

# CURRICULUM VITAE

Revised: 10/19/2020

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4. Current Titles and Affiliations:
  - a. Academic Appointments
    - i. Primary Appointments:  
  
Department Chair and Professor with tenure, Wallace H. Coulter Department of Biomedical Engineering, Emory University School of Medicine and Georgia Tech College of Engineering, 2017 – present
    - ii. Secondary Appointments:  
  
Professor Emeritus, University of Pennsylvania, 2018 – present
  - b. Other Administrative Appointments
    1. Director, Coulter Translational Program (now Biolocity), 2017 – present
    2. Director, Georgia Concussion Research Consortium, 2018 – present
5. Previous Academic and Professional Appointments:
  1. Instructor, Department of Physiology & Biophysics, Mayo Medical School, 1989 – 1990
  2. Research Associate, Thoracic Diseases Division, Mayo Clinic & Foundation, 1990 – 1992
  3. Assistant Professor, Department of Physiology & Biophysics, Mayo Medical School, 1990 – 1993
  4. Associate Consultant, Thoracic Diseases Division, Mayo Clinic & Foundation, 1992 – 1993

5. Assistant Professor of Bioengineering, Department of Bioengineering, School of Engineering and Applied Science, University of Pennsylvania, 1993 – 1998
6. Associate Professor of Bioengineering, Department of Bioengineering, School of Engineering and Applied Science, 1998 – 2004
7. Associate Professor of Neurosurgery (Secondary Appointment), Department of Neurosurgery, Perelman School of Medicine, University of Pennsylvania, 2002 – 2004
8. Professor of Bioengineering, Department of Bioengineering, School of Engineering and Applied Science, University of Pennsylvania, 2004 – 2017
9. Professor of Neurosurgery (Secondary Appointment), Department of Neurosurgery, Perelman School of Medicine, University of Pennsylvania, 2004 – 2017

6. Previous Administrative and/or Clinical Appointments:

a. University of Pennsylvania

1. Chair, Bioengineering Department Graduate Examinations, 1993 – 1996
2. Chair, Bioengineering Department Graduate Publications, 1993 – 1994
3. Chair, Bioengineering Graduate Recruiting, 1995 – 2003, 2006 – 2007, 2013 – 2014
4. Director, Bioengineering Confocal/Multiphoton Imaging Facility, School of Engineering and Applied Science, 1999 – 2011
5. Director, Bioengineering Professional Development Series, 2001 – 2002
6. Chair, Bioengineering Graduate Admissions, 2006 – 2007
7. Chair, Bioengineering Graduate Group, 2007 – 2010
8. Chair, Bioengineering Graduate Group, Department of Bioengineering, School of Engineering and Applied Science, 2007 – 2010
9. Faculty Diversity Search Advisor, Department of Bioengineering, 2013 – 2015
10. Co-Director, Penn Pathways Program for Faculty Development, 2013 – 2017
11. Director, National Science Foundation (NSF) Penn Pathfinders Program for Doctoral Student Career Development, 2015 – 2018
12. Chair, Bioengineering Undergraduate Program, 2016 – 2017

7. Education:

Bachelor of Science in Engineering (BSE), Mechanical and Aerospace Engineering, Princeton University, 1978 – 1982

Master of Science in Engineering (MSE), Bioengineering, University of Pennsylvania, 1982 – 1983

PhD, Bioengineering, University of Pennsylvania, 1983 – 1987

8. Postgraduate Training:

Research Fellow, Thoracic Diseases Division, Mayo Clinic & Foundation, 1987 – 1989,  
Supervisor: Dr. Joseph Rodarte

Senior Research Fellow, Thoracic Diseases Division, Mayo Clinic & Foundation, 1989 – 1990,  
Supervisor: n/a

9. Committee Memberships:

a. National and International:

1. Chair, Biomedical Engineering Society (BMES) Membership Committee, 2004 – 2008
2. Respiration Section Delegate to Joint Committee, American Physiological Society (APS), 2006 – 2009
3. Chair, APS Respiration Section Programming Committee, 2006 – 2009
4. Member, APS Respiration Section Awards Committee, 2006 – 2009
5. Member, BMES Executive Director Search Committee, 2008
6. Member, BMES Publications Committee, 2008 – 2016
7. Co-Chair, American Institute for Medical and Biological Engineering (AIMBE) Women in Medical and Biological Engineering (WIMBE) Committee, 2009 – 2014
8. Member, BMES `Diversity Committee, 2009 – 2015
9. Member, AIMBE Programming Committee, 2010 – 2011
10. Officer & Member, US National Committee on Biomechanics Executive Committee, 2010 – present (officer from 2016 – 2024, involving a 2-year rotation in each of four positions: Secretary, Vice-Chair, Chair, & Past-Chair)
11. Member, AIMBE Special Committee to Revise College of Fellows Election Process, 2011 External Review Committee, Georgia Tech Bioengineering Interdisciplinary PhD Program, 2011
12. Member, AIMBE Director Search Committee, 2012
13. Member, BMES National Meetings Committee, 2012 – 2015
14. Member, Institute of Medicine Committee on Sports-Related Concussions in Youth, 2013
15. Chair, BMES Publications Committee, 2014 – 2016
16. Member, The World Council for Biomechanics, 2014 – 2016
17. Secretary-General, The World Council for Biomechanics, 2014 – 2018
18. Vice Chair, Publications Policy Committee, American Thoracic Society, 2016 – 2017
19. Chair, BMES Communications Committee, 2016 – 2018
20. Secretary-Treasurer (and future President-Elect), US National Committee on Biomechanics, 2016 – 2024
21. Treasurer, The World Council for Biomechanics, 2018 – 2022
22. Member, University of Virginia BioCore Evaluation Metric Committee, 2018
23. Member, AIMBE Diversity and Inclusion Committee, 2018 – present

24. Member, Long Range Planning Committee of the Council of Chairs of BMES, 2018 – present
25. Member, BMES Executive Director Search Committee, 2019 – 2020
26. Member, Evaluation Committee for NIH NCI Innovative Molecular Analysis Technologies (IMAT) program, 2020
27. Chair-Elect, College of Fellows, AIMBE 2020 – 2021
28. Member, National Academy of Engineering Nominating Committee, 2021

b. Regional:

1. Member, Georgia Clinical & Translational Science Alliance Advisory Committee, 2018 – present
2. Principal Member, GeorgiaALIVE Steering Committee, 2020 – present

c. Institutional:

i. University of Pennsylvania

1. Member, Bioengineering Graduate Group, 1993 – 2017
2. Bioengineering Department Chair Search Committee, 1994 – 1996
3. SEAS Academic Performance Committee (Chair 1999-2000), 1994 – 2000
4. School of Medicine Committee for Appointments and Promotion subcommittee, 1999 – 2000
5. SEAS Standing Committee on Academic Freedom and Responsibility, 1999 – 2011
6. Chair, Bioengineering Faculty Search Committee, 2000 – 2001
7. SEAS Dean's Committee to Evaluate SEAS Undergraduate Curriculum, 2001
8. Provost's Strategic Planning Committee –Life Sciences, 2001 – 2002
9. Alternate, Provost's Council on Research, 2001 – 2014
10. Executive Committee, Graduate Genomics and Computational Biology Graduate Group, 2002 – 2005
11. Bioengineering faculty mentoring committees, Chair (2 committees) Member (4 committees), 2003 – 2017
12. Provost's Committee – Teaching Preparation for Graduate Students, 2004 – 2005
13. SEAS Personnel Committee, 2004 – 2007
14. Consultative Committee to the Dean of Penn's School of Veterinary Medicine, 2005
15. Penn University Council, Committee on Admissions and Financial Aid, 2005 – 2006
16. Bioengineering Department Chair Search Committee, 2005 – 2007
17. Provost's Classroom Renovations Committee, 2005 – 2011
18. Provost's Animal Resources Review Committee, 2006 – 2007
19. Clinical Services Department Chair Search Committee, Penn's School of Veterinary

- Medicine, 2006 – 2007
20. University's Conflict of Interest Standing Committee, 2006 – 2008
  21. Faculty Oversight Committee, Advancing Women in Engineering (AWE) Program, 2007 – 2017
  22. Children's Hospital of Philadelphia (CHOP) Critical Care Division Chief Search Committee, 2007 – 2008
  23. Faculty Senate Committee on Faculty Development, Diversity, and Equity, 2007 – 2011
  24. Bioengineering Faculty Search Committee, 2007 – 2017
  25. University of Pennsylvania Provost Search – President's Consultative Committee, 2008 – 2009
  26. Center for Teaching and Learning Associate Director Search Committee, 2008 – 2010
  27. Neurosurgery Brain-Machine Interface Faculty Search Committee, 2008 – 2011
  28. Trustees Council of Penn Women Award Selection Committee, 2009 – 2010
  29. Vice-President, Penn Forum for Women Faculty, 2009 – 2014
  30. Biomedical Graduate Studies Program Review Committee, 2010 – 2012
  31. Faculty Senate Executive Committee, 2010 – 2014
  32. Ad Hoc Panel on Faculty Diversity, Penn Faculty Senate, 2011
  33. Neurology Department Chair Search Committee, 2011
  34. Ad hoc panel "Academic Innovation with Integrity: Understanding Conflicts of Interest" (invited by Steven Fluharty), 2011
  35. SEAS Engineering Faculty Teaching Forum, 2011 – 2013
  36. Committee on Students and the Educational Policy (SCSEP), Penn Faculty Senate, 2011 – 2013
  37. Committee on Faculty and the Administration (SCOA), Penn Faculty Senate, 2011 – 2013
  38. Committee on Faculty and the Academic Mission (SCOF), Penn Faculty Senate, 2011 – 2013
  39. Committee on the Economic Status of the Faculty (SCESF), Penn Faculty Senate, 2011 – 2013
  40. Committee on Faculty Development, Diversity, and Equity (SCFDDE), Penn Faculty Senate, 2011 – 2013
  41. Chair-Elect, Chair, Past-Chair; University of Pennsylvania Faculty Senate, 2011 – 2014
  42. Ad Hoc Panel on Faculty Climate Survey Development, Penn Faculty Senate, 2011 – 2014
  43. Selection Committee for the 25th Anniversary Award for Excellence in Advising, Trustees' Council of Penn Women, 2012
  44. Chair, University Council Committee on Committees, 2012
  45. Ad Hoc Panel on Faculty Grievance Policy, Penn Faculty Senate and Provost's

Office, 2012 – 2014

46. Member, Provost's Task Force on a Unified Financial Interest Disclosure System, 2013 – 2014
  47. Member, University of Pennsylvania Capital Council, 2013 – 2014
  48. Faculty Liaison, University of Pennsylvania Trustees Budget and Finance Committee, 2013 – 2014
  49. Academic Budget and Planning Committee, 2013 – 2014
  50. Chair, Penn Forum for Women Faculty, 2014 – 2015
  51. Past Chair, Penn Forum for Women Faculty, 2015 – 2017
  52. SEAS Diversity Committee, Chair of Faculty-Staff Subcommittee, 2015 – 2017
  53. Chair, Faculty Senate Committee on the Economic Status of the Faculty, 2015 – 2017
  54. University Animal Program Advisory Committee, 2015 – 2017
  55. Ad-hoc Committee for SEAS Practice Professor track expansion, 2016
  56. University Vivarium Committee, 2016 – 2017
  57. Chair, Faculty Senate Nominating Committee, 2017
- ii. Emory University and Georgia Institute of Technology
1. Member, Emory Orthopaedics Department Chair Search Committee, 2017 – 2018
  2. Member, Emory School of Medicine Council of Chairs, 2017 – present
  3. Member, Georgia Tech Coulter Oversight Committee, 2017 – present
  4. Member, Emory TBI Advisory Committee, 2017 – present
  5. Member, Georgia Tech College of Engineering Council of Chairs Committee, 2017 – present
  6. Member, Emory Task Force for the Future of Basic Sciences, 2018
  7. Member, Emory Biochemistry Department Chair Search Committee, 2018
  8. Member, Emory Biochemistry Department Chair Search Committee, 2018 – 2019
  9. Member, Emory Fray Marshall Chair of Urology Search Committee, 2018 – 2019
  10. Member, Emory Brain Health Collaboration Group, 2018 – 2019
  11. Director, Georgia Concussion Research Consortium, 2018 – present
  12. Co-Chair, Georgia Tech Petit Institute for Bioengineering and Bioscience Search Committee, 2018 – present
  13. Member, Woodruff Health Sciences Center Mission Metric Review Committee At Emory, 2018 – present
  14. Member, Emory Graduate Division of Biological and Biomedical Sciences Advisory Council, 2018 – present
  15. Member, Emory Woodruff Health Sciences Research Building II Executive Committee, 2018 – present
  16. Member, Emory Pathology Department Chair Search Committee, 2019

17. Member, Georgia Tech Presidential Strategic Plan Executive Committee, 2019 – present
18. Member, Emory School of Medicine Research Space Master Plan Executive Committee, 2020

10. Peer Review Activities:

a. Grants:

i. National and International:

*National Institutes of Health (NIH)*

1. Member, Study Section ZRG1 SSS-3 (03), 2001
2. Member, National Heart, Lung, and Blood Institute (NHLBI) PPG Study Section, 2002, 2008
3. Member, RESP and Respiratory Integrative Biology and Translational Research (RIBT) Study Sections, 2003 – 2004 (ad hoc), 2008 – 2012 (standing member)
4. Chair, RIBT Study Section 2010 – 2012
5. Member, Brain Disorders and Clinical Neuroscience (BDCN) Study Section, 2013
6. Ad-Hoc Chair, Brain Injury and Neurovascular Pathologies (BINP) Study Section, 2013
7. Ad-Hoc Member, Center for Scientific Review ZRG1 BDCN-N (58), 2013
8. Ad-Hoc Member, BDCN Study Section, 2013, 2020
9. Chair, NIH Director's Pioneer Awards (DP1), 2015, 2018
10. Member, NAME Study Section, ZRG1 PSE-W, 2016
11. Member, Review Panel for the NIH Director's Early Independence Awards (DP5), 2017
12. Member, DP5 Young Innovator Study Section (2018/05 ZRG1 RPHB-W (53) R), 2018

*National Science Foundation*

1. Member, Panel Review – Bioengineering Grants 1997, 1998
2. Member, Panel Review – CAREER Awards 1998, 1999
3. Member, Panel Review – Graduate Fellowship Awards 2002
4. Member, Committee of Visitors -Review of Bioengineering (BES) Division, 2002

*Centers for Disease Control and Prevention (CDC)*

1. Member, Injury Research Grant Review Committee, 2000 – 2003

*Foundations & International*

1. Reviewer, Natural Sciences and Engineering Research Council of Canada 2007 – 2008
2. Reviewer, United States-Israel Binational Science Foundation, 2008

3. Reviewer, Marsden Fund Council, 2010
4. Reviewer, Canada Foundation for Innovation's 2015 Innovation Fund Competition

*US Military*

1. Member, US Army Director's Strategic Initiative Research Scientific Review Committee, 2016

ii. Regional:

1. Member, New Jersey Commission on Brain Injury Research Scientific Review Committee, 2008 – 2010

iii. Institutional:

1. Reviewer, Hartwell Foundation, 2015 – 2016

b. Manuscripts:

1. Reviewer, *Science*
2. Reviewer, *Journal of Biomechanical Engineering*, (ASME)
3. Reviewer, *Journal of Neurotrauma*
4. Reviewer, *American Journal of Physiology – Lung*
5. Reviewer, *American Journal of Physiology – Cell*
6. Reviewer, *Journal of Cellular Physiology*
7. Reviewer, *Molecular Therapy*
8. Reviewer, *Lung*
9. Reviewer, *Biorheology*
10. Reviewer, *Journal of the American Association for Pediatric Ophthalmology and Strabismus*
11. Reviewer, *Laboratory Investigation*

c. Conference Abstracts:

i. National and International:

1. Biomedical Engineering Society, 2013 – present

11. Consultantships/Advisory Boards:

1. Advisory Board Member, University of Pennsylvania Health Professions Advisory Board, 1998 – 2000
2. Board of Directors, Biomedical Engineering Society, 2004 – 2010
3. Advisory Board Member, Biomedical Engineering Department, City College of New York, 2007 – present
4. Board of Directors, American Institute for Medical and Biological Engineering, 2009 – 2014



5. Board of Directors, Rosalind Franklin Society, 2011 – present
6. Advisory Board Member (Internal), Center for Translational Lung Biology (CTLB), 2013 – 2017
7. Member, Strategic Planning Meeting of NIH National Institute of Child Health and Human Development, 2014
8. Advisory Board Member, University of Akron Department of Biomedical Engineering, 2014 – 2016
9. Executive Board, Biomedical Engineering Society, 2014 – 2016
10. Advisory Board Member, Penn Injury Science Center, 2015
11. Advisory Board Member, Washington University Department of Biomedical Engineering, 2015 – 2018
12. Executive Committee Member, U.S. National Committee on Biomechanics, 2015 – present
13. Federation of American Societies for Experimental Biology (FASEB) Publications Board, BMES representative, 2015 – 2018
14. FASEB Board, BMES representative, 2016 – 2018
15. Member, Emory Center for the Study of Human Health Advisory Board, 2017 – present
16. Member, Emory Woodruff Health Sciences Center Research Advisory Council, 2017 – present
17. Member, Emory Pediatric Research Advisory Council, 2017 – present
18. Member, Emory Animal Resources Advisory Council, 2017 – present
19. Member, Georgia Tech Institute for Biosciences and Bioengineering, 2017 – present
20. Member, Georgia Tech Center for Medical Robotics Advisory Council, 2017 – present
21. Co-Chair, NC State and University of North Carolina Biomedical Engineering Department External Review panel, 2018
22. Member, Rice University Department of Bioengineering External Advisory Board, 2018 – 2020
23. Member, Washington University Biomedical Engineering Department External Advisory Board, 2018 – 2020
24. Member, Center for Visual and Neurocognitive Rehabilitation Atlanta Advisory Board, 2018 – present
25. Member, Global Center for Medical Innovation Board, 2018 – present
26. Member, Cornell University Biomedical Engineering Department External Advisory Council, 2018 – present
27. Member, Emory Faculty Task Force On The Future Of Research In The Basic Sciences At Emory, 2018 – present
28. Trustee, Georgia Research Alliance, 2020 – present
29. Chair, External Advisory Board, University of Illinois at Urbana-Champaign, 2020 – present
30. Member, Boston University Biomedical Engineering Visitor Committee, 2020-2023.

