

## Curriculum vitae

**Jim O. Vigoreaux**

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### RESEARCH INTERESTS

- Myosin binding proteins
- Thick filament structure & mechanics
- Comparative physiology of muscle
- Muscle proteomics & protein evolution
- Muscle development & aging
- Muscle exercise and nutrition
- Evolution of insect flight
- Insect courtship behavior

### EDUCATION AND TRAINING

- Postdoctoral Fellow, 1991, MIT, Cambridge, MA; Cell Biology and Genetics.
- Ph.D., 1987, University of Oklahoma, Oklahoma City; Biochemistry and Molecular Biology.
- B.S., *Magna cum laude*, 1981, University of Puerto Rico, Rio Piedras; Mathematics.

### APPOINTMENTS

- Current appointments
  - Breazzano Family Green and Gold Endowed Professor, College of Arts & Sciences, University of Vermont, Burlington, VT, 2012 - present.
  - Professor, Department of Biology, University of Vermont, Burlington, VT, 2005 - present.
  - Joint Professor, Department of Molecular Physiology and Biophysics, University of Vermont, Burlington, VT, 2005- present.
  - Adjunct Professor, Department of Biology, University of Puerto Rico, Rio Piedras, 2005-present.
  - Member, Cellular, Molecular, and Biomedical Sciences Graduate Program, University of Vermont, Burlington, VT, 1991-present.
- Previous appointments
  - Vice Provost for Faculty Affairs, University of Vermont, Burlington, VT, 2015 - 2022.
  - Senior Advisor, Vermont Biomedical Research Network, NIH-INBRE, University of Vermont, Burlington, VT, 2017 - 2020.
  - Director, Beckman Scholars Program, University of Vermont, Burlington, VT, 2014 - 2017.
  - Chair, Department of Biology, University of Vermont, Burlington, VT, 2005 - 2015.
  - Core Facilities Coordinator, Vermont Genetics Network, University of Vermont, Burlington, VT, 2015-2017.
  - Associate Director, Vermont Genetics Network, University of Vermont, Burlington, VT, 2013-2015.

- Director, Ronald E. McNair Postbaccalaureate Achievement Program, University of Vermont, Burlington, VT, 2003-2013.
- Director, NSF Alliance for Graduate Education and the Professoriate, University of Vermont, Burlington, VT, 2010-2013.
- Senior Research Advisor, MyoSite Diagnostics, Inc, Burlington, VT, 2000-2010.
- Board of Directors, Council for the Advancement of Puerto Rico Research and Innovation, 2005-2009.
- Joint Associate Professor, Department of Molecular Physiology and Biophysics, University of Vermont, Burlington, VT, 2002- 2005.
- Director of Proteomics, Heart Failure Research Group, University of Vermont College of Medicine, Burlington, VT, 2001 – 2003.
- Associate Professor, Department of Biology, University of Vermont, Burlington, VT, 1997-2005.
- Visiting Scientist, Department of Biochemistry, Universidad Autonoma de Madrid, Spain, 1998.
- Visiting Scientist, Department of Biology, University of York, York, UK, 1997.
- Assistant Professor, Department of Biology, University of Vermont, Burlington, VT, 1991-1997.
- Postdoctoral Fellow, Department of Biology, Massachusetts Institute of Technology, Cambridge, MA, 1987-1991.
- Teaching Assistant, Department of Biochemistry and Molecular Biology, University of Oklahoma Health Sciences Center, Oklahoma City, 1984-1987.
- Research Assistant with Graciela Candelas, Ph.D., Department of Biology, University of Puerto Rico, Rio Piedras, 1981.
- Research Assistant with Carlos H. Ramirez-Ronda, M.D., Infectious Disease Laboratory, Veteran's Administration Hospital and University of Puerto Rico School of Medicine, 1980-1981.

