CURRICULUM VITAE
HERMAN H. VANDENBURGH, Ph.D.

EDUCATION

Undergraduate:	Boston University, B.A. (Cum Laude with Distinction in Biology) 1970
Graduate:	University of Pennsylvania, Ph.D. (Anatomy) 1976

PREGRADUATE HONORS AND AWARDS

1971-1976	U.S. Public Health Service Research Traineeship (1970-71, 1973-1976)
1968-1970	Mayflower Society Scholarship
1969	Boston University- Brookhaven National Laboratory Honors Program
1966-1968	Boston University Trustee Scholarship

POSTGRADUATE TRAINING

2004-2006	NIH Ruth L. Kirschstein Senior NRSA, Harvard Univ.
1979-1981	Senior Staff Fellow, Laboratory of Neurochemistry, National Institutes of Health, Bethesda, MD
1976-1979	Staff Fellow, Laboratory of Neurochemistry, National Institutes of Health, Bethesda, MD

POSTGRADUATE HONORS AND AWARDS

2006	Keynote Speaker, 6th Annual S. Mouchly Small Muscle Apoptosis Symposium, Univ. Mass. (Amherst) USA
2006	Visiting Professor, Boston University School of Medicine 2005 Annual Rathbun Oration, UMinn USA
1996	Distinguished Lectureship, MIT Engineering in Medicine
1992	Honorary M.A. ad eundem, Brown University USA

PROFESSIONAL LICENSES AND BOARD CERTIFICATION

None

ACADEMIC APPOINTMENTS

2010 - Present	Emeritus Professor of Pathology and Laboratory Medicine, Brown University, Providence, RI USA
2004 - 2005	Visiting Professor, Division of Engineering and Applied Science, Harvard University, Cambridge, MA USA
2004 - 2006	Consulting Professor, Huazhong University, Wuhan, China
2003 - 2004	Guest Professor, Center for Transgene Technology and Gene Therapy, Katholieke Universiteit Leuven, Belgium
1997 - 2010	Professor (Research), Pathology, Mol. Pharm., Physiol., and Biotech., Brown University, Providence, RI USA
1994 - 1997	Associate Professor (Research), Mol. Pharm., Physiol., and Biotech., Brown University, Providence, RI USA
1991 - 1997	Associate Professor (Research), Pathology Brown University School of Medicine, Providence, RI USA
1981 - 1991	Assistant Professor (Research), Pathology Brown University School of Medicine, Providence, RI USA

HOSPITAL APPOINTMENTS

1981- 2010	Medical Staff, Dept. of Pathology and Laboratory Medicine, The Miriam Hospital, Providence, RI USA
1971-1973	Research Associate, Department of Pathology Pennsylvania Hospital, Philadelphia, PA USA

OTHER APPOINTMENTS

2012 – present	Consultant, Wyss Institute, Harvard Univ. Cambridge MA
2010 – 2012	CEO, Myomics, Inc., Providence, RI
2006 – 2007	Member, Am. Heart Assoc. Cardiovascular Grant Review Panel
2004 – 2006	Member, NASA's Institute for Advanced Concepts
2004 – 2006	Founder and Chief Scientific Officer, CellCure, Inc., Providence RI
2003 – 2010	Founder and Scientific Advisor, Myomics, Inc., Providence, RI
2001 - 2006	Board of Governors, Tissue Engineering Society International
2001 - 2004	Science Consultant, NASA Space Station Biological Research Project
1998 – 2003	Member, NASA Life Sciences Advisory Subcommittee, Washington, DC
1997 – 2002	Advisor, Natl. Acad. Public Admin., Washington, DC
1997- 2003	Founder and Chief Scientific Officer, Cell Based Delivery, Inc. Providence, RI
1996 - 2000	Member, Respiratory and Applied Physiology Study Section, NIH

1996 – 2000	Member, Rhode Island Center of Cellular Medicine, Providence, RI
1996 - 1998	Member, State of RI Biomedical Industry Cluster Working Group
1996 – 2001	Member, NASA Space Station Biological Research Project, Ames Research Center, Moffett Field, CA
1996	Advisor, National Research Council's Space Studies Board Committee on Space Biology and Medicine
1994	Ad hoc Member, Respiratory and Applied Physiology Study Section, NIH
1994	Co-Organizer, Am. Physiol. Soc. Conference "Responses of Cells and Tissues to Mechanical Forces" Sarasota, FL
1993	Co-Chair on Subgroup meeting on Cell Response to Mechanical Stimulation, Am. Soc. Cell Biol. Annual Meeting, New Orleans, LA
1992	Co-Chair on Subgroup meeting on Mechanical Stress Factors in Controlling Biological Processes, Am. Soc. Cell Biol. Annual Meeting, Denver, CO
1991	Co-Chair on Subgroup meeting on Mechanical Stress Factors in Controlling Biological Processes, Am. Soc. Cell Biol. Annual Meeting, Boston, MA
1989 – 1997	Founder and Scientific Director, Cell Kinetics, Inc., Providence, RI
1989 – 1988	Member, USDA Animal Growth and Develop. Panel
1986	Symposium Chairperson: In Vitro Methods for the Cellular Study of Neuromuscular Activity, Amer. College of Sports Med. Annual Meeting, Indianapolis, Indiana
Summer 1969	Laboratory Assistant in Biochemistry Brookhaven National Laboratory, Upton, NY
1968-1969	LaboratoryAssistant in Biochem., Boston U.

OTHER PROFESSIONAL ACTIVITIES

2006 – 2008	Member, Union Hospital Cardiovascular Bioengineering Gene Therapy Center, Wuhan, China
2004 - 2005	Organizing Committee, International Cardiovascular Target Therapy Forum, Tongji Medical College, Wuhan China
2002	Raised $11 million dollars in venture capitalist funds for Cell Based Delivery, Inc., Providence, RI
2001	NASA KC135 Parabolic Cell Biology Flight Experiment Johnson Space Center, Houston, TX
1998	NASA Space Shuttle STS95 Cell Biology Flight Experiment Kennedy Space Center (KSC), FL
1996	NASA Space Shuttle STS77 Cell Biology Flight Experiment, KSC
1996	NASA Space Shuttle Hyper-G/Vibration Simulation Experiment Ames Research Center, Moffett Field CA
1994	NASA Space Shuttle STS66 Cell Biology Flight Experiment, KSC

1981 – present Manuscript Reviewer: (1) Am. J. Physiol.; (2) Am. Inst. Biol. Sci.; (3) In Vitro; (4) J. Cell. Physiol.; (5) J. Neurol. Sci.; (6) Manitoba Health Res. Council; (7) Mol. Cell. Biol.; (8) J. Clin. Invest.; (9) Cell Transplantation; (10) J. Exp. Zool.; (11) Circulation; (12) J. Cell Biol.; (13) Exptl. Cell Res.; (14) Am. J. Path.; (15) Wellcome Trust, UK; (16) Tissue Engineering; (17) Nature; (18) Science (AAAS).