## 12. Editorships and Editorial Boards:

1. Editorial Board, *Journal of Applied Physiology*, 2002 – 2005
2. Editorial Board, *Journal of Biomechanics*, 2005 – 2006
3. Editorial Board, *Journal of Biomechanical Engineering*, 2006 – 2010
4. Editorial Board, *Journal of Neurotrauma*, 2010 – 2018
5. Editorial Board, *American Journal of Physiology – Lung, Cellular, and Molecular Physiology*, 2012 – 2017

## 13. Honors and Awards

1. Summa Cum Laude, Princeton University, 1982
2. Tau Beta Pi, National Engineering Honor Society, 1982
3. Sigma Xi Scientific Honor Society, 1982
4. University of Pennsylvania Fellow, 1982 – 1983
5. NIH National Research Service Award (NRSA) Post-Doctoral Fellow, 1987 – 1991
6. Whitaker Foundation Young Investigator Research Award, 1992
7. S. Reid Warren Award for Distinguished Teaching, 1996
8. NSF Faculty Early Career Development (CAREER) Award, 1997
9. Stapp Car Crash Conference Student Paper Award, 1998
10. Proctor and Gamble Professional Opportunity Award, FASEB, 1998
11. Stapp Car Crash Conference Student Paper Award, 1999
12. American Society of Mechanical Engineers Bioengineering Division R. Skalak Best Paper Award, 2001
13. Proctor and Gamble Professional Opportunity Award, Experimental Biology, 2002
14. Fellow of the American Institute of Medical and Biological Engineering, 2006
15. Elizabeth Bingham Award for the Advancement of Women in Science, Association of Women in Science, Philadelphia Chapter, 2007
16. Neuroscience Speaker of the Year, Dickinson College, 2008
17. Fellow of the American Society of Mechanical Engineers, 2009
18. Ford Motor Company Award for Faculty Advising, 2009
19. Fellow of the Biomedical Engineering Society, 2009
20. George H. Stephenson Term Chair, 2010 – 2015
21. Weinbaum Lecturer, Rensselaer Polytechnic Institute, 2011
22. Distinguished Lecturer, Sackler Institute for Advanced Studies, Tel Aviv University, Israel, 2015
23. Distinguished Lecturer (Mar 2015), Lorry I. Lokey Interdisciplinary Center for Life Sciences and Engineering, Technion Israel Institute of Technology, Israel, 2015
24. Trustees' Council of Penn Women & Penn Provost Award for Advancing the Role of Women in Higher Education and Research at Penn, 2016

25. Georgia Research Alliance Eminent Scholar in Injury Biomechanics, 2017 – present
26. Wallace H. Coulter Chair, Emory University, 2017 – present
27. Wallace H. Coulter Chair, Georgia Tech, 2017 – present
28. Skalak Lecturer, Columbia University, 2018
29. Earl Bakken Keynote Lecture, 2019 Meeting of the American Institute for Medical and Biological Engineering (AIMBE), Mar 2019
30. Keynote Speaker, 2019 Georgia Institute of Technology Women in Engineering Banquet
31. Plenary Speaker, 2019 Summer Biomechanics, Bioengineering, and Biotransport Conference (SB3C), American Society of Mechanical Engineering, Jun 2019
32. Member, National Academy of Engineering, 2020 – present
33. Member, National Academy of Medicine, 2020 – present

14. Society Memberships:

1. Tau Beta Pi, 1981 – present
2. Sigma Xi, 1982 – present
3. Association of Women in Science, 1982 – present
4. American Society of Mechanical Engineers, 1988 – present
5. Biomedical Engineering Society, 1989 – present
6. American Physiological Society, 1989 – present
7. Women in Engineering Leadership Institute, 1998 – present
8. American Thoracic Society, 2000 – present
9. American Institute for Medical and Biological Engineering, 2006 – present
10. Neurotrauma Society, 2010 – present
11. Rosalind Franklin Society, 2012 – present
12. American Society for Engineering Education, 2014 – present
13. American Association for the Advancement of Science, 2019 – present

15. Organization of Conferences:

a. National and International:

i. Administrative Positions:

1. Director of Programming for Women, Biomedical Engineering Society Annual Meeting, 2007 – 2014
2. Co-Chair, NIH Workshop on Combination Therapies for Traumatic Brain Injury, 2008
3. Discussion Leader, Strategic Planning Meeting Foundation of NIH (FNIH), 2013
4. Track Chair, Respiratory Bioengineering, Biomedical Engineering Society, 2013, 2016
5. Program Chair, Biomedical Engineering Society Annual Meeting, San Antonio, TX,

2014

ii. Sessions as Chair:

1. Physiology and function from multidimensional images, International Society for Optics and Photonics (SPIE) Conference, International Society for Optical Engineering, Newport Beach, CA, Feb 1997
2. Ventilator Induced Lung Injury, Biomedical Engineering Society Annual Meeting, Cleveland, OH, Oct 1998
3. Cell Mechanics and Mechanotransduction in the Lung, ASME Bioengineering Division, Big Sky, MT, Jun 1999
4. BMES/EMBS Annual Meeting (Molecular, Cell and Tissue Mechanics and Engineering Theme Chair, 20 sessions; 7 moderated poster discussion sessions), Atlanta, GA, Oct 1999
5. American Thoracic Assembly on Critical Care and Chair of Acute Lung Injury and ARDS Session, May 2000
6. Force Transduction in Biology Workshop, National Science Foundation, Arlington VA, Jul 2000
7. Brain Mechanics Sessions I and II, Am. Soc. Mech. Eng.- Bioengineering Division, Snowbird, UT, Jun 2001
8. Injury Mechanisms and Wound Repair in the Lung, BMES Annual Meeting, Durham, NC, Oct 2001
9. Spine and Head Injury Biomechanics, BMES Annual Meeting, Durham, NC, Oct 2001
10. Second Messengers in Lung Cell Function, Respiration Section of American Physiological Association, Experimental Biology 2002 Meeting, New Orleans LA, Apr 2002
11. Pulmonary Mechanics from Organ to Cell, BMES Annual Meeting in Houston, TX, Oct 2002
12. Cell Deformation, ASME-BED Meeting in Miami FL, Jun 2003
13. Lung Cell Injury BMES Annual Meeting Nashville TN, Oct 2003
14. New Specialty Models of TBI, Neurotrauma Society Annual meeting, Nov 2003
15. Stress and strain in lung injury at American Thoracic Society annual meeting, Orlando, FL, May 2004
16. BMES Annual Meeting, Chair Local Arrangements, Philadelphia, PA, Oct 2004
17. NSF ADVANCE – Women in Engineering Leadership Institute Conference, Meeting Co-Chair, Apr 2005
18. Lung Stretch Injury BMES Annual Meeting, Baltimore, MD, Sep 2005
19. 5th World Congress of Biomechanics, Munich, Germany, Jul 2006
20. Mechanotransduction and Lung Injury, BMES Annual Meeting, Chicago IL, Oct 2006
21. Acute Respiratory Distress Syndrome (ARDS) and Acute Lung Injury, BMES Annual Meeting, Los Angeles, CA, Oct 2007
22. Co-Chair, NIH Workshop on Combination Therapies for Traumatic Brain Injury,

Rockville, MD, Feb 2008

23. New Technologies in Research and Clinical Care, 2nd Joint International and National Neurotrauma Society, Santa Barbara, CA, Sep 2009
24. Acute Respiratory Distress Syndrome and Lung Injury, BMES Annual Meeting, Pittsburgh, PA, Oct 2009
25. Head/Brain Injury – Cells and Tissues, World Congress of Biomechanics, Singapore, Aug 2010
26. Head Injury – Tissue Tolerance, World Congress of Biomechanics, Singapore, Aug 2010
27. Head Injury – Models, World Congress of Biomechanics, Singapore, Aug 2010
28. Acute Lung Injury: from Cell to Organism, BMES Annual Meeting, Austin, TX, Oct 2010
29. Acute Lung Injury from Cells to System, BMES Annual Meeting, Hartford, CT, Oct 2011
30. Mechanistic Bases of Lung Disease from Cells to System, BMES Annual Meeting, Hartford, CT, Oct 2011
31. Lung Pathology and Therapeutics, BMES Annual Meeting, Atlanta, GA, Oct 2012
32. Computational Biomechanics of Trauma, 12th Annual US National Congress on Computational Mechanics, Raleigh, NC, Jul 2013
33. Preclinical TBI Trials for Combination Therapies, National Neurotrauma Society Meeting, Nashville, TN, Aug 2013
34. Cellular and Molecular Biomechanics Session, BMES Annual Meeting, Seattle, WA Sep 2013
35. Respiratory Bioengineering Track, BMES Annual Meeting, Seattle, WA, Sep 2013
36. Head Injury Molecular to Macro, Simulation and Protection, BMES Annual Meeting, Tampa, FL, Oct 2015
37. Ventilation of the Injured Lung, BMES Annual Meeting, Tampa, FL, Oct 2015
38. Simulating Traumatic Brain Injury and Eye Injury, Computer Methods in Biomechanics and Biomedical Engineering (CMBBE) Annual Meeting, Tel Aviv, Israel, Sep 2016
39. Respiratory Bioengineering Track, BMES Annual Meeting, Minneapolis, MN, Oct 2016
40. “Learning Environments,” Theme Co-Lead, BME Council of Chairs Educational Summit, May 2019

## 16. Community Outreach:

### a. General:

1. Science by Mail Volunteer Scientist, grades 7–9, Museum of Science, Boston, MA, 1986 – 2001
2. Rochester, Minnesota Area Math Science Partnership Mentor, 1991 – 1992
3. Faculty Advisor, Society of Women Engineers, 1998 – 2004

4. Penn Admissions presentations to local high school girls, 2000 – 2005
5. MentorNet, National Mentoring Program for Engineers – Campus Faculty Representative, 2000 – 2010
6. Faculty Advisor, Biomedical Engineering Society (BMES), Penn Student Chapter, 2002 – 2006
7. Faculty Mentor, Penn Women’s Biomedical Society, 2004 – 2010
8. Presenter, Children’s Hospital of Philadelphia concussion presentations, 2015 – 2016

b. Media Appearances:

1. New York Times, (New York, NY) "Protection: A Measure of an Infant Skull's Strength," Oct 3, 2000
2. Consumer Line Radio Network (Syndicated on National Public Radio), Nov 2000
3. Calgary Herald (Calgary, Canada) "No roughhousing with junior," Feb 17, 2001
4. Rochester Post-Bulletin (Rochester, MN) "Infant's skull is more fragile than thought," Feb 19, 2001
5. The Record (Bergen County, NJ), "Fragile skulls," Feb 19, 2001
6. Telegraph Herald (Dubuque, IA), "Infants' skulls are extremely fragile," Feb 19, 2001
7. Indianapolis Star (Indianapolis, IN) "Infants' skulls are quite fragile," Mar 15, 2001
8. Whitaker Foundation Annual Report, "The Toll of Trauma," Apr 2003
9. British Broadcasting Corporation (BBC) "Falling Babies Risk Brain Injury," Jul 2003
10. Channel 6 News interview, Jul 2003
11. Forbes "Babies brains are fragile indeed," Aug 2003
12. Atlanta Journal –Constitution "Babies brains are fragile indeed," Aug 2003
13. Channel 10: news feature, Aug 2003
14. KCPQ-TV, Seattle FOX affiliate: news feature, Aug 2003
15. Cable News Network (CNN) Headline News live interview on "Cool Science," Sep 15, 2003
16. *Discover Magazine* (print and online), Dec 2003
17. *Neurology Today*, Jun 2004
18. Extraordinary Women Engineers Project (NSF), Jul 2005
19. Press Release, *Journal of Neurotrauma*, Jun 2010
20. Engineering Delivers the Advantage in Protecting Children, Penn Engineering Alumni Magazine, Sep 2010
21. Public Hearing, Institute of Medicine Committee Report "Sports-Related Concussions in Youth: Improving the Science, Changing the Culture," Oct 2013
22. FOX Radio Network Interview on IOM Committee Report on Sports-Related Concussions in Youth, Oct 2013
23. Quoted in The Star Herald "Parents, Players Still Have Much to Learn on Concussions," Dec 2013

24. WHYY The Pulse; Interview for “Why Helmets Are No Magic Bullet for Preventing Concussions,” Jan 2014
25. “Backyard Brains in the Classroom,” blog post featured on Penn’s Weigle Information Commons website, Jun 2014
26. Interviewed on Charlie Rose’s “The Brain” with Eric Kandel; topic: concussion, Nov 2015
27. “Neurovive Pharmaceutical: NeuroVive Enters Strategic Collaboration with University of Pennsylvania,” news release on BusinessWire.com, Jan 2016
28. Featured in the Association of American Medical Colleges Group on Women in Medicine and Science’s Women in Medicine Month, Sep 2017
29. Featured on Georgia Public Broadcasting screening of Ken Burns’ film “The Mayo Clinic: Faith – Hope – Science”, Sep 2017
30. Featured, *Georgia Trend Magazine*, 2018
31. Featured in *Health Day*, “Cheap, Effective Ventilator Made From Ambulance ‘Resuscitation Bags,” April 2020
32. Featured in *U.S. News*, “Cheap, Effective Ventilator Made From Ambulance ‘Resuscitation Bags,” April 2020
33. Featured in *WebMD*, “Cheap, Effective Ventilator Made From Ambulance ‘Resuscitation Bags,” April 2020

17. Formal Teaching:

a. Graduate Programs:

i. Fellowship Programs:

1. Research Mentor, 2000 – present (see Supervisory Teaching)

ii. Master’s and PhD Programs:

Teaching:

1. BE 510 Biomechanics and Biotransport, Graduate Students, University of Pennsylvania, 3 hours/week, Fall 1994, 1995, 1996, 2001
2. BE 700 Practicing Science and Engineering Responsibly, Graduate Students, University of Pennsylvania, 3 hours/week, Spring 2000
3. BE 567 Modeling Biological Systems, Graduate Students, University of Pennsylvania, 3 hours/week, Fall 2002
4. BE 699 Bioengineering Seminar, Graduate Students, University of Pennsylvania, 3 hours/week, 2007, 2008, 2009, 2010
5. BE 895 Methods in Bioengineering Education, Graduate Students, University of Pennsylvania, 3 hours/week, Spring 2008, Fall 2008, Fall 2009

18. Supervisory Teaching:

a. PhD Students Directly Supervised:

i. University of Pennsylvania:

1. Kirk Thibault, 1993 – 1997, Engineer, Biomechanics, Inc.
2. Dan Tschumperlin, 1993 – 1998, Associate Professor, Mayo Medical School, **NIH R01 PI**
3. Kristy Arbogast, 1995 – 1997, Res. Associate Professor, Emergency Medicine, Univ of PA, **PI, NSF and industry**
4. Michael Prange, 1997 – 2001, Senior Engineer, Exponent
5. Jacob Fisher, 1997 – 2005, Engineering Consultant, Exponent, Inc.
6. Ken Cavanaugh, 1998 – 2004, Scientific Officer, US FDA Cardiac Devices
7. Brittany Coats, 2000 – 2007, Assistant Professor, Univ of Utah **NIH PI**
8. Stephanie Eucker, 2002 – 2009, Assistant Professor of Emergency Medicine, Duke University
9. Brian DiPaolo, 2003 – 2010, Chief Scientist, Optiflow, Philadelphia, PA
10. Taylor Cohen, 2004 – 2009, Scientist I, MedImmune
11. Nicole Gabriel Ibrahim, 2004 – 2009, Lead/Consulting Reviewer, Interventional Cardiology Devices US FDA
12. Matt Maltese, 2006 – 2012, Senior Engineer, Children's Hospital of Philadelphia
13. Stephanie Pasquesi, 2010 – 2016, Associate, Exponent, Biomechanics Practice
14. Lorre Atlan, 2011 – 2018, Graduate Student, Fontaine Fellowship

ii. Georgia Institute of Technology:

1. Kyle Milligan, GT BME Machine Learning PhD Program, 2018 – 2020

iii. PhD Students Directly Supervised – Emory:

1. Sherry Ye, Emory Neuroscience Program, 2019 (rotation)
2. Oluwagbemisola (Gbemi) Aderibigbe, Biomedical Engineering PhD Program, 2019 – present

b. Postdoctoral Fellows Directly Supervised:

1. Gyorgy Kiralyfalvi, 1998 – 1999, Engineering consultant, Private sector, Switzerland
2. Mehrdad Mehr, 2000 – 2002, Pediatrician, Boston Children's Hospital
3. Mark Lund, 2001 – 2003, Interventional Pulmonology, Drexel School of Medicine
4. Amit Gefen, 2002 – 2003, Professor, Tel Aviv University
5. Glen Levine, 2002 – 2003, Assistant Professor, Pediatric Critical Care, UC Irvine



6. Stuart Friess, 2003 – 2006, Assistant Professor in Pediatrics, Washington University, **K08 recipient**
7. Songbai Ji, 2003 – 2005, Assoc. Professor, Dartmouth College, **PI multiple NIH R21s**
8. Qiliang Zhu, 2002 – 2004, Algor, Inc. Pittsburgh, PA
9. Xinguo Ning, 2005 – 2006, Computer Consultant, Techinp, USA
10. Maryam Naim, 2005 – 2008, Assistant Professor in Anesthesia and Critical Care, CHOP
11. Todd Kilbaugh, 2006 – 2008, Assistant Professor in Anesthesia and Critical Care, CHOP, **co-PI NIH U01**
12. Brittany Coats, 2007 – 2010, Assistant Professor, University of Utah, **PI NIH R01**
13. Adi Yerrapureddy, 2007 – 2010, Research Associate, Private sector
14. Nadir Yehya, 2009 – 2011, Assistant Professor in Anesthesia and Critical Care, **CHOP K12 recipient**
15. Nurit Davidovich, 2009 – 2012, O2Cure Ltd, Haifa Israel
16. Scott Hines, 2010 – 2012, Assistant Professor in Anesthesia and Critical Care, CHOP
17. Benjamin (Dean) Bruins, 2010 – 2012, Assistant Professor in Anesthesia and Critical Care, CHOP
18. Brian DiPaolo, 2011 – 2012, Senior Scientist, Optifluidics, Ltd.
19. Amy Clevenger, 2011 – 2014, Assistant Professor, Pediatric Critical Care, Denver Children's Hospital
20. Min Jae Song, 2012 – 2014, **NIH Intramural Investigator**
21. Samer Jaber, 2013 – 2014, Associate Vet, University of Amherst School of Medicine
22. Michael Ferguson, 2013 – 2015, Faculty, Pediatrics, Maine Med Center
23. Tamas Dolinay, 2013 – 2017, Resident in Pulmonary Medicine, University of Pennsylvania, **T32 recipient**
24. Michael Zubrow, 2014 – 2017, Research Fellow, Endowed Chair Funds at CHOP
25. Andrew Lautz, 2014 – 2017, Research Fellow, Endowed Chair Funds at CHOP
26. Marzieh Hajiaghamemar, 2015 – 2020, Postdoctoral Fellow and Research Engineer (non-tenure track faculty)
27. Morteza Seidi, 2017 – 2020, Research Engineer (non-tenure track faculty)
28. Anna Oeur, 2018 – present, Postdoctoral Fellow

c. Thesis Committees:

Not Tracked; approximately 85 over 27 years

d. Other:

For Penn's MSE Program:

1. Ji Young Won, 1995 – 1996 (MSE), Citibank, Singapore
2. Alicia Nelson, 2009 – 2010 (MSE), Project Manager, Olympus America

3. Peter Chhour, 2010 – 2011 (MSE), PhD Student Bioengineering, University of Pennsylvania
4. Dianne Weeks, 2010 – 2013 (MSE), Graduate Student, Physical Therapy, Jefferson University
5. Connor Bradfield, 2011 – 2013 (MSE), Biomedical Engineer, Johns Hopkins Applied Physics Lab

For Penn Bioengineering's Graduate Independent Research Study Course (BE 899):

1. Ji Young Won, Graduate Independent Research Study, University of Pennsylvania, 1995
2. Brian Hannon, Graduate Independent Research Study, University of Pennsylvania, 1995 – 1996
3. Kelly Forbis, Graduate Independent Research Study, University of Pennsylvania, 1996
4. John Noon, Graduate Independent Research Study, University of Pennsylvania, 1997
5. Wudbahav Sankar, Graduate Independent Research Study, University of Pennsylvania, 1999
6. Lucas Gong, Graduate Independent Research Study, University of Pennsylvania, 2010
7. Huikan Chao, Graduate Independent Research Study, University of Pennsylvania, 2011
8. Sarah van Keulen, Graduate Independent Research Study, University of Pennsylvania, 2015

19. Lectureships, Seminar Invitations, and Visiting Professorships:

a. National and International:

1. Distribution of inspired gas during mechanical ventilation. Department of Medicine, Hennepin County Medical Center, Minneapolis, MN (Seminar), Apr 1991.
2. A biomechanical approach to physiology. Department of Bioengineering, University of Pennsylvania, Philadelphia, PA (Seminar), Jul 1992.
3. Biomechanics of closed head injury. Neurosurgery Grand Rounds, Cooper Hospital/University Medical Center, Camden, NJ (Seminar), Oct 1994.
4. Biomechanics of pediatric head injury. The pathophysiology of secondary brain injury and implications for contemporary treatment, University of Pittsburgh, Pittsburgh, PA (Seminar), May 1996.
5. Injury biomechanics of skull, brain and spinal cord. Dept. of Injury Prevention, Chalmers University of Technology, Göteborg, Sweden (Seminar), Sep 1996.
6. Biomechanics approach to head injury. Institute of Neurological Sciences, University of Glasgow, Glasgow, Scotland (Seminar), Sep 1996.
7. Biomechanics of head injury the influence of brain and skull mechanical properties. Department of Mechanical Engineering, University of Pittsburgh, Pittsburgh PA (Seminar), Apr 1997.
8. Mechanical deformation of the alveolar epithelium, University of Southern California, Los Angeles, CA (Seminar), Oct 1997.