## HONORS & FELLOWSHIPS

- Fellow, American Society for Cell Biology, 2020.
- Member (elected), Vermont Academy of Science and Engineering, 2015.
- Green & Gold Endowed Professor, College of Arts & Sciences, University of Vermont, 2012.
- Keynote speaker, College of Arts & Sciences Honors Ceremony, University of Vermont, 2012.
- Platform Co-Chair, Muscle: Molecular Mechanics and Structure, Biophysical Society Meeting, 2009.
- Honored by The Class of 2007, University of Vermont.
- Honored by The Class of 2006, University of Vermont.
- Honored by The Class of 2005, University of Vermont.
- Honor Roll, Biomedical Science Career Project, Harvard Medical School, 2004.
- Platform Co-Chair, Muscle Mechanics and Ultrastructure, Biophysical Society Meeting, 2000.
- Postdoctoral Fellowship, American Cancer Society, Inc., 1989-1990.
- Graduate College Research Award, 1986, University of Oklahoma, Norman.
- Dean's Award for Basic Research, 1985, University of Oklahoma Health Sciences Center, Oklahoma City.
- Academic Fellowship, 1981-1984, Graduate and Professional Opportunities Program, U.S. Department of Education and University of Oklahoma Health Sciences Center, Oklahoma City.

- Dean's Award for Academic Excellence, 1981, University of Puerto Rico, Rio Piedras.
- Research Fellowship, 1980, Support University Biomedical Education Program (SUBE), University of Puerto Rico, Rio Piedras.
- College of Natural Sciences Honors' Roll, 1980, University of Puerto Rico, Rio Piedras.
- Dean's List, 1977-1981, University of Puerto Rico, Rio Piedras.

### ADVANCED TRAINING

- Leadership of the Faculty, Harvard Graduate School of Education, 2019.
- Facilitating Mentoring, National Research Mentoring Network, 2016
- Assessing & Refining Your Leadership Style, Center for Management Research, 2004.
- ProteomeX Training Course, ThermoFinnigan Institute, 2003.
- Technology Workshop, Center for Teaching and Learning, University of Vermont, 2000.
- Writing Across the Curriculum, University of Vermont, 1995.
- Video Microscopy, Woods Hole, MA, 1988.

### TEACHING EXPERIENCE

(All courses at The University of Vermont unless otherwise indicated)

- **Coordinator and Principal Lecturer**

- Undergraduate courses

- Imitating Nature (HCOL 186), (3 credits with creative activity, 2014-2016)
    - McNair Scholars Program Seminar (EDLP 295), (1 credit with service component; 2006-2012).
    - Molecular and Cell Biology (BCOR 103), (4 credits with lab; 2005-2015).
    - Science as a Way of Knowing (Biol 009), (3 credits with lab; 1997-2014).
    - Cell Structure and Function (Biol 103), (4 credits with lab; 1992-2001).
    - Principles of Biology (Biol 002), (4 credits with lab; 1992-1994).

- Graduate courses

- Biomimetics (Biol 371), (1 credit, 2013, 2015)
    - Evolutionary Genomics of Insect Flight (Biol 371), (1 credit, 2010).
    - Supreme Athletes (Biol 371), (1 credit, 2008).
    - Medical Proteomics (Biol 371), (1 credit, 2004).
    - Muscle Development (Biol 371), (1 credit, 2002).
    - Homeotic Genes in Development (Biol 381), (3 credits; 2000).
    - Functional Genomics and Proteomics (Biol 371), (1 credit; 2000).
    - Cell Biology (Biol 301), (3 credits; 1995-1997).
    - Nanotechnology (Biol 375), (1 credit; 1997).
    - Molecular Mechanochemistry (Biol 381), (3 credits; 1995-1997).
    - Molecular Diversity of Muscle Design (Biol 375), (1 credit; 1993).
    - Molecular Architecture (Biol 373), (1 credit; 1991).