HOSPITAL COMMITTEES

1997 - 2002 Member, Lifespan Academic Council
1996 - 1997 Member, Lifespan Research Day Advisory Committee
1996 – 1999 Member, Lifespan Research Advisory Council
1994 – 2000 Member, The Miriam Hospital Research Advisory Council 1986-1990
Member, The Miriam Hospital Library Committee

UNIVERSITY COMMITTEES

2005 – 2008 Brown Univ. Parking Violations Appeals Board
2002 Brown University School of Medicine Search Committee for Director, Microbiology, The Miriam Hospital
2000 Brown University School of Medicine Search Committee for Cardiothorasic Surgery
1997- 2000 Promotions Committee, Department of Pathology, Brown Univ. Sch. Med.
1996 - 1999 Steering Committee for Brown University Sch. Med. – National Institutes of Health Grant HL07725 "Short Term Research Training for Minority Students"
1995 Brown University Faculty Search Committee, Dept. Mol. Pharm. and Biotechnology
1993 - 1995 Education Committee, Am. Soc. Grav. Space. Biol.
1992-1994 Member, Brown University Faculty Library Committee

MEMBERSHIP IN SOCIETIES

American Physiological Society
American Association for the Advancement of Science
American Society of Cell Biology
American Society for Gravitational and Space Biology
American Society of Gene Therapy
Tissue Culture Association
Tissue Engineering Society International
Union of Concerned Scientists

PATENTS AND COPYRIGHTS

2017	US Patent 9,610,328 “Enhancement of skeletal muscle stem cell engraftment by dual delivery of VEGF and IGF-1”
2013	US Patent Application A1 0217778 “Methods and compositions for the improvement of skeletal muscle function in a mammal”
2010	US Patent Application A1 0190165 “Methods of screening compounds for bioactivity in organized tissue”
2005	EPO No. 99907122.8 Issued Patent “Methods of Screening Compounds for Bioactivity in Organized Tissue”
2005	U.S. CIP Pending – “Methods of Screening Compounds for Bioactivity in Organized Tissue”
2004	U.S. Provisional Patent – “Tensioning Devise for the Transfer of Cells In Vivo”
2003	U.S. Divisional Patent No. 5,869,041 Pending “Delivery of Bioactive Compounds to An Organism”
2003	U.S. Patent 6,503,504 – “Delivery of Bioactive Compounds from Tissue Specimens” (CIP)
2002	U.S. Patent Pending “Methods of Screening Compounds for Bioactivity in Organized Tissue”
2000	Canada Patent No. 2,242,711 – “Delivery of Bioactive Compound to an Organism”
2000	Australia Patent No. 15311/97 – “Delivery of Bioactive Compound to an Organism”
1999	U.S. Patent Pending – “Devices and Methods for Delivery of a Bioactive Compound to an Organism”
1999	U.S. Patent Pending – “Compostions and Methods for Delivery of a Bioactive Compound to an Organism”
1999	U.S. and Europe Patent Pending – “Methods of Screening Compounds for Bioactivity in Organized Tissue”
1999	Europe Patent Pending - “Delivery of Bioactive Compounds from Tissue Specimens”
1999	U.S. Patent No. 5,869,041 – “Delivery of Bioactive Compounds from Tissue Specimens”
1998	Japan Patent issued – “Delivery of Bioactive Compounds to an Organism”
1992	U.S. Patent No. 5,153,136 – “Apparatus for Growing Tissue Specimens In Vitro”
1989	U.S. Patent No. 4,859,865 – “Tamper Resistant Radon Detector System”
1989	U.S. Patent No. 4,940,853 – “Method for Growing Tissue Specimens In Vitro”
1988	Software Copyright No. TXU 328-519 – “Mechanical Cell Stimulator Control Program”

PUBLICATIONS

(Peer-reviewed, partial list)

1. Zacks, S.I., Vandenburgh, H.H., and Sheff, M.F. (1973). Cytochemical and physical properties of myofiber external lamina. J. Histochem. Cytochem. 21, 895-901.
2. Vandenburgh, H.H., Sheff, M.F., and Zacks, S.I. (1974). Chemical composition of isolated rat skeletal sarcolemma. J. Membrane Biology 17, 1-12.
3. Vandenburgh, H.H. (1977). Separation of plasma membrane markers by glycerol-induced blistering of muscle cells. Biochim. Biophy. Acta. 466, 302-314.
4. Vandenburgh, H.H. and Kaufman, S. (1979). An *in vitro* model for stretchinduced hypertrophy of skeletal muscle. Science 203, 265-268.
5. Vandenburgh H.H. and Kaufman, S. (1980). Protein degradation in embryonic skeletal muscle. Effect of medium, cell type, inhibitors, and mechanical stretch. J. Biol. Chem. 255, 5826-5833.
6. Vandenburgh, H.H. and Kaufman, S. (1981). Stretch-induced growth of skeletal myotubes correlates with activation of the sodium pump. J. Cell Physiol. 109, 205-214.
7. Vandenburgh, H.H. (1982). Dynamic mechanical orientation of skeletal myofibers *in vitro*. Develop. Biol. 93, 438-443.
8. Vandenburgh, H.H. and Kaufman, S. (1982). Coupling of voltage-sensitive sodium channel activity to stretch-induced amino acid transport in skeletal muscle *in vitro*. J. Biol. Chem. 257, 13448-134454.
9. Vandenburgh, H.H. (1983). Cell shape and growth regulation in skeletal muscle: Exogenous versus endogenous factors. J. Cell. Physiol. 116, 363-371.
10. Vandenburgh, H.H. (1984). Relationship of muscle growth *in vitro* to Na pump activity and transmembrane potential. J. Cell. Physiol. 119, 283-291.
11. Vandenburgh, H.H. and Lent, C.M. (1984). Tetraphenyl-phosphonium as a measure of transmembrane potential in avian myotubes in tissue culture. J. Cell. Physiol. 119, 291-295.
12. Vandenburgh, H.H., Sheff, M.F., and Zacks, S.I. (1984). Soluble age-related factors from skeletal muscle which influence muscle development. Exptl. Cell Res. 153, 389-401.
13. Vandenburgh, H.H. (1987). Motion into mass: How does exercise stimulate muscle growth? Med. Sci. Sports Med. 19, S142-149.
14. Vandenburgh, H.H., Karlisch, P., and Farr, L. (1988). Maintenance of highly contractile skeletal myotubes in collagen gels. In Vitro Cell. Dev. Biol. 24, 166174.
15. Vandenburgh, H.H. (1988). A computerized mechanical cell stimulator for tissue culture: Effects on skeletal muscle organogenesis. In Vitro Cell. Dev. Biol. 24, 609-619.
16. Hatfaludy, S., Shansky, J., and Vandenburgh, H.H. (1989). Metabolic alterations induced in cultured skeletal muscle by stretch/relaxation activity. Am. J. Physiol. 256, C175-C181.