9. Lung Injury Biomechanics: An In-vitro Model and Clinical Implications, Boston University, Boston, MA (Seminar), May 1999.
10. Understanding Pediatric Head Injury Mechanisms – a Bioengineering Approach, Children’s Hospital of Philadelphia, Grand Rounds Anesthesiology and Critical Care Medicine, Philadelphia, PA (Seminar), Apr 2000.
11. Lung Deformation: Can you have too much of a good thing? City College of New York, New York City, NY (Seminar), May 2000.
12. Mechanisms of Injury: How the Brain Responds, at the short course “Pediatric Trauma Tales – A Global Look at Pediatric Brain Injury”, Children’s Hospital of Philadelphia, Philadelphia, PA (Special Symposia Presentation), Oct 2000.
13. Lung Deformation: Can you have too much of a good thing? Children’s Hospital of Philadelphia, Grand Rounds Neonatology, Philadelphia, PA (Seminar), Dec 2000.
14. Understanding stretch-induced pulmonary epithelial dysfunction: insight from an in vitro model, Bioengineering Program, University of Texas at Austin, Austin, TX (Seminar), Apr 2001.
15. Some Unanswered Questions and Open Challenges in Brain Biomechanics Research, University of Virginia, Department of Mechanical Engineering (Seminar), Jul 2001.
16. Update on Current Controversy: Shaken Baby vs. Shaken Impact Syndrome, Seashore House Rehabilitation Institute, Philadelphia, PA (Seminar), Jan 2002.
17. An interdisciplinary approach to understanding head injuries in children, Department of Mechanical Engineering, UC Berkeley, Berkeley, CA (Seminar) Dec 2002.
18. Understanding head injuries in children: An interdisciplinary approach, Grand Rounds, Dept. of Neurosurgery, UC San Francisco, San Francisco, CA (Seminar), Dec 2002.
19. Edema Clearance and Ventilator Induced Lung Injury, Harvard University, Cambridge MA (Seminar), Mar 2003.
20. Ventilator induced lung injury - the effect of epithelial stretch on alveolar permeability, Georgia Institute of Technology, Atlanta, GA (Seminar), Apr 2003.
21. Understanding pediatric head injuries: An interdisciplinary approach, Grand Rounds, Children’s Hospital and the University of Pittsburgh Medical School, Pittsburgh, PA (Seminar), Jun 2003.
22. Can mechanical stretch alter epithelial cell permeability? An in vitro approach to understanding ventilator-induced lung injury, University of Pittsburgh School of Engineering, Pittsburgh, PA (Seminar), Sep 2003.
23. Anthropomorphic simulations of falls, shakes, and inflicted impacts for infants. Wayne State University, Detroit, MI (Seminar), Feb 2004.
24. Properties of Brain Tissue – what we know so far. Wayne State University, Detroit, MI (Seminar), Feb 2004.
25. Can mechanical stretch alter epithelial cell permeability? An in vitro approach to understanding ventilator-induced lung injury, Biomedical Engineering Program, Mayo Clinic and Foundation, Rochester, MN (Seminar), Jun 2004.
26. **(Keynote Speaker)** Career Paths are Rarely Straight: Lessons From the Twists in the Road, BME Day, Biomedical Engineering Department, Boston University, Boston, MA (Seminar), Feb 2005.

27. **(Keynote Speaker)** Can mechanical stretch alter epithelial cell permeability? An in vitro approach to understanding ventilator-induced lung injury, BME Day, Biomedical Engineering Department, Boston University, Boston, MA (Seminar), Feb 2005.
28. Ventilator-induced Lung Injury: Functional Stretch Thresholds Johns Hopkins University, Baltimore, MD (Seminar), Mar 2005.
29. Lung Stretch Alters Barrier Properties: Understanding Ventilator Induced Lung Injury Northwestern University, Evanston, IL (Seminar), Apr 2006.
30. A New Animal Model Demonstrates Persistent Functional Alterations After Moderate Brain Injury, Center for Injury Research and Policy Columbus Children's Research Institute, Children's Hospital, Columbus, OH (Seminar), May 2006.
31. Biomechanics of Pediatric Brain Injuries, Department of Mechanical Engineering, Johns Hopkins University, Baltimore, MD (Seminar), Feb 2007.
32. Understanding Mechanisms of Traumatic Pediatric Head Injury—A Bioengineering Approach, Department of Biomedical Engineering Boston University (Seminar), Apr 2008.
33. Biomechanics and Predicting Brain Injury, Department of Mechanical Science and Engineering, University of Illinois Urbana-Champaign, IL (Seminar), Apr 2008.
34. Understanding Mechanisms of Traumatic Pediatric Head Injuries. Neuroscience Club, Dickinson University, Carlisle, PA (Seminar), May 2008.
35. Alveolar epithelial cell signaling in response to mechanical stretch, Department of Biomedical Engineering, Tulane University, New Orleans, LA (Seminar), Oct 2008.
36. Bioengineering's Perspective of Abuse Head Injury in Young Children, University of Glasgow, Scotland and the Scottish Medico-Legal Society (Seminar), Mar 2009.
37. Stretch Activated Signaling Pathways in the Pulmonary Alveolar Epithelium, Department of Biomedical Engineering, Columbia University, New York, NY (Seminar), Apr 2009.
38. Department of Mechanical Engineering, Washington University, St. Louis, MO (Seminar), Jun 2009.
39. Leading an Effective Research Team, NSF Workshop for Women in Science and Engineering, Rice University, Houston, TX (Seminar), Oct 2009.
40. Diffuse Axonal Injury in Infants and Toddlers, Dartmouth University, Hanover NH (Seminar), Jan 2010.
41. Pig Model of Neonatal Brain Injury, UK Lexington Conference on Translational Neuroscience (Seminar), Apr 2010.
42. Hypoxic-Ischemic Alterations after Pediatric Traumatic Brain Injury, Department of Pathology, University of New Mexico, NM (Seminar), Apr 2011.
43. Stretch-Activated Signaling Pathways in the Pulmonary Alveolar Epithelium, Department of Biomedical Engineering, Penn State University, State College, PA (Seminar), Aug 2011.
44. It Takes An Integrated Biomechanics Toolbox To Define Injury Thresholds, Department of Biomedical Engineering, Washington University, St. Louis, MO (Seminar), Mar 2012.
45. It Takes An Integrated Biomechanics Toolbox To Define Injury Thresholds, Wayne State University, Department of Biomedical Engineering, Detroit, MI (Seminar), Apr 2013.
46. Diffusive and Convective Mass Transport in the Lung, Wayne State University, Department of Biomedical Engineering, Detroit, MI (Seminar), Apr 2013.

47. To Preserve and Protect: Rethinking Ventilator-Associated Lung Injuries, Cincinnati Children's Hospital Medical Center, Division of Pulmonary Biology (Seminar), Aug 2013.
48. My Secret to Being a Happy and Successful Professor – Peer Mentoring. Louisiana Tech University, Ruston, LA (Workshop Presentation), Oct 2013.
49. It Takes an Integrated Biomechanics Toolbox to Define Injury Thresholds. Louisiana Tech University, Ruston, LA (Seminar), Oct 2013.
50. Animal Models of Pediatric TBI, University of Nebraska, Lincoln, Department of Mechanical Engineering (Seminar), Apr 2014.
51. Understanding Why Head Rotation Direction Matters, University of Delaware Biomedical Engineering Department (Seminar), Sep 2014.
52. Biomechanics Overview, BMES Meeting, San Antonio, TX (Seminar), Oct 2014.
53. A Large Animal Model of Pediatric Traumatic Brain Injury, Arizona State University, Phoenix, AZ (Seminar), Nov 2014.
54. When Stretch Happens: Mitigating Ventilator Induced Lung Injury, Rice University, Department of Bioengineering (Seminar), Jan 2015.
55. **(Distinguished Speaker)** Understanding Why Head Rotation Direction Matters, University of Utah, Department of Mechanical Engineering (Seminar), Jan 2015.
56. A Large Animal Model of Pediatric Traumatic Brain Injury, Virginia Commonwealth University, Department of Anatomy and Neurobiology (Seminar), Feb 2015.
57. **(Featured Speaker)** A Large Animal Model of Pediatric Traumatic Brain Injury, Developmental Neurosciences Grand Rounds, University of Calgary (Seminar), Mar 2015.
58. A Large Animal Model of Pediatric Traumatic Brain Injury, Burke Medical Research Institute (Seminar), Mar 2015.
59. **(Guest Lecturer)** A Large Animal Model of Pediatric Traumatic Brain Injury, Sackler Lecture, School of Medicine, University of Tel Aviv (Lecture), Mar 2015.
60. **(Guest Lecturer)** When Stretch Happens: Mitigating Ventilator Induced Lung Injury, Sackler Lecture Biomedical Engineering Department, University of Tel Aviv (Lecture), Mar 2015.
61. **(Distinguished Lecturer)** When Stretch Happens: Mitigating Ventilator Induced Lung Injury, The Lorry I. Lokey Interdisciplinary Center for Life Sciences and Engineering, Technion Israel Institute of Technology (Lecture), Mar 2015.
62. What Animal Models Can Tell Us About TBI, Army Research Lab, Aberdeen, MD, Jun 2015.
63. Concussion: Integrating Engineering and Neuroscience to Identify Mechanisms, Princeton University, Dec 2015.
64. Concussion: Integrating Engineering and Neuroscience to Identify Mechanisms, Mayo Medical School, Mar 2016.
65. Using Large Animals to Understand TBI – Mechanistic and Translational Considerations, Columbia University, Mar 2016.
66. Establishing a clinically relevant large animal model platform for TBI Therapy Development, Neurology Grant Rounds, Nemours Alfred I. duPont Hospital for Children, Wilmington, DE, Aug 2016.

67. Integrating Computational and Experimental Approaches to Understand Traumatic Brain Injury, Boston University, Nov 2016.
68. Integrating Computational and Experimental Approaches to Understand Mechanisms of Traumatic Brain Injury and Identify Treatment and Prevention Strategies, Research Seminar, BME Department, Emory-GA Tech, Atlanta, GA, Nov 2016.
69. Integrating Computational and Experimental Approaches to Understand Mechanisms of Traumatic Brain Injury and Identify Treatment and Prevention Strategies, BME Department, Johns Hopkins University, Baltimore, MD, Dec 2016.
70. Pediatric Concussion Biomechanics: What We Need to Know, University of Kentucky, Dec 2016.
71. Integrating Computational and Experimental Approaches to Understand Mechanisms of Traumatic Brain Injury and Identify Treatment and Prevention Strategies, UC Davis, Feb 2017.
72. Using a clinically relevant large animal model platform for TBI Therapy Development, Moody Project for Translational TBI Research, University of Texas Medical Branch, May 2017.
73. Preclinical Biomechanics and Outcomes (**Invited Speaker**) National Neurotrauma Society (NIH NINDS and DoD workshop), Jul 2017.
74. Using Known Hockey Accelerations to Examine Behavior Outcomes in a Large Animal Model of TBI, Mayo Clinic and Medical School Symposium (**Invited Speaker**), Sep 2017.
75. Future Models of Center-Based Graduate Education, NSF Engineering Research Center Biennial Meeting (Panelist), Alexandria, VA, Nov 2017.
76. Concussion Biomechanics of Prevention, Brain Injury Association of Georgia TBI Conference, Atlanta, GA (Panel Discussion), Feb 2018.
77. Pediatric Concussion Biomechanics, Columbia University Department of Bioengineering, Mar 2018.
78. Integrating Computational and Experimental Approaches to Understand Mechanisms of Traumatic Brain Injury and Identify Treatment and Prevention Strategies, UC San Diego, San Diego, CA, Mar 2018.
79. (**Keynote Speaker**) Frequency-Dependent Changes in Resting State EEG Functional Networks in Piglets after Rapid Head Rotations, Head Impact Biomechanics and Head Protection Mini-Symposium, World Congress of Biomechanics, Dublin, Ireland, Jul 2018.
80. (**Distinguished Lecture in Bioengineering**) Pediatric Concussion Biomechanics, Worcester Polytechnic Institute, Sep 2018.
81. Concussion Biomechanics: What We Know and What We Need to Know, Vanderbilt BME Seminar, Fall 2018.
82. Pathways to Leadership, AAMC Mid-Career Women Faculty Leadership Development Seminar, Association of American Medical Colleges (AAMC), Buckhead, GA, Dec 2018.
83. (**Distinguished Seminar Series**) Pediatric Concussion: What We Need to Know, University of Florida BME Leadership Seminar Series, Apr 2019.
84. TBD, UC Riverside.

85. TBD, University of Florida, Nov 2020.
86. TBD, Columbia University.
87. TBD, Mayo Clinic.

b. Institutional:

1. Biomechanics of Traumatic Head Injury, Department of Physical Medicine and Rehabilitation, Mayo Foundation, Mar 1987.
2. Biomechanics of Traumatic Coma, Advanced Resp. Physiol. Course, Mayo Foundation, Apr 1987.
3. Biomechanics of Head Injury, Department of Psychiatry, Mayo Foundation, Aug 1987.
4. Biomechanics of Closed Head Injuries, Biomechanics Laboratory, Mayo Foundation, Nov 1987.
5. Chest Wall and Lung Deformation in the Dog, Advanced Resp. Physiol. Course, Mayo Foundation, Dec 1988.
6. Diaphragm Thickness in Health and Disease, Advanced Resp. Physiol. Course, Mayo Foundation, Mar 1990.
7. Mathematical Model for Mechanical Ventilation, Advanced Resp. Physiol. Course, Mayo Foundation, Jun 1990.
8. Distribution of Stress or Tension in the Canine Diaphragm In Vivo, Adv. Resp. Physiol. Course, Mayo Foundation, Nov 1990.
9. Mechanical Ventilation: Do Mode and Timing Affect Gas Distribution? Department of Physiology & Biophysics, Mayo Foundation, Feb 1991.
10. Distribution of Inspired Gas During Mechanical Ventilation, Advanced Resp. Physiol. Course, Mayo Foundation, Apr 1991.
11. Distribution of Ventilation in Unilateral Emphysema, Advanced Resp. Physiol. Course, Mayo Foundation, Mar 1992.
12. Determining In Vivo Deformation of the Spinal Cord Using Tagged Snapshot MR Imaging, Department of Diagnostic Radiology, Mayo Foundation, Mar 1992.
13. Lung Strains In Unilateral Emphysema, Advanced Resp. Physiol. Course, Mayo Foundation, Dec 1992.
14. A Biomechanical Approach to Respiratory Physiology, Division of Thoracic Diseases and Internal Medicine, Mayo Foundation, May 1993.
15. Injury Biomechanics: An Interdisciplinary Approach, Department of Chemical Engineering, University of Pennsylvania, Feb 1995.
16. Mechanical Deformation of the Alveolar Epithelium, Division of Pulmonary Medicine, University of Pennsylvania, Nov 1996.
17. Mechanical Deformation Of the Alveolar Epithelium: An Experimental Model for Barotrauma, Institute for Environmental Medicine, University of Pennsylvania, Jan 1997.
18. Pediatric Head Injury: The Influence of Brain and Skull Mechanical Properties, Head Injury Research Center of the University of Pennsylvania, University of Pennsylvania, Apr 1997.

19. Lung Injury Biomechanics: An In-vitro Model and Clinical Implications, First IME Retreat, Philadelphia, PA, Feb 1999.
20. Confocal and Multiphoton Imaging Dept of Bioengineering and IME Special Lecture, Dec 2000.
21. Confocal and Multiphoton Imaging, Orthopaedics Department, University of Pennsylvania, Apr 2001.
22. Biomechanics of Traumatic Brain Injury in the Infant, Grand Rounds, Neurosurgery, University of Pennsylvania, Nov 2001.
23. Shaken Baby vs. Shaken Impact Syndrome: A Biomechanics Perspective, Head Injury Center Conference, University of Pennsylvania, Jan 2002.
24. Ventilator-Induced Injury of the Alveolar Epithelium, IME Chalk Talk Series, Jan 2002.
25. Bioengineering and Imaging: Using an Integrated Approach to Understanding Injury Mechanisms, Univ of PA Cancer Center, Mar 2002.
26. Are children really just small adults?, Head Injury Center Seminar Series, University of Pennsylvania, Feb 2004.
27. A new animal model demonstrates persistent functional alterations after moderate brain injury, Head Injury Center Seminar Series, University of Pennsylvania, Jun 2006.
28. Lessons learned from Penn's Nonhuman Primate TBI Studies, Penn Center for Brain Injury and Repair, University of Pennsylvania, Nov 2006.
29. Modulating stretch-induced impairment of alveolar epithelial barrier properties, Institute for Environmental Medicine, University of Pennsylvania, May 2007.
30. Career paths are rarely straight, Post-doctoral Association of Monell Institute, Philadelphia, PA, Jul 2007.
31. Neurofunctional Outcomes In Piglets After Traumatic Brain Injury, Penn Center for Resuscitation Research Retreat, University of Pennsylvania, Oct 2007.
32. Hypoxic-Ischemic Alterations After Pediatric Traumatic Brain Injury, Advances in Biomedical Optics, Physics Department, University of Pennsylvania, Jan 2011.
33. Mitochondrial Targeted Therapy and Translational Neurocritical Care: Immature Porcine TBI, University of Pennsylvania Center for Brain Injury Research, Nov 2012.
34. To Preserve and Protect: Rethinking Ventilator-Associated Lung Injuries, Pulmonary Grand Rounds, University of Pennsylvania, Dec 2012.
35. Mitochondrial Targeted Therapy and Translational Neurocritical Care: Immature Porcine TBI, Veterinary Critical Care Department, University of Pennsylvania, Jan 2013.
36. **(Moderator)** Panel on Engaging All Students, Undergraduate Education Retreat at SEAS, University of Pennsylvania, Feb 2014.
37. TBI Neuroimaging: Directions for Future Research, Radiology Research Retreat, University of Pennsylvania Jul 2014.
38. Animal Models of Pediatric Traumatic Brain Injury, Penn School of Veterinary Medicine (Residents in Laboratory Animal Medicine), Aug 2014.
39. Using Animal Models to Develop Objective Diagnostic Metrics for Concussion, Penn Laboratory Animal Resource Quarterly Staff Meeting, Aug 2014.
40. Translational Research in Ventilator Induced Lung Injury, CTSA Undergraduate Symposium, University of Pennsylvania, Apr 2016.



