biology, Nature Communication, Cell Metabolism, Cell Reports, Blood, EMBO Journal, Journal of Clinical Investigation, Plos Biology, Plos ONE, Journal of Biological Chemistry, EMBO Molecular Medicine, Cardiovascular Research, American Journal of Physiology Cell Physiology, American Journal of Physiology Heart and Circulatory Physiology, Human Molecular Genetics, Autophagy, Cell Death and Differentiation, Cell Death and Disease, FEBS Letters, Developmental Biology, Molecular Medicine, Stem Cells, Trends in Endocrinology and Metabolism, Traffic, Metabolism, Chest, Neuromuscular Disorders, European Journal of Applied Physiology, Acta Physiologica, Journal of Physiology, Biochim Biophys Acta, Experimental Gerontology, J. Muscle Res. Cell Motility, Skeletal Muscle.

### Publications in journals with IF. h-index: 55 (scopus). Total Citations: 17017 (scopus)

- 1) Carraro U, Rizzi C, **Sandri M**. SDS PAGE: Effective recovery by KCl precipitation of highly diluted muscle proteins solubilized with sodium dodecyl sulfate. *Electrophoresis* 1991; 112: 1005-1010.
- 2) **Sandri M**, C. Rizzi, C Catani, Carraro U. Selective Removal of Free Dodecyl Sulfate from 2-Mercaptoethanol-SDS-Solubilized Proteins before KDS-protein Precipitation. *Anal. Biochem.* 1993; 213: 34-39.
- 3) Carraro U, Rizzi C, **Sandri M**, Doria D. A new two-step precipitation method removes free-SDS and Thiol reagents from diluted solutions, and then allows recovery and quantitation of proteins. *Biochem. Bioph. Res. Com.* 1994; 200: 916-924.
- 4) Rossini K, Rizzi C, **Sandri M**, Bruson A, Carrararo U. High-resolution sodium dodecyl sulfate-polyacrylamide gel electrophoresis and immunochemical identification of the 2X and embryonic myosin heavy chains in complex mixtures of isomyosin. *Electrophoresis* 1995; 16: 101-104.
- 5) Carraro U, Bruson A, Catani C, Dalla Libera L, Massimino ML, Rizzi C, Rossini K, **Sandri M**, Cantini M. Effects of beta1-Integrin Antisense Phosphorothioate-Modified Oligonucleotide on Myoblast Behaviour *In Vitro*. *Cell Biochem. Funct.* 1995; 13: 99-104.
- 6) **Sandri M**, Carraro U, Podhorska-Okolov M, Rizzi C, Arlsan P, Monti D, Franceschi C. Apoptosis, DNA damage and ubiquitin expression in normal and *mdx* muscle fibers after exercise. *FEBS Lett.* 1995 ; 373: 291-295.
- 7) **Sandri M**, Podhorska-Okolov M, Geromel V, Rizzi C, Arlsan P, Franceschi C, Carraro U. Exercise induces myonuclear ubiquitination and apoptosis in dystrophin deficient muscle of mice. *J. Neuropath. Exp. Neur.* 1997; 56: 45-57.