17. Vandenburgh, H.H., Hatfaludy, S., and Shansky, J. (1989). Skeletal muscle growth is stimulated by intermittent stretch/relaxation in tissue culture. Am. J. Physiol. 256, C674-C682.
18. Vandenburgh, H.H. and Karlisch, P. (1989). Longitudinal growth of skeletal muscle in a new horizontal mechanical cell stimulator. In Vitro Cell. Dev. Biol. 25:607-616.
19. Vandenburgh, H.H., Hatfaludy, S., Sohar, I., and Shansky, J. (1990). Stretchinduced prostaglandins and protein turnover in cultured skeletal muscle. Am. J. Physiol. 256, C232-C240.
20. Sammuel, J.-L., and Vandenburgh, H.H. (1990) Mechanically-induced orientation of adult rat cardiac myocytes *in vitro*. In Vitro Cell. Dev. Biol. 26, 905-914.
21. Vandenburgh, H.H., Karlisch, P., Shansky, J., and Feldstein,R. (1991) Insulin and insulin-like growth factor-1 induce pronounced hypertrophy of skeletal myofibers in tissue culture. Am. J. Physiol. 260, C475-C484.
22. Vandenburgh, H.H., Swasdison, S., and Karlisch, P. (1991) Computer aided mechanogenesis of skeletal muscle organs from single cells *in vitro*. FASEB J. 5, 2860-2867. (Cover Article)
23. Vandenburgh, H.H. (1992) Mechanical forces and their second messengers in stimulating cell growth *in vitro*. Am. J. Physiol. 262, R350-R355.
24. Vandenburgh,H.H., Hatfaludy,S., P. Karlisch, and J. Shansky (1991) Mechanically induced alterations in cultured skeletal muscle growth. J. Biomech. 24, 91-101.
25. Chromiak, J.A. and Vandenburgh, H.H. (1992) Glucocorticoid-induced skeletal muscle atrophy *in vitro* is attenuated by mechanical stimulation. Am. J. Physiol. 262, C1471-C1477.
26. Vandenburgh, H.H., Shansky,J., Karlisch,P., and Solerssi,R. (1993) Mechanical stimulation of skeletal muscle generates lipid-related second messengers by phospholipase activation. J. Cell. Physiol. 155, 63-71.
27. Chromiak, J.A. and Vandenburgh, H.H. (1994) Mechanical stimulation of skeletal muscle mitigates glucocorticoid-induced decreases in prostaglandin production and prostaglandin synthase activity. J. Cell Physiol 159.407-414.
28. Vandenburgh, H.H., Shansky, J., Solerssi, R., Chromiak, J. (1995) Mechanical stimulation of skeletal muscle *in vitro* increases prostaglandin $F_{2\alpha}$ synthesis and Physiol.163, 285-294.
29. Perrone, C.E., Fenwick-Smith, D., Vandenburgh, H.H. (1995) Collagen and stretch modulate autocrine secretion of insulin-like growth factor-1 and its binding proteins from differentiated skeletal muscle cells. J. Biol. Chem. 270, 2099-2106.
30. Vandenburgh, H.H., Solerrsi, R., Shansky, J., Adams, J., Henderson, S. (1996) Mechanical stimulation of organogenic cardiomyocyte growth *in vitro*., Am. J. Physiol. 270, C1284-C1292.
31. Vandenburgh,H.H., Del Tatto, M., Shansky, J., LeMaire, J., Chang, A., Payumo, F., Lee, P., Goodyear, A., and Raven, L. (1996) Tissue engineered skeletal muscle organoids for reversible gene therapy. Human Gene Therapy 7, 21952200.
32. Shansky, J., Del Tatto, M., Chromiak, J., and Vandenburgh, H. (1997) A simplified method for the *in vitro* tissue engineering of skeletal muscle organoids. In Vitro Cell. Dev. Biol. 33, 659-661.

33. Musch, M.W., Davis, E.M., Vandenburgh H.H., Goldstein, L. (1998) Hypotonicity stimulates translocation of ICln in neonatal rat cardiac myocytes. P. Fulgers Archiv. 436, 415-422.
34. Chromiak, J., Shansky, J., Perrone, C. and Vandenburgh, H.H. (1998) Bioreactor perfusion system for the long term maintenance of tissue engineered skeletal muscle organoids. In Vitro Cell. Dev. Biol. 34, 694 - 703.
35. Vandenburgh, H., Del Tatto, M., Shansky, J., Goldstein, L., Russell, K, Genes, N., Chromiak, J., and Yamada, S. (1998) Attenuation of skeletal muscle wasting with recombinant human growth hormone secreted from a tissue engineered bioartificial muscle. Human Gene Therapy 9, 2555-2564.
36. Powell, C., Shansky, J., Del Tatto,M., Forman, D. Hennessey, J., Sullivan, Zielinski, B. and Vandenburg, H. (1999) Tissue Engineering Human BioArtificial Muscles Expressing Recombinant Human Growth Hormone. Human Gene Therapy 10, 565-577.
37. Vandenburgh, H.H., Chromiak, J., Shansky, J., LeMaire, J., Del Tatto, M.(1999) Space Travel Directly induces skeletal muscle atrophy. FASEB J.13,1031-1038.
38. Lu, Y; Shansky, J.; Del Tatto, M.; Ferland, P.; Wang, X.; and Vandenburgh, H. (2001) Recombinant Vascular Endothelial Growth Factor Secreted from Tissue Engineered Muscles Promotes Localized Angiogenesis. Circulation 104, 594599.
39. Hennessey, J.V., Chromiak, J.A., Della Ventura, S., Reinert,S.E., Puhl, J., Kiel, D.P., Rosen, C.J., Vandenburgh, H.H., and Maclean, D.B. (2001) Growth hormone administration and/or exercise effects on muscle fiber type and diameter in the moderately frail elderly. J. Am. Geriatr. Soc. 49, 852-858.
40. Lu, Y.; Shansky, J.; Del Tatto, M.; Ferland, P.; McGuire, S.; Marszalkowski, J.; Maish, M.; Hopkins, R.; Wang, X.; Kosnik, P.; Nackman, M.; Lee, A.; Creswick, B.; Vandenburgh, H. (2001) Therapeutic potential of implanted tissue-engineered bioartificial muscles delivering recombinant proteins in the sheep heart. Ann. N.Y. Acad. Sci. 961, 78-82.
41. Payumo,F.C., Kim, H.D., Sherling, M.A., Smith, L.P., Keeping, H.S., Valentini, R.F., Vandenburgh, H.H. (2002) Tissue engineering skeletal muscle for orthopaedic applications. Clin. Orthopaed. and Related Res.403S, S228-S242.
42. Powell, C.A., Smiley, B.L., Mills, J., and Vandenburgh, H. (2002) Mechanical stimulation improves tissue engineered human skeletal muscle. Am. J. Physiol., Cell Physiol 283, C1557-C1565.
43. Shansky, J., Creswick, B., Lee, Wang, X., and Vandenburgh, H. (2006) Paracrine release of insulin-like growth factor-1 from a bioengineered tissue stimulates skeletal muscle growth in vitro. Tissue Engineering 12 (7), 1833-41.
44. Van Damme, A., Thorrez, L., VandenDriessche, T., Ling, M., Vandenburgh, H., Eyckmans, J., Dell'Accio, F., DeBari, C., Luyten, F., Lillicrap, D., Collen, D., and Chuah, M.K.L. (2006) Efficient lentiviral transduction and improved engraftment of human bone marrow mesenchymal cells. Stem Cells 24 (4), 896-907.
45. Thorrez,L.; Vandenburgh,H.; Callewaert,N.; Mertens,N.; Shansky,J.; Wang,L.; Arnout,J.; Collen,D.; Chuah,M.; VandenDriessche,T. (2006) Angiogenesis Enhances Factor IX Delivery and Persistence from Retrievable Human Bioengineered Muscle Implants Mol. Therapy 14 (3), 442-51.

