C.V. MUSARO' ANTONIO

BIOGRAPHICAL SKETCH

MUSARO' Antonio	POSITION TITLE
Lab web site: http://musarolab-uniroma1.jimdo.com/ Antonio Musarò web site: https://sites.google.com/a/uniroma1.it/antoniomusaro/ Orcid: 0000-0002-2944-9739 Scopus ID: 6602410173	Full Professor Professor of Histology and Embryology Professor of Biotechnology

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	YEAR(s)	FIELD OF STUDY
Sapienza University of Rome, Biological Science.	Biology	1991	Muscle Biology
Sapienza University of Rome, Medical School	Ph.D.	1996	Biotechnological Sciences
Harvard University, Boston, USA	Research Fellow in Medicine	1996-2000	Molecular biology of aging

A. Positions and Honours

Positions and Employment

1996−2000	Postdoctoral training− Research fellow, Cardiovascular Research Center; Harvard University.
1999−2007	Assistant professor, Sapienza University of Rome −Medical School;
1999-present	Professor of Histology and Embryology, Medical School, Sapienza University of Rome; Member of the academic committee of PhD program in Morphogenesis & Tissue Engineering
2002	Visiting Professor, Edith Cowan University, Australia.
2003− present	Professor of Biotechnology; Sapienza University of Rome.
2003−2014	Adjunct Associate Professor (honorary position), School of Biomedical & Sports Science; Faculty of Computing, Health and Science. Edith Cowan University; Western Australia.
2015-present	Professor of Histology, nursing school- Cassino-Sapienza University.
2016-2020	Junior Research Fellow, Scuola Superiore di Studi Avanzati Sapienza.
2007- Jan 2017	Associate professor, Medical and Biotechnology School, Sapienza University of Rome.
Feb 2017-present	Full professor, Medical and Biotechnology School, Sapienza University of Rome
2018-present	Coordinator of the Ph.D. program in Morphogenesis and Tissue Engineering
2018-present	Director of Master in Stem cells and genome editing
2020-present	Senior Research Fellow and coordinator of LS school, Scuola Superiore di Studi Avanzati Sapienza.

Other Experience and Professional Memberships

2001-present	Expert reviewer for international scientific journals
2004-present	Member of the Society of Cell Biology
2005	Lecturer and Instructor of EMBO Practical Course: From Mice to Cells
2010-2017	Member of the editorial board of World Journal of Biological Chemistry
2010-present	Scientific director of "Festa della Scienza"
2010-present	Member of the editorial board of Skeletal Muscle
2011-present	Member of the editorial board of PlosOne
2015-present	Member of the editorial board of Current Genomics
2014-present	Accademic Member of Accademia Medica di Roma
2011-2016	Chief of Interuniversity Institute of Myology (IIM)

Honours

2001	Honour for advance in Biological Research
2003	Award for Scientific Communication (Rotary Club)
2006	Award for Scientific Communication, Foglia di Tabacco
2009	Award Sapienza Ricerca for best research 2009 (Sapienza University of Rome)
2014	La Plejade ANCIS International Award 2014 for Scientific Research
2018	Unitel-Puglia (Pergamena D'onore)

B. Major Research Interests and Contributions to Science:

Aging and neuromuscular diseases (ALS, muscular dystrophies); role of stem cells and tissue niche on muscle regeneration.

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1. Characterization of the roles of IGF-1 in skeletal muscle homeostasis, regeneration, and diseases

Focusing on specific pathways controlling muscle growth and regeneration, I carefully constructed a program of basic research to characterize the role of specific isoforms of insulin-like growth factor (IGF-1) in the physiopathology of skeletal muscle and in muscle pathologies. We made significant contributions in the field of muscle hypertrophy and muscle aging and contributed to identify signalling pathways involved in skeletal muscle regeneration and diseases. We demonstrated an essential role of inflammatory response in muscle regeneration and repair and characterized the specific role of IGF-1 in the modulation of the tissue niche and on the recruitment of stem cells into the injured muscle.

2. Characterization of the physiopathologic interplay between muscle and nerve

A crucial system severely affected in several neuromuscular diseases, including ALS, is the loss of effective connection between muscle and nerve, leading to a pathological non-communication between the two tissues. In the last 10 years we have made a breakthrough in research into ALS, demonstrating a key role of skeletal muscle in the pathogenesis of ALS. Our research supported the redefinition of ALS as a “multi-systemic” disease in which alterations in structural, physiological and metabolic parameters in different cell types (muscle, motorneuron, glia) may act synergistically to exacerbate the disease.

3. Define the signature of hostile microenvironment in muscular dystrophy and sarcopenia.

We study muscle homeostasis and regeneration under normal and pathologic conditions. The main goal of our project is to define the tissue signals and to characterize the molecular mechanisms of muscle wasting. Although considerable information has accumulated regarding the physiopathology of muscle diseases, the associated molecular mechanisms are still poorly understood. We recently provided evidence about specific molecules that modulate the hostile microenvironment and propose alternative pharmacological strategy for treatment muscle diseases.

4. Muscle engineered in vitro model to study muscle homeostasis and differentiation

In our laboratory it has been recently developed a 3-dimensional skeletal muscle construct, called eX-vivo Muscle engineered Tissue, X-MET. X-MET was obtained from murine skeletal muscle primary culture. The isolation from skeletal muscle of heterogeneous cell populations such as satellite cells, fibroblasts and endothelial cells, is a prerequisite of X-MET formation. Since the X-MET mimics the complex morphological properties of skeletal muscle tissue, it may be considered an ideal in vitro model of skeletal muscle, simplifying the study of complex processes such as muscle homeostasis, differentiation and muscle-nerve interplay under physiologic and pathologic conditions such as, muscular dystrophy and ALS.

