

Prof. SILVIA BRUNELLI

Date and place of birth: December 30th 1969, Milano.



University Education

1988-1992	MSc Biology <i>Cum Laude</i> , University of Milano (IT)
1994-1998	PhD in Cell and Molecular Biology. Open University (UK).

Professional Experience

1994-1997	PhD student, San Raffaele Scientific Institute, Milano (IT).
2008-2011	Marie Curie Research fellow, MRC-NIMR, London (UK).
1999-2001	MRC research associate, MRC-NIMR, London (UK).
2001-2005	Postdoctoral fellow, San Raffaele Scientific Institute, Milano (IT).
2005-2015	Researcher, University of Milano Bicocca, Milano (IT)
From 2015	Associate Professor, University of Milano Bicocca, Milano (IT)

Scientific Scope & Research Field

The large majority of my research activity has been dedicated to muscle development and physiopathology, focusing on muscle-specific signaling pathways and gene expression. I have acquired and developed essential tools, reagents and expertise to perform an in-depth study of muscle differentiation, maintenance and regeneration in transgenic animal models. Importantly, in the last years I have established a line of research on the crosstalk between the innate immune system and vessel associated progenitors in the muscle regenerating niche and generated new important murine tools for the study of these cell interactions in physiology and pathological fibrosis. My research work has been funded by several national and international agencies, including the H2020 program. The results of my activity are documented in **69 peer-reviewed publications (H-index: 35)**.

Since 2013, I am studying the cellular mechanism at the basis of heterotopic ossification (HO). I have contributed to the in vivo validation of a cell-based assays for the screening of an FDA-approved collection of drugs for their ability to down-regulate the expression of the ACVR1 gene at transcriptional level and I am currently exploring the crosstalk between vessel associated progenitors and the immune system in the onset and progression of HO.

Awards

- 2018: Eligibility for Full Professorship in: Applied Biology (05/F1).
- 2018: Eligibility for Full Professorship in: General Pathology (06/B1).
- 2018: Eligibility for Full Professorship in: Biomedical Technology (06/N1).
- 1998: Marie Curie Training Network IF fellowship (postgraduate)
- 1997: Marie Curie Training Network IF fellowship (undergraduate)

Research Training And Experience

- 1994-1997: PhD student (Open University-UK) In the lab of Prof Edoardo Boncinelli, at DIBIT-HSR, Milano. During this period she has identified EMX2 as a critical gene in the normal and abnormal development of the cerebral cortex with a correlation to the schizencephaly disease.
- August 1997- March 2001: EC fellow then MRC research associate (from 1999) in the laboratory of Dr. Robin Lovell-Badge, NIMR, London, UK. In these years, she first focused on studying the role of HMG containing transcription Sox3 gene in gastrulation and in the development of central nervous system.

- March 2001-January 2005: Postdoc scientist in the laboratory of Prof. Giulio Cossu, S.C.R.I., DIBIT-HSR, Milan, Italy. In these years she has focused on the myogenic differentiation mechanism of mesoangioblast stem cells in vivo and in vitro, and she has studied the molecular mechanisms leading to myogenesis in the embryo, identifying a new Wnt non-canonical pathway linking Pax3 to the the dorsal ectoderm-driven myogenesis. She has identified for the first time a novel gene, necdin, involved in the fate choice of mesoangioblasts and in the regenerative process in the skeletal muscle, a line of research that has been financed by Telethon. She has established a fruitful collaboration with Dr. Margaret Buckingham, at the Pasteur Institute, Paris.
- February 2005-March 2015: Assistant Professor, Dept. Experimental Medicine (now Department of Health Sciences) University of Milano-Bicocca, Milano. She has started her independent career focusing on molecular biology of development and stem cells, muscle regeneration and differentiation in physiological and pathological conditions, in particular in the muscular dystrophies.
- 2008-2015 she is also Group Leader of the unit of Functional Genetics of Muscle Regeneration, in the Division of Regenerative Medicine, Stem Cells and Gene Therapy, DIBIT, San Raffaele Scientific Institute.
- In collaboration with Prof. Giulio Cossu and Prof. Emilio Clementi, she has contributed to the identification of a new role for nitric oxide and later of mitochondria dynamics in myogenic differentiation, that has opened the field to new therapeutic strategies to muscle dystrophy, combining pharmacological and stem cell approaches. She has also started a collaboration with Dr. Patrizia Rovere-Querini at Dibit San Raffaele; by combining the immunological expertise of Dr. Rovere-Querini, with her own experience in muscle biology and stem cells, they have started a fruitful interaction that has opened a new line of research on how the native immunity influences muscle repair. In parallel she has established a line of research on the identification and activation of vessel associated progenitor in development and in muscle regeneration and neoangiogenesis, and the cross talk between innate immunity and the endothelial mesenchymal transition in the onset and progression of musculoskeletal disorders. She has an ongoing collaboration with Dr. Gabriella Minchiotti at IGB-Naples, on the role of Cripto in muscle regeneration.
- from April 2015: Associate Professor in Cell Biology, in the Department of Health Sciences, University of Milano Bicocca.
- from 2015: member of the Istituto Nazionale Biostrutture e Biosistemi-Consorzio Interuniversitario
- from 2018: Director of “Virgilio Program”, a program for training medical students as physician scientists in milan, funded by Fondazione Cariplo