46. Mooney DJ, Vandenburgh H. (2008) Cell delivery mechanisms for tissue repair. Cell Stem Cell 2(3), 205-13.
47. Boontheekul T, Kong HJ, Hsiong SX, Huang YC, Mahadevan L, Vandenburgh H, Mooney DJ. (2008) Faraday Discuss.139, 53-70.
48. Yung YC, Vandenburgh H, Mooney DJ. (2009) Cellular strain assessment tool (CSAT): precision-controlled cyclic uniaxial tensile loading. J Biomech. 42(2):178-82.
49. Vandenburgh H, Shansky J, Benesch-Lee F, Skelly K, Spinazzola JM, Saponjian Y, Tseng BS. (2009) Automated drug screening with contractile muscle tissue engineered from dystrophic myoblasts. FASEB J. 23(10):3325-34.
50. Vandenburgh, H. (2010) High-content drug screening with engineered musculoskeletal tissues. Tissue Eng Part B 16(1):55-64.
51. Borselli C, Storrie H, Benesch-Lee F, Shvartsman D, Cezar C, Lichtman JW, Vandenburgh HH, Mooney DJ. (2010) Functional muscle regeneration with combined delivery of angiogenesis and myogenesis factors. Proc Natl Acad Sci U.S.A.107(8):3287-92.
52. Serra C, Bhasin S, Tangherlini F, Barton ER, Ganno M, Zhang A, Shansky J, Vandenburgh HH, Travison TG, Jasuja R, Morris C. (2011) The role of GH and IGF-I in mediating anabolic effects of testosterone on androgen-responsive muscle. Endocrinology 152(1):193-206.
53. Guo X, Gonzalez M, Stancescu M, Vandenburgh HH, Hickman JJ. (2011) Neuromuscular junction formation between human stem cell-derived motoneurons and human skeletal muscle in a defined system. Biomaterials 32(36): 9602-11.
54. Borselli C, Cezar CA, Shvartsman D, Vandenburgh HH, Mooney DJ. (2011) The role of multifunctional delivery scaffold in the ability of cultured myoblasts to promote muscle regeneration. Biomaterials 32(34): 8905-14.
55. Wang L, Shansky J, Borselli C, Mooney D, Vandenburgh H. (2012) Design and fabrication of a biodegradable, covalently crosslinked shape-memory alginate scaffold for cell and growth factor delivery.Tissue Eng Part A 18(19-20): 2000-7.
56. Wang L, Shansky J, Vandenburgh H. (2013) Induced formation and maturation of acetylcholine receptor clusters in a defined 3D bio-artificial muscle. Mol Neurobiol. 48(3): 397-403.
57. Lee PH, Vandenburgh HH. (2013) Skeletal muscle atrophy in bioengineered skeletal muscle: a new model system. Tissue Eng Part A 19(19-20):2147-55.
58. Guo X, Greene K, Akanda N, Smith A, Stancescu M, Lambert S, Vandenburgh H, Hickman J. (2014) In vitro Differentiation of Functional Human Skeletal Myotubes in a Defined System. Biomater Sci. 2(1):131-138.
59. Wang L, Cao L, Shansky J, Wang Z, Mooney D, Vandenburgh H. (2014) Minimally invasive approach to the repair of injured skeletal muscle with a shape-memory scaffold. Mol Ther. 22(8):1441-9.

60. Shvartsman D, Storrie-White H, Lee K, Kearney C, Brudno Y, Ho N, Cezar C, McCann C, Anderson E, Koullias J, Tapia JC, Vandenburgh H, Lichtman JW, Mooney DJ. (2014) Sustained delivery of VEGF maintains innervation and promotes reperfusion in ischemic skeletal muscles via NGF/GDNF signaling. Mol.Ther. 22(7):1243-53.
61. Cezar CA, Kennedy SM, Mehta M, Weaver JC, Gu L, Vandenburgh H, Mooney DJ. (2014) Biphasic ferrogels for triggered drug and cell delivery. Adv. Healthc. Mater. 3(11):1869-76.
62. Smith AS, Long CJ, Pirozzi K, Najjar S, McAleer C, Vandenburgh HH, Hickman JJ. (2014) A multiplexed chip-based assay system for investigating the functional development of human skeletal myotubes in vitro. J Biotechnol. 20;185:15-8. doi: 10.1016/j.jbiotec.2014.05.029.
63. Gholobova D, Decroix L, Van Muylder V, Desender L, Gerard M, Carpentier G, Vandenburgh H, Thorrez L. (2015) Endothelial Network Formation Within Human Tissue-Engineered Skeletal Muscle. Tissue Eng Part A. 21(19-20):2548-58.
64. Kennedy S, Hu J, Kearney C, Skaat H, Gu L, Gentili M, Vandenburgh H, Mooney D. (2016) Sequential release of nanoparticle payloads from ultrasonically burstable capsules. Biomaterials 75:91-101.
65. Cezar CA, Roche ET, Vandenburgh HH, Duda GN, Walsh CJ, Mooney DJ. Biologic-free mechanically induced muscle regeneration. (2016) Proc Natl Acad Sci USA.113(6):1534-9.
66. Rosenfeld D, Landau S, Shandalov Y, Raindel N, Freiman A, Shor E, Blinder Y, Vandenburgh HH, Mooney DJ, Levenberg S. (2016) Morphogenesis of 3D vascular networks is regulated by tensile forces. Proc Natl Acad Sci U S A 113(12):3215-20.
67. Cezar CA, Arany P, Vermillion SA, Seo BR, Vandenburgh HH, Mooney DJ (2017) Adv Healthc Mater. 6(19). doi: 10.1002/adhm.201700202.
68. Kennedy S, Roco C, Déléris A, Spoerri P, Cezar C, Weaver J, Vandenburgh H, Mooney D. (2018) Improved magnetic regulation of delivery profiles from ferrogels. Biomaterials 161:179-189. doi: 10.1016/j.biomaterials.2018.01.049.
69. Thorrez L, DiSano K, Shansky J, Vandenburgh H. (2018) Engineering of Human Skeletal Muscle With an Autologous Deposited Extracellular Matrix. Front Physiol. 20;9:1076. doi: 10.3389/fphys.2018.01076.
70. Gholobova D, Gerard M, Terrie L, Desender L, Shansky J, Vandenburgh H, Thorrez L. (2019) Coculture Method to Obtain Endothelial Networks Within Human Tissue-Engineered Skeletal Muscle. Methods Mol Biol.1889:169-183. doi: 10.1007/978-1-4939-8897-6_10.
71. Najjar SA, Smith AST, Long CJ, McAleer CW, Cai Y, Srinivasan B, Martin C, Vandenburgh HH, Hickman JJ. (2020) A multiplexed in vitro assay system for evaluating human skeletal muscle functionality in response to drug treatment. Biotechnol Bioeng. 117(3):736-747. doi: 10.1002/bit.27231.
72. Fraeye I, Kratka M, Vandenburgh H, Thorrez L. (2020) Sensorial and Nutritional Aspects of Cultured Meat in Comparison to Traditional Meat: Much to Be Inferred.

Front Nutr. 24;7:35. doi: 10.3389.