C. Publications (h index = 37 by Scopus and WoS; 45 by Google Scholar)

1. Germani A., Fusco C., Martinotti S., Musarò A., Molinaro M., Zani BM. TPA-induced differentiation of human rhabdomyosarcoma cells involves dephosphorylation and nuclear accumulation of mutant p53. Biochem Biophys Res Commun. 1994, 202:17-24.
2. Musarò A., Cusella De Angelis MG, Germani A., Ciccarelli C., Molinaro M., Zani BM; Enhanced expression of myogenic regulatory genes in aging skeletal muscle Exp Cell Res. 1995; 221:241-8.
3. Barton-Davis ER, Shoturma DI, Musarò A, Rosenthal N, Sweeney HL. Viral mediated expression of insulin-like growth factor I blocks the aging-related loss of skeletal muscle function. Proc Natl Acad Sci U S A. 1998 95(26):15603-7.
4. Musarò A., Rosenthal N. Maturation of the myogenic program is induced by postmitotic expression of insulin-like growth factor I. Mol Cell Biol. 1999 19:3115-24.
5. Musarò A., Rosenthal N. Transgenic mouse models of muscle aging. Exp Gerontol. 1999; 34(2):147-56. Review.
6. Musarò A, McCullagh KJ, Naya FJ, Olson EN, Rosenthal N. IGF-1 induces skeletal myocyte hypertrophy through calcineurin in association with GATA-2 and NF-ATc1. Nature. 1999; 400: 581-5.
7. Tsao L, Neville G, Musarò A, McCullagh KJ, Rosenthal N. Revisiting calcineurin and human heart failure. Nature Medicine 2000; 6: 2-3.
8. Musarò A, McCullagh K, Paul A, Houghton L, Dobrowolny G, Molinaro M, Barton ER, Sweeney HL, Rosenthal N. Localized Igf-1 transgene expression sustains hypertrophy and regeneration in senescent skeletal muscle. Nature Genetics 2001; 27: 195-200.
9. Barton ER, Morris L., Musaro A., Rosenthal N., and Sweeney H.L. Muscle specific expression of Insulin-like Growth Factor I counters muscle decline in mdx mice. J.Cell Biol. 2002; 157: 137-147.
10. Scicchitano BM, Spath L, Musarò A, Molinaro M, Adamo S, and Nervi C. The Myocyte Enhancer Factor 2 is Essential for Myogenin Expression during AVP Induced Myogenesis. J. Endocrinology 2002; 16: 1407-16.
11. Musarò A. and Rosenthal N. The role of local Insulin-like Growth Factor-1 isoforms in the pathophysiology of skeletal muscle. Current Genomics 2002; 3: 149-162.
12. Rosenthal, N, Musarò A. Gene therapy for cardiac cachexia? International Journal of Cardiology 2002 85: 185-191
13. Winn N., Paul A., Musarò A., Rosenthal N. Insulin-like Growth Factor isoforms in skeletal muscle aging, regeneration and disease. Cold Spring Harbor Symposia on Quantitative Biology. 2002; LXVII: 507-518.