- **Guest Lecturer**

- Undergraduate courses

- Genetics (Biol 101), (1996)
    - Principles of Biology (Biol 001), (1992)
    - Cell Motility and the Cytoskeleton (Biol 233), (1991)
    - Genetics of Cell Cycle Regulation (Biol 263), (1991)

- Graduate courses

- Patterns in Biology: An Integrative Approach to the Organism. One week section on Proteomics and Integrative Biology. Department of Biology, University of Puerto Rico, Rio Piedras (2002).
- Cell Biology (CB 301), (1993).
- Specialized Cells and Cell Processes (CB 302), (1992-1994).
- **Undergraduate Honors Research**
  - Advisor
  - Libby White (2016)
  - James Contompasis (2015)
  - Harshal Athalye (2015)
  - Alexandra Beattie (2013) – Department honor *Paul A. Moody Award*
  - Margaux McConn (2012) - Department honor *Paul A. Moody Award*
  - Samuel Paskin-Flelarge (2010) – Department honor *Bernd Heinrich Award*
  - John Contompasis (2009) - Department honor *Bernd Heinrich Award*
  - Rachel Lacy (2006) - Department honor *Bernd Heinrich Award*
  - Rachel Humphrey (2004) - Department honor *Bernd Heinrich Award*
  - Eugene Valsky (1998)
  - Adriane Cross (1998) - Department honor *Paul A. Moody Award*
  - Michael Ulich (1996)
  - Marcia Lux (1994) - Department honor *Paul A. Moody Award*
  - Committee chair
  - Aliceson Drollette (2022)
  - Benjamin Kagan (2018)
  - David Polson (2016)
  - Colleen McCarthy (2014)
  - Amanda DeSenna (2011)
  - Rachel Sargent (2006)
  - Heather Lesage (2006)
  - Thomas Trimarchi (2006)
  - Todd Sweberg (1995) – Department honor *George Perkins Marsh Award*
  - Sean Brown (1994) - Department honor *Lyman S. Rowell Award*
  - Member
  - Jenny Klein (2013)
  - Peter Doubleday (2013)
  - Miranda Redmond (2012)
  - David Cloutier (1994)
- **Graduate Research Advisor**
  - Lynda Menard (PhD, Biology, 2020)
  - Alexandra Beattie (MS, Biology, 2014)
  - Pedro Alvarez (PhD, Biology, 2014)
  - Samya Chakravorty (PhD, Biology, 2013)
  - Michael Previs (PhD, Cell & Molecular Biology, 2010) (Co-advisor)
  - Byron Barton (PhD, Biology, 2007)
  - Vivek Vishnudas (PhD, Biology, 2006)
  - Joshua Henkin (PhD, Cell & Molecular Biology, 2004)
  - Gretchen Ayer (MS, Cell & Molecular Biology, 2001)
  - Jeff Moore (PhD, Molecular Physiology & Biophysics, 1999) (Co-advisor)