OTHER PUBLICATIONS

(partial list)

1. Vandenburgh, H.H. and Kaufman, S. (1980). *In vitro* skeletal muscle hypertrophy and Na pump activity. In Plasticity of Muscle (D. Pette, ed.). Walter de Gruyter, Berlin. pp. 493-506.
2. Vandenburgh. H.H. and Kaufman, S. (1981). Short and long-term modification of skeletal muscle sodium pump activity and muscle protein turnover. In Adv. Physiol. Sci. 24, Mechanism of Muscle Adaptation to Functional Requirements. (F. Guba, G. Marechal, and O. Takacs, eds.) Akademiai Kiado, Budapest, pp. 291-304.
3. Vandenburgh, H.H. and Kaufman, S. (1983). Stretch and skeletal muscle myotube growth. What is the physical to biochemical linkage? In Frontiers of Exercise Biology (Borer, K., D.W. Edington, and T.P. White, eds.) Human Kinetics Pub., Champlain, IL, pp. 71-84.
4. Vandenburgh, H.H., Hatfaludy, S., Karlish, P., and Shansky, J. (1989), Mechanically-induced alterations in cultured skeletal myotube growth. In The Dynamic State of Muscle Fibers (D. Pette, ed.), Walter de Gruyter, Berlin, pp 151-164.
4. Shansky, J. Karlisch, P., and Vandenburgh, H.H. (1993) Skeletal muscle mechanical cell stimulator. In Protocols in Cell and Tissue Culture (J.B. Griffiths, A.Doyle, and G. Newell, eds.), John Wiley and Sons Limited, Chichester, 11B:9.1-11B:9.7.
5. Vandenburgh, H.H., Solerssi, R., Shansky, J., Adams, J.W., Henderson, S.A., and LeMaire, J. (1995) Response of neonatal rat cardiomyocytes to repetitive mechanical stimulation *in vitro*. Ann. N.Y. Acad. Sci. 752, 19-31.
6. Vandenburgh, H.H., Shansky, J., Del Tatto, M., and Chromiak, J. (1998) Organogenesis of skeletal muscle in tissue culture in Methods in Molecular Medicine, Vol. 18: Tissue Engineering Methods and Protocols. (J.R. Morgan and M.L. Yarmush, eds.), Humana Press, Totowa, NJ, pp. 217-227.
7. Powell, C., Shanksy, J., DelTatto, M., Vandenburgh, H.H. (2001) Bioartificial Muscles in Gene Therapy in Methods in Molecular Medicine, Vol. 69: Gene Therapy Protocols (J.R. Morgan, Editor) Humana Press, Totowa, NJ. , pp. 149-1 160.
8. Vandenburgh,H.H. (2002) Functional Assessment and Tissue Design of Skeletal Muscle Ann. N. Y. Acad Sci. 961, pp. 201- 202.
9. Kosnik,P.E., Dennis, R.G., and Vandenburgh, H.H. (2003) Tissue engineering skeletal muscle. In Functional Tissue Engineering: The Role of Biomechanics (F. Guilah et. Al. , Editors), pp. 377 – 392.
10. Vandenburgh, H.H. (2006) Bioengineered muscle constructs and tissue-based therapy for cardiac disease. In Progress in Pediatric Cardiology (G.K. Lofland, Editor) 21, pp. 167-171.

11. Shansky, J., Ferland, P., McGuire, S., Powell, C., DelTatto, M., Nachman, M., Hennessey, J. and Vandenburgh, H.H. (2006) Tissue engineering human skeletal muscle for clinical applications. In Culture of Cells for Tissue Engineering (G. Vunjak and I. Freshney, Editors), pp. 239-257.
12. Thorrez, L. and Vandenburgh, H. (2019) The quest for clean meat – significant scientific challenges still exist. Nature Biotech. 37, 215–216 Commentary.

ABSTRACTS

(partial list)

1977 to 1990 - 28 Abstracts not listed

1. Samuel, J-L., Dubus, I., and Vandenburgh, H.H. (1991) Mechanically -induced orientation of adult rat cardiac myocytes. J. Mol. Cell. Card. 22 (Suppl. IV), S55.
2. Chromiak, J.A., and Vandenburgh, H.H. (1991) Intermittent mechanical stretchrelaxation of cultured skeletal muscle reduces glucocorticoid-induced atrophy. Med. Sci. Sports Exerc. 23, S3.
3. Vandenburgh, H.H., Shansky, J., Karlisch,P., and Solerssi, R.L. (1991) Mechanogenic second messengers in stretch-induced skeletal muscle growth. 8th Int. Biochem. Exerc. 1, 47.
4. Vandenburgh, H.H., Chromiak, J.A., Shansky, J., Solerssi, R.L., Twiss, C., Fiore, G., and Kim, E. (1991) Improvements in a tissue culture mechanical cell stimulator for studies on skeletal muscle growth and atrophy. ASGSB Bulletin 5, 35 (Abstract).
5. Vandenburgh, H.H., Karlisch, P., and Solerssi, R.L. (1991) Insulin and insulin-like growth factor-1 stimulation of myofiber growth *in vitro* is enhanced by mechanical activity. J. Cell Biol. 115, 221a.
6. Chromiak, J.A. and Vandenburgh, H.H. (1991) Mechanical stimulation of cultured skeletal muscle reduces glucocorticoid-induced decreases in myosin heavy chain and fibronectin synthesis rates. J. Cell Biol. 115, 179a.
7. Chromiak, J.A., Vandenburgh, H.H., Shansky, J., Solerssi, R. (1992) Repetitive mechanical stimulation of tissue cultured skeletal muscle mitigates glucocorticoid-induced decreases in $PGF_{2\alpha}$ synthesis and prostaglandin H synthase activity. Physiologist 35, 213.
8. Vandenburgh, H.H., Solerssi, R., and Fenwick-Smith, D. (1992) Insulin-like growth factor-1 as an anabolic regulator of tension-induced skeletal muscle growth ASGSB Bulletin 6, 93a.
9. Vandenburgh, H.H., Shansky, J., and Solerssi, R. (1992) Mechanical stimulation of skeletal muscle *in vitro* increases prostaglandin $F_{2\alpha}$ synthesis and cyclooxygenase activity by a pertussis toxin-sensitive mechanism. Mol. Biol. Cell 3, 244a.
10. Vandenburgh, H.H., Solerssi, R., Henderson, S., and Adams, J. (1993)

Repetitive stretch of neonatal rat cardiomyocytes *in vitro* stimulates their rate of binucleation. Conf. on Mol. Biol. of the Normal, Hypertrophied, and Failing Heart, 38a.