Funding

- Marie Skłodowska-Curie Actions (MSCA) Innovative Training Networks (ITN)
H2020-MSCA-ITN-2019: REcreating the ideal Niche: environmental control Of cell Identity in Regenerating and diseased muscles. 4 years. **Coordinator of the network (13 partners) and PI.**
- Fondazione Cariplo **2018**: Childhood Acute Myeloid Leukemia (cAML): defining the cellular origins in the embryo and the pre-leukemic molecular signature. 3 years **Co-PI.**
- Fondazione Cariplo **2017**: The Virgilio Program: a pregraduate track for the training of physician scientists in Italy, 3years. **Co-PI.**
- Telethon GGP15196, **2015** New treatment strategies for Fibrodysplasia Ossificans Progressiva, 3yr **.co-Investigator**

- Fondazione Cariplo Ricerca Medica **2013** Role of cripto in orchestrating tissue remodelling in muscle damage. **Coordinator of the project (2 units) and Unit PI**
- Italian Ministry of University PRIN **2012** Identificazione di nuove molecole terapeutiche per le malattie muscolari orfane su base infiammatoria. **Unit PI**
- FP7-Health **2010** Endostem (241440): Activation of vasculature associated stem cells and muscle stem cells for the repair and maintenance of muscle tissue **Workpackage leader (6 units) and Unit PI**
- Association Française contre les Myopathies AFM **2009**: The role of iron handling by macrophages in the repair of muscle damage: relevance to muscle disorders. **Project Coordinator (3 units) and Unit PI**
- Italian Ministry of University PRIN **2008**: Controllo del potenziale rigenerativo del muscolo scheletrico da parte di fattori che influenzano l'attivazione e il reclutamento di cellule staminali. **Unit PI**
- Italian Ministry of Health -Ricerca Finalizzata **2008**: Optimization of pre-clinical models of cell therapy for muscular dystrophy. **Unit PI**
- Telethon **2007** GPGGP07013: Role of necdin in the differentiation and regeneration of the skeletal muscle: mechanism of action and application to the cell therapy of muscular dystrophy. **PI (Single unit)**
- Fondazione Cariplo Ricerca Medica **2007**: Ottimizzazione di un protocollo di terapia cellulare per la Distrofia Muscolare di Duchenne. **Unit PI**
- Fondazione Cariplo Ricerca Medica **2007**: Eterogeneità genetica nella sclerosi laterale amiotrofica ad esordio giovanile: meccanismi molecolari di degenerazione neuronale e muscolare, approccio di genomica e proteomic per l' identificazione di nuovi geni per la diagnostica delle malattie del motoneurone. **Unit PI**
- Italian Ministry of Health Progetto ex art 56 anno **2006**: Malattia del motoneurone: pathway molecolari e cellulari nella degenerazione neuronale e muscolare come causa di eterogeneita' clinica e genetica. **Unit PI**

Editorial activity

She is member of the editorial board of “Stem Cells International” and “Frontiers in Immunology”

Others

She has been invited to give seminars in several national and international research institutes and universities. She has been invited speaker in international and national meetings organized by; Associazione di Biologia Cellulare e del Differenziamento; the American Society for Cell Biology; the British Society for Developmental Biology; the International Society of in vivo Toxicology; FASEB Myogenesis.