14. Musarò A, Rosenthal N. Attenuating muscle wasting: cell and gene therapy approaches. Current Genomics 2003; 4:575-585.
15. Bertini E, Biancalana V, Bolino A, Buj Bello A, Clague M, Guicheney P, Jungbluth H, Kress W, Musarò A, Nandurkar H, Pirola L, Romero N, Senderek J, Suter U, Sewry C, Tronchere H, Wallgren-Pettersson C, Wishart MJ, Laporte J. 118th ENMC International Workshop on Advances in Myotubular Myopathy. 26-28 September 2003, Naarden, The Netherlands. (5th Workshop of the International Consortium on Myotubular Myopathy). Neuromuscul Disord. 2004 14:387-96.
16. Musarò A, Giacinti C, Borsellino G, Dobrowolny G, Pelosi L, Cairns L, Ottolenghi S, Bernardi G, Cossu G, Battistini L, Molinaro M, Rosenthal N. Muscle restricted expression of mIGF-1 enhances the recruitment of stem cells during muscle regeneration. Proc Natl Acad Sci U S A 2004; 101: 1206-1210.
17. Dobrowolny G, Giacinti C, Pelosi L, Nicoletti C, Winn N, Barberi L, Molinaro M, Rosenthal N, Musarò A. Muscle expression of a local Igf-1 isoform protects motor neurons in an ALS mouse model. J Cell Biol. 2005; 168:193-9.
18. Scicchitano BM, Spath L, Musarò A, Molinaro M, Rosenthal N, Nervi C, Adamo S. Vasopressin-dependent Myogenic Cell Differentiation Is Mediated by Both Ca2+/Calmodulin-dependent Kinase and Calcineurin Pathways. Mol Biol Cell. 2005; 16:3632-41.
19. Musarò A. Growth factor enhancement of muscle regeneration: a central role of IGF-1. Arch Ital Biol. 2005; 143:243-8
20. Denti MA, Rosa A, D'Antona G, Sthandier O, De Angelis FG, Nicoletti C, Allocca M, Pansarasa O, Parente V, Musarò A, Auricchio A, Bottinelli R, Bozzoni I. Body-wide gene therapy of Duchenne muscular dystrophy in the mdx mouse model. Proc Natl Acad Sci U S A. 2006; 103:3758-63.
21. Denti MA, Rosa A, D'Antona G, Sthandier O, Angelis FG, Nicoletti C, Allocca M, Pansarasa O, Parente V, Musaro A, Auricchio A, Bottinelli R, Bozzoni I. Chimeric Adeno-Associated Virus/Antisense U1 Small Nuclear RNA Effectively Rescues Dystrophin Synthesis and Muscle Function by Local Treatment of mdx Mice. Human Gene Ther. 2006 17: 1-10.
22. Musarò A., Dobrowolny G., Rosenthal N. The neuroprotective effects of a locally acting IGF-1 isoform. Experimental Gerontology 2007; 42:76-80.
23. Rosenthal N, Santini MP, Musaro A. Growth factor enhancement of cardiac regeneration. Cell Transplant. 2006;15 Suppl 1:S41-5.
24. Musarò A., Rosenthal N. The critical role of Insulin-like Growth Factor-1 isoforms in the physiopathology of skeletal muscle. Current Genomics 2006; 3: 19-32.
25. Pelosi L, Giacinti C, Nardis C, Borsellino G, Rizzuto E, Nicoletti C, Wannenes F, Battistini L, Rosenthal N, Molinaro M, Musarò A. Local expression of IGF-1 accelerates muscle regeneration by rapidly modulating inflammatory cytokines and chemokines. FASEB J. 2007; 21:1393-402.
26. Musarò A., Giacinti C., Pelosi L., Dobrowolny G., Barberi L., Nardis C., Coletti D., Scicchitano B.M., Adamo S., Molinaro M.. Stem Cell-mediated muscle regeneration and repair in aging and neuromuscular diseases. European Journal of Histochemistry. 2007; 51 Suppl 1:35-43.
27. Fanzani A, Musarò A, Stoppani E, Giuliani R, Colombo F, Preti A, Marchesini S. Hypertrophy and atrophy inversely regulate Caveolin-3 expression in myoblasts. Biochem Biophys Res Commun. 2007; 357:314-8.
28. Pelosi M, Marampon F, Zani BM, Prudente S, Perlas E, Caputo V, Cianetti L, Berno V, Narumiya S, Kang SW, Musarò A, Rosenthal N. ROCK2 and its alternatively spliced isoform ROCK2m positively control the maturation of the myogenic program. Mol Cell Biol. 2007; 27:6163-76.
29. Dobrowolny G, Aucello M, Molinaro M, Musarò A. Local expression of mIgf-1 modulates ubiquitin, caspase and CDK5 expression in skeletal muscle of an ALS mouse model. Neurol Res. 2008; 30:131-6.
30. Del Prete Z, Musarò A, Rizzuto E. Measuring Mechanical Properties, Including Isotonic Fatigue, of Fast and Slow MLC/mIgf-1 Transgenic Skeletal Muscle. Ann Biomed Eng. 2008; 36:1281-90.
31. Denti M A, Incitti T, Sthandier O, Nicoletti C, De Angelis F, Rizzuto E, Auricchio A, Musarò A, Bozzoni I. Long-term benefit of AAV/antisense-mediated exon skipping in dystrophic mice. Human Gene Therap. 2008; 19:601-8.
32. Giacinti C, Musarò A, De Falco G, Jourdan I, Molinaro M, Bagella L, Simone C, Giordano A. Cdk9-55: A new player in muscle regeneration. J Cell Physiol. 2008; 216:576-82.
33. Dobrowolny G, Aucello M, Rizzuto E, Beccafico S, Mammucari C, Bonconpagni S, Belia S, Wannenes, F Nicoletti, C Del Prete Z, Rosenthal N, Molinaro M, Protasi F, Fanò G, Sandri M, and Musarò A. Skeletal muscle is a primary target of SOD1G93A -mediated toxicity Cell Metabolism 2008; 8:425-36.
34. Aucello M, Dobrowolny G, Musarò A. Localized accumulation of oxidative stress causes muscle atrophy through activation of an autophagic pathway. Autophagy. 2009; 5:527-9.
35. Palazzolo I., Stack C., Kong L., Musaro A., Adachi H., Katsuno M., Sobue G., Taylor J.P., Sumner C., Fischbeck K., and Pennuto M. Overexpression of IGF-1 in Muscle Attenuates Disease in a Mouse Model of Spinal and Bulbar Muscular Atrophy. Neuron 2009; 63:316-28.
36. Rizzuto E, Musarò A, Catizone A, Del Prete Z. Measuring tendon properties in mdx mice: Cell viability and viscoelastic characteristics. J. Biomech. 2009; 42:2243-8.