11. Chromiak, J.A., and Vandenburgh, H.H. (1993) Regulation of skeletal muscle protein turnover *in vitro* by anabolic/androgenic steroids. ASGSB Bulletin 7, 98.(Abstract)
12. Vandenburgh, H.H., Solerssi, R., Shansky, J., LeMaire, J., Twiss, C., Silas, R., Henderson, S., and Adams, J. (1993) Stretch *in vitro* stimulates the organogenic growth of rat neonatal heart cells. Mol. Biol. Cell 4, 236A
13. Lugo, C.P., Fenwick-Smith, D., and Vandenburgh, H.H. (1993) Collagen, but not stretch, stimulates autocrine secretion of insulin-like growth factor 1 and insulinlike growth factor 1 binding proteins in avian pectoralis muscle cells. Mol. Biol. Cell 4, 128A.
14. Chromiak, J.A., and Vandenburgh, H.H. (1994) Anabolic/androgenic steroids alter protein turnover of tissue cultured skeletal muscle. Med. Sci. Sports Exerc. 24.
15. Vandenburgh, H.H., Solerssi, R., Shansky, J., Adams, J., and Henderson,S.A. (1994) Stretch-induced alterations in DNA synthesis and binucleation in neonatal rat cardiac cell cultures. NATO Advanced Research Workshop on Cardiac Growth and Regeneration, 21.
16. Vandenburgh, H.H., Solerssi, R., and Shansky, J. (1994) Mechanical forces and heart cell growth *in vitro*. Second World Congress of Biomechanics II, 21A.
17. Chromiak, J.A., Perrone, C., Shansky, J., Rudio, K., Twiss, C., and Vandenburgh, H.H. (1994) Developmental studies for examining the effects of microgravity on skeletal myofibers in the space tissue loss (STL) module. ASGSB Bulletin 7, 22A.
18. Vandenburgh, H.H., Perrone, C., LeMaire, J., and Shansky, J. (1995) Regulation of cell growth and growth factor release on elastic biopolymers. 22nd Int. Sympos. on Controlled Release of Bioactive Materials 22, 139-140.
19. Vandenburgh, H.H., Shansky, J., LeMaire, J. and Payumo, F. (1995) Applied mechanical forces stimulate three-dimensional muscle organogenesis *in vitro*. Second Int. Conf. on Cellular Engineering, In Press.
20. Vandenburgh, H., Chromiak, J., Shansky, J., LeMaire, J., Perrone,C., Rudio,K., Twiss, C. (1995) Space flight induces atrophy of tissue cultured skeletal myofibers. ASGSB Bulletin 9, 62
21. Shansky, J. Chromiak, J, and Vandenburgh, H.H. (1995) G protein expression in cultured avian skeletal muscle: Effects of developmental age and mechanical stimulation. Mol. Biol. of the Cell 6, 352a.
22. Vandenburgh, H.H., Shansky, J., Chromiak, J., LeMaire, J., Payumo, F. and Del Tatto, M. (1996) Mechanoregulation of muscle development. J. Cell. Biochem. In Press.
23. Vandenburgh,H.H., Del Tatto, M., Shansky, J., LeMaire, J., Chang, A., Payumo, F., Lee, P., Goodyear, A., and Raven, L. (1996) Tissue engineered skeletal muscle organoids for reversible gene therapy. In Vitro 32, 53A.
24. Vandenburgh, H.H., Chromiak, J., Shansky, J., and Del Tatto, M. (1996) Initial International Space Station (ISS) definition studies for examining the effects of

long-term space travel on tissue cultured mammalian skeletal myofibers. ASGSB Bulletin 10, 52A.

25. Vandenburgh, H.H. (1996) Tissue engineering skeletal muscle organs by mechanical forces. ASME Transactions, 122.
26. Vandenburgh,H.H., Chromiak, J.A., Shansky, J., Del Tatto, M. (1996) Effects of space travel on cell metabolism and protein turnover of skeletal muscle cells. Am. Soc. Cell. Biol. Mtg.- Special Session (1996), H59.
27. Vandenbugh, H.H., Chromiak, J., Yamada, S., Del Tatto, M., Shansky, J., Goldstein, L. (1997) Tissue engineering skeletal muscle organoids secreting rhGH attenuate skeletal muscle disuse atrophy. Keystone Symp. on Molecular and Cellular Biology of Gene Therapy, 71.
28. Vandenburgh, H.H., Del Tatto, M., Shansky, J. (1997) Bioartificial skeletal muscle as a platform for long term delivery of growth hormone. Artif. Organs 21 ,534.
29. Payumo, F.C., Kim H., Sherling, M., Smith L., Keeping, H.S., Valentini, R., Drozdoff V., and Vandenburgh, H.H. (1997) Expression of recombinant human bone morphogenetic protein-6 in C_2C_{12} myoblasts. Artif. Organs 21 ,496.
30. Powell, C., Shansky, J., Vandenburgh, H.H. (1997) Engineering of human bioartificial skeletal muscle for delivery of therapeutic molecules. Artif. Organs 21 ,496.
31. Vandenburgh, H.H. (1997) Direct effect of space travel on skeletal myofibers. Symp. Intl. Soc. for Adaptive Medicine, 59.
32. Powell,C., Shansky, J., Del Tatto, M., Vandenburgh, H. (1997) Tissue engineering and genetic modification of human skeletal myoblasts Mol. Biol. Cell, In Press.
33. Brown, T.D., Pedersen, D.R., Vandenburgh, H.H. (1998) Nutrient medium reactive stresses in a cell culture mechanostimulus apparatus in which a deformable substratum is tented by vertical motions of an underlying central post. 44th Annual Meeting, Orthopaedic Research Society, March 1998.
34. Vandenburgh, H.H., Shansky, J., Del Tatto, M., Powell, C. (1998) Mechanical Regulation in the development of engineered muscle tissue. Thirty-fifth Annual Meeting of Soc. Cryobiology.
35. Powell, C., Shansky, J., Del Tatto, M., Forman, D.E., Hennessey, J., Zielinski, B.A., Vandenburgh, H.H. (1999) Tissue engineered human bioartifical muscles (BAMs) expressing recombinant human growth hormone for gene therapy. Keystone Mtg.,Molecular and Cellular Biology of Gene Therapy, 41.
36. Shansky,J., DelTatto,M., Vandenburgh, H. (1999) Reversible long term delivery or erythropoietin from a tissue engineered bioartificial muscle. Keystone Mtg.,Molecular and Cellular Biology of Gene Therapy, 42.
37. Vandenburgh, H.H., Shansky, J., Del Tatto, M., Lee, P., Meir, J. (1999) Tissue engineered skeletal myofibers can directly ‘sense’ gravitational force changes. Center for Advanced Studies in the Space Life Sciences Workshop.
38. Shansky, J., DelTatto, M., Vandenburgh, H.H., (1999) Reversible long term delivery orferythroietin from a tissue engineered bioartificial muscle. Keystone Mtg., Molecular and Cellular Biology of Gene Therapy, 42.

39. Vandenburgh, H.H., Shansky, J., Del Tatto, M., Powell, C. (1999) Mechanical forces in the development of three dimensional straited muscle tissue. Society for Biomaterials Workshop.
40. Lu, Y., Shansky, J., Smiley, B., Vandenburgh, H.H., (2000) Tissue-Engineered Bioartificial Muscles Deliver Biologically Active rhVEGF Keystone Symposium, Gene Therapy; The Next Millennium, 224.
41. Shansky, J. Ferland, P., Powell, C., Lee, P., Lu, Y. Vandenburgh, H.H. (2000) Generation of Retroviral Vectors for *Ex Vivo* Muscle Gene Therapy American Society of Gene Therapy Annual Meeting, 937.
42. Powell, C., Smiley, B., Vandenburgh, H.H. (2000) Novel Techniques for Measuring Tension Development on Organized Tissue Constructs FASEB J14, A444.
43. Ferland, P., DelTatto, M., Shansky,, J., Lee, P., Vandenburgh, H.H. (2000) Optimization of foreign protein secretion from stably transduced adult primary mouse skeletal myoblasts. American Society of Gene Therapy Annual Meeting, 860.
44. DelTatto, M., Ferland, P., Shansky, J., Vandenburgh, H.H. (2000) Murine skeletal muscle cells tissue engineerd for gene therapy. FASEB J14, A445, 320.
45. Smiley, B., Powell, C., Vandenburgh, H.H. (2000) Bioengineering of human bioartifical muscle in vitro using computer controlled mechanical stimulation. 22nd International IEEE/EMBS Conference, Abstract.
46. Powell, C., Smiley, B., Vandenburgh, H.H. (2000) Mechanical stimulation of human bioartificial muscle improves muscle morphology. Tissue Engineering Society International. Abstract
47. Lee, P.H.U., Wang, X.Y.; Vandenburgh, H. (2000) Long term in vivo delivery of recombinant human insulin-like growth factor-1 by tissue engineered skeletal muscle implants for treating disuse atrophy in mice. ASGSB Bulletin 2000. Abstract.
48. Lee, P.H.U., Creswick, B.C., Nachman, M., Wang, X.Y.; Vandenburgh, H. (2002) Tension reduction induces skeletal muscle atrophy in a novel in vitro ground based model that can be attenuated by high levels of insulin. ASGSB Bulletin 2002. Abstract.
49. Nackman, M, Del Tatto, M., Shansky, J., Ferland, P., Creswick, B., Kosnik, P., Valentini, R., and Vandenburgh, H. (2002) Continuous Perfusion of Tissue Engineered Bioartificial Muscle Increases Protein Output. Tissue Engineering International. Abstract.
50. Vandenburgh, H.H. (2002) Chronic delivery of anabolic growth factors using a reversible cell-based gene therapy approach. NIA Workshop on GH/IGF1 and Aging Tissues. Abstract
51. Vandenburgh, H., Shansky, J., and Ferland, P. (2002) Tissue engineered skeletal muscle for hemophilia gene therapy. Cold Spring Harbor Symopsium on Tissue Engineering. Abstract.
52. Vandenburgh, H. (2003) Adult stem cells and gene therapy. Keystone Symopsium on Stem Cell Biology. Abstract.
53. Vandenburgh, H.H. (2003) Adult skeletal muscle satellite cells and gene therapy. FASEB Summer Conference on Skeletal Muscle. Abstract.