She acts as reviewer for several national and international research grant agencies: Italian Ministry of Research (MIUR), Agence Nationale de la Recherche (France), AFM-Telethon (France), Fund for Scientific Research (FNRSFNRS, Belgium), Dutch Duchenne Parent Project, Innovational Research Incentives Scheme (Royal Netherlands Academy of Arts and Sciences), Czech Science Foundation, Heart Research UK, Muscular Dystrophy Campaign (USA), National Science Centre (Poland).

She acts as reviewers of several scientific journal, including Embo Molecular Medicine, Cell Death and Differentiation, FEBS Journal, Journal of Cell Science, Journal of Cachexia, Sarcopenia and Muscle, Molecular and Cellular Biology, Scientific Reports, PlosONE.

Patents

- Bianchi ME, Vénéreau EJ, Casalgrandi M, Brunelli S (2013). HMGB1 Variants and Uses thereof. US Provisional n. 61/676,071; PCT/EP2013/065829
- Cossu G, Clementi E, Brunelli S (2007). Method of treatment for muscular dystrophy. WO2007088050 - 2007-08-09.
- Clementi E, Cossu G, Brunelli S, Ongini E (2007). Use of nitrooxyderivative of drug for the treatment of muscular dystrophies. WO2007088123 - 2007-08-09

Publications 2010-2020

1. Iavarone F, Guardiola O, Scagliola A, Andolfi G, Esposito F, Serrano AL, Perdiguero E, **Brunelli S**, Munoz-Canoves P, and Minchiotti G. (2020) Cripto shapes macrophage plasticity and restricts EndMT in injured and diseased skeletal muscle. *EMBO Reports*. doi: 10.15252/embr.201949075
2. Tirone, M., Giovenzana, A., Vallone, A., Zordan, P., Sormani, M., Nicolosi, P. A., et al. (2019). Severe Heterotopic Ossification in the Skeletal Muscle and Endothelial Cells Recruitment to Chondrogenesis Are Enhanced by Monocyte/Macrophage Depletion. *Frontiers in Immunology*, 10, 2845–15. <http://doi.org/10.3389/fimmu.2019.01640>
3. Nicolosi, P. A., Tombetti, E., Giovenzana, A., Donè, E., Pulcinelli, E., Meneveri, R., et al. (2019). Macrophages Guard Endothelial Lineage by Hindering Endothelial-to-Mesenchymal Transition: Implications for the Pathogenesis of Systemic Sclerosis. *The Journal of Immunology*, ji1800883. <http://doi.org/10.4049/jimmunol.1800883>.
4. Tirone, M., Tran, N.L., Ceriotti, C., Gorzanelli, A., Caneparo, M., Bottinelli, R., Raucci, A., Di Maggio, S., Santiago, C., Mellado, M., Saclier, M., François, S., Careccia, G., He, M., De Marchis, F., Conti, V., Ben Larbi, S., Cuvellier, S., Casalgrandi, M., Preti, A., Chazaud, B., Yousef Al-Abed, Y., Messina, G., Sitia, G., Brunelli, S., Bianchi, M.E. and Vénéreau E. (2017) High Mobility Group Box 1 orchestrates tissue regeneration via CXCR4. *J Exp Med*. 2017 Dec 4. pii: jem.20160217. doi: 10.1084/jem.20160217.
5. Guardiola, O., Andolfi, G., Tirone, M., Brunelli, S., Minchiotti, G. Induction of Acute Skeletal Muscle Regeneration by Cardiotoxin Injection. *J. Vis. Exp.* (2017), e54515, doi:10.3791/54515 (2017).
6. Tirone M, Conti V, Manenti F, Nicolosi PA, D'Orlando C, Azzoni E, Brunelli S. (2016). Nitric Oxide donor molsidomine positively modulates myogenic differentiation of embryonic endothelial progenitors. *PLoS One*. 11(10):e0164893. doi: 10.1371/journal.pone.0164893.
7. Medici D, Muñoz-Cánoves P, Yang P-C, Brunelli S. (2016) Mesenchymal Transitions in Development and Disease. *Stem Cells International*. doi:10.1155/2016/5107517
8. Cappato S, Tonachini L, Giacomelli F, Tirone M, Galletta L.J.V., Sormani M, Giovenzana A, Spinelli AE, Canciani B, Brunelli S, Ravazzolo R, Bocciardi R. (2016). High throughput screening for modulators of ACVR1 transcription potentially the treatment of Fibrodysplasia Ossificans Progressiva. *Disease models and mechanisms*. doi/10.1242/dmm.023929
9. Nicolosi PA, Tombetti E, Maugeri N, Rovere-Querini P, Brunelli S and Manfredi AA (2016) Vascular Remodelling and Mesenchymal Transition in Systemic. *Stem Cells International*. doi.org/10.1155/2016/4636859
10. Valentina Conti, Anna Gandaglia, Francesco Galli, Mario Tirone, Elisa Bellini, Lara Campana, Charlotte Kilstrup-Nielsen, Patrizia Rovere-Querini, Silvia Brunelli, and Nicoletta Landsberger. (2015) MeCP2 Affects Skeletal Muscle Growth and Morphology through Non Cell-Autonomous Mechanisms. *PLoS ONE* 10:e0130183.