37. Colombini B, Benelli G, Nocella M, Musarò A, Cecchi G, Bagni MA. Mechanical properties of intact single fibres from wild-type and MLC/mIgf-1 transgenic mouse muscle. J Muscle Res Cell Motil. 2009; 30:199-207.
38. Scicchitano BM, Rizzuto E, and Musarò A. Counteracting muscle wasting in aging and neuromuscular diseases: the critical role of IGF-1. Aging 2009; 1: 451-457.
39. Messina S, Bitto A, Aguennouz M, Mazzeo A, Migliorato A, Polito F, Irrera N, Altavilla D, Vita GL, Russo M, Naro A, De Pasquale MG, Rizzuto E, Musarò A, Squadrito F, Vita G. Flavocoxid counteracts muscle necrosis and improves functional properties in mdx mice: a comparison study with methylprednisolone. Exp Neurol. 2009; 220:349-58.
40. Musarò A, Fulle S and Fanò G. Oxidative stress and muscle homeostasis. Curr Opin Clin Nutr Metab Care 2010; 13:236-42.
41. Melchionna R, Di Carlo A, De Mori R, Cappuzzello C, Barberi L, Musarò A, Cencioni C, Fujii N, Tamamura H, Crescenzi M, Capogrossi MC, Napolitano M, Germani A. Induction of myogenic differentiation by SDF-1 via CXCR4 and CXCR7 receptors. Muscle Nerve. 2010; 41:828-35.
42. Musaro A. Comments on Point:Counterpoint: IGF is/is not the major physiological regulator of muscle mass. The strange case of IGF-1. J Appl Physiol. 2010; 108:1826.
43. Cacchiarelli D, Martone J, Girardi E, Cesana M, Incitti T, Morlando M, Nicoletti C, Santini T, Sthandier O, Barberi L, Auricchio A, Musarò A, Bozzoni I. MicroRNAs involved in molecular circuitries relevant for the Duchenne muscular dystrophy pathogenesis are controlled by the dystrophin/nNOS pathway. Cell Metab. 2010; 12:341-51.
44. Vinciguerra M, Musaro A, Rosenthal N. Regulation of muscle atrophy in aging and disease. Adv Exp Med Biol. 2010; 694:211-33.
45. Musarò A. State of the art and the dark side of amyotrophic lateral sclerosis World J Biol Chem. 2010; 1: 62-68.
46. Bosch-Marcé M, Wee CD, Martinez TL, Lipkes CE, Choe DW, Kong L, Vanmeerbeke JP, Musarò A, Sumner CJ. Increased IGF-1 in muscle modulates the phenotype of severe SMA mice. Hum Mol Genet. 2011 20:1844-53.
47. Carosio S, Berardinelli MG, Aucello M, Musarò A. Impact of ageing on muscle cell regeneration. Ageing Res Rev. 2011;10:35-42.
48. Dobrowolny G, Aucello M, Musarò A. Muscle atrophy induced by SOD1G93A expression does not involve the activation of caspase in the absence of denervation. Skelet Muscle. 2011;1(1):3.
49. Toschi A, Severi A, Coletti D, Catizone A, Musarò A, Molinaro M, Nervi C, Adamo S, Scicchitano BM. Skeletal muscle regeneration in mice is stimulated by local overexpression of v1a-vasopressin receptor. Mol Endocrinol. 2011; 25:1661-73.
50. Kuraitis D, Zhang P, Zhang Y, Padavan DT, McEwan K, Sofrenovic T, McKee D, Zhang J, Griffith M, Cao X, Musarò A, Ruel M, Suuronen EJ. A stromal cell-derived factor-1 releasing matrix enhances the progenitor cell response and blood vessel growth in ischaemic skeletal muscle. Eur Cell Mater. 2011; 22:109-23.
51. Forte G, Pietronave S, Nardone G, Zamperone A, Magnani E, Pagliari S, Pagliari F, Giacinti C, Nicoletti C, Musaró A, Rinaldi M, Ribezzo M, Comoglio C, Traversa E, Okano T, Minieri M, Prat M, Di Nardo P. Human cardiac progenitor cell grafts as unrestricted source of supernumerary cardiac cells in healthy murine hearts. Stem Cells. 2011;29:2051-61.
52. Kern H, Pelosi L, Coletto L, Musarò A, Sandri M, Vogelauer M, Trimmel L, Cvecka J, Hamar D, Kovarik J, Löfler S, Sarabon N, Protasi F, Adami N, Biral D, Zampieri S, Carraro U. Atrophy/hypertrophy cell signaling in muscles of young athletes trained with vibrational-proprioceptive stimulation. Neurol Res. 2011; 33:998-1009.
53. Kuraitis D, Giordano C, Ruel M, Musarò A, Suuronen EJ. Exploiting extracellular matrix-stem cell interactions: A review of natural materials for therapeutic muscle regeneration. Biomaterials. 2012; 33:428-43.
54. Sandonà D, Desaphy JF, Camerino GM, Bianchini E, Ciciliot S, Danieli-Betto D, Dobrowolny G, Furlan S, Germinario E, Goto K, Gutsmann M, Kawano F, Nakai N, Ohira T, Ohno Y, Picard A, Salanova M, Schiffl G, Blottner D, Musarò A, Ohira Y, Betto R, Conte D, Schiaffino S. Adaptation of Mouse Skeletal Muscle to Long-Term Microgravity in the MDS Mission. PLoS One. 2012; 7:e33232.
55. Nucera E, Nicoletti C, Chiapparino C, Pacello ML, D'Alessio V, Musarò A, De Santis R. AvidinOX for tissue targeted delivery of biotinylated cells. Int J Immunopathol Pharmacol. 2012; 25:239-46.
56. Murdocca M, Malgieri A, Luchetti A, Saieva L, Dobrowolny G, De Leonibus E, Filareto A, Quitadamo MC, Novelli G, Musarò A, Sangiuolo F. IPLEX administration improves motor neuron survival and ameliorates motor functions in a severe mouse model of SMA. Mol Med. 2012 Sep 25; 18:1076-85.
57. Musarò A. To the heart of the problem. mIGF-1: local effort for global impact. Aging (Albany NY). 2012; 4:377-8.
58. Klionsky et al. Guidelines for the use and interpretation of assays for monitoring autophagy. Autophagy. 2012; 8:445-544.
59. Kuraitis D, Ebadi D, Zhang P, Rizzuto E, Vulesevic B, Padavan DT, Al Madhoun A, McEwan KA, Sofrenovic T, Nicholson K, Whitman SC, Mesana TG, Skerjanc IS, Musarò A, Ruel M, Suuronen EJ. Injected matrix stimulates myogenesis and regeneration of mouse skeletal muscle after ischaemic injury. Eur Cell Mater. 2012; 24:175-95
60. Rizzuto E, Catizone A, Musarò A, Del Prete Z. Dystrophic tendon functionality is recovered by muscle-specific expression of insulin-like growth factor in mdx mice. J Biomech. 2013; 46:604-7
61. Musarò A. Understanding ALS: new therapeutic approaches. FEBS J. 2013; 280:4315-22.