- 8) **Sandri M**, Massimino ML, Cantini M, Giurisato E, Sandri C, Arlsan P, Carraro U. Dystrophin deficient myotubes undergo apoptosis in mouse primary muscle cell culture after DNA damage. *Neurosci Lett*. 1998; 252: 123-126.
- 9) **Sandri M**, Minetti C, Pedemonte M, Carraro U. Apoptotic myonuclei in human Duchenne muscular dystrophy. *Lab. Invest*. 1998; 78: 1005-1016.
- 10) Podhorska-Okolov M, **Sandri M**, Zampieri S, Brun B, Carraro U. Apoptosis of myofiber and satellite cells: exercise induced damage in skeletal muscle of mouse. *Neuropath. Appl. Neuro*. 1998; 24: 518-531.
- 11) Vescovo G, Zennaro R, **Sandri M**, Carraro U, Leprotti C, Ceconi C, Ambrosio GB, Dalla Libera L. Apoptosis of skeletal muscle myofibers and interstitial cells in experimental heart failure. *J. Mol. Cell Cardiol*. 1998; 30: 2449-2459.
- 12) **Sandri M**, Carraro U. Apoptosis of skeletal muscles during development and disease. *Int. J. Biochem. Cell. Biol*. 1999; 31: 1373-1390.
- 13) Dalla Libera L, Zennaro R, **Sandri M**, Ambrosio GB, Vescovo G. Apoptosis and atrophy in rat slow skeletal muscle in chronic heart failure. *Am. J. Physiol*. 1999; 277: C982-C986.
- 14) Biral D, Jakubiec-Puka A, Ciechomska I, **Sandri M**, Rossini K, Carraro U, Betto R. Loss of dystrophin and some dystrophin-associated proteins with concomitant signs of apoptosis in rat leg muscle overworked in extension. *Acta Neuropathol*. 2000; 100: 618-626.
- 15) Vescovo G, Volterrani M, Zennaro R, **Sandri M**, Ceconi C, Lorusso R, Ferrari R, Ambrosio GB, Dalla Libera L. Apoptosis in the skeletal muscle of patients with heart failure: is it associated with clinical and biochemical changes? *Heart* 2000; 84: 431-437.
- 16) **Sandri M**, Sandri C, Brun B, Giurisato E, Cantini M, Rossini K, Destro C, Arlsan P, Carraro U. Inhibition of FasL sustains phagocytic cells and delays myogenesis in regenerating muscles fibers. *J. Leukocyte Biol*. 2001; 69: 482-489.
- 17) Dalla Libera L, Ravara B, Angelini A, Rossini K, **Sandri M**, Tiene G, Ambrosio GB, Vescovo G. Beneficial effects on skeletal muscle of the ATII blocker irbesartan in experimental heart failure. *Circulation* 2001; 103: 2195-2200.
- 18) **Sandri M**, El Meslemani A, Sandri C, Schjerling P, Vissing K, Andersen JL, Rossini K, Carraro U, Angelini C. Caspase 3 Expression Correlates With Skeletal Muscle Apoptosis in Duchenne and Facioscapulo Human Muscular Dystrophy. A potential target for pharmacological treatment. *J. Neuropath. Exp. Neur*. 2001; 60: 302-312.
- 19) Dalla Libera L, Sabbadini R, Renken C, Ravara B, **Sandri M**, Betto R, Angelini A, Vescovo G. Apoptosis in the skeletal muscle of rats with heart failure is associated with increased serum levels of TNF $\alpha$  and sphingosine. *J. Mol. Cell Cardiol*. 2001; 33: 1871-1878.
- 20) Vescovo G, Ravara B, Angelini A, **Sandri M**, Carraro U, Ceconi C, Dalla Libera L. Effect of thalidomide on the skeletal muscle in experimental heart failure. *Eur. J. Heart Fail*. 2002; 4(4):455-60.
- 21) Valenti MT, Sartore S, Azzarello G, Balducci E, Amadio M, **Sandri M**, Pappagallo GL, Tacchetti G, Bari M, Manconi R, D'Andrea MR, Silvestri B, Vinante O. Human fibroblasts from normal and malignant breast tissue grown in vitro show a distinct senescence profile and telomerase activity. *Histochem J*. 2002; 34: 403-10.
- 22) **Sandri M**. Apoptotic signaling in skeletal muscle fibers during atrophy. *Curr Opin Clin Nutr Metab Care*. 2002; 5(3): 249-53.