- Carmen Hernandez (PhD, Biology, 1998)
- In progress
- Emily Price (PhD, Biology)
- Ravi Nagori (MS, Biology)
- **Graduate Thesis Committees**
  - Aditi Mahan (PhD, Molecular Reproduction, Development and Genetics, 2016) India Institute of Science (external evaluator)
  - Marion Weir (PhD, Biology, 2016)
  - Megan Valentine (PhD, Biology, 2015)
  - Jonathan Gonzalez (MS, Biology, 2014)
  - Angel Garcia (MS, Geology, 2013)
  - Bior Bior (PhD, Biology, 2012)
  - Mallory Romanovitch (MS, Biology, 2012)
  - Veronica Sosa (MS, Aquatic Ecology, 2012)
  - Mujeeburahiman Cheerathodi (PhD, Biology, 2012)
  - Sukanya Majumder (PhD, Biology, 2012)
  - Abbey Weith (PhD, Molecular Physiology & Biophysics, 2011)
  - Tatyana Svinkina (MS, Biology, 2011)
  - Anbazhagan Rajendran (PhD, Biology, 2010)
  - Xianglian Ni (PhD, Biology, 2010)
  - Megan Valentine (MS, Biology, 2009)
  - Yunfeng Pan (MS, Biology, 2008)
  - Jeff Stone (MS, Computer Science, 2004) (Chair)
  - Suchismita Chandran (MS, Biology, 2004)
  - Sunita Patel, (PhD, 2004) Boston University School of Medicine (external evaluator)
  - Anthony Cammarato (PhD, 2003) Boston University School of Medicine (external evaluator)
  - Brian Lannutti (PhD, Biology, 2002)
  - Mark Miller (PhD, Mechanical Engineering, 2001)
  - Ian Robertson (PhD, Cell & Molecular Biology, 2001)
  - Shongshan Fan (PhD, Biology, 2001)
  - Ann Yezersky (PhD, Biology 1999)
  - Sanjoy Bhattacharya (MS, Biomedical Engineering, 1999) (Chair)
  - Heidi Hildreth (MS, Nutritional Sciences, 1996) (Chair)
  - Nancy Elwess (PhD, Zoology, 1994)
  - Mark Snyder (MS, Zoology, 1993)
- **Other Research Mentoring Experience**
  - Ana G. Mendez University System Pre-College Research Institute Summer Program:
    - Fabiola Pagan, (Discipulos de Cristo School, Puerto Rico), 2015.
    - Angel Marquez, (Dr. Agustin Stahl High School, Puerto Rico), 2015.
    - Jonathan Lopez, (CROEM High School, Puerto Rico) 2014.
    - Natalia Santiago, (Universidad Metropolitana, Puerto Rico), 2014.
    - Ricardo Santini (University High School, Puerto Rico), 2013.
    - Netsha Santiago, 2012.
    - Nicolle Rosa (Levittown Baptist Academy, Puerto Rico), 2011.
  - University of Vermont Summer Neuroscience Undergraduate Research Program:
    - Elizabeth Gutierrez (University of Puerto Rico, Mayaguez), 2009.
  - University of Vermont Mathematics and Biology Training Program:

- David Kanosky (University of Vermont), 2009.
- John Contompasis (University of Vermont), 2005-2009.
- University of Vermont McNair Scholars Program Summer Internship:
  - Rachel Lacy (University of Vermont), 2005.
  - Dominick Lemas (University of Vermont), 2004.
- University of Vermont Summer Research Apprentice Program:
  - Jorge Soltero (Colegio San Ignacio, Puerto Rico), 1995.
- University of Vermont Summer Research VISIT Program:
  - Muna Tefferi (Delaware State University), 1994.
- Visiting students and summer interns:
  - Ananth Malladi (South Burlington High School) 2015-16.
  - Whitney Stevens (University of Puerto Rico, Mayaguez) 2013.
  - Maxine Gonzalez (Universidad Metropolitana, PR), 2012.
  - Karoline Rios (Universidad Metropolitana, PR), 2012.
  - Lucia Herrera (Universidad de San Carlos, Guatemala), 2012
  - Vedran Beganovic (Boston University), 2011.
  - Maria Wieker (Cincinnati High School), 2007.
  - Linda Arguello (U. New Mexico), 2003.
  - Christian Schenk (University of Puerto Rico, Rio Piedras), 2002.
  - Ivan Cajigas (University of Puerto Rico, Rio Piedras), 2002.
  - Martin Gorrochategui (University of Florida), 2001.
  - Jose Mas (Universidad Autonoma, Madrid) 2000.
  - Stuart Rulten (University of York, UK) 1993
- Coordinator, Research experience for undergraduate students, University of Vermont, 1992-1994.
- Mentor, MIT Minority Summer Science Research Program, 1990.
- Teaching Assistant, 1984-1987, Department of Biochemistry and Molecular Biology, University of Oklahoma Health Sciences Center, Oklahoma City.
- Laboratory Instructor, 1983, Department of Biochemistry and Molecular Biology, University of Oklahoma Health Sciences Center, Oklahoma City.