62. Kuraitis D, Berardinelli MG, Suuronen EJ, Musarò A. A Necrotic Stimulus is Required to Maximize Matrix-Mediated Myogenesis. Dis Model Mech. 2013; 6:793-801
63. Carosio S, Barberi L, Rizzuto E, Nicoletti C, Prete ZD, Musarò A. Generation of eX vivo-vascularized Muscle Engineered Tissue (X-MET). Sci Rep. 2013; 3:1420.
64. Bucci L, Yani SL, Fabbri C, Bijlsma AY, Maier AB, Meskers CG, Narici MV, Jones DA, McPhee JS, Seppet E, Gapeyeva H, Pääsuke M, Sipilä S, Kovanen V, Stenroth L, Musarò A, Hogrel JY, Barnouin Y, Butler-Browne G, Capri M, Franceschi C, Salvioli S. Circulating levels of adipokines and IGF-1 are associated with skeletal muscle strength of young and old healthy subjects. Biogerontology. 2013; 14:261-72.
65. Barberi L, Scicchitano BM, De Rossi M, Bigot A, Duguez S, Wielgosik A, Stewart C, McPhee J, Conte M, Narici M, Franceschi C, Mouly V, Butler-Browne G, Musarò A. Age-dependent alteration in muscle regeneration: the critical role of tissue niche. Biogerontology. 2013; 14:273-92
66. Sandri M, Barberi L, Bijlsma AY, Blaauw B, Dyar KA, Milan G, Mammucari C, Meskers CG, Pallafacchina G, Paoli A, Pion D, Roceri M, Romanello V, Serrano AL, Toniolo L, Larsson L, Maier AB, Muñoz-Cánoves P, Musarò A, Pende M, Reggiani C, Rizzuto R, Schiaffino S. Signalling pathways regulating muscle mass in ageing skeletal muscle. The role of the IGF1-Akt-mTOR-FoxO pathway. Biogerontology. 2013;14:303-23.
67. Pierno S, Camerino GM, Cannone M, Liantonio A, De Bellis M, Digennaro C, Gramegna G, De Luca A, Germinario E, Danieli-Betto D, Betto R, Dobrowolny G, Rizzuto E, Musarò A, Desaphy JF, Camerino DC. Paracrine Effects of IGF-1 Overexpression on the Functional Decline Due to Skeletal Muscle Disuse: Molecular and Functional Evaluation in Hindlimb Unloaded MLC/mIgf-1 Transgenic Mice. PLoS One. 2013; 8:e65167.
68. Conte M, Vasuri F, Trisolino G, Bellavista E, Santoro A, Degiovanni A, Martucci E, D'Errico-Grigioni A, Caporossi D, Capri M, Maier AB, Seynnes O, Barberi L, Musarò A, Narici MV, Franceschi C, Salvioli S. Increased Plin2 expression in human skeletal muscle is associated with sarcopenia and muscle weakness. PLoS One. 2013; 8:e73709.
69. Simonatto M, Marullo F, Chiacchiera F, Musaró A, Wang JY, Latella L, Puri PL. DNA damage-activated ABL-MyoD signaling contributes to DNA repair in skeletal myoblasts. Cell Death Differ. 2013; 20:1664-74.
70. Mosole S, Carraro U, Kern H, Loefler S, Fruhmann H, Vogelauer M, Burggraf S, Mayr W, Krenn M, Paternostro-Sluga T, Hamar D, Cvecka J, Sedliak M, Tirpakova V, Sarabon N, Musarò A, Sandri M, Protasi F, Nori A, Pond A, Zampieri S. Long-term high-level exercise promotes muscle reinnervation with age. J Neuropathol Exp Neurol. 2014; 73:284-94.
71. Soares RJ, Cagnin S, Chemello F, Silvestrin M, Musaro A, De Pitta C, Lanfranchi G, Sandri M. Involvement of miRNAs in the Regulation of Muscle Wasting during Catabolic Conditions. J Biol Chem. 2014; 289:21909-25.
72. Pelosi M, De Rossi M, Barberi L, Musarò A. IL-6 Impairs Myogenic Differentiation by Downmodulation of p90RSK/eEF2 and mTOR/p70S6K Axes, without Affecting AKT Activity. Biomed Res Int. 2014; 2014:206026.
73. Kern H, Barberi L, Löfler S, Sbardella S, Burggraf S, Fruhmann H, Carraro U, Mosole S, Sarabon N, Vogelauer M, Mayr W, Krenn M, Cvecka J, Romanello V, Pietrangelo L, Protasi F, Sandri M, Zampieri S, Musarò A. Electrical stimulation counteracts muscle decline in seniors. Front Aging Neurosci. 2014; 6:189
74. Guarnieri S, Morabito C, Belia S, Barberi L, Musarò A, Fanò-Illic G, Mariggiò MA. New Insights into the Relationship between mIGF-1-Induced Hypertrophy and Ca2+ Handling in Differentiated Satellite Cells. PLoS One. 2014;9:e107753.
75. Zampieri S1, Pietrangelo L, Loefler S, Fruhmann H, Vogelauer M, Burggraf S, Pond A, Grim-Stieger M, Cvecka J, Sedliak M, Tirpáková V, Mayr W, Sarabon N, Rossini K, Barberi L, De Rossi M, Romanello V, Boncompagni S, Musarò A, Sandri M, Protasi F, Carraro U, Kern H. Lifelong Physical Exercise Delays Age-Associated Skeletal Muscle Decline. J Gerontol A Biol Sci Med Sci. 2015; 70:163-73.
76. Biferi MG, Nicoletti C, Falcone G, Puggioni EM, Passaro N, Mazzola A, Pajalunga D, Zaccagnini G, Rizzuto E, Auricchio A, Zentilin L, De Luca G, Giacca M, Martelli F, Musio A, Musarò A, Crescenzi M. Proliferation of Multiple Cell Types in the Skeletal Muscle Tissue Elicited by Acute p21 Suppression. Mol Ther. 2015; 23:885-95.
77. Rizzuto E, Pisu S, Musarò A, Del Prete Z. Measuring Neuromuscular Junction Functionality in the SOD1^{G93A} Animal Model of Amyotrophic Lateral Sclerosis. Ann Biomed Eng. 2015; 43: 2196-206.
78. Christoffolete MA, Silva WJ, Ramos GV, Bento MR, Costa MO, Ribeiro MO, Okamoto MM, Lohmann TH, Machado UF, Musarò A, Moriscot AS. Muscle IGF-1-Induced Skeletal Muscle Hypertrophy Evokes Higher Insulin Sensitivity and Carbohydrate Use as Preferential Energy Substrate. Biomed Res Int. 2015; 2015:282984.
79. Cefalù S, Lena AM, Vojtesek B, Musarò A, Rossi A, Melino G, Candi E. TAp63gamma is required for the late stages of myogenesis. Cell Cycle. 2015; 14:894-901.
80. Tonkin J, Temmerman L, Sampson RD, Gallego-Colon E, Barberi L, Bilbao D, Schneider MD, Musarò A, Rosenthal N. Monocyte/Macrophage-derived IGF-1 Orchestrates Murine Skeletal Muscle Regeneration and Modulates Autocrine Polarization. Mol Ther. 2015; 23:1189-200.
81. Pelosi L, Coggi A, Forcina L, Musarò A. MicroRNAs modulated by local mIGF-1 expression in mdx dystrophic mice. Front Aging Neurosci. 2015; 7:69.