41. Integrated Human and Animal Studies of Concussion in Youth, 4<sup>th</sup> Annual Penn Trauma Symposium, Apr 2016.
42. Translational Approaches to Understanding Mechanisms of Brain and Lung Injury and Identifying Treatment and Prevention Strategies, Annual Retreat of the Penn Institute for Regenerative Medicine, Feb 2017.
43. Enhancing Synergies Between Radiation Oncology and Biomedical Engineering, Emory University Department of Radiation Oncology, Oct 2017.
44. Pediatric Concussion Biomechanics: What We Need to Know, Georgia Tech IBB Seminar, Feb 2018.
45. Crucial Conversations: Tools for Talking When Stakes Are High, Emory Women in Winship workshop, Nov 2018.
46. Concussion Biomechanics: What we know and what we need to know, The Dodd Boys, Atlanta, GA, Jan 2019.
47. **(Keynote Speaker)** Discovering My Path...A Life-Long Journey, Women in Engineering Awards Banquet, Apr 2019.
48. Effective Communication Strategies for Women Leaders, Emory Women in Psychiatry Faculty, Jun 2019.
49. Concussion Biomechanics: How Animal Models Inform Us, Emory Division of Animal Resources, Jul 2019.
50. Concussion Biomechanics, Georgia Tech Silver Jackets, Nov 2019.
51. Racism and Social Justice Webinar Series: Inclusive Leadership, Emory School of Medicine, July 2020.

20. Invitations to National/International, Regional, and Institutional Conferences:

a. National and International:

1. Biomechanics of traumatic head injury. National Head Injury Foundation - Minnesota Chapter, Rochester, MN (Special Symposia Presentation), Jul 1987.
2. Biomechanics of injury. University of Pennsylvania 250th Anniversary Celebration, Philadelphia, PA (Special Symposia Presentation), May 1990.
3. Age-dependent material properties of cranial bone, sutures and brain. Head Injury '94, Washington, DC (Special Symposia Presentation), Oct 1994.
4. Research horizons in head and spinal cord injury. Conference on Pediatric Cervical Spine Injury: The Continuum Of Care, Philadelphia, PA (Special Symposia Presentation), Aug 1996.
5. In Vivo spinal cord deformation in flexion, SPIE Conference, International Society for Optical Engineering, Newport Beach, CA (Conference Presentation), Feb 1997.
6. Models of injury applied to children. Biomechanics, clinical care, and epidemiology: how do we talk to each other? An Interdisciplinary Pediatric Trauma Conference. (Special symposium by invitation only), Philadelphia, PA (Special Symposia Presentation), Apr 1997.
7. Tschumperlin DJ and Margulies SS. Regional lung inflation and epithelial injury: implications for ventilator-induced lung injury. Biomedical Engineering Society, Cleveland, OH (Conference Presentation), Oct 1998.

8. Tschumperlin DJ, Oswari J, and Margulies SS. Alveolar epithelial vulnerability to deformation, Biomedical Engineering Society, Cleveland, OH (Conference Presentation), Oct 1998.
9. Impact Biomechanics, Winter Annual Meeting of American Society of Mechanical Engineers (ASME), Anaheim, CA (Conference Presentation), Nov 1998.
10. Alveolar epithelial cytoskeleton and cell vulnerability to stretch, Am Soc Mech Engineers Summer Meeting (Conference Presentation), Jun 1999.
11. Lung Injury Biomechanics: An In-vitro Model and Clinical Implications. Biomedical Engineering Society, Atlanta, GA (Conference Presentation), Oct 1999.
12. Faculty Appointments, NSF Women in Engineering Leadership Conference, Winter Park, CO (Special Symposia Presentation), Oct 2000.
13. Tissue Strain Thresholds for Axonal Injury in the Infant Brain, Am Soc Mech Engineers Summer Meeting (Conference Presentation), Jun 2001.
14. Cell-matrix signaling pathways in pulmonary alveolar epithelial cells, Am Soc Mech Engineers Summer Meeting (Conference Presentation), Jun 2001.
15. Stretch-induced cellular injury during nonuniform ventilation, Functional Lung Imaging Conference, Philadelphia, PA (Special Symposia Presentation), Sep 2001.
16. Biomechanics of Accidental and Inflicted Head Injuries in the Infant, BMES Annual Meeting (Conference Presentation), Oct 2001.
17. Static Stretch Conditions Alveolar Epithelial Cells against Cyclic Stretch Injury, BMES Annual Meeting (Conference Presentation), Oct 2001.
18. Pulmonary epithelial cell-matrix signalling via alpha-6/beta-4 integrin, Respiratory Biomechanics, International Congress on Biomechanics, Calgary AL, Canada (Conference Presentation), Aug 2002.
19. Pathobiology and Biomechanics of Inflicted Childhood Neurotrauma, at the NIH Workshop for Inflicted Injuries in Infants, National Institutes of Health (Special Symposia Presentation), Oct 2002.
20. Na<sup>+</sup>/K<sup>+</sup>-ATPase Stimulation Adapts to Tonic Epithelial Cells. Biomedical Society Meeting, Nashville, TN (Conference Presentation), Oct 2003.
21. Intracellular Actin and Calcium Contribute to Stretch-induced Increases in Paracellular Permeability. Biomedical Society Meeting, Nashville, TN (Conference Presentation), Oct 2003.
22. New Models in Traumatic Brain Injury – An Overview, Soc of Neurotrauma, Biloxi, MS (Conference Presentation), Nov 2003.
23. Biomechanics of Injury. Paediatric Neurotrauma Symposium, University of Edinburgh, Scotland. (Special Symposia Presentation), Jan 2004.
24. **(Keynote Speaker)** Tissue Mechanics. 21st International Congress of Theoretical and Applied Mechanics (ICTAM), in Warsaw, Poland (Conference Presentation), Aug 2004.
25. Biomechanics of head trauma: clinicobiomechanical correlates. International Conference on Child and Family Maltreatment (Conference Presentation), Jan 2005.
26. **(Keynote Speaker)** BME Day, Biomedical Engineering Department, Boston University, Boston, MA (Special Symposia Presentation), Feb 2005.
27. Pathways of stretch-induced tight junction disruption. Experimental Biology 2006 (Conference Presentation), Mar 2006.

28. **(Featured Speaker)** Experimental Biology 2006 (Special Symposia Presentation), Apr 2006.
29. **(Keynote Speaker)** Injury Biomechanics Symposium, Ohio State University, Columbus, OH (Special Symposia Presentation), May 2006.
30. Predicting Unconsciousness From a Pediatric Brain Injury Threshold, 5<sup>th</sup> World Congress of Biomechanics (Conference Presentation), Jul 2006.
31. **(Keynote Speaker)** Mechanics of Head Injuries in Children - Separating Fact from Fiction, American Society of Biomechanics, Blacksburg, VA (Special Symposia Presentation), Sep 2006.
32. Biomechanics of Head Injuries at the International Conference on Child and Family Maltreatment, San Diego, CA (Conference Presentation), Jan 2007.
33. **(Featured Speaker)** Pediatric Brain Injury Research: Tissue level brain injuries at Brain Injury Symposium, Department of Transportation Washington, DC (Special Symposia Presentation), Feb 2007.
34. **(Featured Speaker)** Transcellular ion transport function vs paracellular transport properties in stretch-induced alveolar epithelial injury. Experimental Biology 2007, Washington, DC (Conference Presentation), Apr 2007.
35. Career Paths are Rarely Straight. Association for Women in Science- Philadelphia Chapter (Special Symposia Presentation), May 2007.
36. **(Keynote Speaker)** Advances in Biomechanics Research at the Pediatric Abusive Head Trauma Conference, Hershey, PA (Special Symposia Presentation), Jul 2007.
37. **(Invited Speaker)** Mechanical Properties of Brain and Skull, at the Workshop on Mathematical Modelling of Hydrocephalus and Syringomyelia at the Fields Institute of Mathematics, University of Toronto, Toronto, Ontario (Special Symposia Presentation), Jul 2007.
38. **(Keynote Speaker)** Biomechanics of Pediatric TBI, New Frontiers in Pediatric Traumatic Brain Injury, San Diego, CA (Special Symposia Presentation), Nov 2007.
39. Cyclic Stretch Magnitude and Duration Affect Rat Alveolar Epithelial Gene Expression, Pulmonet European Research Consortium, Innsbruck, Austria (Special Symposia Presentation), Mar 2008.
40. **(Featured Speaker)** Alveolar epithelial cell signaling in response to mechanical stress. Experimental Biology 2008, San Diego, CA (Conference Presentation), Apr 2008.
41. Pediatric Neurocritical Care, Northwestern University, Chicago, IL (Special Symposia Presentation), Sep 2008.
42. **(Keynote Speaker)** What are the three most significant developments in biomechanical modeling, 7<sup>th</sup> North American Conference on Shaken Baby Syndrome, Vancouver BC (Conference Presentation), Oct 2008.
43. **(Featured Speaker)** Dummies for dummies, 7<sup>th</sup> North American Conference on Shaken Baby Syndrome, Vancouver BC (Conference Presentation), Oct 2008.
44. **(Featured Speaker)** What animal models tell us about inflicted injury, 7<sup>th</sup> North American Conference on Shaken Baby Syndrome, Vancouver BC (Featured Speaker) (Conference Presentation), Oct 2008.
45. Neuroimaging in Traumatic Brain Injury, Cleveland Clinic, Cleveland, OH (Special Symposia Presentation), Oct 2008.
46. Mechanisms of Stretch Induced Alveolar Epithelial Injury. American Thoracic Society

- 2009, San Diego, CA (Conference Presentation), May 2009.
47. Infants and Toddlers Have Different Thresholds for Axonal Injury, World Congress of Biomechanics, Singapore (Conference Presentation), Aug 2010.
  48. **(Featured Speaker)** From Questions to Answers: Application of the Scientific Method to Abusive Head Trauma by Interdisciplinary Research Teams, 11<sup>th</sup> International Conference on SBS/AHT, Jackson Hole, WY (Conference Presentation), Sep 2010.
  49. High Magnitude Stretch Decreases MLC Phosphorylation in Alveolar Epithelia, Biomedical Engineering Society, Austin TX (Conference Presentation), Oct 2010.
  50. Computational and Experimental Techniques in Determining Functional and Structural Injury Thresholds in the Brain, 2<sup>nd</sup> Biennial International Symposium on Brain Injury in Children, Toronto, Ontario (Special Symposia Presentation), Jul 2011.
  51. **(Keynote Speaker)** Injury Thresholds – It Takes the Whole Biomechanics Toolbox, 6<sup>th</sup> IASTED International Conference on Biomechanics, The International Association of Science and Technology for Development (IASTED), Pittsburgh, PA (Conference Presentation), Nov 2011.
  52. Biomechanics – A Force for Good, 2011 Annual Weinbaum Lecture, Rensselaer Polytechnic Institute, Troy, NY (Special Symposia Presentation), Dec 2011.
  53. **(Featured Speaker)** Building Bridges Between Clinicians and Engineers to Understand AHT, 12<sup>th</sup> International Conference on SBS/AHT, Cambridge/Boston, MA (Conference Presentation), Sep 2012.
  54. Animal Models of TBI: Targeting Novel Therapies, in Traumatic Brain Injury in Children: Addressing Challenges Across the Spectrum of Severity, Pediatric Academic Societies 2013 Annual Meeting, Washington, DC (Conference Presentation), May 2013.
  55. **(Keynote Speaker)** Abusive Head Trauma: A Biomechanics Perspective, NIH NICHD Advisory Meeting on Abusive Head Trauma, Bethesda, MD (Special Symposia Presentation), May 2013.
  56. **(Featured Speaker)** Biomechanical Models of Abusive Head Trauma, Pediatric Abuse Head Trauma Conference. Burlington, VT (Conference Presentation), Jun 2013.
  57. **(Special Course Featured Speaker)** Biomechanics of Pediatric Traumatic Brain Injury, American Association of Neuropathologists Annual Meeting, Charleston, SC (Conference Presentation), Jun 2013.
  58. **(Panel Discussion Moderator)** Brain Trauma-Related Neurodegeneration: Strategies to Define, Detect, and Predict, NIH Foundation Workshop, Bethesda, MD (Special Symposia Presentation), Jul 2013.
  59. Estimating Stiffness of Infant and Toddler Age Porcine Brain Tissue Subjected to High Rotational Velocities Using Computational and Experimental Methods, 12<sup>th</sup> Annual US National Congress on Computational Mechanics, Raleigh, NC (Conference Presentation), Jul 2013.
  60. **(Featured Speaker)** Stretch and other Environmental Approaches to Lung Bioengineering, Stem Cells and Cell Therapies in Lung Biology and Lung Diseases Conference, Burlington, VT (Conference Presentation), Jul 2013.
  61. **(Featured Speaker)** Cyclosporin A Therapy Trials for Pediatric TBI in a Large Animal Model, National Neurotrauma Society Meeting, Nashville, TN (Conference Presentation), Aug 2013.

62. Immature Large Animal Translational Treatment Trial with Mitochondrial Targeted Pharmacologic Intervention for Traumatic Brain Injury in Children, National Neurotrauma Society Meeting, Nashville, TN (Conference Presentation), Aug 2013.
63. **(Featured Speaker)** Animal Models of Pediatric Traumatic Brain Injury, International Neurotrauma Society (Conference Presentation), Mar 2014.
64. Evaluation of Infant Formula in Piglets, Meade Johnson (Company Presentation), May 2014.
65. Metabolic Approaches to TBI Therapy, NeuroVive (Company Presentation), May 2014
66. Overview on Injury Biomechanics, World Congress for Biomechanics (Conference Presentation), Jul 2014.
67. Using Animal Models to Develop Objective Diagnostic Metrics for Concussion, Big 10-Ivy League TBI Research Summit (Seminar), Jul 2014.
68. Translational Research Evaluating the Effects of Cyclosporin Following TBI in Piglets: Success or Failure?, 5<sup>th</sup> Annual Arrowhead TBI Conference, Washington, DC (Conference Presentation), Apr 2015 .
69. **(Featured Speaker)** How Animal Studies Can Inform Concussion Research, Children's Hospital of Philadelphia 3<sup>rd</sup> Annual Concussion Workshop, Philadelphia, PA, May 2015.
70. **(Featured Speaker)** TBD, Office of Naval Research Large Animal Workshop (Conference Presentation), Fall 2015.
71. **(Featured Speaker)**, Emerging Insight from Animal and Human Studies about the Biomechanics of Concussion Institute of Medicine National Academy of Engineering Concussion Meeting (Conference Presentation), Jun 2015.
72. **(Featured Speaker)**, Using Large Animal Model for TBI to Develop Objective Metrics for TBI Diagnosis, Inaugural Massey TBI Summit, University of Michigan (Conference Presentation), Sep 2015.
73. **(Plenary Speaker)** Emerging Insights from Animal and Human Studies About the Biomechanics of Concussion, University of Akron, Akron, OH, Nov 2015.
74. **(Invited Speaker)** Mechanisms of Pediatric TBI, Keystone Conference Traumatic Brain injury: Clinical, Pathological and Translational Mechanisms, Santa Fe, NM, Jan 2016.
75. Concussion: Biomechanics of Prevention, 4<sup>th</sup> Annual Diagnosis and Management of Concussion: Seeing Concussion Through New Eyes Conference, Children's Hospital of Philadelphia, Apr 2016.
76. **(Invited Speaker)** TBI Preclinical Research Methods Workshop: Rotational Acceleration Model (Swine), National Neurotrauma Society Annual Meeting, Jun 2016.
77. **(Invited Speaker)** Connecting TBI Animal Models to Human Disease: Biomedical Relevance Workshop: Establishing a clinically relevant large animal model platform for TBI Therapy Development, National Neurotrauma Society Annual Meeting, Jun 2016.
78. **(Invited Speaker)** Role of Animal Models in TBI Research, Big 10-Ivy League TBI Research Summit (Seminar), Jul 2016.
79. Biomechanics for Prevention, Big 10-Ivy League TBI Summit (Breakout Panel), Jul 2016.
80. **(Plenary Speaker)** Integrating Computational and Experimental Approaches to Understand Traumatic Brain Injury, 14<sup>th</sup> International Symposium on Computer Methods in Biomechanics and Biomedical Engineering, Tel Aviv, Israel, Sep 2016.

81. Biomechanics, Biosensors – magnitude and dosing, Pediatric Concussion Workshop, NIH Strategic Planning Meeting, Bethesda, MD, Oct 2016.
82. Tools and Strategies for a Successful and Fulfilling Career in Academia, WIE LEAD Global Women in STEM Leadership Summit, Atlanta, GA, Mar 2018.
83. A new approach for evaluation of finite element-based tissue injury metrics for estimating axonal damage in piglets undergoing rapid head rotation (**Invited Speaker**) World Congress of Biomechanics, Dublin, Ireland, Jul 2018.
84. Neurotrauma Across the Lifespan, 3rd Joint Symposium of the International and National Neurotrauma Societies and AANS/CNS Section on Neurotrauma and Critical Care (**Invited Speaker**), Toronto, Ontario, Aug 2018.
85. Using Animals to Inform Clinical Diagnosis, (**Invited Speaker**) American Neurological Society Atlanta, GA, Oct 2018.
86. Pediatric Concussion Biomechanics, Buckhead Rotary Club, Atlanta, GA, Oct 2018.
87. (**Plenary Speaker**) Research and Education at the Intersection of Medicine and Engineering: Leading Change, Earl Bakken Lecture, 2019 Meeting of the American Institute for Medical and Biological Engineering (AIMBE), Mar 2019.
88. (**Plenary Speaker**) Injury Biomechanics Across Scales, Summer Biomechanics, Bioengineering, Biotransport Conference (SB3C), Seven Springs, PA, Jun 2019.
89. (**Invited Speaker**) BME 2020 Vision Symposium, Columbia University, New York, NY, Apr 2020.

21. Abstract Presentations at National/International, Regional, and Institutional Conferences:

a. National and International: (NOTES: conference titles, dates, and locations are provided as tracked; first author listed is primary presenter; oral vs. poster was not tracked)

1. Sweet LM, Kriegman DJ, **Sheps S** and Siegel DM. Processing of contour and binary images for vision-guided robotics. Conference of CAD/CAM Technology in Mechanical Engineering, Cambridge, MA, Mar 1982.
2. Sweet LM, Kriegman DJ, **Sheps S** and Siegel DM. Accuracy of invariant moment analysis in computer vision systems. Proc Am Soc Mech Eng, Dec 1982.
3. **Margulies SS**, Thibault LE and Gennarelli TA. Physical models of head injury. Proc of 38th Ann Conf on Eng in Med and Biol, 1985; p 85.
4. Deschamps C, Sprung J, Rodarte JR and **Margulies SS**. Regional shortening of canine diaphragm during spontaneous and mechanical ventilation (supine position). *Physiologist*, 1987; 30:171.
5. Sprung J, Rodarte JR, **Margulies SS** and Deschamps C. Effect of posture on passive length-volume characteristic in canine diaphragm. *Physiologist*, 1987; 30:171.
6. **Margulies SS**, Rodarte JR, Wilson TA and Hoffman EA. Interaction between lung and chest wall shapes. *Physiologist*, 1987; 30:172.
7. Rodarte JR, Sprung J, Deschamps C, **Margulies SS** and Hubmayr RD. Relationship between shortening and displacement of the canine diaphragm during ventilation. *Physiologist*, 1987; 30:172.
8. **Margulies S**, Wilson T, Rodarte J, Hoffman E and Ritman E. Kinematics of rib motion in the dog. *FASEB J*, 1988; 2:1499.