## PROFESSIONAL SERVICE

- National and International
  - Inclusivity Summit Planning Committee, American Society for Cell Biology MOSAIC Program, 2022.
  - External Evaluator, Doctoral Program in Biology, University of Puerto Rico, 2021.
  - Member, Senior Awards Committee, American Society for Cell Biology, 2021.
  - Member, Minority Affairs Committee, American Society for Cell Biology (2016-present).
  - Beckman Scholars Program Advisory Panel (2016).
  - Panelist, Division of Human Resource Development, National Science Foundation (2013).
  - Member, External Advisory Board, STEM Diversity Institute, University of Massachusetts, Amherst (2012-2019).
  - Member, Advisory Board, Caribbean Engineering Center for Excellence, Scientific Caribbean Foundation, San Juan, PR (2014-present).
  - Member, Advisory Board, Development for Arecibo Observatory Visitor Center, Ana G. Mendez University System, San Juan, PR (2012-2016).
  - Member, External Advisory Board, Caribbean Computing Center for Excellence TRIC Project (2011-2015), San Juan, PR.



- External Advisor, NeuroID Project, University of Puerto Rico NIGMS Endure Program (2011-present), San Juan, PR.
- Member, College Board AP Biology Research Study (2010).
- Member, Scientific Advisory Committee, Howard University NIH SNRP Program (2008 – 2011).
- Panelist, Cellular Processes, National Science Foundation (Spring and Fall 2011).
- Minority Faculty Mentor:
  - Atanu Duttaroy (Biology, Howard University, 2008-2011).
  - Franklin Carrero (Biology, University of Puerto Rico Mayaguez, 2006-2008).
  - Irving Vega (Mayo Clinic and University of Puerto Rico, Rio Piedras, 2005-06).
  - Tugrul Giray (Biology, University of Puerto Rico Rio Piedras, 2001-2).
- Panelist, Processes, Structure and Integrity, National Science Foundation (2008 – 2009).
- External Evaluator, Doctoral Program in Biology, University of Puerto Rico (2006).
- Panelist, Cellular Organization, National Science Foundation (2005-2008).
- Guest Editor, Special Issue on Muscle Structure & Function, *Biology* (2014)
- Editorial Board, *Eurekah Bioscience* (2005-2009).
- Editorial Board, *Scientifica* (2012-2017).
- Editorial Board, *New Journal of Science* (2013-2017).
- Editorial Board, *Scientific Reports* (2014-present).
- Editorial Board, *Journal of Muscle Research and Cell Motility* (2015-present).
- Editorial Board, *Biology* (2016-present).
- Consultant, University of Puerto Rico Center for Proteomics (2004).
- Study Section Member, Cancer Research Programs, Department of Defense Congressionally Directed Medical Research Program (2002-03).
- Consultant, University of Puerto Rico COBRE, 2003.
- Ad hoc reviewer for Researchers Startup Funds Program, Puerto Rico Science, Technology, and Research Trust (2016)
- Mail Reviewer, Human Frontier Science Program (2018 - ).
- Ad hoc reviewer for National Science Foundation, Integrative Biology and Neuroscience Program (1994 – 2006).
- Ad hoc reviewer for National Science Foundation, Molecular Cellular Biosciences Program (1995 – 2002).
- Ad hoc reviewer for National Science Foundation, Ecological and Evolutionary Physiology Program (2004 – 2006).
- Ad hoc reviewer for National Science Foundation, Integrative Organismal Systems Program (2007 – 2010).
- Ad hoc reviewer for *Human Molecular Genetics* (2017-).
- Ad hoc reviewer for *Biophysical Journal* (2004- ).
- Ad hoc reviewer for *Developmental Biology* (1992- ).
- Ad hoc reviewer for *Insect Molecular Biology* (1990- ).
- Ad hoc reviewer for *J. Muscle Res. Cell Motil.* (1994- ).
- Ad hoc reviewer for *Structural Biology* (1995- ).
- Ad hoc reviewer for *Cell Motility and the Cytoskeleton* (1995- ).
- Ad hoc reviewer for *Paleobiology* (2000- ).
- Ad hoc reviewer for *Trends in Cardiovascular Medicine* (2000- ).
- Ad hoc reviewer for *Journal of Cell Biology* (2001- ).
- Ad hoc reviewer for *Physiological and Biochemical Zoology* (2002- ).
- Ad hoc reviewer for *J. Insect Physiology* (2002 - ).
- Ad hoc reviewer for *Molecular Biology and Evolution* (2003- ).
- Ad hoc reviewer for *BioMed Central: Cell Biology* (2003- ).
- Ad hoc reviewer for *American Journal of Physiology: Cell Physiology* (2003- ).