82. Pelosi, L., Berardinelli MG, De Pasquale L, Nicoletti C, D'Amico A, Carvello F, Moneta GM, Catizone A, Bertini E, De Benedetti F, Musarò A. Functional and Morphological Improvement of Dystrophic Muscle by Interleukin 6 Receptor Blockade, EBioMedicine 2015; 2:285-93
83. Pelosi L, Berardinelli MG, Forcina L, Spelta E, Rizzuto E, Nicoletti C, Camilli C, Testa E, Catizone A, De Benedetti F, Musarò A. Increased levels of interleukin-6 exacerbate the dystrophic phenotype in mdx mice. Hum Mol Genet. 2015; 24:6041-53
84. Scicchitano BM, Faraldi M, Musarò A. The Proteolytic Systems of Muscle Wasting. Recent Adv DNA Gene Seq. 2015; 9:26-35.
85. Pelosi M, Alfò M, Martella F, Pappalardo E, Musarò A. Finite mixture clustering of human tissues with different levels of IGF-1 splice variants mRNA transcripts. BMC Bioinformatics. 2015; 16:289.
86. Oltolina F, Zamperone A, Colangelo D, Gregoletto L, Reano S, Pietronave S, Merlin S, Talmon M, Novelli E, Diena M, Nicoletti C, Musarò A, Filigheddu N, Follenzi A, Prat M. Human Cardiac Progenitor Spheroids Exhibit Enhanced Engraftment Potential. PLoS One. 2015; 10:e0137999.
87. Pagliarini V, Pelosi L, Bustamante MB, Nobili A, Berardinelli MG, D'Amelio M, Musarò A, Sette C. SAM68 is a physiological regulator of SMN2 splicing in spinal muscular atrophy. J Cell Biol. 2015; 211:77-90.
88. Martini M, Dobrowolny G, Aucello M, Musarò A. Postmitotic Expression of SOD1 (G93A) Gene Affects the Identity of Myogenic Cells and Inhibits Myoblasts Differentiation. Mediators Inflamm. 2015; 2015:537-853.
89. Dobrowolny G, Bernardini C, Martini M, Baranzini M, Barba M and Musarò A. Muscle Expression of SOD1^{G93A} Modulates microRNA and mRNA Transcription Pattern Associated with the Myelination Process in the Spinal Cord of Transgenic Mice. Front. Cell. Neurosci. 2015; 9:463.
90. Barberi L, Scicchitano BM, Musaro A. Molecular and Cellular Mechanisms of Muscle Aging and Sarcopenia and Effects of Electrical Stimulation in Seniors. Eur J Transl Myol. 2015; 25:231-6.
91. Rizzuto E, Carosio S, Faraldi M, Pisu S, Musarò A, Del Prete Z. A DIC Based Technique to Measure the Contraction of a Skeletal Muscle Engineered Tissue. Appl Bionics Biomech. 2016; 2016:7465095.
92. Bacurau AV, Jannig PR, de Moraes WM, Cunha TF, Medeiros A, Barberi L, Coelho MA, Bacurau RF, Ugrinowitsch C, Musarò A, Brum PC. Akt/mTOR pathway contributes to skeletal muscle anti-atrophic effect of aerobic exercise training in heart failure mice. Int J Cardiol. 2016; 214:137-147.
93. Beqollari D, Romberg CF, Dobrowolny G, Martini M, Voss AA, Musarò A, Bannister RA. Progressive impairment of CaV1.1 function in the skeletal muscle of mice expressing a mutant type 1 Cu/Zn superoxide dismutase (G93A) linked to amyotrophic lateral sclerosis. Skelet Muscle. 2016; 6:24.
94. Onorato I, D'Alessandro G, Di Castro MA, Renzi M, Dobrowolny G, Musarò A, Salvetti M, Limatola C, Crisanti A, Grassi F. Noise Enhances Action Potential Generation in Mouse Sensory Neurons via Stochastic Resonance. PLoS One. 2016; 11:e0160950.
95. Baruffaldi F, Montarras D, Basile V, De Feo L, Badodi S, Ganassi M, Battini R, Nicoletti C, Imbriano C, Musarò A, Molinari S. Dynamic Phosphorylation of the MEF2Cα1 Splice Variant Promotes Skeletal Muscle Regeneration and Hypertrophy. Stem Cells. 2016 Sep 10. doi: 10.1002/stem.2495.
96. Zampieri S, Mammucari C, Romanello V, Barberi L, Pietrangelo L, Fusella A, Mosole S, Gherardi G, Höfer C, Löfler S, Sarabon N, Cvecka J, Krenn M, Carraro U, Kern H, Protasi F, Musarò A, Sandri M, Rizzuto R. Physical exercise in aging human skeletal muscle increases mitochondrial calcium uniporter expression levels and affects mitochondria dynamics. Physiol Rep. 2016; 4: e13005.
97. Scicchitano BM, Sica G, Musarò A. Stem Cells and Tissue Niche: Two Faces of the Same Coin of Muscle Regeneration. Eur J Transl Myol. 2016; 26:6125.
98. Coste CA, Mayr W, Bijak M, Musarò A, Carraro U. FES in Europe and Beyond: Current Translational Research. Eur J Transl Myol. 2016; 26(4):6369.
99. Marrocco V, Fiore P, Benedetti A, Pisu S, Rizzuto E, Musarò A, Madaro L, Lozanoska-Ochser B, Bouché M. Pharmacological Inhibition of PKCθ Counteracts Muscle Disease in a Mouse Model of Duchenne Muscular Dystrophy. EBioMedicine. 2017: S2352-3964(17)30001-4.
100. Giusto M, Barberi L, Di Sario F, Rizzuto E, Nicoletti C, Ascenzi F, Renzi A, Caporaso N, D'Argenio G, Gaudio E, Musarò A, Merli M. Skeletal muscle myopenia in mice model of bile duct ligation and carbon tetrachloride-induced liver cirrhosis. Physiol Rep. 2017
101. Petrillo S, Pelosi L, Piemonte F, Travaglini L, Forcina L, Catteruccia M, Petrini S, Verardo M, D'Amico A, Musarò A, Bertini E. Oxidative stress in Duchenne muscular dystrophy: focus on the NRF2 redox pathway. Hum Mol Genet. 2017; 26:2781-2790. doi: 10.1093/hmg/ddx173.
102. Rizzuto E, Pisu S, Nicoletti C, Del Prete Z, Musarò A. Measuring Neuromuscular Junction Functionality. J Vis Exp. 2017 Aug 6;(126). doi: 10.3791/55227.
103. Pelosi L, Forcina L, Nicoletti C, Scicchitano BM, Musarò A. Increased Circulating Levels of Interleukin-6 Induce Perturbation in Redox-Regulated Signaling Cascades in Muscle of Dystrophic Mice. Oxid Med Cell Longev. 2017; 2017:1987218. doi: 10.1155/2017/1987218.