54. Shansky, J., Borland, K., Ferland, P., DelTatto, M., Napoleone, L., and Vandenburgh, H.H. (2003) Tissue engineered human skeletal muscle for hemophilia A gene therapeutics. Tissue Eng. Soc. Int. Annual Mtg. Abstract.
55. Shansky, J. and Vandenburgh, H. (2004)Stimulation of skeletal muscle growth by the paracrine release of IGF1 from an engineered tissue. Am. Soc. Grav. Space Biol. Annual Mtg. Abstract.
56. Vandenburgh, H., Thorrez, L., Collen, D., Shansky, J., VandenDriessche, T., and Chuah, M. (2004) Long term transgene expression in vivo following implantation of adult human skeletal muscle stem cells transduced with lentiviral vectors. Tissue Eng. Soc. Int. Annual Mtg. Abstract on CD.
57. Thorrez, L., Vandenburgh, H., Collen, D., Shansky, J., VandenDriessche, T., and Chuah, M. (2005) Enhanced Factor IX Delivery from Bioengineered Hybrid Human Skeletal Muscle Co-Expressing VEGF. Am. Soc. Gene Therapy 8th Annual Mtg, Abstract on CD.
58. VandenDriessche, T., Thorrez, L., Acosta-Sanchez, A., Wany, L., Gillijns, V., Ling, M., Vandenburgh, H., Mertens, N., Callewaert, N., Wilson, J., Collen, D., Chuah, M. (2006) Widespread and efficient gene delivery to the heart and liver using AAV serotype 9: Implications for cardiovascular disease and hemophilia. Am. Soc. Gene Therapy. Abstract, Annual Meeting.

INVITED PRESENTATIONS - 1989 to 2006

1989-91
1. NHLB Workshop, Bethesda, MD
2. Tissue Culture Association Annual Meeting, Orlando, FL
3. Institute for Cell Biology, Zurich, Switzerland
4. Symposium on Dynamic State of Skeletal Muscle, Konstanz, Germany
5. INSERM, Paris, France
6. N.E. Muscular Dystrophy Association Annual Meeting Boston, MA
7. NASA Musculoskeletal Symposium - Palo Alto, CA
8. UCLA - Los Angeles, CA
9. World Congress on Lung Health, Boston, MA

1992
10. Gordon Conference, New London, NH
11. Univ. Pennsylvania, Philadelphia, PA
12. First World Congress on Biomechanics, La Jolla, CA
13. Int. Symposium on Cardiomyopathy, Tokyo, Japan
14. Int. Biochem. of Exercise Conf., Nagoya, Japan

1993
15. Am. Soc. Cell Biol., Boston, MA

16. Int. Soc. for Heart Res., Burlington, VT
17. Geisenger Clinic, Danville, PA
18. Depart. Biophysics, SUNY, Buffalo, NY

1994
19. Am. College Sports Med. Annual Mtg., Indianapolis, IN
20. Univ. Nev., Reno, NV
21. Second World Congress on Biomech., Amsterdam, The Netherlands
22. AAMI Cardiovascular Science and Tech., Washington, DC.

1995
23. APS Conf. "Mechanotransduction and Regulation of Growth and Differentiation", Sarasota, FL
24. New England MDA Clinic, Providence, RI
25. New England Am. College Sports Med. Conf., Boston, MA
26. Am. Thoracic Soc.Annual Mtg., Seattle, WA
27. Controlled Release Soc. Annual Mtg., Seattle, WA
28. Int. Conf. IEEE Mtg., Montreal, Canada

1996
29. Keystone Symp. on Tissue Eng., Taos, NM
30. Center for Eng. in Medicine, Mass. Gen. Hosp., Boston, MA 31. Marine Biological Laboratory, Woods Hole, MA
32. Am. Soc. Mech. Eng., Atlanta, GA.

1997
33. Univ. Utah, Salt Lake City, UT
34. Internat. Soc. Art. Organs, Providence, RI
35. Harvard Univ., Boston, MA
36. Fifth Int. Cong. Adapt. Med., Framingham, MA
37. Am. Soc. Grav. Space Biol., Washington, DC
38. Regeneron, Inc. Tarrytown, NY
39. CHUV, Lausanne, Switzerland
40. Pittsburgh Tissue Eng. Initiative, Pittsburgh, PA

1998
41. Int. Workshop on Mol. Cell Biol. In Space, Leuven, Belgium
42. Soc. Cryobiol., Pittsburgh, PA
43. UCLA, Los Angeles, CA
44. NIH Grantees Meeting, Bethesda, MD
45. NASA Life Science Workshop, Moffett Field, CA

1999
46. NASA Space Biomedical Investigator's Workshop, Houston, TX
47. Soc. BioMaterials, Providence, RI
48. Center for Advanced Studies in Space Life Sciences Workshop, Woods Hole, MA
48. Cell and Tissue BioProcessing Conference, Alexandria, VA

2000
49. TEBMIS Meeting, NIH, Bethesda, MD

50. Experimental Biology 2000, San Diego, CA
51. NSF Force Transduction in Biology Workshop, Arlington, VA
52. Functional Tissue Engineering Workshop, Tampa, FL
53. Pittsburgh Orthopaedic Tissue Engineering Symposium, Pittsburgh,PA

2001
54. St. Elizabeth's Medical Center/Tufts Univ. Sch. Med. Boston, MA
55. NASA Cell Science Conference, Houston TX
56. Engineering Tissue Growth Conference, Pittsburgh, PA
57. New York Medical College, Valhalla, NY
58. National Institute of Aging Workshop, Louisville, KY
59. National Institute of Standards and Technol. Workshop, Rockville, MD
60. NIH BECON Symposium, Bethesda, MD
61. Assoc. Bone and Joint Surg. Workshop, Tampa, FL

2002
62. NASA Cell Science Conference, Palo Alto, CA
63. Space Biology on Early Space Station Workshop, Mountain View, CA
64. NIH Aging Systems Biology Meeting, Lansdowne, VA
65. NIH National Advisory Council on Aging , Bethesda, MD
66. Transcatheter Cardiovascular Therapeutics 2002, Washington, DC
67. Cold Spring Harbor Tissue Engineering Meeting, CSH, NY
68. Tissue Engineering Society International Mtg, Kobe, Japan
68. Am. Society of Cell Biology Annual Mtg, San Francisco, CA