11. Touvier T, De Palma C, Rigamonti E, Scagliola A, Incerti E, Mazelin L, Thomas JL, D'Antonio M, Politi L, Schaeffer L, Clementi E, Brunelli S. Muscle-specific Drp1 overexpression impairs skeletal muscle growth via translational attenuation. (2015) *Cell Death Dis.* Feb 26;6: e1663. doi: 10.1038/cddis.2014.595
12. Dentice M, Ambrosio R, Damiano V, Sibilio A, Luongo C, Guardiola O, Yennek S, Zordan P, Minchiotti G, Colao A, Marsili A, Brunelli S, Del Vecchio L, Larsen PR, Tajbakhsh S, Salvatore D. Intracellular inactivation of thyroid hormone is a survival mechanism for muscle stem cell proliferation and lineage progression. (2014) *Cell Metab.* Dec 2;20(6):1038-48
13. Azzoni E, Conti V, Campana L, Dellavalle A, Adams RH, Cossu G and Brunelli S. Hemogenic endothelium generates mesoangioblasts that contribute to several mesodermal lineages in vivo (2014). *Development* 141:1821-1834;
14. Bosurgi L., Brunelli S, Rigamonti E, Monno A, Manfredi A, Rovere-Querini P. Vessel-associated myogenic precursors control macrophage activation and clearance of apoptotic cells. (2015) *Clinical and Experimental Immunology.* Apr 21. doi: 10.1111/cei.12356.
15. Rigamonti E, Zordan P, Sciorati C, Rovere-Querini P and Brunelli S. Macrophage plasticity in skeletal muscle repair (2014). *BioMed Research International.* Vol 2014. <http://dx.doi.org/10.1155/2014/560629>
16. Venturin M, Carra S, Gaudenzi G, Brunelli S, Gallo GR, Moncini S, Cotelli F, Riva P. ADAP2 in heart development: a candidate gene for the occurrence of Cardiovascular Malformations in NF1 Microdeletion Syndrome (2014). *Journal of Medical Genetics.* doi: 10.1136/jmedgenet-2013-102240
17. Zordan, P, Rigamonti, E, Freudenberg, K, Conti, V, Azzoni, E, Patrizia Rovere-Querini, P, Brunelli, S. Macrophages commit postnatal endothelium derived-progenitors to angiogenesis and restrict endothelial to mesenchymal transition during muscle regeneration. (2014). *Cell Death and Disease.* Jan 30;5:e1031
18. Rovere-Querini, P, Clementi, E, Brunelli, S. Nitric Oxide and muscle repair: multiple actions converging on therapeutic efficacy (2013). *European Journal of Pharmacology.* 730:181-5.
19. Cazzato, D, Assi, E, Moscheni, C, Brunelli, S, De Palma, S, Cervia, D, Perrotta, C, Clementi, E. Nitric Oxide drives embryonic myogenesis in chicken through the upregulation of myogenic differentiation factors (2013). *Experimental Cell Research.* 320(2):269-80
20. D'Orlando, C, Marzetti, E, François S, Lorenzi M, Conti V, Di Stasio E, Rosa F, Md, Brunelli S, Doglietto Gb, Pacelli F, Bossola M. Gastric cancer does not affect the expression of atrophy-related genes in human skeletal muscle. (2013). *Muscle Nerve* Jul 8. 49(4):528-33
21. Dormoy-Raclet, V, Cammas A, Celona B, Lian XI, Van Der Giessen K, Zivojnovic M, Brunelli S, Riuzzi F, Sorci G, Wilhelm G, Di Marco S, Donato R, Bianchi Me, Imed-Eddine Gallouzi I-E. (2013). HuR and miR-1192 regulate myogenesis by modulating the translation of HMGB1 mRNA. *Nature Communications.* 4:2388
22. Zordan P, Sciorati C, Campana L, Cottone L, Clementi E, Rovere-Querini P, Brunelli S. The Nitric Oxide-donor molsidomine modulates the innate inflammatory response in a mouse model of muscular dystrophy (2013). *European Journal of Pharmacology* 715(1-3):296-303
23. Rigamonti E, Touvier T, Clementi E, Manfredi A, Brunelli S, Rovere-Querini P. Requirement of inducible Nitric Oxide Synthase for skeletal muscle regeneration after acute damage. *Journal of Immunology* (2013). 190(4):1767-77.
24. Guardiola O, Lafuste P, Brunelli S, Iaconis S, Touvier T, Mourikis P, De Bock K, Lonardo E, Andolfi G, Bouché A, Liguori GI, Shen Mm Tajbakhsh S, Cossu G, Carmeliet P, Minchiotti G. Cripto regulates skeletal muscle regeneration and modulates satellite cell determination by antagonizing Myostatin. *Proc Natl Acad*