9. **Margulies S**, Rodarte J, Bergsland P and Hoffman E. Influence of body position on rib cage and diaphragm shapes. Proceedings of the World Congress on Medical Physics and Biomedical Engineering, 1988; p 222.
10. **Margulies SS**, Farkas GA, Olson D, Gosse K and Rodarte JR. Effects of body position and lung volume on in situ length of canine diaphragm. *Physiologist*, 1988; 31:A222.
11. Wilson TA, Liu S and **Margulies SS**. Deformation of the dog lung in the chest wall. *FASEB J*, 1989; 3:A240.
12. Rodarte JR and **Margulies SS**. Respiratory muscle mechanics. Seventh Annual Conference on Biomechanical Engineering Research in Houston, Feb 1989.
13. Hubmayr R, **Margulies S**, Nelson S and Schroeder M. The interpulmonary distribution of pleural pressure during single lung inflation. Fall 1989 meeting of APS/ATS, *Physiologist*, 1989; 32(4):193.
14. **Margulies SS** and Rodarte JR. Diaphragmatic zone of apposition (ZAP) in the dog. *Physiologist*, 1989; 32(4):192.
15. **Margulies SS**, Lei GT and Hubmayr RD. Effect of chest wall and mode of ventilation on lung/lung interaction. *FASEB J*, 1990; 4:A866.
16. **Margulies S** and Schroeder M. Regional variation in canine diaphragm thickness. *Physiologist*, 1990; 33(4):A-43.
17. Hubmayr RD, Farkas GA, Schriener RW, **Margulies SS** and Schroeder MA. Diaphragm mechanics in unilateral canine emphysema. *Physiologist*, 1990; 33(4):A-82.
18. Schriener RW, **Margulies SS**, Schroeder MA and Hubmayr RD. Interdependence between lungs with different mechanical properties: Statics. *Physiologist*, 1990; 33(4):A-82.
19. **Margulies SS**, Lei GT and Rodarte JR. Finite element analysis of stress in the canine diaphragm. *FASEB J*, 1991; 5:A746.
20. **Margulies SS**, Hubmayr RD, Walters BJ. Frequency-dependence of ventilation distribution in dogs with unilateral emphysema. *FASEB J*, 1992; 6:A1512.
21. Hubmayr RD, **Margulies SS**, Walters BJ. Interpulmonary ventilation distribution in dogs with unilateral emphysema. *FASEB J*, 1992; 6:A1513.
22. **Margulies SS**, Keel S, Hubmayr RD. Effects of breathing mode on lung deformation in canine unilateral emphysema. *FASEB J*, 1993; 7:A321.
23. Hubmayr RD, **Margulies SS** and Wilson, TA. Regional volume distributions in statically and dynamically hyperinflated dogs. *ARRD*, 1994; 149:A71.
24. Arbogast KB, **Margulies SS** and Thibault, LE. Strain in the brainstem during rotational head injury. *adv in bioeng, ASME*, 1994, 28:315-316.
25. Tschumperlin D, Johns LW, Pietra GG and **Margulies SS**. Changes in alveolar epithelial surface area with lung volume. *Am J Resp Crit Care Med*, 1996; 153:A850.
26. Brennick, MJ, Hiller L, Ogilvie MD, **Margulies SS** and Pack AI. MRI study of regional variation in pharyngeal wall compliance in cats. *Am J Resp Crit Care Med*, 1996; 153:A690.
27. **Margulies SS** and Tschumperlin D T. Mechanical properties of normal and emphysematous canine lungs. *FASEB J*, 1996; 10(3):A360.
28. Brennick, MJ, Ogilvie MD, **Margulies SS**, Geffer WB and Pack AI. MRI study of regional variations in pharyngeal wall compliance in cats, sleep research, 1996; 25:216.

29. Thibault, Kirk and **Margulies SS**. Material properties of the developing porcine brain. Int. Comm for Biokinetics of Impact, 1996.
30. Tschumperlin DJ, Khandkar SJ and **Margulies SS**. A device for cyclic equi-biaxial deformation of alveolar epithelial cells in vitro. Am. Thoracic Society, 1996.
31. Brennick MJ, **Margulies SS**, Ford JC, Geffer WB, and Pack AI. Kinematic MRI study of upper airway biomechanics using electrical muscle stimulation. SPIE-The International Society for Optical Engineering, 1997.
32. Thibault, Kirk, Kurtz SM, and **Margulies SS**. Effect of the age-dependent properties of the braincase on the response of the infant brain to impact. International Mechanical Engineers Congress and Exposition, 1997.
33. Chan V, Mao J and **Margulies SS**. Mobile sequential compression device to enhance venous return in the seated patient. University of Pennsylvania Institute on Aging Poster Session, 1997.
34. Tschumperlin DJ and **Margulies SS**. Deformation-induced injury of alveolar epithelial cells is dependent on morphology. Biomedical Engineering Society, 1997.
35. Duhaime AC, Raghupathi R, **Margulies SS**, Golder J, Hunter J, McIntosh T and Marwaha S. Human and piglet studies on the effect of immaturity on the brain's response to mechanical trauma. Neurotrauma Society, 1997.
36. Brennick MJ, Ford JC, **Margulies SS**, Geffer WB, and Pack AI. MRI during stimulus-gated acquisition shows genioglossal electrical pacing modulates pharyngeal airway size. *Am J Resp Crit Care Med*, 1998.
37. Tschumperlin DJ and **Margulies SS**. Deformation-induced injury in primary alveolar epithelial cells after 1 and 5 days in culture. *Am J Resp Crit Care Med*, 1998.
38. Hyatt, RE, **Margulies SS**, Farkas, G and Schroeder, M. Pulmonary mechanics of papain emphysema in dogs. *Am J Resp Crit Care Med*, 1998.
39. Tschumperlin DJ and **Margulies SS**. An in vitro model of ventilator-induced lung injury. Third World Congress of Biomechanics, Sapporo Japan, 1998.
40. Prange MT and **Margulies SS**. Large deformation material properties of white and gray matter. Third World Congress of Biomechanics, Sapporo Japan, 1998.
41. Tschumperlin DJ and **Margulies SS**. Deformation-induced injury of alveolar epithelial cells: effect of strain magnitude and amplitude. Experimental Biology '98. Winner of the **Proctor and Gamble Professional Opportunity Award** and selected for the **Highlights in Graduate Student Posters in Respiratory Pathology Session**.
42. Tschumperlin DJ and **Margulies SS**. Regional lung inflation and epithelial injury: implications for ventilator-induced lung injury. Biomedical Engineering Society, 1998.
43. Tschumperlin DJ, Oswari J, and **Margulies SS**. Alveolar epithelial vulnerability to deformation. Biomedical Engineering Society, 1998.
44. Prange MT, Meaney DF and **Margulies SS**. Directional properties of gray and white brain tissue undergoing large deformation. Int. Mech. Eng. Congress, Am Society of Mech Engineers, 1998.
45. **Margulies SS**, Oswari J, Wang Y and Matthay MA. Keratinocyte Growth Factor (KGF) reduces alveolar epithelial susceptibility to in vitro deformation. *Am J Resp Crit Care Med*, 1999.



46. **Margulies SS**, Oswari J, Wang Y, Matthay MA and Tschumperlin DJ. Alveolar epithelial cytoskeleton and cell vulnerability to stretch. Am Soc Mech Engineers Summer Meeting, 1999.
47. Oswari J, Levenson H, Chin G, Liu W, Kim WJH, Hsu Meier Lee S, Gittes G, Longaker MT, and **Margulies SS**. Mechanical Strain, Cell Matrix Interactions and Cell Density Influence Fibroblast Viability. Annual Meeting of the Plastic Surgery Society, 1999.
48. Levenson H, Oswari J, Chin G, Liu W, Kim WJH, Meier H, Lee S, Gittes G , Longaker MT, and **Margulies SS**. Tonic stretch and fibroblast viability. Am Soc of Plastic and Reconstructive Surgeons, New Orleans, LA Oct 24-7, 1999.
49. Tschumperlin DJ, Oswari J and **Margulies SS**. Alveolar epithelial injury in vitro: temporal evolution and strain rate sensitivity. Biomedical Engineering Society, Oct 1999.
50. **Margulies SS**, Bareyre FM and Raghupathi R. Diffuse axonal injury in the neonatal pig. 17<sup>th</sup> Annual National Neurotrauma Society Meeting, Miami, FL, Oct 1999.
51. Duhaime AC and **Margulies SS**. Biomechanical modeling in infant head injury: from tissue to patient history. Congress of Neurological Surgeons Annual Meeting, Boston, MA, Nov 1999.
52. Cavanaugh KJ, Oswari J and **Margulies SS**. Role of stretch on cell metabolism and tight junction (TJ) structure in alveolar type II cells, *Am J Resp Crit Care Med*, May 2000.
53. Fisher JL and **Margulies SS**. Na<sup>+</sup>-K-ATPase Pump activity in alveolar type II cells increases with stretch, *Am J Resp Crit Care Med*, May 2000.
54. Cavanaugh KJ and **Margulies SS**. Mechanical stretch decreases tight junction protein expression in cultured pulmonary alveolar epithelial cells, *Experimental Biology*, 2001.
55. Fisher JL and **Margulies SS**. Static stretch conditions alveolar epithelial cells against cyclic stretch injury. Biomedical Engineering Society, 2001.
56. Cavanaugh KJ and **Margulies SS**. Stretch increases paracellular permeability to BODIPY-Ouabain in alveolar epithelial cells, Biomedical Engineering Society, 2001. Selected for the **Highlights in Graduate Student Posters in Respiratory Physiology Session**.
57. Prange MT, Coats B, Duhaime AC and **Margulies SS**, Biomechanics of accidental and inflicted head injuries in the infant, Biomedical Engineering Society, 2001.
58. **Margulies SS**, Hawk M and Weaver VM. Cell-matrix mechanical signaling pathways in pulmonary alveolar epithelial cells. ASME-BED, Vol 50, Bioengineering Conference, Snowbird, MT, Jun 2001.
59. Prange MT and **Margulies SS**. Tissue strain thresholds for axonal injury in the infant brain. ASME-BED, Vol 50, Bioengineering Conference, Snowbird, MT, Jun 2001.
60. Raghupathi R, Torres P, Longhi L, **Margulies SS**. Cognitive deficits following focal and diffuse trauma to the immature rat brain. Neurotrauma Society Meeting, San Diego, CA, Nov 2001.
61. Prange MT, Coats B, Raghupathi R, Duhaime AC and **Margulies SS**. Rotational loads during inflicted and accidental infant head injury, Neurotrauma Society Meeting, San Diego, CA, Nov 2001.
62. Duhaime AC, Prange MT, Christian C, **Margulies SS**. Smarter dummies: infant head injury thresholds from improved anthropomorphic modeling. American Association of Neurosurgeons – Pediatric Meeting, Dec 2001.

63. Cavanaugh KJ and **Margulies SS**. Stretch-induced loss of tight junction integrity is independent of protein Kinase C and Tyrosine Kinase activity. Experimental Biology, 2002. Winner of the **Proctor and Gamble Professional Opportunity Award**.
64. Lund, ME and **Margulies SS**. Stretch increases intracellular sodium in alveolar epithelial cells. Experimental Biology, 2002.
65. Coats BS and **Margulies SS**. Material properties of porcine parietal cortex. World Congress on Biomechanics, Aug 2002.
66. **Margulies SS**, Hawk M and Weaver VM. Pulmonary epithelial cell-matrix signalling via alpha-6/beta-4 integrin. World Congress on Biomechanics, Aug 2002.
67. Prange MT and **Margulies SS**. Predictions of infant brain injuries in minor falls and inflicted events. World Congress on Biomechanics, Aug 2002.
68. **Margulies SS**, Fisher J, and Cavanaugh KJ. Lung inflation: can you get too much of a good thing? Biomedical Engineering Society, Oct 2002.
69. Duhaime AC, Grate L, Hunter J, Golden J and **Margulies SS**. Age-dependent response to scaled cortical impact in the piglet. International Neurotrauma Society Meeting, Tampa, FL, Oct 2002.
70. Mehr MF, Rahupathi R, Halfaer MA, **Margulies SS**. Repeated rapid accelerations produce increased axonal injury in the immature brain. International Neurotrauma Society Meeting, Tampa, FL, Oct 2002.
71. Foster CD, Varghese LS, Gonzales LW, **Margulies SS** and Guttentag SH. Mechanotransduction of human alveolar type 2 cells: expression profiles after supraphysiologic stretch. Society for Pediatric Research Meeting, 2003.
72. Cavanaugh, KJ and **Margulies SS** Stretch increases alveolar epithelial paracellular permeability to macro- and micromolecules. Am Thoracic Society Annual Meeting, Seattle, WA, Apr 2003.
73. Fisher JL and **Margulies SS**. Changes in alveolar epithelial cell surface area and plasma membrane surface area with stretch. Am Thoracic Society Annual Meeting, Seattle, WA, Apr 2003.
74. Zhu Q, Dougherty L, **Margulies SS**. In vivo measurements of human brain displacement. Am Soc Mech Eng – Bioengineering Division Meeting, Key Biscayne, FL, Jun 2003.
75. Gefen A., Gefen N., Raghupathi R, **Margulies SS**. Infant rat brain tissue is significantly stiffer than adult. Am Soc Mech Eng – Bioengineering Division Meeting, Key Biscayne, FL, Jun 2003.
76. Cavanaugh KJ and **Margulies SS**. Mechanical stretch increases alveolar epithelial paracellular permeability and equivalent pore radius. Am Soc Mech Eng – Bioengineering Division Meeting, Key Biscayne, FL, Jun 2003.
77. Fisher J, Levitan I and **Margulies SS**. Changes in alveolar epithelial cell plasma membrane surface area with static stretch. Am Soc Mech Eng – Bioengineering Division Meeting, Key Biscayne, FL, Jun 2003.
78. Coats BS and **Margulies SS**. Characterization of pediatric porcine skull properties during impact, Int Conf of Biomech of Impacts, Portugal, Sep 2003.
79. Fisher J and **Margulies SS**. Na<sup>+</sup>/K<sup>+</sup>-ATPase stimulation adapts to tonic epithelial cells. Biomedical Society Meeting, Nashville, TN, Oct 2003.

80. Cavanaugh KJ and **Margulies SS**. Intracellular actin and calcium contribute to stretch-induced increases in paracellular permeability. Biomedical Society Meeting, Nashville, TN, Oct 2003.
81. **Margulies SS**, Gefen A, Gefen N, Rahupathi R. Do brain mechanical properties change with age in the rat? 21<sup>st</sup> Annual National Neurotrauma Society Symposium, Biloxi, MS, Nov 2003.
82. Levine G, Deutschman C, Helfaer M, **Margulies SS**. Alveolar epithelial vulnerability to stretch after septic injury. 33<sup>rd</sup> Critical Care Congress, Society of Critical Care Medicine, Orlando, FL, Feb 2004.
83. **Margulies SS** and Weaver VM. Ligation of alpha 6/beta 4 to laminin-5 reduces stretch-induced alveolar epithelial cell death. Am Thoracic Society Annual Meeting, Orlando, FL, May 2004.
84. Levine G, Deutschman C, Helfaer M and **Margulies SS**. Septic injury alters alveolar epithelial vulnerability to stretch. Am Thoracic Society Annual Meeting, Orlando FL, May 2004.
85. Arbogast KB, **Margulies SS**, Sandhu AS and Christian CW. Initial neurological presentation in young children sustaining inflicted and unintentional fatal head injuries, *Pediatr Res*, 2004; 55:111A. Pediatric Academic Societies' Meeting, San Francisco, CA, May 2004.
86. Gefen A. and **Margulies SS**. The effect of cerebral blood pressure on shear modulus of cortical brain tissue, 14th European Society of Biomechanics Conf., Den Bosch, The Netherlands, Jul 4-7 2004.
87. Gefen A, **Margulies SS** and Linder-Ganz E. Pressure sores in muscles: is injury exacerbated by a positive-feedback increase in tissue stiffness and internal loads? 14th European Society of Biomechanics Conf., Den Bosch, The Netherlands, Jul 4-7 2004, (Invited Abstract).
88. Gefen A, Linder-Ganz E, Yizhar Z and Margulies SS. Tissue breakdown in residual limbs of transtibial amputees: finite element analysis, ICEM12- 12th International Conference on Experimental Mechanics, Politecnico di Bari, Italy Aug 2004.
89. Gefen A, Linder-Ganz E, Yizhar Z and **Margulies SS**. Tissue breakdown in residual limbs of transtibial amputees: finite element analysis, Proc. of the 12th International Conf. on Experimental Mechanics, Bari, Italy, Aug 29 - Sep 2, pp. 42-43, 2004.
90. Fisher J and **Margulies SS**. Modeling the effects of plasma membrane stretch on Na<sup>+</sup>/K<sup>+</sup>-ATPase in alveolar epithelial cells. Biomedical Society Meeting, Philadelphia, PA, Oct 2004. **Awarded the BMES Award for Outstanding Scientific and Engineering Innovation.**
91. Ji S and **Margulies SS**. A method for obtaining measurements of human brainstem displacement in vivo. Biomedical Society Meeting, Philadelphia, PA, Oct 2004.
92. Zahir N, Johnson KR, Lakins JN, Paszek M, **Margulies SS**, Hammer DA and Weaver VM. Spatial-mechanical regulation of mammary epithelial cell morphogenesis. Biomedical Society Meeting, Philadelphia, PA, Oct 2004.
93. Gabriel N, Haddadin R and **Margulies SS**. Prolonged stretch increases alveolar epithelial cell death. Biomedical Society Meeting, Philadelphia, PA, Oct 2004.
94. **Margulies SS**, Cavanaugh KJ, Cohen TS, DiPaolo BC. High stretch cycling rates alter alveolar epithelial permeability and actin organization. Am Thoracic Society Annual Meeting, San Diego, CA, May 2005.

95. Gefen A, Levchakov A, Linder-Ganz E, **Margulies SS** and Raghupathi R. Strain distribution of rats subjected to closed head injury is age-dependent. ASME Summer Bioengineering Conference, Vail, CO, Jun 2005.
96. Linder-Ganz E, Scheinowitz M, **Margulies SS** and Gefen A. Frequency and extent of spontaneous motion to relief of tissue loads in normal individuals seated in a wheelchair. ASME Summer Bioengineering Conference, Vail, CO, Jun 2005.
97. Coats BS and **Margulies SS**. High rate material properties of infant cranial bone and suture. ASME Summer Bioengineering Conference, Vail, CO, Jun 2005.
98. Zhou C, Eucker S, Durduran T, Yu G, Friess SH, Ralston J, Ichord R, Burnett M, Greenberg JH, **Margulies SS**, and Yodh AG. Monitoring hemodynamic changes after head trauma injury on piglet brain. Presented at the ADVANCES IN OPTICS FOR BIOTECHNOLOGY, MEDICINE AND SURGERY, Copper Mountain, CO, Jul 2005.
99. Ji S and **Margulies SS**. Gradient-based method for soft-tissue geometric reconstruction in magnetic resonance (MR) images. Biomedical Society Meeting, Baltimore, MD, Sep 2005.
100. Cohen T and **Margulies SS**. High rates and tidal volumes increase tracer motion across the alveolar epithelium during mechanical ventilation. Biomedical Society Meeting, Baltimore, MD, Sep 2005.
101. Ning X, Zhu Q and **Margulies SS**. Finite shear properties of brainstem – a transversely isotropic, viscoelastic, hyperelastic model. Biomedical Society Meeting, Baltimore, MD, Sep 2005.
102. Coats BS and **Margulies SS**. High rate material properties of infant cranial bone and suture, 23<sup>rd</sup> Annual National Neurotrauma Society Symposium, Washington, DC, Nov 2005. *Journal of Neurotrauma* (2005) 22(10):1253.
103. Friess SH, Ichord R, Owens K, Ralston J, Overall K, Helfaer M, and **Margulies, SS**. Neurobehavioral function deficits in piglets after nonimpact inertial head injury, 23<sup>rd</sup> Annual National Neurotrauma Society Symposium, Washington, DC, Nov 2005.
104. Eucker S, Ichord R, Friess SH, Chao C, Durduran T and **Margulies SS**. Cerebrovascular response depends on direction of angular velocity, 23<sup>rd</sup> Annual National Neurotrauma Society Symposium, Washington, DC, Nov 2005.
105. Ibrahim NG, Coats BS and **Margulies SS**. Response of the Toddler and infant head during vigorous shaking, 23<sup>rd</sup> Annual National Neurotrauma Society Symposium, Washington, DC, Nov 2005.
106. Foster CD, Varghese LS, Gonzales LW, **Margulies SS** and Guttentag SH. Increased human alveolar epithelial barrier function induced by differentiation and transdifferentiation. Society for Pediatric Research, 2006.
107. Duhaime AC, **Margulies SS**, Christian C, Hunter JV. Does shaking cause brain damage? Annual Meeting of the American Society of Pediatric Neurological Surgeons, Great Exuma, Bahamas, Jan 2006.
108. Zhou C, Durduran T, Yu G, Eucker S, Friess SH, Ichord R, **Margulies SS**, and Yodh AG. Real-time monitoring of hemodynamic changes in neonatal pig brain with head trauma injury, Optical Society of America, Fort Lauderdale, FL, Mar 2006.
109. Naim M, Christian C, Ichord R, Nance M, Pollack A, and **Margulies SS**. Hypoxic ischemic injury complicates traumatic brain injury in young children: the role of diffusion weighted magnetic resonance imaging (DWI). 24<sup>th</sup> Annual National Neurotrauma Society Symposium, St. Louis, MO, Jul 2006.