2003
69. Keystone Stem Cell Biology Mtg., Steamboat Springs, CA
70. Experimental Biology 2003, San Diego, CA
71. University of Michigan, Ann Arbor, MI
72. FASEB Summer Research Conference, Tucson, AZ

2004
73. Harvard University, Cambridge MA
74. Univ. Conn. Storrs CT
75. Huazhong University, Wuhan, China

2005
76. FASEB Summer Research Conference, Tucson, AZ
77. Huazhong University, Wuhan, China
78. Tenth Int. Symposium on Blood Substitutes, Providence, RI
79. Univ. Minn. Annual Rathbun Oration

2006
80. Boston Univ. Depart. Medicine
81. Univ. Mass. Amherst Muscle Apoptosis Symposium
(Keynote Speaker)
82. Bioengineering Symposium, Brown Univ., Dept. Engineering
83. Department of Pediatrics, Women and Infants Hospital, Providence
84. Department of Pathology, Research Grand Rounds, Brown Med. Sch.

GRANTS AND CONTRACTS

2012 – 2017 Co-Investigator (Mooney, D.J., PI) NIH R01DE013349-15
"Engineering skeletal muscle with biodegradable hydrogels"

2009-2012 Principal Investigator NIH 1 R44 NS059098-02
"High content drug screening for muscular dystrophy"

2008-2011 Principal Investigator NIH 1 R43 HL093939
"High content drug screening with cardiac tissue"

2007 – 2012 Co-Investigator (Mooney, D.J., PI) NIH 2 R01 DE013349-07
"Engineering skeletal muscle with biodegradable hydrogels"

2007 – 2010 Principal Investigator NSF IIB-072444
"Physiologic high throughput screening of bioengineered tissues"

2007 – 2010 Principal Investigator NIH 1 R43 AG029705-01
"Adult human skeletal muscle stem cells for functional repair"

2006 - 2007 Principal Investiggator NSF SBIR Phase 1 0610721
"Physiologic high throughput screening of bioengineered tissues"

2006 – 2007 Principal Investigator, NIH Grant R41AR053386
"Electromechanical micropost array to detect in vitro muscle contraction"

2006 – 2007 Principal Investigator, NIH Grant R43 Phase 1 SBIR
"In Vitro Matrix-Cell Interaction in Bioartificial Muscle"

2005 – 2007 Principal Investigator, Slater Technology Funding of Myomics, Inc.

2004 – 2006 Fellowship, NIH Senior National Service Research Award, Harvard Univ. "Vascularization of Tissue Engineered Skeletal Muscle"

2001 – 2003 Investigator, DARPA N66001-01-C-8004
"Bioartificial Muscles as Force Generators"

2000-2003 Principal Investigator, National Institute of Standards and Technology, Advanced Technology Program. 70NANB9H3011
"Bioartificial Muscle Implants for Sustained Protein Delivery"

1998-2007 Principal Investigator, NASA Life Sciences Grant NCC2-1062
"Effect of Space Travel on Skeletal Myofibers"

1998-2003 Principal Investigator, National Institutes of Health R01 HL60502
"Tissue Engineered Myofibers for Gene Therapy"

1998-2002 Principal Investigator, National Institutes of Health R01 AG15415
"Bioartificial Muscles for Gene Therapy"

1999-2001 Principal Investigator, National Institutes of Health R44 AG14958
"Attenuation of Muscle Wasting with Growth Hormone"

1998-1999 Principal Investigator, NASA Subcontract NCC2-1062
"Science Evaluation of the Cell Culture Unit for the International Space Station"

1998-2001 Principal Investigator, NASA Life Sciences Grant NAG2-1205
"Growth factors and Tension-Induced Skeletal Muscle Growth"

1997-1998 Principal Investigator, National Institutes of Health R43 AG14958

"Attenuation of Muscle Wasting with Growth Hormone

1995-1998 Principal Investigator, NASA Life Sciences Grant NAGW-4674 "Growth Factor Involvement in Tension-Induced Skeletal Muscle Growth"

1994-1998 Principal Investigator, NASA Life Sciences Grant NAG2-914 for Shuttle Flight Experiments "Effects of Space Travel on Skeletal Myofibers"

1994-1996 Co-Investigator, National Institutes of Health Grant R01 AG10942 "Growth Hormone and/or Exercise for the Frail Elderly"

1989-1996 Principal Investigator, National Institutes of Health R01 AR39998 "Prostaglandins and Skeletal Muscle Hypertrophy In Vitro"

1986-1995 Principal Investigator NASA Life Sciences NAG2-414 "Growth Factor Involvement in Tension-Induced Skeletal Muscle Growth"

1993-1997 Consultant for research projects at UCLA, Univ IL., Univ. Nev., INSERM (Paris), Weiss Center for Research, Brown University Section of Artificial Organs, Cytotherapeutics, Inc., Rhode Island Hospital

1992-1997 Grant Mentor, National Institutes of Health HL07725 Short Term Research Training for Minority Students

1992 Principal Investigator, The Miriam Foundation "Molecular Mechanisms by which Mechanical Forces Stimulate Cardiac Hypertrophy: A New Model System"

1988-1989 Principal Investigator, National Institutes of Health BRSG S07 RR05818 "Skeletal Muscle Development In Vitro: New Model System"

1985-1989 Principal Investigator, National Institutes of Health R01 AR36266 "Skeletal Muscle Development In Vitro: New Model System"

1982-1985 Principal Investigator, National Institutes of Health BRSG S07 RR05818" Skeletal Muscle: Activity Versus Growth"

1981-1985 Principal Investigator, National Institutes of Health R01 NS16753 "Regulation of Skeletal Muscle Growth and Atrophy"

UNIVERSITY TEACHING ROLES

2000-2010 Bio 194 Contractility of Muscle lectures

1995-2010 EN297/298 Engineering Graduate Mentor in Research and Design for Master's degree in Bioengineering - 1 student/year

1995-2010 Member, Brown University M.D.-Ph.D. Graduate Training Program

1994-2010 Member, Graduate Program in Mol. Pharm., Physiol., and Biotech.

1994-1996 Course developer and course leader in Brown Univ. course BIO120 "Pathophysiology of Vital Organs" (advanced undergraduate and graduate) - 12-18 students/year

Student Evaluation of Teacher [Rated on a scale of 1 (poor) to 5 (excellent)]:

1994 - 4.67
1995 - 4.37
1996 - 4.28

1992 - 2010 Summer mentor for minority college students - 1 student/year

1991- 2010 Regular lectures in Brown Univ. courses: Bioeng EN122 "Neuroengineering" (undergraduate), Biomed 283 "Topics in Pathobiology" (graduate), and Biomed 285 "Introduction to Research in Pathobiology" (graduate) - 30-50 students/year

1989-2010 Member, Brown Univ. Graduate Program in Pathobiology

1988-2010 Postdoctoral Fellows trained - 10

1981-2010 Bio 195/196 - 30 undergraduate independent study students - 1 to 3 students per year; 6 completed Honors Thesis projects

HOSPITAL TEACHING ROLES

1981 - 2010 Trainer, Classical High School Internship Program - 1-2 student/year

1981 - 2010 Trainer, Rhode Island College Work-Study Program - 1 student/year

1981 – 2010 Participant, The Miriam Hospital Volunteer Program - 1 student/year