104. Molinari F, Pin F, Gorini S, Chiandotto S, Pontecorvo L, Penna F, Rizzuto E, Pisu S, Musarò A, Costelli P, Rosano G, Ferraro E. The mitochondrial metabolic reprogramming agent trimetazidine as an 'exercise mimetic' in cachectic C26-bearing mice. J Cachexia Sarcopenia Muscle. 2017; 8(6):954-973. doi: 10.1002/jcsm.12226.
105. Scicchitano BM, Pelosi L, Sica G, Musarò A. The physiopathologic role of oxidative stress in skeletal muscle. Mech Ageing Dev. 2018; 170:37-44. doi: 10.1016/j.mad.2017.08.009.
106. Dobrowolny G, Martini M, Scicchitano BM, Romanello V, Boncompagni S, Nicoletti C, Pietrangelo L, De Panfilis S, Catizone A, Bouchè M, Sandri M, Rudolf R, Protasi F, Musarò A. Muscle Expression of SOD1G93A Triggers the Dismantlement of Neuromuscular Junction via PKC-Theta. Antioxid Redox Signal. 2018; 28:1105-1119. doi: 10.1089/ars.2017.7054.
107. Forcina L, Miano C, Musarò A. The physiopathologic interplay between stem cells and tissue niche in muscle regeneration and the role of IL-6 on muscle homeostasis and diseases. Cytokine Growth Factor Rev. 2018; 41:1-9. doi: 10.1016/j.cytogfr.2018.05.001.
108. Dobrowolny G, Lepore E, Martini M, Barberi L, Nunn A, Scicchitano BM, Musarò A. Metabolic Changes Associated with Muscle Expression of SOD1G93A. Front Physiol. 2018;9:831. doi: 10.3389/fphys.2018.00831.
109. Scicchitano BM, Dobrowolny G, Sica G, Musarò A. Molecular Insights into Muscle Homeostasis, Atrophy and Wasting. Curr Genomics. 2018;19(5):356-369. doi: 10.2174/1389202919666180101153911.
110. Ballarino M, Cipriano A, Tita R, Santini T, Desideri F, Morlando M, Colantoni A, Carrieri C, Nicoletti C, Musarò A, Carroll DO, Bozzoni I. Deficiency in the nuclear long noncoding RNA Charme causes myogenic defects and heart remodeling in mice. EMBO J. 2018 ;37. pii: e99697. doi: 10.15252/embj.201899697.
111. Rando A, de la Torre M, Martinez-Muriana A, Zaragoza P, Musaro A, Hernández S, Navarro X, Toivonen JM, Osta R. Chemotherapeutic agent 5-fluorouracil increases survival of SOD1 mouse model of ALS. PLoS One. 2019; 14 (1): e0210752. doi: 10.1371/journal.pone.0210752.
112. Forcina L, Miano C, Scicchitano BM, Musarò A. Signals from the Niche: Insights into the Role of IGF-1 and IL-6 in Modulating Skeletal Muscle Fibrosis. Cells. 2019 Mar 11;8(3). pii: E232. doi: 10.3390/cells8030232.
113. Musarò A, Dobrowolny G, Cambieri C, Onesti E, Ceccanti M, Frasca V, Pisano A, Cerbelli B, Lepore E, Ruffolo G, Cifelli P, Roseti C, Giordano C, Gori MC, Palma E, Inghilleri M. Neuromuscular magnetic stimulation counteracts muscle decline in ALS patients: results of a randomized, double-blind, controlled study. Sci Rep. 2019 Feb 26;9(1):2837. doi: 10.1038/s41598-019-39313-z.
114. Camerino GM, Fonzino A, Conte E, De Bellis M, Mele A, Liantonio A, Tricarico D, Tarantino N, Dobrowolny G, Musarò A, Desaphy JF, De Luca A, Pierno S. Elucidating the Contribution of Skeletal Muscle Ion Channels to Amyotrophic Lateral Sclerosis in search of new therapeutic options. Sci Rep. 2019 Feb 28;9(1):3185. doi: 10.1038/s41598-019-39676-3.
115. Ascenzi F, Barberi L, Dobrowolny G, Villa Nova Bacurau A, Nicoletti C, Rizzuto E, Rosenthal N, Scicchitano BM, Musarò A. Effects of IGF-1 isoforms on muscle growth and sarcopenia. Aging Cell. 2019 Jun;18(3):e12954. doi: 10.1111/acel.12954.
116. Forcina L, Miano C, Pelosi L, Musarò A. An Overview about the Biology of Skeletal Muscle Satellite Cells. Curr Genomics. 2019; 20(1):24-37. doi: 10.2174/1389202920666190116094736
117. Montagna C, Rizza S, Cirotti C, Maiani E, Muscaritoli M, Musarò A, Carrí MT, Ferraro E, Cecconi F, Filomeni G. nNOS/GSNOR interaction contributes to skeletal muscle differentiation and homeostasis. Cell Death Dis. 2019; 10(5):354. doi: 10.1038/s41419-019-1584-3.
118. Musarò A, Scicchitano BM. Counteracting sarcopenia: the role of IGF-1 isoforms. Aging (Albany NY). 2019 Jun 13;11(11):3410-3411. doi: 10.18632/aging.
119. Lepore E, Casola I, Dobrowolny G, Musarò A. Neuromuscular Junction as an Entity of Nerve-Muscle Communication. Cells. 2019 Aug 16;8(8). pii: E906. doi: 10.3390/cells8080906.
120. Rizzuto E, Peruzzi B, Giudice M, Urciuoli E, Pittella E, Piuzzi E, Musarò A, Del Prete Z. Detection of the Strains Induced in Murine Tibias by Ex Vivo Uniaxial Loading with Different Sensors. Sensors (Basel). 2019;19(23). pii: E5109. doi: 10.3390/s19235109.
121. Forcina L, Miano C, Scicchitano BM, Rizzuto E, Berardinelli MG, De Benedetti F, Pelosi L, Musarò A. Increased Circulating Levels of Interleukin-6 Affect the Redox Balance in Skeletal Muscle. Oxid Med Cell Longev. 2019; 2019:3018584. doi: 10.1155/2019/3018584.
122. Forcina L, Cosentino M, Musarò A. Mechanisms Regulating Muscle Regeneration: Insights into the Interrelated and Time-Dependent Phases of Tissue Healing. Cells. 2020; 9(5):1297. doi: 10.3390/cells9051297.
123. Musarò A. Muscle Homeostasis and Regeneration: From Molecular Mechanisms to Therapeutic Opportunities. Cells. 2020 Sep 4;9(9):2033. doi: 10.3390/cells9092033.
124. Conceição M, Forcina L, Wiklander OPB, Gupta D, Nordin JZ, Vrellaku B, McClorey G, Mäger I, Görgens A, Lundin P, Musarò A, Wood MJA, Andaloussi SE, Roberts TC. Engineered extracellular vesicle decoy receptor-mediated modulation of the IL6 trans-signalling pathway in muscle. Biomaterials. 2020 Oct 5;266:120435. doi: 10.1016/j.biomaterials.2020.120435.