- Ad hoc reviewer for *Genetics* (2005- ).
  - Ad hoc reviewer for *Molecular Biology of the Cell* (2005- ).
  - Ad hoc reviewer for *Mechanisms of Development* (2005- ).
  - Ad hoc reviewer for *International Journal of Molecular Sciences* (2008- ).
  - Ad hoc reviewer for *Cell and Tissue Research* (2008- ).
  - Ad hoc reviewer for *Journal of Molecular Biology* (2010-).
  - Ad hoc reviewer for *Journal of Cell Science* (2012-).
  - Ad hoc reviewer for *Science* (2013-).
  - National Cancer Institute Focus Group on the Developmental Therapeutics Program (2001).
  - External reviewer, University of Puerto Rico MBRS-SCORE proposal (2000).
  - Mentor, Science/Engineering Academic Support Network, New England Board of Higher Education (1991- 2008).
  - Advisor, Biomedical Science Career Project, Harvard Medical School and New England Board of Higher Education (1992- present).
  - Consultant, Sinauer Associates, Publishers (1992-1994; 2012).
  - Consultant, Analytical Sciences, Inc (2002-2004).
- University of Vermont
    - Member, Chief Human Resources Manager Search Committee (2022).
    - Member, HR Organizational Structure Consultant Review Process (2022).
    - Member, University Diversity Council (2021-2022).
    - Chair, University Diversity Council (2021).
    - Member, LCOM Associate Dean for Faculty Affairs Search Committee (2021).
    - Member, Advisory Committee, Agroecology Extension Program, National Institute of Food and Agriculture (2021-present).
    - Co-Chair, Vice Provost for Diversity, Equity and Inclusion Search Committee (2021).
    - Co-Chair, Learning Management System Core Committee (2021-2022).
    - Member, Academic Reorganization Working Group (2020-2021).
    - Member, Faculty and Academic Affairs Group, UVMStrong (2020-2021).
    - Member, Steering Committee, Vermont Biomedical Research Network (2020 - present).
    - Member, Faculty Contract Negotiating Team (2019-2021).
    - Member, Emergency Operations Group (2020).
    - Member, Campus Climate Survey Steering Committee (2018-2019).
    - Reviewer, Early Career Biomedical Researchers (2019).
    - Institutional Representative, Scholars at Risk Network (2018-2019, 2021-2022).
    - Chair, Search Committee for Associate Provost for Academic Affairs (2018).
    - Member, Required Training Task Force (2018).
    - Member, Core Facility Review Group (2018).
    - Designated Institutional Contact, Association of Public & Land Grant Institutions – INCLUDES and ASPIRE Alliances (2017-2022).
    - Chair, President’s Distinguished Senior Lecturer and Lecturer Award Committee (2017-2022).
    - NEASC (NECHE) Reaccreditation Self-Study (2017-2019):
      - Member, Steering Committee.
      - Co-Chair, Standard Six committee.
    - Senior Advisor, Vermont Genetics Network (2017-2020).
    - Member, Search Committee for Executive Director for Research Administration (2016-2017).
    - Member, Working Group to Evaluate Sponsored Project Administration (2016).