- 23) Vescovo G, Ravara B, Gobbo V, **Sandri M**, Angelini A, Della Barbera M, Dona M, Peluso G, Calvani M, Mosconi L, Dalla Libera L. L-Carnitine: a potential treatment for blocking apoptosis and preventing skeletal muscle myopathy in heart failure. *Am J Physiol Cell Physiol.* 2002; 283: C802-10.
- 24) Valenti MT, Azzarello G, Balducci E, Sartore S, **Sandri M**, Manconi R, Sicari U, Bari M, Vinante O. Conditioned medium from MCF-7 cell line induces myofibroblast differentiation, decreased cell proliferation, and increased apoptosis in cultured normal fibroblasts but not in fibroblasts from malignant breast tissue. *Histochem J.* 2001; 33: 499-509.
- 25) Rizzi C, Rossini K, Bruson A, **Sandri M**, Dal Belin Peruffo A, Carraro U. Fully reversible procedure for silver staining improves densitometry of complex mixtures of biopolymers resolved by sodium dodecyl sulfate-polyacrylamide gel electrophoresis. *Electrophoresis.* 2002; 23: 3266-3269
- 26) **Sandri M**, Bortoloso E, Nori A, Volpe P. Electrotransfer in differentiated myotubes: a novel, efficient procedure for functional gene transfer. *Exp Cell Res.* 2003; 286: 87-95.
- 27) Dona M, **Sandri M**, Rossini K, Dall'Aica I, Podhorska-Okolow M, Carraro U. Functional in vivo gene transfer into the myofibers of adult skeletal muscle. *Biochem. Bioph. Res. Com.* 2003; 312(4): 1132-8.
- 28) **Sandri M**, Sandri C, Gilbert A, Skurk C, Calabria E, Picard A, Walsh K, Schiaffino S, Lecker SH, Goldberg AL. Foxo transcription factors induce the atrophy-related ubiquitin ligase atrogin-1 and cause skeletal muscle atrophy. *Cell.* 2004; 117, 399-412.
- 29) Skurk C., Izumiya Y., Maatz H., Razeghi P., Shiojima I., **Sandri M.**, Sato K., Zeng L., Schiekofler S., Pimentel D., Lecker S., Taegtmeier H., Goldberg A.F., and Walsh K. The FOXO3a transcription factor regulates cardiac myocyte size downstream of AKT signaling. *J. Biol. Chem.*, 2005, 280(21):20814-23
- 30) **Sandri M.**, Lin J., Handschin C., Yang W., Arany Z., Lecker S., Goldberg A.L., Spiegelman B.M. PGC-1 $\alpha$  protects skeletal muscle from atrophy by suppressing FoxO3 action and atrophy-specific gene transcription. *Proc Natl Acad Sci U S A.*; 2006. 103(44):16260-5.
- 31) Schiaffino S., **Sandri M**, Murgia M. Activity-dependent signaling pathways controlling muscle diversity and plasticity *Physiology*, 2007, 22:269-78.
- 32) Mieulet V, Roceri M, Espeillac C, Sotiropoulos A, Ohanna M, Oorschot V, Klumperman J, **Sandri M**, Pende M. S6 Kinase inactivation impairs growth and translational target phosphorylation in muscle cells maintaining proper regulation of protein turnover. *Am J Physiol Cell Physiol.* 2007, 293(2):C712-22.
- 33) Aguilar V, Alliouachene S, Sotiropoulos A, Sobering A, Athea Y, Djouadi F, Miraux S, Thiaudiere E, Foretz M, Viollet B, Diolet P, Bastin J, Benit P, Rustin P, Carling D, **Sandri M**, Ventura-Clapier R, Pende M. S6 Kinase Deletion Suppresses Muscle Growth Adaptations to Nutrient Availability by Activating AMP Kinase. *Cell Metab.* 2007 Jun;5(6):476-87
- 34) Mammucari C, Milan G., Romanello V., Masiero E., Ruediger R., Del Piccolo P., Burden S.J., Di Lisi R., Sandri C., Zhao J., Goldberg A.L., Schiaffino S., **Sandri M**. FoxO3 controls autophagy in skeletal muscle in vivo. *Cell Metab.* 2007 Dec;6(6):458-71.