Sci U S A. (2012) 109(47):E3231-40. doi: 10.1073/pnas.1204017109. Epub 2012 Nov 5.

25. François S, D'Orlando C, Fatone T, Touvier T, Pessina P, Meneveri R, Brunelli S. Necdin enhances myoblasts survival by facilitating the degradation of the mediator of apoptosis CCAR1/CARP1. *PLoS One*. (2012);7(8):e43335.
26. D'Angelo MG, Gandossini S, Martinelli Boneschi F, Sciorati S, Bonato B, Brighina E, Comi Gp, Turconi Ac, Magri F, Stefanoni G, Brunelli S, Bresolin N, Cattaneo D, Clementi E. (2012). Nitric oxide donor and non steroidal anti inflammatory drugs as a therapy for muscular dystrophies: evidence from a safety study with pilot efficacy measures in adult dystrophic patients. *Pharmacol Res*. (2012) Apr;65(4):472-9. Epub 2012 Jan 25.
27. Bosurgi L, Corna G, Vezzoli M, Touvier T, Cossu G, Manfredi Aa, Brunelli S, Rovere-Querini P. Transplanted mesoangioblasts require macrophage IL-10 for survival in a mouse model of muscle injury. *J Immunol*. 2012 Jun15;188(12):6267-77. Epub 2012 May 9.
28. Buono R, Vantaggiato C, Pisa V, Azzoni E, Bassi Mt, Brunelli S, Sciorati C, Clementi E. Nitric oxide sustains long-term skeletal muscle regeneration by regulating fate of satellite cells via signaling pathways requiring Vangl2 and cyclic GMP. *Stem Cells*. (2012) Feb;30(2):197-209
29. Pessina P, Conti V, Tonlorenzi R, Touvier T, Meneveri R, Cossu G, Brunelli S. (2011). Necdin enhances muscle reconstitution of dystrophic muscle by vessel associated progenitors, by promoting cell survival and myogenic differentiation. *Cell Death And Differentiation*. 19(5):827-38
30. Dellavalle A, Maroli G, Covarello D Azzoni E, Innocenzi A, Perani L, Antonini S, Sambasivan R, Brunelli S, Tajbakhsh S, Cossu G. (2011). Pericytes resident in postnatal skeletal muscle differentiate into muscle fibres and generate satellite cells. *Nature Communications*. 2:499
31. Donati C, Marseglia G, Magi A, Serrati S, Cencetti F, Bernacchioni C, Nannetti G, Benelli M, Brunelli S., Torricelli F, Cossu G, Bruni P (2011). Sphingosine 1-Phosphate Induces Differentiation of Mesoangioblasts towards Smooth Muscle. A Role for GATA6. *Plos One*, vol. 6; p. e20389.
32. Sciorati C, Miglietta D, Buono R, Pisa V, Cattaneo D, Azzoni E, Brunelli S., Clementi E (2011). A dual acting compound releasing nitric oxide (NO) and ibuprofen, NCX 320, shows significant therapeutic effects in a mouse model of muscular dystrophy. *Pharmacological Research*, 64(3): 210-7.
33. Vezzoli M, Castellani P, Corna G, Castiglioni A, Bosurgi L, Monno A, Brunelli S., MANFREDI AA, RUBARTELLI A, ROVERE-QUERINI P (2011). HMGB1 release and redox regulation accompany regeneration and remodeling of skeletal muscle. *Antioxidants & Redox Signaling*,15(8):2161-74
34. Bentivegna A, Conconi D, Panzeri E, Sala E, Bovo G, Viganò P, Brunelli S., Bossi M, Tredici G, Strada G, Dalprà L (2010). Biological heterogeneity of putative bladder cancer stem-like cell populations from human bladder transitional cell carcinoma samples. *Cancer Science*, vol. 101; p. 416-424, ISSN: 1347-9032, doi: 10.1111/j.1349-7006.2009.01414.x
35. Corna G, Campana L, Pignatti E, Castiglioni A, Tagliafico E, Bosurgi L, Campanella A, Brunelli S., Manfredi Aa, Apostoli P, Silvestri L, Camaschella C, Rovere-Querini P (2010). Polarization dictates iron handling by inflammatory and alternatively activated macrophages. *Haematologica*, vol. 95; p. 1814-1822, ISSN: 0390-6078, doi: 10.3324/haematol.2010.023879
36. De Palma C, Falcone S, Pisoni S, Cipolat S, Panzeri C, Pambianco S, Pisconti A, Allevi R, Bassi Mt, Cossu G, Pozzan T, Moncada S, Scorrano L, Brunelli S., Clementi E (2010). Nitric oxide inhibition of Drp1-mediated mitochondrial fission is critical for myogenic differentiation. *Cell Death And Differentiation*, vol. 17; p. 1684-1696, ISSN: 1350-9047, doi: 10.1038/cdd.2010.48