110. Naim M, Friess SH, AC Duhaime, and **Margulies SS**. Folate supplementation decreases axonal injury in the piglet model of pediatric head injury. 24<sup>th</sup> Annual National Neurotrauma Society Symposium, St. Louis, MO, Jul 2006.
111. Ibrahim N, J Ralston, C Smith and **Margulies SS**. Toddler porcine model of rapid nonimpact head injury, 24<sup>th</sup> Annual National Neurotrauma Society Symposium, St. Louis MO Jul 2006.
112. Eucker SA, Chao, Durduran, Yodh, and **Margulies SS**. Hypertonic saline increases cerebral blood flow after traumatic brain injury 24<sup>th</sup> Annual National Neurotrauma Society Symposium, St. Louis, MO, Jul 2006.
113. Zhu Q, Prange M, and **Margulies SS**. Predicting unconsciousness from a pediatric brain injury threshold. 5<sup>th</sup> World Congress of Biomechanics, Munich, Germany, Jul 2006.
114. Cohen TS and **Margulies SS**. JNK inhibition reduces the effect of stretch on epithelial barrier dysfunction. Biomedical Society Meeting, Chicago, IL, Oct 2006.
115. Binenbaum G; Forbes BJ; Christian CW; Reghupathi R; Judkins, A; Rorke L. and **Margulies SS**. An animal model to study retinal hemorrhages in non-impact brain injury. American Association of Pediatric Ophthalmology and Strabismus, Seattle, WA, Apr 2007.
116. Cohen TS, Lawrence GG, Patel RT, DeHeer HL and **Margulies SS**. Alveolar epithelial cells (AECs) isolated from septic rats retain markers of sepsis in culture. Am Thoracic Society Annual Meeting, San Francisco, CA, May 2007.
117. Foster CD Varghese LS, Gonzales LW and **Margulies SS**. Differential effects of static stretch on markers of alveolar epithelial cell phenotype. Am Thoracic Society Annual Meeting, San Francisco, CA, May 2007.
118. Friess SH, Ralston J, Owens K, Helfaer M, Smith C, and **Margulies SS**. Brain injury following repeated mild nonimpact inertial head injury in piglets is dependent on inter-injury interval. National Neurotrauma Society Meeting, Kansas City, MO, Jul 2007.
119. Eucker SA, Smith C, Friess SH, Naim M, Ralston J, and **Margulies SS**. Severity of damage following inertial brain injury depends on direction of head rotation. National Neurotrauma Society Meeting, Kansas City, MO, Jul 2007.
120. Smith C, Ralston J, Ibrahim N, Truong A, Friess SH, and **Margulies SS**. Comparison of Beta-APP and NF68 in the assessment of white matter injury. National Neurotrauma Society Meeting, Kansas City, MO, Jul 2007.
121. Ibrahim N, Christian C, and **Margulies SS**. Accidental head injury patterns in young children. National Neurotrauma Society Meeting, Kansas City, MO, Jul 2007.
122. Coats BS, Ji S. and **Margulies SS**. Using computational models to predict skull fracture in the infant. Pediatric Abusive Head Trauma, Hershey, PA, Jul 2007.
123. Cohen TS and **Margulies SS**. ERK and stretch induced epithelial barrier dysfunction. Biomedical Society Meeting, Los Angeles, CA, Sep 2007.
124. Foster C, Varghese L, Gonzales L, **Margulies SS**. Static stretch of differentiated human fetal type II cells promotes transition to a type I phenotype. Pediatric Academic Society Meeting, 2008.
125. Cohen TS and **Margulies SS**. Septic preconditioning alters stretch induced MAPK activation in isolated rat epithelial cells (RAEC). American Thoracic Society Meeting, Toronto, Ontario, May 2008.
126. DiPaolo BC and **Margulies SS**. Stretch magnitude-dependent actin remodeling in alveolar epithelia. American Thoracic Society Meeting, Toronto, Ontario, May 2008.

127. Friess SH, Ralston J, Eucker SA, Helfaer M, and **Margulies SS**. Temporal changes in brain tissue oxygen and metabolism following diffuse traumatic brain injury in piglets. National Neurotrauma Society Meeting, Orlando, FL, Jul 2008.
128. Eucker SA, Friess SH, Ralston J, and **Margulies SS**. Regional cerebral blood flow response following brain injury depends on direction of head motion. National Neurotrauma Society Meeting, Orlando, FL, Jul 2008.
129. Ibrahim N, Coats BS, and **Margulies SS**. Kinematics of the infant and toddler during low height falls. National Neurotrauma Society Meeting, Orlando, FL, Jul 2008.
130. Yerrapureddy AN, Tobias J and **Margulies SS**. Genetic effects of magnitude and duration of stretch on rat alveolar Type I epithelial cells. Biomedical Society Meeting, St. Louis, MO, Oct 2008.
131. Ryall K, Ibrahim NG, Eucker SA and **Margulies SS**. Direct visualization of brain distortion during rapid rotational accelerations. Biomedical Society Meeting, St. Louis, MO, Oct 2008.
132. Binenbaum G, Coats C, Peiffer RL, Forbes BJ, and **Margulies SS**. Ocular hemorrhage in single rapid rotational events. Association for Research in Vision and Ophthalmology Annual Meeting, Fort Lauderdale, FL, May 2009.
133. Cohen TS and **Margulies SS**. Septic preconditioning alters stretch induced MAPk activation in isolated rat alveolar epithelial cells (RAEC). American Thoracic Society Meeting, San Diego, CA, May 2009.
134. Cohen TS, Bucki R, Rosenberg B, Ciccarelli N, Janmey PA, **Margulies SS**. Gelsolin treatment reduces morbidity with sepsis. American Thoracic Society Meeting, San Diego, CA, May 2009.
135. Yerrapureddy AN, Tobias J and **Margulies, SS**. Cyclic stretch magnitude and duration affect rat alveolar Type I epithelial cell gene expression. American Thoracic Society Meeting, San Diego, CA May 2009.
136. Ibrahim, N, Christian CW, Wood J, and **Margulies SS**. Head injuries from falls in young children. Pediatric Academic Societies' Annual Meeting, Baltimore, MD, May 2009.
137. Coats BS, Binenbaum G, Pfeiffer RL, Forbes BJ, **Margulies SS**. Ocular hemorrhages from rapid, rotational accelerations. Association for Research in Vision and Ophthalmology, Fort Lauderdale, FL, May 2009.
138. Zhou C, Eucker SA, T. Durduran T, Yu G J. Ralston J, Friess SH, Ichord RN, **Margulies SS**, Yodh AG. Diffuse optical monitoring of cerebral hemodynamics in piglet with traumatic brain injury. 24th International Symposium on Cerebral Blood Flow, Metabolism and Function and the 9th International Conference on Quantification of Brain Function with PET, Chicago, IL, Jun 2009.
139. Coats BS, Binenbaum G, Pfeiffer RL, Forbes BJ, **Margulies SS**. Ocular hemorrhage in single, non-impact head rotations: A porcine model. Pediatric Abusive Head Trauma, Jackson Hole, WY, Jun 2009.
140. Coats BS, Kras J, Eucker S, **Margulies SS**. Severity of extra-axial hemorrhage from non-impact inertial head rotation in the immature pig varies with direction. National Neurotrauma Symposium, Santa Barbara, CA, Sep 2009.
141. Kilbaugh T, Bhandare S, Lorom D, Saraswati M, Robertson CL, **Margulies SS**. Cyclosporine A restores mitochondrial function in immature rat focal TBI and piglet diffuse TBI. National Neurotrauma Symposium, Santa Barbara, CA, Sep 2009.

142. Friess SH, Ralston J, Helfaer M and **Margulies SS**. Higher cerebral perfusion pressures improve brain tissue oxygenation and cerebral metabolism following pediatric brain injury. National Neurotrauma Symposium, Santa Barbara, CA, Sep 2009.
143. Eucker SA, Smith C, Ralston J, Friess SH, **Margulies SS**. Rapid sagittal rotations produce more severe physiological and histopathological responses in neonatal piglets than coronal or horizontal rotations. National Neurotrauma Symposium, Santa Barbara, CA, Sep 2009.
144. Ibrahim N, Eucker SA, Ralston J, Smith C, Margulies SS. Deformation threshold for axonal injury is larger in toddler than in infant pigs. National Neurotrauma Symposium, Santa Barbara, CA, Sep 2009.
145. Cohen TS, Lawrence GG, **Margulies SS**. Stretch-activated JNK signaling increases epithelial permeability by down regulation of occludin. Biomedical Society Meeting, Pittsburgh, PA, Oct 2009.
146. Yerrapureddy AN, Yehya N, Tobias JW, and **Margulies SS**. Expression pattern of MiRNA in large cyclic stretch of alveolar epithelial cells. Biomedical Society Meeting, Pittsburgh, PA, Oct 2009.
147. DiPaolo BC, and **Margulies SS**. High magnitude stretch activates cofilin rapidly in alveolar epithelia. Biomedical Society Meeting, Pittsburgh, PA, Oct 2009.
148. Naim MY, Smith C, Ralston J, Friess SH, Ryall K, Helfaer M, and **Margulies SS**. Folic acid enhances functional recovery in pediatric head injury. Annual Meeting of the Society for Critical Care Medicine, 2010.
149. Yehya N, Yerrapureddy A, Tobias JW, and **Margulies SS**. Differential expression profiling of microRNAs in stretched alveolar epithelial cells. Am Thoracic Society Meeting, New Orleans, LA, May 2010.
150. Cohen TS, Lawrence GG, **Margulies SS**. Sepsis exacerbates stretch-induced epithelial barrier dysfunction. Am Thoracic Society Meeting, New Orleans, LA, May 2010.
151. Coats BS, Sullivan S, **Margulies SS**. Development of a finite element model for predicting subdural hemorrhage from rapid, non-impact head rotations. National Neurotrauma Symposium, Las Vegas, NV, Jun 2010.
152. Kilbaugh T, Robertson C, Lorom D, Akella T, Ralston J, Robertson C, Smith C, **Margulies SS**. Cyclosporin A improves neuropathology and neuro-metabolic recovery in an immature large animal translational model of diffuse traumatic brain injury. National Neurotrauma Symposium, Las Vegas, NV, Jun 2010.
153. Friess SH, Ralston J, Smith C, **Margulies SS**. Brain tissue oxygenation and lactate-pyruvate ratio correlate with neuropathology after pediatric traumatic brain injury. National Neurotrauma Symposium, Las Vegas, NV, Jun 2010.
154. DiPaolo BC, **Margulies SS**. Rac mediates actin remodeling and permeability during alveolar epithelial stretch. Experimental Biology 2011, Washington, DC, Apr 2011.
155. Kilbaugh TJ, Bhandare S, Akella T, Saraswati M, Robertson CS, **Margulies SS**. Cyclosporin A preserves mitochondrial function after traumatic brain injury in immature rat and piglet. 58<sup>th</sup> Annual Meeting of the Association of University Anesthesiologists, May 2011.
156. Friess SH, Smith C, Kilbaugh T, Ralston J, Helfaer M, **Margulies SS**. Aggressive cerebral perfusion pressure augmentation with phenylephrine early after traumatic brain injury reduces secondary injury in a pediatric swine model. National Neurotrauma Society Symposium, Fort Lauderdale, FL, Jul 2011.

157. Coats BS, Binenbaum G, Peiffer RL, Sullivan S, Akella T, Ralston J, Smith C, Duhaime AC, **Margulies SS**. Ocular and neuropathology from repetitive, low velocity head rotations in immature pigs. National Neurotrauma Society Symposium, Fort Lauderdale, FL, Jul 2011.
158. Davidovich N, Lawrence GG, DiPaolo BC, **Margulies SS**. Cyclic-stretch induced oxidative stress increases alveolar epithelial permeability. BMES 2011 Meeting, Hartford, CT, Oct 2011.
159. Bruins BB, Kilbaugh TJ, **Margulies SS**, Friess SH. Effect of vasopressor selection on cerebral blood flow and intracranial pressure in a swine model of pediatric critical care. Society of Pediatric Anesthesia 2012 Meeting, Tampa, FL, Feb 2012. **Winner of the American Academy of Pediatrics John J. Downes Resident Research Award.**
160. Davidovich N, Dipaolo BC, Lawrence GG, Chhour P, Yehya N, and **Margulies SS**. Cyclic stretch induced oxidative injury increases alveolar permeability via ERK-NF- $\kappa$ B signaling, 38<sup>th</sup> Annual Northeast Bioengineering Conference, Mar 2012.
161. Hashmi SK, Sullivan S, Eucker SA, Coats BS, Lee J, **Margulies SS**. Regional tissue strains aligned with the white matter tracts predict axonal injury, 38<sup>th</sup> Annual Northeast Bioengineering Conference, Mar 2012.
162. Huang J, Davidovich N, **Margulies SS**. Rat precision-cut lung slices as a model for deformation-induced lung injury studies, 38<sup>th</sup> Annual Northeast Bioengineering Conference, Mar 2012.
163. Maltese MR, Sullivan S, Smith C, **Margulies SS**. Scaling axonal injury and unconsciousness thresholds from infant to toddler to pre-adolescent children, 30<sup>th</sup> Annual Symposium of the National Neurotrauma Society, Phoenix, AZ, Jul 2012.
164. Sullivan S, Friess SH, Ralston J, Smith C, Propert K, Rapp P, **Margulies SS**. Behavior, motor, and cognition assessments in neonatal piglets, 30<sup>th</sup> Annual Symposium of the National Neurotrauma Society, Phoenix, AZ, Jul 2012.
165. Davidovich N, Lawrence GG, Huang J, Chhour P, **Margulies SS**. Oxidative stress pathways in lung tissue slices under cyclic stretch conditions. BMES 2012 Meeting, Atlanta, GA, Oct 2012.
166. Davidovich N, Lawrence GG, DiPaolo BC, Yehya N, **Margulies SS**. Cyclic stretch-induced HER activation in the pulmonary alveolar epithelia mediates ERK signaling. BMES 2012 Meeting, Atlanta, GA, Oct 2012.
167. Saliga KL, Kilbaugh T, Costine B, Taylor SR, Sullivan S, Dodge CP, Smith C, **Margulies SS**. Multicenter immature large animal brain injury treatment trial: neuroprotection with cyclosporin A. Pediatric Neurosurgery Section, AANS/CNS, Nov 2012.
168. Friess SH, Bruins BB, Jiang J, Ralston J, Kilbaugh T, **Margulies SS**. Phenylephrine versus norepinephrine for early cerebral perfusion pressure augmentation after traumatic brain injury in a pediatric swine model, Society of Critical Care Medicine 42<sup>nd</sup> Annual Congress, San Juan, Puerto Rico, Jan 2013.
169. Maltese MR, Sullivan S, **Margulies SS**. Predicting traumatic brain injury in a pre-adolescent porcine model of traumatic brain injury via finite element modeling. 12<sup>th</sup> U.S. National Congress on Computational Mechanics, Raleigh, NC, Jul 2013.
170. Bradfield C, Sullivan S, Pasquesi S, **Margulies SS**. Stiffness of infant and toddler age porcine brain tissue subjected to high rotational velocities. 12<sup>th</sup> U.S. National Congress on Computational Mechanics, Raleigh, NC, Jul 2013.



171. Kilbaugh T, Karlsson M, Byro M, Bebee A, Ralston J, Sullivan S, Elmer E, **Margulies S**. Mitochondrial respiratory dysfunction in an immature large animal porcine translational model of diffuse traumatic brain injury. 31<sup>st</sup> Annual Symposium of the National Neurotrauma Society, Nashville, TN, Aug 2013.
172. **Margulies S**, Kilbaugh T, Sullivan S, Costine B, Feldman K, Berger R, Duhaime A. Time-dependent changes in biomarker levels following both diffuse and focal TBI in immature swine. 31<sup>st</sup> Annual Symposium of the National Neurotrauma Society, Nashville, TN, Aug 2013.
173. Kilbaugh T, Costine B, Saliga K, Byro M, Bebee A, Weeks D, Sullivan S, Ralston J, Friess SH, Zuppa A, Robertson C, Propert K, Smith C, Duhaime A, **Margulies S**. Immature large animal translational treatment trial with mitochondrial targeted pharmacologic intervention for traumatic brain injury in children. 31<sup>st</sup> Annual Symposium of the National Neurotrauma Society, Nashville, TN, Aug 2013.
174. Sullivan S, Ralston J, Friess SH, **Margulies S**. Assessing working memory with visual discrimination in piglets after traumatic brain injury. 31<sup>st</sup> Annual Symposium of the National Neurotrauma Society, Nashville, TN, Aug 2013.
175. Costine B, Saliga K, Seufert C, Fiorello M, Kilbaugh T, **Margulies SS**, Duhaime A. Targeting mitochondria with cyclosporin A after cortical impact in a large animal model. 31<sup>st</sup> Annual Symposium of the National Neurotrauma Society, Nashville, TN, Aug 2013.
176. Pasquesi SA and **Margulies SS**. Effect of strain rate and cryopreservation conditions on elastic modulus of veins. BMES 2013 Meeting, Seattle, WA, Sep 2013.
177. Yehya N, Song MJ, Lawrence GG, Davidovich N, **Margulies SS**. MicroRNA miR-15b modulates in vitro cyclic stretch-induced increases in permeability and regulates Neuregulin 1 (Nrg1). BMES 2013 Meeting, Seattle, WA, Sep 2013.
178. Song MJ, Davidovich N, Yehya N, Lawrence GG, **Margulies SS**. HER3-Mediated permeability of alveolar epithelial cells in ventilator induced lung injury. BMES 2013 Meeting, Seattle, WA, Sep 2013.
179. Maltese M, **Margulies SS**. Pediatric brain injury criteria via real world crash investigations, animal experiments, and finite element brain modeling. 11<sup>th</sup> International Protection of Children in Cars Conference, Munich, Germany, Dec 2013.
180. Clevenger A, Ralston J, Kilbaugh T, **Margulies SS**. Carotid artery diameter decreases following sagittal, non-impact rotational head injury. 43<sup>rd</sup> Annual Meeting of the Society of Critical Care Medicine, San Francisco, CA, Jan 2014.
181. Yehya N, Xin Y, Oquendo Y, Cereda M, Rizi R, **Margulies SS**. Cecal ligation and puncture accelerates the progression of ventilator-induced lung injury. American Thoracic Society Annual Conference, San Diego, CA, May 2014.
182. Cereda M, Xin Y, Yehya N, Profka, H, Profka A, **Margulies SS**, Kavanagh B, Rizi R. Radiological propagation of ventilator induced lung injury: effects of pulmonary vs. non-pulmonary inflammation. American Thoracic Society Annual Conference, San Diego, CA, May 2014.
183. Margulies SS., Understanding Why Head Rotation Direction Matters, World Congress for Biomechanics Boston, MA, Jul 2014.
184. Atlan L, Sullivan S, **Margulies SS**. Rotational moment of inertia improves predictions of axonal injury. BMES 2014 Meeting, San Antonio, TX, Oct 2014.