125. García-Prat L, Perdiguero E, Alonso-Martín S, Dell'Orso S, Ravichandran S, Brooks SR, Juan AH, Campanario S, Jiang K, Hong X, Ortet L, Ruiz-Bonilla V, Flández M, Moiseeva V, Rebollo E, Jardí M, Sun HW, Musarò A, Sandri M, Sol AD, Sartorelli V, Muñoz-Cánoves P. FoxO maintains a genuine muscle stem-cell quiescent state until geriatric age. Nat Cell Biol. 2020 Oct 26. doi: 10.1038/s41556-020-00593-7.

C.1 Book chapters

1. Musarò A, Rosenthal N. Myofiber development and survival. In: Advances in Developmental biology and biochemistry, Volume 6 (Stem cells and cell signalling in skeletal myogenesis) Vol.11, Sassoon D. Editor; Paul M. Wassarman Series Editor, 2002.
2. Musarò A., Rosenthal N. Advances in stem cell research: use of stem cells in animal models of muscular dystrophy. In: In vivo models of inflammation, 2nd edition, Volume I. Edited by Stevenson/Marshall/Morgan. 2006; 103-123.
3. Musarò A, Giacinti C, Pelosi L, Scicchitano BM, Molinaro M. Cellular and molecular bases of muscle regeneration: the critical role of Insulin-like Growth Factor-1. In Molecular Biology and pharmacology of tissue repair. Editor Werner; Elsevier Editorial System(tm). Vol. 12:89-100, 2007.
4. Barberi L, Dobrowolny G, Pelosi L, Giacinti C, Musarò A. Muscle involvement and IGF-1 signaling in genetic disorders: new therapeutic approaches. Endocr Dev. 2009; 14:29-37.
5. Musarò A, Barberi L. Isolation and culture of mouse satellite cells. Methods Mol Biol. 2010; 633:101-11.
6. Musarò A, Carosio S. Isolation and Culture of Satellite Cells from Mouse Skeletal Muscle. Methods Mol Biol. 2017; 1553:155-167. doi: 10.1007/978-1-4939-6756-8_12.

D. Patents

1. Rosenthal N, Harvey RP, Palmer S, Musarò A, inventors; Novel molecules expressed during muscle development and genetic sequences encoding the same. (PCT/AU1999/000220).
2. Rosenthal N, Musarò A, Nadine Winn, inventors; IGF-1 novel peptides. (PCT/IB2005/003953.)
3. Osta Pinzolas R, Rando Zalduendo A, Toivonen J, Zaragoza P, Musarò A. Compositions for the treatment of motor neuron diseases. (PCT/ES2015/070896).