37. Pessina P, Conti V, Pacelli F, Rosa F, Doglietto Gb, Brunelli S., Bossola M (2010). Skeletal muscle of gastric cancer patients expresses genes involved in muscle regeneration. *Oncology Reports*, vol. 24; p. 741-745, ISSN: 1021-335X
38. Sciorati C, Buono R, Azzoni E, Casati S, Ciuffreda P, D'angelo G, Cattaneo D, Brunelli S., Clementi E (2010). Co-administration of ibuprofen and nitric oxide is an effective experimental therapy for muscular dystrophy, with immediate applicability to humans. *BRITISH Journal Of Pharmacology*, vol. 160; p. 1550-1560, ISSN: 0007-1188, doi: 10.1111/j.1476-5381.2010.00809.x
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41. Gálvez BG, Covarello D, Tolorenzi R, Brunelli S., Dellavalle A, Crippa S, Salman M, Scialla L, Cuccovillo I, Molla F, Staszewsky L, Maisano F, Sampaolesi M, Latini R, Cossu G (2009). Human cardiac mesoangioblasts isolated from hypertrophic cardiomyopathies are greatly reduced in proliferation and differentiation potency. *Cardiovascular Research*, vol. 83; p. 707-716, ISSN: 0008-6363
42. Lagha M, Brunelli S., Messina G, Cumano A, Kume T, Relaix F, Buckingham M (2009). Pax3:Foxc2 Reciprocal Repression in the Somite Modulates Muscular versus Vascular Cell Fate Choice in Multipotent Progenitors. *Developmental Cell*, vol. 17; p. 892-899, ISSN: 1534-5807
43. Lolmede K, Campana L, Vezzoli M, Bosurgi L, Tonlorenzi R, Clementi E, Bianchi Me, Cossu G, Manfredi Aa, Brunelli S., Rovere-Querini P (2009). Inflammatory and alternatively activated human macrophages attract vessel-associated stem cells, relying on separate HMGB1- and MMP-9-dependent pathways. *Journal Of Leukocyte Biology*, vol. 2009; p. 779-787, ISSN: 0741-5400, doi: 10.1189/jlb.0908579
44. Sciorati C, Touvier T, Buono R, Pessina P, François S, Perrotta C, Meneveri R, Clementi E, Brunelli S. (2009). Necdin is expressed in cachectic skeletal muscle to physiologically protect fibers from tumor-induced wasting. *Journal Of Cell Science*, vol. 122; p. 1119-1125, ISSN: 0021-9533, doi: 10.1242/jcs.041665

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