185. Kilbaugh T, Lvova M, Karlsson M, Zhang Z, Leipzig J, Wallace D, **Margulies SS**. Peripheral blood mitochondrial DNA as a biomarker of cerebral mitochondrial dysfunction following traumatic brain injury. Annual Symposium of the National Neurotrauma Society, Santa Fe, NM, Jun 2015.
186. Atlan, L, **Margulies SS**. Sagittal Brain Rotations Enhance the Axonal Injury Risk in the Infant Brain. BMES 2015 Annual Meeting, Tampa, FL, Oct 2015.
187. Dolinay T, Yehya N, Lawrence GG, **Margulies SS**. PERK inhibition improves permeability in mechanical stretch-induced epithelial injury. American Thoracic Society Annual Meeting, San Francisco, CA, May 2016.
188. Yehya N, Dolinay T, Thomas N, Howrylakk J, **Margulies SS**. Biomarkers of endothelial and epithelial dysfunction in adult and pediatric acute respiratory distress syndrome. American Thoracic Society Annual Meeting, San Francisco, CA, May 2016.
189. Yehya N, Thomas N, **Margulies SS**. Circulating nucleosomes discriminate mortality in pediatric acute respiratory distress syndrome. American Thoracic Society Annual Meeting, San Francisco, CA, May 2016.
190. Atlan L, **Margulies SS**. Hyperconnectivity Of Event-Related Potential Networks Enhanced By Mild Brain Injury & Anesthesia. National BMES Annual Meeting, Minneapolis MN, Oct 2016.
191. Memar M, Coats BS, Lan I, Sullivan S, **Margulies SS**. Development and Validation of Infant Skull Fracture Predictors for Low-Height Falls. National BMES Annual Meeting, Minneapolis MN, Oct 2016.
192. Hajiaghamemar M, **Margulies SS**. A new approach for evaluation of finite element based tissue injury metrics for estimating axonal damage in piglets undergoing rapid head rotation. 8<sup>th</sup> World Congress of Biomechanics, Dublin, Ireland, Jul 2018.
193. Wu T, Hajiaghamemar M, Antona-Makoshi J, Alshareef A, **Margulies SS**, Panzer M. Investigating Cross-Species Scaling for Traumatic Brain Injuries using Finite Element Analysis. 8<sup>th</sup> World Congress of Biomechanics, Dublin, Ireland, Jul 2018.
194. Atlan L, **Margulies SS**. Frequency-Dependent Changes in Resting State EEG Functional Networks in Piglets After Rapid Head Rotations - Implications for Identifying Traumatic Brain Injury. 8<sup>th</sup> World Congress of Biomechanics, Dublin, Ireland, Jul 2018.
195. Hajiaghamemar M, Wu T, Panzer MB, **Margulies SS**. Development of Tissue Injury Metrics for Predicting Traumatic Brain Injury Following Rapid Head Rotation. BMES Annual Meeting, Atlanta, GA, Oct 2018.
196. Hajiaghamemar M, **Margulies SS**. A new approach for evaluation of finite element based tissue injury metrics for estimation of axonal damage location in piglets following rapid head rotation. 15<sup>th</sup> US National Congress on Computational Mechanics, Austin, TX, Jul-Aug 2019.
197. Arbogast KB, Huber CM, Patton DC, Jain D, **Margulies SS**, McDonald CC, Master CL. Approaches for Calculating Head Impact Exposure in Live Sport Using Head Impact Sensors. National BMES Annual Meeting, San Diego, CA., (virtual meeting), Oct 2020.
198. Hajiaghamemar M, Seidi M, Patton DC, Huber CM, Arbogast KB, Master C, **Margulies SS**, McDonald CC, Master CL. Using on-field human head kinematics to guide study design for animal-model based traumatic brain injury research. National BMES Annual Meeting, San Diego, CA., (virtual meeting), Oct 2020.
199. Seidi M, Hajiaghamemar M, **Margulies SS**, Baseline measurements of pupillary response to light in piglets. National BMES Annual Meeting, San Diego, CA., (virtual meeting), Oct 2020.

200. Oeur RA, Palaniswamy M, Fernandez-Corrazza M, **Margulies SS**. Modification of an electrical impedance model to study auditory processing in piglets after mTBI. National BMES Annual Meeting, San Diego, CA., (virtual meeting), Oct 2020.
201. Hajiaghamemar M, **Margulies SS**, Traumatic Brain Injury. Translating Head Kinematics Outcomes between Pig and Human. International Research Council on Biomechanics of Injury, postponed.

## 22. Research Focus:

Spanning the micro-to-macro scales in traumatic brain injury and ventilator-induced lung injury, we use animal models, tissue experiments, computational models and human studies to understand the responses of the brain and lung to tissue distortions and translate those discoveries to preclinical trials to prevent, monitor, and treat injuries in humans.

## 23. Patents:

### a. Pending

1. Apparatus and System for Large Animal Restraint. SS Margulies, R Margolies, A Sapre, EQ Tang, and BC Chumo. U.S. Patent Application 61/711,355, filed October 9, 2012. *Patent Pending*. [University of Pennsylvania Tech Transfer Docket Y6380].
2. Mitigation of Lung Injury (HER2 Inhibition to Reduce Ventilator-Associated Lung Injury), **SS Margulies**, MJ Song, N Yehya. U.S. Provisional Patent Application 62/278,299, filed January 11, 2016; U.S. Non-Provisional Patent Application 15/360,197, filed November 23, 2016. *Patent Pending*. [University of Pennsylvania Tech Transfer Docket 15-7457].
3. Protein kinase RNA-like endoplasmic reticulum kinase (PERK) inhibitors for treatment of lung injury and/or inflammation. **SS Margulies**. T Dolinay. U.S. Patent Application 62/329,955 filed Apr 29, 2016. U.S. Serial Number 16/096,721. *Patent Pending*. [University of Pennsylvania Tech Transfer Docket 16-7828].
4. Airway Aerosolization Containment Box, Sullivan CL, Collins JS, **Margulies SS**, Graham S, Praniewicz M, Berez J, Kenetz J, Saldana CJ, U.S. Patent Application 63/003,244, filed March 31, 2020. *Patent Pending*. [Emory University – Office of Tech Transfer, Docket 20139 PROV (CSP)] Tech Transfer Docket Y6380].
5. Bag-Valve-Mask (BVM) Ventilator, Sullivan CL, Collins JS, **Margulies SS**, Graham S, Praniewicz M, Berez J, Kenetz J, Saldana CJ, U.S. Patent Application 63/005,052, filed April 3, 2020. *Patent Pending* [Emory University Office of Technology Transfer, Docket 20142 PROV2 (CSP)].

### b. Disclosures

1. Cell-Stretch Device, **SS Margulies**, DJ Tschumperlin. 1998. [University of Pennsylvania Tech Transfer Docket Q3294].
2. Cyclosporin A, Nicotinamide and Acetyl-L-Carnitine for Pediatric Brain Injury, **SS Margulies**, T. Kilbaugh, AC Duhaime, C Robertson. [University of Pennsylvania Tech Transfer Docket V5248, submitted Jun 9, 2009].
3. Novel Instrument for Measuring Pulse Wave Velocity, C. Badder, V. Selvakumaran, F. Yang, X. Wang, A. Prakash, **SS Margulies**, K Margulies. [University of Pennsylvania Tech Transfer Docket 14-7102, submitted Apr 2, 2014].

4. Protein Kinase RNA-like Endoplasmic Reticulum Kinase (PERK) Mitigates Lung Injury and Inflammation, **SS Margulies** T Dolinay [University of Pennsylvania Tech Transfer Docket 16-7828, submitted Apr 29, 2016].

24. Grant Support:

a. Active Support:

i. Federally Funded:

1. PI (25% effort), National Institutes of Health R01 NINDS NS097549, Objective Translational Multi-Domain Early Concussion Assessment, Total Award: \$4,496,023, Total Directs: \$2,821,593, 2/17–2/22
2. PI (4.2%), National Science Foundation 1730262, IUSE/PFE:RED, Transforming for inclusion: fostering belonging and uniqueness in engineering education and practice, Total Direct Funds: \$1,999,971; 7/17-6/22
3. PI, US Department of Commerce, Economic Development Administration, Biolocity Ventures Capital Challenge, Total Direct Funds: \$202,089, 10/1/20-9/30/23.
4. PI, Biolocity: BARDA DRIVE Accelerator Network, Total Direct Funds: \$358,063; 09/01/19-08/31/24.
5. Mentor, National Institutes of Health K23 NHLBI, Clinical and proteomic characterization of nucleosomes in pediatric acute respiratory distress syndrome, 4/17–3/22
6. PI (10% effort on subcontract), NIH R56 NINDS, In Vivo Measurement of Brain Biomechanics, PI: P. Bayly (Wash U), Total Penn/Tech Subcontract \$85,000

ii. Contracts:

1. PI (12% effort), Astrocyte Pharmaceuticals Inc., TBI Modeling of Neuroprotective Therapeutic Candidates, Total Funds: \$415,277, Total Directs: \$243,994, 09/01/16 – 06/28/19

iii. Other:

1. PI, Coulter Translational Program, Coulter Foundation, \$2,500,000, 4/14-4/19
2. Co-PI (5% effort), University of Pennsylvania Provost's Office, Penn Faculty Pathways Program, Amount N/A, 7/13–6/17
3. Investigator (3% effort), Department of Justice, Skull Fracture Patterns from Low Height Falls in Infants, Total Margulies Subcontract Requested: \$76,328, 01/01/17 – 12/31/20

b. Previous Support:

(NOTE: direct costs and percent effort provided as available)

1/87–6/90      NIH-NHLBI Program Project Grant  
HL-04664 - Structure and Function by Noninvasive Vivisection.

Program Director: Erik Ritman.  
Project II: Thoracoabdominal Mechanics and Regional Ventilation.  
Principal Investigator: Kai Rehder, M.D. (Joseph Rodarte, M.D.)  
Role: Investigator

6/91–6/93 MN Chapter - American Lung Association Research Grant  
ALA-19 - Influence of Mechanical Ventilator Mode on Gas Distribution.  
Total Award: \$35,000  
Role: Principal Investigator

8/92–6/93 NIH-NHLBI R01 Grant  
HL-45026-Lung/Lung Interaction: Implications For Single Lung Transplantation.  
Principal Investigator: Rolf Hubmayr, M.D.  
Role: Investigator

4/92–3/96 Whitaker Foundation Research Grant  
Theoretical and Experimental Analysis of Regional Lung Expansion During Mechanical Ventilation.  
Total Award: \$177,643  
Role: Principal Investigator

9/93–9/95 CDC - National Center for Injury Prevention and Control - Program Project Grant  
CCR 304684–Biomechanics of Central Nervous System Injury.  
Principal Investigator: Lawrence Thibault, D.Sc.  
Total Award: \$1,286,929  
Role: Investigator

7/93–6/95 NIH-NHLBI R01 Grant Subcontract  
HL-45026-Lung/Lung Interaction: Implications for Single Lung Transplantation.  
Total Award: \$37,283  
Role: Principal Investigator

11/94–10/95 DOT-NHTSA Cooperative Agreement  
DTNH22-94-Y-17133-Human Surrogate Response in the Automotive Crash Environment.  
Principal Investigator: L.E. Thibault  
Total Award: \$400,000  
Role: Investigator

9/95–8/96 CDC - NCIPC - Program Project Grant Subcontract-CCR312540-01  
The Biomechanics of Intentional and Unintentional CNS Injury in the Child.  
Total Award: \$119,825  
Role: Principal Investigator

11/96–10/98 CDC - NCIPC - Research Grant R49/CCR312712-02  
Predicting Diffuse Brain Injuries.  
Total Award: \$435,070  
Role: Co-Principal Investigator (12.5% effort)

11/96–10/99 NSF Academic Research Infrastructure Program-STI-9602839  
Renovation of Cell Engineering Laboratories  
Total Award: \$620,000

Role: Co-Principal Investigator

7/97–4/13 NIH Research Grant 1-R01-HL57204  
Mechanical Injury of the Alveolar Epithelium.  
Total Award: \$2,478,741  
Annual Direct Costs: \$337,863  
Role: Principal Investigator (20% effort)

1/97–12/97 Whitaker Foundation Research Grant  
Theoretical and Experimental Analysis of Regional Lung Expansion During Mechanical Ventilation.  
Total Award: \$70,000  
Role: Principal Investigator

9/97–6/99 C.H.O.P. (Sub to Department of Transportation contract)  
Biomechanics of Pediatric Head Injury.  
Total Award: \$225,000  
Role: Co - Principal Investigator (Margulies portion \$139,375), (16.7% effort)

5/97–4/01 NIH Research Grant (R01)-RO1-NS35712  
Biomechanical Analysis of Traumatic Brain Injury Models.  
Principal Investigator: David Meaney, Ph.D.  
Total Award: \$583,555  
Role: Investigator, 5% effort

8/97–7/01 NSF CAREER Award BES97-02088  
Mechanically-Induced Dysfunction: From the Cell to the Organ.  
Total Award: \$199,657  
Role: Principal Investigator (16.7% effort)

11/98–9/05 CDC - NCIPC - Research Grant R49/CCR312712-02  
Biomechanics of Diffuse Brain Injuries.  
Total Award: \$1,484,915  
Annual Direct Costs: \$142,240  
Role: Principal Investigator (10% effort)

4/98–3/03 NIH First Award  
Trauma to the Developing Brain: Response and Treatment  
Principal Investigator: AC Duhaime, M.D. (CHOP Neurosurgery)  
Role: Investigator (Margulies portion \$1,196)

2/99 University of Pennsylvania Research Foundation  
Microscope System to Analyze Mechanically Induced Cellular Injury  
Total Award: \$6,000  
Role: Principal Investigator

12/99–11/03 NSF Major Research Instrumentation Grant BES99-77488  
Acquisition of a Multi Photon Laser Scanning Microscope System  
NSF Grant: \$450,000 Institutional Match: \$240,000  
Role: Principal Investigator (0% effort)

12/99–5/14 NIH Research Grant R01 NS39679  
Biomechanics of Pediatric Head Injury  
Total Award: \$5,022,783  
Annual Direct Costs: \$301,903  
Role: Principal Investigator (20% effort)

5/00–5/10 NIH Training Grant T32 HL 79545  
Bioengineering Training Grant in Cardiovascular Pathophysiology  
Annual Direct Costs: \$362,888  
Role: Investigator (2%, unfunded)

4/01–4/06 NIH Bioengineering Research Partnership R01-NS41805  
Molecular Expression of Force Transmission in the Central Nervous System  
Total Request: \$3,670,873  
Role: Investigator (10% effort)

10/02–9/07 Southern Consortium for Injury Biomechanics  
DOT/NHTSA Cooperative Agreement No. DTNH22-01-H-07551  
Total Requested Budget: \$900,000 (Penn total of \$300,000)  
Margulies Annual Directs \$44,000  
Role: Principal Investigator (3% effort)

11/02–11/07 NIH Program Project Grant 5P01HL19737-25  
Cellular and Molecular Aspects of Respiratory Physiology  
PI Aron Fisher, Penn's Institute for Environmental Medicine  
Annual Direct Costs: \$1,491,658  
Role: Investigator (5% effort, unfunded)

6/04–5/06 University of Pennsylvania Research Foundation  
Functional and Histopathological Correlates in Porcine Brain Injury  
Total Award: \$6,000  
Role: Principal Investigator

5/05–5/07 Southern Consortium for Injury Biomechanics  
DOT/NHTSA Cooperative Agreement No. DTNH22-04-H-01423  
Total Budget: \$270,000  
Margulies Annual Directs: \$93,873  
Role: Principal Investigator (15% effort)

10/05–10/10 Department of Defense Scholar Award  
PI Valerie Weaver  
Margulies Annual Directs: approx \$10,000  
Margulies Role: Investigator (5% effort)

5/06–05/07 NSF-CHOP Center for Child Injury Prevention Research 2006-F001  
Accidental Head Injuries in Young Children: Integrated Epidemiological and  
Biomechanical Analyses  
Total Funds Awarded \$77,685  
Role Principal Investigator (8.3% effort)



7/07–06/08 NIH Research Grant Supplement to NS39679  
Translational Research in Pediatric Traumatic Brain Injury Therapy  
Total Award \$76,313  
Role: Principal Investigator

11/07–10/08 Thrasher Foundation – New Investigator Award  
Neuroprotective Interventions in the Piglet Model of Traumatic Brain Injury: A Study of  
Folic Acid  
Total Award \$25,964  
PI: Maryam Naim  
Role: Mentor and Principal Investigator of Penn Subcontract (\$25,964)

6/06–06/11 NIH Training Grant T32HL007586  
Training in Pulmonary Immunology  
PI Steven Albelda  
Annual Direct Costs: unavailable  
Role: Investigator (2% unfunded)

6/07–9/11 Department of Transportation – NHTSA DTNH22-07-H-00088  
Brain Injury Criteria for 6 to 10 year old Children  
Total Funds Awarded \$802,296  
Role Principal Investigator (10% effort)

5/07–4/11 NIH Research Grant R01 NS0559551  
In Vivo Measurements of Brain Biomechanics  
Total Award: \$1,925,714 (P. Bayly, PI)  
Penn Annual Direct Costs: \$40,000  
Role: Investigator (10% effort)

9/08–6/12 Center for Disease Control, NCIPC Research Grant R01CE001445-01  
Development and Validation of a Diagnostic Tool for Infant Head Injuries from Falls  
Total Funds: \$848,464 (over 3 years)  
Role: Principal Investigator (15% effort)

9/09–8/11 NIH-Neurological Diseases and Stroke  
R01 NS39679-01S1 ARRA Admin Supplement  
Biomechanics of Pediatric Head Injury  
Total Direct Costs: \$129,500  
Role Principal Investigator (0% effort)

7/11–6/15 NIH National Center for Research Resources  
G20 RR029785 Developing and Improving Animal Resources Program  
Neurointensive Care and Assessment Facility  
PI: Glen Gaulton  
Role: Co-PI and Facility Director  
Total Direct Costs: \$500,000

11/11–5/12 University of Pennsylvania – Provost Office  
Year of Games Grant  
Nephrotex: A Virtual Simulation of Authentic Engineering Practice  
Total Award: \$750  
PI: Margulies

7/12–6/13 Vision Research Council Seed Grant  
Decompression Retinopathy and Pediatric Head Trauma  
PI: Gil Binenbaum, MD, MSCE (Penn Ophthalmology)  
Co-Investigators: Brittany Coats, PhD (University of Utah) & Susan S. Margulies, PhD (Penn)  
Total Penn Direct Costs: \$8,200  
Total Directs: \$15,800

2/13–1/15 Institute for Translational Medicine and Therapeutics' Transdisciplinary Program in Translational Medicine and Therapeutics  
UL1RR024134  
Novel tPA variant and outcome after pediatric stroke  
Role: Co-PI  
Total Direct Costs: \$150,000