- Chair, President's Distinguished Faculty Service and Citizenship Award Committee (2016-2022).
- Member, Distance Education Advisory Board (2016-2021).
- Member, Engaged Practices Innovation (EPI) Grant Selection Committee (2016-2019).
- Associate Provost for Faculty Affairs (2015-2020).
- Conversation host/facilitator, Blackboard Jungle Symposium (2016, 2017, 2018).
- Member (Provost Designate), Faculty Grievance Hearing Panels (2015).
- Member, Advisory Committee to the President and Provost for the Interim Dean of the College of Arts & Sciences (2015).
- Commissioner, President's Commission on Inclusive Excellence (2014-2020)
- Incentive-Based Budget:
  - Member, Steering Committee (2013-2019).
  - Chair, Research and Indirect Cost Recovery Sub-committee (2013-2014).
  - Faculty liaison (2015-2016).
  - Member, Metrics Working Group (2017).
- Associate Director, Vermont Genetics Network (2013 – 2015).
- Director and PI, Beckman Scholars Program (2013-2017).
- Member, Integrated Learning Institute Team (2012).
- Member, College of Arts & Sciences Academic Planning and Budget Committee (2011-2014).
- Director, Northeast Alliance for Graduate Education and the Professoriate (2010-2013).
- Member, Faculty Search Committee, Department of Plant Biology (2010-2011).
- Member, Transdisciplinary Research Initiative, Biosciences and Bioengineering Working Group (2009-2010).
- Advisor, Vermont EPSCoR Diversity Initiative (2009-2010).
- Student Research Conference:
  - Reviewer, Life Sciences (2009).
  - Planning Committee (2008).
  - Organizer (2007).
- Member, Planning Committee, Consortium of Graduate Bioscience Programs (2007-2008).
- Member, Five year Chair review Committee, Department of Plant Biology (2006-2007).
- Co-Chair, College of Arts & Sciences Ad Hoc Committee on Diversity and Affirmative Action (2007).
- Life Science liaison, Northeast Alliance for Graduate Education and the Professoriate (2005-2009).
- Reviewer, Vermont Genetics Network Microarray Facility (2004).
- Mentor, Vermont Genetics Network (2002-2004).
- Director and PI, Ronald E. McNair Postbaccalaureate Achievement Program (2003-2013).
- Panel member and reviewer, URECA! undergraduate research and scholarship program (2003).
- Faculty Mentor:
  - Luis Duffaut Espinosa (Elec & Biomed Engineering, 2018)
  - Eric Bishop-von Wettberg (Plant & Soil Science, 2017).
  - Jill Preston (Plant Biology, 2012).
  - Gillian Galford (Gund Institute, 2012).
  - Ximena Mejia (Counseling, 2006).
  - Teresa Ruiz (Physiology & Biophysics, 2002).
  - David Bucci (Psychology, 2001).
- Member, Search Committee, Chair, Dept of Psychology (1999).
- Cell Molecular Biology Program:

- Steering Committee (1996-1999).
- Membership Committee (1993-94; 2004 - 2013).
- Cumulative Exam Committee (1994-1998).
- Curriculum Committee (1995-1998).
- Member, Search Committee, Vice-Provost for Undergraduate Education (1998).
- Member, Writing Pilot Project (1998-2000).
- Member, Premedical-Pre dental Advisory Committee (1992-1993, 1996-1997).
- Member, Chemical and Biological Safety Committee (1994-1998).
- Member, University Committee on Research and Scholarship, Biological Sciences Study Section (1994-1996).
- Advisor, Teacher-Advisor Program, First Year Experience (1996-2008).
- Member, Executive Committee, Graduate College (1996-1997).
- Departmental
  - Chair (2005 – 2015).
  - Chair, Faculty Search Committee (2002-2003).
  - Steering Committee, HELIX Program (2001).
  - Career Day, Organizer and Host, (2000).
  - Member, Advisory Council (1992-1994; 1999-2003, 2004-2005).
  - Member, Graduate Affairs Committee (1992-1998; 2013- 2015).
  - Member, Academic Committee (1999-2015).
  - Member, Faculty Search Committees (1993, 1994, 1996, 2005, 2013).
  - Organizer for Cell Biology Journal Club (1994-1996, 2002-2006).
  - Advisor for Biology, Zoology, Neuroscience, Environmental Science, and Biological Science Majors (1991-2015).

#### **MEMBERSHIP IN PROFESSIONAL SOCIETIES (past and present)**

- The American Society for Cell Biology.
- Society for the Advancement of Chicanos and Native Americans in Science.
- Biophysical Society.
- Genetics Society of America.
- Society for Experimental Biology.
- National Association of IDeA PIs.