- 35) Zhao J., Brault J.J., Shild A., Peirang C., **Sandri M**, Schiaffino S., Lecker S., Goldberg A.L. FoxO3 Coordinately Activates Protein Degradation by the Autophagic (Lysosomal) and Proteasomal Pathways in Atrophying Muscle Cells. *Cell Metab.* 2007 Dec;6(6):472-83
- 36) Klionsky D.J., Abeliovich H., Agostinis P., Agrawal D.K., Aliev G., Askew D.S., Baba M., Baehrecke E.H., Bahr B.A., et al. Guidelines for the use and interpretation of assays for monitoring autophagy in higher eukaryotes. *Autophagy.* 2008 Mar-Apr;4(2):151-75.
- 37) Mammucari C., Schiaffino S., **Sandri M**. Downstream of Akt: FoxO3 and mTOR in the regulation of autophagy in skeletal muscle. *Autophagy.* 2008;4(4):524-26.
- 38) **Sandri M**. Signaling in muscle atrophy and hypertrophy. *Physiology*, 2008; 23:160-70
- 39) Schiaffino S., Mammucari C., **Sandri M**. The role of autophagy in neonatal tissues: just a response to starvation? *Autophagy.* 2008; 4(5):727-30.
- 40) Blaauw B., Mammucari C., Toniolo L., Agatea L., Abraham R., **Sandri M.**, Reggiani C., Schiaffino S. Akt activation prevents the force drop induced by eccentric contractions in dystrophin-deficient skeletal muscle. *Hum. Mol. Genet.* 2008; 17(23): 3686-3696
- 41) Dobrowolny G., Aucello M., Rizzato E., Beccafico S., Mammucari C., Boncompagni S., Belia S., Wannenes F., Nicoletti C., Del Prete Z., Rosenthal N., Molinaro M., Protasi F., Fano G., **Sandri M.**, Musaro A. Skeletal muscle is a primary target of SOD1G93A -mediated toxicity. *Cell Metab.* 2008 Nov; 8(5): 425-436.
- 42) Sartori R, Milan G, Patron M, Mammucari C, Blaauw B, Abraham R, **Sandri M**. SMAD2 and 3 transcription factors control muscle mass in adulthood. *Am J Physiol Cell Physiol.* 2009 Jun;296(6):C1248-57.
- 43) Blaauw B, Canato M, Agatea L, Toniolo L, Mammucari C, Masiero E, Abraham R, **Sandri M**, Schiaffino S, Reggiani C. Inducible activation of Akt increases skeletal muscle mass and force without satellite cell activation. *FASEB J.* 2009, Nov;23(11):3896-905.
- 44) Masiero E, Agatea L, Mammucari C, Blaauw B, Loro E, Komatsu M, Metzger D, Reggiani C, Schiaffino S, **Sandri M**. Autophagy is required to maintain muscle mass. *Cell Metab.* 2009, Dec;10(6):507-15
- 45) Masiero E, **Sandri M**. Autophagy inhibition induces atrophy and myopathy in adult skeletal muscles. *Autophagy.* 2010, Feb;6(2):307-9.
- 46) **Sandri M**. Autophagy in health and disease: 3. Autophagy Involvement in Muscle Atrophy. *Am J Physiol Cell Physiol.* 2010 Jun;298(6):C1291-7.
- 47) **Sandri M**. Autophagy in skeletal muscle. *FEBS Lett.* 2010, Apr 2;584(7):1411-6.
- 48) Romanello V, Guadagnin E, Gomes L, Roder I, Sandri C, Petersen Y, Milan G, Masiero E, Del Piccolo P, Foretz M, Scorrano L, Rudolf R, **Sandri M**. Mitochondrial fission and remodelling contributes to muscle atrophy. *EMBO J.* 2010, 29(10):1774-85.
- 49) Loro E, Rinaldi F, Malena A, Masiero E, Novelli G, Angelini C, Romeo V, **Sandri M**, Botta A, Vergani L. Normal myogenesis and increased apoptosis in myotonic dystrophy type-1 muscle cells. *Cell Death Differ.* 2010, 17(8):1315-24.
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### Chapter of Books of Pathology

Capitolo 60. PATOLOGIA GENERALE DEL MUSCOLO SCHELETRICO. Carrao U, **Sandri M**, Zampieri S. Tomo II PATOLOGIA GENERALE. IV Edizione, Piccin.

Translation of the Chapter 27. Skeletal Muscle. RUBIN' S PATHOLOGY: CLINICOPATHOLOGICAL FOUNDATIONS OF MEDICINE. Sixth Edition. **Sandri M**, and Mammucari C. Edizione Piccin

PATHOBIOLOGY OF HUMAN DISEASE, A DYNAMIC ENCYCLOPEDIA OF DISEASE MECHANISMS, **Sandri M**. (2014) Atrophy and Hypertrophy: The Balance Between Removal and Synthesis of Proteins and Organelles. Editor: Elsevier; 2014. p. 64-71.

### Patent

A patent, for which I am one of the inventors, for treating myopathies and dystrophies via autophagy modulators has been published in European Patent Office.