7/10–5/14 NIH-Neurological Diseases and Stroke  
R01 NS39679-01S1 Supplement to Promote Diversity in Health-Related Research  
Biomechanics of Pediatric Head Injury  
Total Direct Costs: \$77,190  
Role: Principal Investigator (0% effort)

4/10–3/15 NIH K08NS064051  
Modulating secondary damage following traumatic brain injury in the child  
PI: Stuart Friess  
Annual Directs (Penn): \$50,000  
Role: Mentor and PI of Subcontract

5/11–2/16 NIH/NCRR - 1-R25-RR-032017-01  
Translational Research and Laboratory Animal Medicine Education for Veterinarians  
PI: Diane J. Gaertner  
Role: Co-Investigator

6/11–9/17 NIH Cooperative Program in Translational Research - U01 NS069545  
Preclinical Cyclosporin A Therapy Trials for Pediatric TBI  
Total Award: \$6,366,503  
Annual Directs: \$900,314  
Role: PI (20% effort)

7/14–6/17 NIH NICHD R21  
Traumatic Bridging Vein Failure in Infants  
Total Awarded: \$429,204  
Total Direct Costs: \$265,597  
Role: PI (15% effort)

5/15–5/17 NSF-CHOP Center for Child Injury Prevention Research 2015-F001  
Pediatric Brain Injury Assessment – Year 3  
Total: \$79,968  
Role: Co-PI (15% effort)

9/15–9/18 National Research Traineeship (NRT) award in the Innovations of Graduate Education (IGE) Track, *NSF Penn Pathfinders Program*  
Total Funds Awarded: \$489,848  
Total Direct Funds: \$311,781  
Role: PI (6.25% effort)

9/15–9/18 National Institutes of Health NINDS 1R41NS093756 Track  
*Astrocyte Activation by Small Molecule P2Y1 Agonists for Treatment of TBI*  
Total Funds Awarded: \$671,659  
Total Subcontract: \$172,800  
Total Subcontract Directs: \$108,000  
Role: Investigator (11%)

9/16–9/18 Ischemix, Inc  
*Efficacy of CMX-2043 Treatment for TBI*  
Total Award: \$216,237  
Total Directs Awarded: \$143,855  
Role: PI (8.6% effort)

12/15–12/18 NeuroVive Pharmaceuticals  
*NeuroSTAT in Pediatric TBI*  
Total Award: \$798,100  
Total Directs Awarded: \$504,639  
Role: PI (25% effort)

c. Pending Support:

NIH REACH  
“Biocity: Guiding Medical Technology to Market  
Dates: 9/1/2019–8/31/2023  
Role: PI

25. Bibliography:

a. Published and Accepted Research Articles (clinical, basic science, other) in Refereed Journals:

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77. Cohen T and **Margulies SS**. High rates and tidal volumes increase tracer motion across the alveolar epithelium during mechanical ventilation. Biomedical Society Meeting, Baltimore, MD, Sep 2005.
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95. Cohen TS and **Margulies SS**. Septic preconditioning alters stretch induced MAPK activation in isolated rat epithelial cells (RAEC). American Thoracic Society Meeting, Toronto, Ontario, May 2008.
96. DiPaolo BC and **Margulies SS**. Stretch magnitude-dependent actin remodeling in alveolar epithelia. American Thoracic Society Meeting, Toronto, Ontario, May 2008.
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100. Yerrapureddy AN, Tobias J and **Margulies SS**. Genetic effects of magnitude and duration of stretch on rat alveolar Type I epithelial cells. Biomedical Society Meeting, St. Louis, MO, Oct 2008.
101. Ryall K, Ibrahim NG, Eucker SA and **Margulies SS**. Direct visualization of brain distortion during rapid rotational accelerations. Biomedical Society Meeting, St. Louis, MO, Oct 2008.

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106. Kilbaugh T, Bhandare S, Lorom D, Saraswati M, Robertson CL, **Margulies SS**. Cyclosporine A restores mitochondrial function in immature rat focal TBI and piglet diffuse TBI. National Neurotrauma Symposium, Santa Barbara, CA, Sep 2009.
107. Friess SH, Ralston J, Helfaer M and **Margulies SS**. Higher cerebral perfusion pressures improve brain tissue oxygenation and cerebral metabolism following pediatric brain injury. National Neurotrauma Symposium, Santa Barbara, CA, Sep 2009.
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111. Yerrapureddy AN, Yehya N, Tobias JW, and **Margulies SS**. Expression pattern of MiRNA in large cyclic stretch of alveolar epithelial cells. Biomedical Society Meeting, Pittsburgh, PA, Oct 2009.
112. DiPaolo BC and **Margulies SS**. High magnitude stretch activates cofilin rapidly in alveolar epithelia. Biomedical Society Meeting, Pittsburgh, PA, Oct 2009.
113. Yehya N, Yerrapureddy A, Tobias JW, and **Margulies SS**. Differential expression profiling of microRNAs in stretched alveolar epithelial cells. Am Thoracic Society Meeting, New Orleans, LA, May 2010.
114. Cohen TS, Lawrence GG, **Margulies SS**. Sepsis exacerbates stretch-induced epithelial barrier dysfunction. Am Thoracic Society Meeting, New Orleans, LA, May 2010.
115. Coats BS, Sullivan S, **Margulies SS**. Development of a finite element model for predicting subdural hemorrhage from rapid, non-impact head rotations. National Neurotrauma Symposium, Las Vegas, NV, Jun 2010.
116. Kilbaugh T, Robertson C, Lorom D, Akella T, Ralston J, Robertson C, Smith C, **Margulies SS**. Cyclosporin A improves neuropathology and neuro-metabolic recovery in an immature large animal translational model of diffuse traumatic brain injury. National Neurotrauma Symposium, Las Vegas, NV, Jun 2010.



117. Friess SH, Ralston J, Smith C, **Margulies SS**. Brain tissue oxygenation and lactate-pyruvate ratio correlate with neuropathology after pediatric traumatic brain injury. National Neurotrauma Symposium, Las Vegas, NV, Jun 2010.
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119. Friess SH, Smith C, Kilbaugh T, Ralston J, Helfaer M, **Margulies SS**. Aggressive cerebral perfusion pressure augmentation with phenylephrine early after traumatic brain injury reduces secondary injury in a pediatric swine model. National Neurotrauma Society Symposium, Fort Lauderdale, FL, Jul 2011.
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121. Davidovich N, Lawrence GG, DiPaolo BC, **Margulies SS**. Cyclic-stretch induced oxidative stress increases alveolar epithelial permeability. BMES 2011 Meeting, Hartford, CT, Oct 2011.
122. Maltese MR, Sullivan S, Smith C, **Margulies SS**. Scaling axonal injury and unconsciousness thresholds from infant to toddler to pre-adolescent children, 30<sup>th</sup> Annual Symposium of the National Neurotrauma Society, Phoenix, AZ, Jul 2012.
123. Sullivan S, Friess SH, Ralston J, Smith C, Propert K, Rapp P, **Margulies SS**. Behavior, motor, and cognition assessments in neonatal piglets, 30<sup>th</sup> Annual Symposium of the National Neurotrauma Society, Phoenix, AZ, Jul 2012.
124. Davidovich N, Lawrence GG, Huang J, Chhour P, **Margulies SS**. Oxidative stress pathways in lung tissue slices under cyclic stretch conditions. BMES 2012 Meeting, Atlanta, GA, Oct 2012.
125. Davidovich N, Lawrence GG, DiPaolo BC, Yehya N, **Margulies SS**. Cyclic stretch-induced HER activation in the pulmonary alveolar epithelia mediates ERK signaling. BMES 2012 Meeting, Atlanta, GA, Oct 2012.
126. Kilbaugh T, Karlsson M, Byro M, Bebee A, Ralston J, Sullivan S, Elmer E, **Margulies S**. Mitochondrial respiratory dysfunction in an immature large animal porcine translational model of diffuse traumatic brain injury. 31<sup>st</sup> Annual Symposium of the National Neurotrauma Society, Nashville, TN, Aug 2013.
127. **Margulies S**, Kilbaugh T, Sullivan S, Costine B, Feldman K, Berger R, Duhaime A. Time-dependent changes in biomarker levels following both diffuse and focal TBI in immature swine. 31<sup>st</sup> Annual Symposium of the National Neurotrauma Society, Nashville, TN, Aug 2013.
128. Kilbaugh T, Costine B, Saliga K, Byro M, Bebee A, Weeks D, Sullivan S, Ralston J, Friess SH, Zuppa A, Robertson C, Propert K, Smith C, Duhaime A, **Margulies S**. Immature large animal translational treatment trial with mitochondrial targeted pharmacologic intervention for traumatic brain injury in children. 31<sup>st</sup> Annual Symposium of the National Neurotrauma Society, Nashville, TN, Aug 2013.
129. Sullivan S, Ralston J, Friess SH, **Margulies S**. Assessing working memory with visual discrimination in piglets after traumatic brain injury. 31<sup>st</sup> Annual Symposium of the National Neurotrauma Society, Nashville, TN, Aug 2013.
130. Costine B, Saliga K, Seufert C, Fiorello M, Kilbaugh T, **Margulies SS**, Duhaime A. Targeting mitochondria with cyclosporin A after cortical impact in a large animal model. 31<sup>st</sup> Annual Symposium of the National Neurotrauma Society, Nashville, TN, Aug 2013.

131. Pasquesi SA and **Margulies SS**. Effect of strain rate and cryopreservation conditions on elastic modulus of veins. BMES 2013 Meeting, Seattle, WA, Sep 2013.
132. Yehya N, Song MJ, Lawrence GG, Davidovich N, **Margulies SS**. MicroRNA miR-15b modulates in vitro cyclic stretch-induced increases in permeability and regulates Neuregulin 1 (Nrg1). BMES 2013 Meeting, Seattle, WA, Sep 2013.
133. Song MJ, Davidovich N, Yehya N, Lawrence GG, **Margulies SS**. HER3-Mediated permeability of alveolar epithelial cells in ventilator induced lung injury. BMES 2013 Meeting, Seattle, WA, Sep 2013.
134. Yehya N, Xin Y, Oquendo Y, Cereda M, Rizi R, **Margulies SS**. Cecal ligation and puncture accelerates the progression of ventilator-induced lung injury. American Thoracic Society Annual Conference, San Diego, CA, May 2014.
135. Cereda M, Xin Y, Yehya N, Profka, H, Profka A, **Margulies SS**, Kavanagh B, Rizi R. Radiological propagation of ventilator induced lung injury: effects of pulmonary vs. non-pulmonary inflammation. American Thoracic Society Annual Conference, San Diego, CA, May 2014.
136. Atlan L, Sullivan S, **Margulies SS**. Rotational moment of inertia improves predictions of axonal injury. BMES 2014 Meeting, San Antonio, TX, Oct 2014.
137. Kilbaugh T, Lvova M, Karlsson M, Zhang Z, Leipzig J, Wallace D, **Margulies SS**. Peripheral blood mitochondrial DNA as a biomarker of cerebral mitochondrial dysfunction following traumatic brain injury. Annual Symposium of the National Neurotrauma Society, Santa Fe, NM, Jun 2015.
138. Atlan, L, **Margulies SS**. Sagittal Brain Rotations Enhance the Axonal Injury Risk in the Infant Brain. BMES 2015 Annual Meeting, Tampa, FL, Oct 2015.
139. Dolinay T, Yehya N, Lawrence GG, **Margulies SS**. PERK inhibition improves permeability in mechanical stretch-induced epithelial injury. American Thoracic Society Annual Meeting, San Francisco, CA, May 2016.
140. Yehya N, Dolinay T, Thomas N, Howrylakk J, **Margulies SS**. Biomarkers of endothelial and epithelial dysfunction in adult and pediatric acute respiratory distress syndrome. American Thoracic Society Annual Meeting, San Francisco, CA, May 2016.
141. Yehya N, Thomas N, **Margulies SS**. Circulating nucleosomes discriminate mortality in pediatric acute respiratory distress syndrome. American Thoracic Society Annual Meeting, San Francisco, CA, May 2016.
142. Atlan L, **Margulies SS**. Hyperconnectivity Of Event-Related Potential Networks Enhanced By Mild Brain Injury & Anesthesia. National BMES Annual Meeting, Minneapolis, MN, Oct 2016.
143. Memar M, Coats BS, Lan I, Sullivan S, **Margulies SS**. Development and Validation of Infant Skull Fracture Predictors for Low-Height Falls. National BMES Annual Meeting, Minneapolis, MN, Oct 2016.
144. Dolinay T, Lawrence GG, Stolow M, Lan I, **Margulies SS**. PERK inhibition mitigates ventilator-induced lung injury. American Thoracic Society Annual Conference, Washington, DC, May 2017.
145. Yehya N, Lawrence GG, Worthen GS, **Margulies SS**. Isolation of individual histones from circulating nucleosomes. American Thoracic Society Annual Conference, Washington, DC, May 2017.
146. Yehya N, Song MJ, Lawrence GG, **Margulies SS**. Human epidermal growth factor receptor-2 and 3 signaling implicated in regulating alveolar epithelial permeability with cyclic stretch. American Thoracic Society Annual Conference, Washington, DC, May 2017.
147. Karlsson M, Pukenas B, Plyler R, Stolow M, Byro M, Ehinger J, Hugerth M, Elmer E, Hansson M, **Margulies SS**, Kilbaugh T. A novel ciclosporin formulation for traumatic

- brain injury treatment. National Neurotrauma Society Annual Meeting, Salt Lake City, UT, Jul 2017.
148. Hajiaghamemar M, Kilbaugh T, **Margulies SS**. Identification of amino acid panel as a biomarker for traumatic brain injury. National Neurotrauma Society Annual Meeting, Salt Lake City, UT, Jul 2017.
  149. Kilbaugh T, Karlsson M, Byro M, **Margulies SS**. Bioenergetic failure timecourse following diffuse traumatic brain injury. National Neurotrauma Society Annual Meeting, Salt Lake City, UT, Jul 2017.
  150. Kilbaugh, T, Plyler R, Stolow M, Byro M, **Margulies SS**. Ischemix CMX-2043 improves outcomes after focal TBI. National Neurotrauma Society Annual Meeting, Salt Lake City, UT, Jul 2017.
  151. Dolinay T, Aonbangkhen C, Stablow A, Zacharias W, Pucinsky B, Lawrence GG, Cantu E, Suzuku Y, Singhal S, Christie JD, **Margulies SS**. Protein kinase R-like endoplasmic reticulum kinase confers Ca sensitive mechanosensory function in ventilator-induced lung injury. American Thoracic Society Annual Conference, San Diego, CA, May 2018.
  152. Hajiaghamemar M, Wu T, Panzer, **Margulies SS**. A new approach for evaluation of finite element based tissue injury metrics for estimating axonal damage in piglets undergoing rapid head rotation. 8<sup>th</sup> World Congress of Biomechanics, Dublin, Ireland, Jul 2018.
  153. Wu T, Hajiaghamemar M, Antona-Makoshi J, Alshareef A, **Margulies SS**, Panzer M. Investigating Cross-Species Scaling for Traumatic Brain Injuries using Finite Element Analysis. 8<sup>th</sup> World Congress of Biomechanics, Dublin, Ireland, Jul 2018.
  154. Atlan L, **Margulies SS**. Frequency-Dependent Changes in Resting State EEG Functional Networks in Piglets After Rapid Head Rotations - Implications for Identifying Traumatic Brain Injury. 8<sup>th</sup> World Congress of Biomechanics, Dublin, Ireland, Jul 2018.
  155. Kilbaugh TJ, Browne K, Keating CE, Plyler R, Stolow M, Landis W, Chawla S, **Margulies SS**, Cullen DK. CMX-2043 Improves Outcomes Following Focal Traumatic Brain Injury in a Randomized Placebo Controlled Pre-Clinical Efficacy Trial. National Neurotrauma Society Annual Meeting, Toronto, Ontario, Aug 2018.
  156. Martinez BI, Witten A, Mousa G, **Margulies SS**, Stabenfeldt SE. Probing the Injury Microenvironment: Phage-Based Biomarker Discovery of Complex Neural Injury Pathologies. National Neurotrauma Society Annual Meeting, Toronto, Ontario, Aug 2018.
  157. Karlsson M, Kelsen J, Ehinger J, Hugerth M, Elmer E, **Margulies SS**, Kilbaugh T, Hansson MJ. Translational Development of Cyclosporine as a Neuroprotective Drug – Porcine Efficacy and Human Pharmacokinetics. Military health System Research Symposium, Kissimmee, FL, Aug 2018.
  158. Hajiaghamemar M, **Margulies SS**. Development of Tissue Injury Metrics for Predicting Traumatic Brain Injury Following Rapid Head Rotation. BMES Annual Meeting, Atlanta, GA, Oct 2018.
  159. Yehya N, Fazelinia H, Spruce L, Lawrence G, **Margulies SS**, Seeholzer S, Worthen GS. A Novel Proteomic Approach to Distinguishing Septic Children with Acute Respiratory Distress Syndrome. American Thoracic Society 2019 International Conference, Dallas, TX, May 2019.
  160. Hajiaghamemar M, Naik T, **Margulies SS**. Combining Serum Levels of UCH-L1, GFAP, and NF-L Enhances Prediction of Acute Traumatic Brain Injury. National Neurotrauma Society, Pittsburgh, PA, Jul 2019.
  161. Hajiaghamemar M, **Margulies SS**. Estimation of Axonal Damage Location Using White Tract Embedded Finite Element Model. National Neurotrauma Society, Pittsburgh, PA, Jul 2019.

162. Hajiaghamemar M, **Margulies SS**. A new approach for evaluation of finite element based tissue injury metrics for estimation of axonal damage location in piglets following rapid head rotation. 15<sup>th</sup> US National Congress on Computational Mechanics, Austin, TX, Jul-Aug 2019.
163. Hajiaghamemar M, **Margulies SS**. Head Rotational Kinematics, Tissue Deformations, and Their Relationships to the Extent of Acute Traumatic Axonal Injury. BMES Annual Meeting, Philadelphia, PA, Oct 2019.
164. Oeur A, **Margulies SS**. Auditory Responses are Altered in a Preclinical Piglet Model of Pediatric Concussion. BMES Annual Meeting, Philadelphia, PA, Oct 2019.
165. Seidi M, Hajiaghamemar M, Jing B, Lindsey B, **Margulies SS**. The Utility of High Speed Ultrasound Imaging in Measuring Brain Deformation: A Preliminary Study. BMES Annual Meeting, Philadelphia, PA, Oct 2019.
166. Milligan K, Maguire A, Balwani A, **Margulies SS**, Dyer E. GliaNet: Deep Learning for Characterization of Neuroinflammation in Traumatic Brain Injury. BioImage Informatics Annual Meeting, Seattle, WA, Oct 2019.
167. Arbogast KB, Huber CM, Patton DC, Jain D, **Margulies SS**, McDonald CC, Master CL. Approaches for Calculating Head Impact Exposure in Live Sport Using Head Impact Sensors. National BMES Annual Meeting, San Diego, CA., (virtual meeting), Oct 2020.
168. Hajiaghamemar M, Seidi M, Patton DC, Huber CM, Arbogast KB, Master C, **Margulies SS**, McDonald CC, Master CL. Using on-field human head kinematics to guide study design for animal-model based traumatic brain injury research. National BMES Annual Meeting, San Diego, CA., (virtual meeting), Oct 2020.
169. Seidi M, Hajiaghamemar M, **Margulies SS**, Baseline measurements of pupillary response to light in piglets. National BMES Annual Meeting, San Diego, CA., (virtual meeting), Oct 2020.
170. Oeur RA, Palaniswamy M, Fernandez-Corrazza M, **Margulies SS**. Modification of an electrical impedance model to study auditory processing in piglets after mTBI. National BMES Annual Meeting, San Diego, CA., (virtual meeting), Oct 2020.