### Past Grant Achieved

TCP04009 Sandri M (PI) 01/04/05-31/01/10  
Founding Agency: Telethon Foundation,  
Total award 450000,00 euro; year award: 90000,00 euro  
*Cell signaling in muscle wasting. Identification of critical targets in FoxO, myostatin and ubiquitin-proteasome pathways to develop new therapeutic strategies for muscular dystrophy.*

AFM, Sandri M (PI) 31/03/2005 31/03/2006  
Founding Agency: Association Francaise Contre les Myopathies  
Total award 15000,00 euro  
*Regulation of the ubiquitin-proteasome system by the FoxO and myostatin pathway in skeletal muscle*

OSMA WP1B33-2 Sandri M (PI) 24/03/07-24/03/09  
Founding Agency: ASI (Italian Space Agency),  
Total award: 155000,00 euro; year award: 51666,00 euro  
*Cell-based high throughput screen to identify inhibitors of muscle atrophy*

PRIN 2007ABK385\_005 Sandri M (PI) 22/10/08-22/10/10  
Programmi di Ricerca Scientifica di Rilevante Interesse Nazionale (Research Program of Relevant National Interest),  
Founding agency: Italian Ministry of Science  
Total award: 32.229 euro; year award: 16114,5 euro  
*Molecular Mechanisms of Muscle Wasting*

AFM Sandri M (P.I.) 03/09/2009-03/09/2011  
Founding Agency: Association Francaise Contre les Myopathies  
Total award: 50000,00 Euro  
*Role of Autophagy in maintenance of muscle mass*

CARIPARO project of excellence.  
Founding Agency: Fondazione Cassa di Risparmio  
Sandri M. (P.I.) 10/01/2010-10/01/2013  
Total award 420.000,00 Euro. Euro 210.000,00 available to Sandri M lab

*In vivo analysis of mitochondrial remodelling system and its role in muscle function and signalling.*

MYOAGE Schiaffino S. and Sandri M. (co-P.I.) 1/01/09-1/06/13

Founding Agency: E.U. HEALTH-2007-2.4.5-10.

ID: 223576

Total award: 500.000,00 Euro

*Understanding and combating age-related muscle weakness.*

TCR04003 Sandri M (P.I.) 01/02/10-01/02/15

Founding agency: Telethon Foundation.

Total award 610.000,00 euro

*Defining the molecular signature of muscle wasting. Identification of therapeutic targets to counteract muscle degeneration*

PRIN 2010-11 Sandri M (PI) 1/02/13-1/02/16

Programmi di Ricerca Scientifica di Rilevante Interesse Nazionale (Research Program of Relevant National Interest).

Founding agency: Italian Ministry of Science

total award: 99.120 euro.

*Pathological and Physiological Mechanisms in Skeletal Muscle*

European Research Council (ERC). Starting Grant: Consolidator Program

Founding agency: EU 7th Research Framework Programme

ID: 282310

Sandri M. (P.I.) 01/11/2011-31/10/2016

Total award: 1.250.000,00 Euro

*Defining The Mechanisms Of Age-Related Muscle Loss: Focus On Autophagy (MYOPHAGY)*

#### **Actual Grant**

Transatlantic Networks of Excellence in Cardiovascular Research Program.

Founding agency: LEDUCQ Foundation.

Sandri M. (P.I.) 01/10/2011-30/09/2017

Total award: 1.000.000,00 \$

*Proteotoxicity: an unappreciated mechanism of heart disease and its potential for novel therapeutics*

Founding agency: Associazione Italiana Ricerca sul Cancro (AIRC)

ID: 17388

Sandri M. (P.I.). 1/02/2016-1/01/2019

Total award: 334.000,00 Euro

*Controlling BMP/MUSK axis to prevent cancer cachexia*

Founding agency: Association Francaise Contre les Myopathies (AFM)

ID: 19524

Sandri M. (P.I.). 1/06/2016-1/06/2018

Total award: 84.000,00 Euro

*Dissecting the Retrograde Signal Controlling Neuomuscular Junction*

Founding agency: CARIPARO (Starting Grant)

Sandri M. (P.I.) 1/10/2016-30/09/2019

Total award: 255.388,41 Euro

*Defining the Contribution of Calcium and Mitochondria to Age-Related Muscle Loss*