#### **PRESENTATIONS**

- Invited talks (accepted invitations only)
  - Eighth International Symposium, Molecular Insect Science, Sitges, SPAIN (2019).
  - Muscle Symposium, San Diego State University CA (2017).
  - Vermont Academy of Science & Engineering, Burlington VT (2016).
  - Muscle & Mobility Research Symposium, Abbott Nutrition, Columbus, OH (2013).
  - Society for Experimental Biology Annual Meeting, Valencia, SPAIN (2013).
  - Society for Experimental Biology Annual Meeting, Salzburg, AUSTRIA (2012).
  - Drosophila Genetics Annual Research Conference, Chicago, IL (2012).
  - NeuroID Program, University of Puerto Rico, Rio Piedras (2012).
  - Biophysical Society Meeting, Boston (2009).
  - Cardiology, Heart Failure Group, University of Vermont (2006).
  - UPR-Protein Research Center Spring Conference, San Juan, PR (2006).
  - Mathematics & Biology Training Program Symposium, University of Vermont (2005).
  - Department of Pharmacology, University of Vermont College of Medicine (2005).
  - Biochemistry Program, Smith College (2005).

- Department of Biochemistry, University of Puerto Rico School of Medicine (2004).
  - Department of Pathology & Cell Biology, Emory University (2004).
  - European Muscle Conference, Elba ITALY (2004).
  - Department of Molecular Physiology & Biophysics, University of Vermont (2003).
  - Department of Anatomy, University of Puerto Rico School of Medicine (2002).
  - Department of Physiology, Boston University Medical School (2002).
  - Neurobiology Institute, San Juan PR (2002).
  - Department of Pharmacology, University of Vermont College of Medicine (2002).
  - Johnson State College, VT (2002).
  - Cardiology, Heart Failure Group, University of Vermont (2001).
  - Department of Biology, University of Puerto Rico (2001).
  - Fifth International Conference on Muscle Energetics, Burlington, VT (2001).
  - Biophysical Society Meeting, Boston (2001).
  - ThermoFinnigan Training Institute, Fort Lauderdale FL (2001).
  - Department of Biochemistry, University of Oklahoma (2000).
  - Biophysical Society Meeting, New Orleans (2000).
  - Symposium on Elastic Filaments of the Cell, University of Washington (1999).
  - Department of Biochemistry, University of Vermont (1999).
  - Instituto Cajal, Madrid, SPAIN (1998).
  - Department of Biochemistry, Universidad Autonoma de Madrid, SPAIN (1998).
  - Department of Biology, University of York, ENGLAND (1997).
  - Department of Physiology & Biophysics, University of Vermont (1992).
  - Department of Zoology, University of Vermont (1990).
  - Department of Biology, University of Nevada-Reno (1990).
  - Laboratory of Molecular Cardiology, NHLBI, NIH (1990).
  - Department of Physiology, Boston University School of Medicine (1989).
  - Whitehead Institute, MIT (1989).
  - Department of Biology, University of Puerto Rico, Rio Piedras (1989).
  - Department of Biology, MIT (1987).
  - Department of Biochemistry, University of Washington (1986).
  - Department of Molecular & Cell Biology, University of California, Berkeley (1986).
  - Department of Chemistry, University of Oklahoma, Norman (1986).
- Panels and presentations
    - *Leadership Changes: Identifying Opportunities and Navigating Challenges* (panelist) APLU ASPIRE Institutional Change Network Meeting, 2022.
    - *Obtaining a faculty position at a research intensive university.* ASCB ACT 21 Summer Virtual Workshop (presenter).
    - *Time Management*, ASCB ACT 21 Summer Virtual Workshop (Discussion Moderator with Veronica Segarra and Fadie Coleman).
    - *Mechanics in Physiological Systems: From Organelle to Organism* (panel moderator), Biomechanics Workshop, HHMI Janelia, 2021.
    - *ACT Diversity and Inclusion Workshop: Sharpening Your Virtual Mentoring Skills in Support of Student Success* (moderator), Cell Bio Virtual 2020, ASCB/EMBO Annual Meeting, 2020
    - *Planning Your Transition to a Faculty Position at a Research Intensive University* (moderator), Cell Bio Virtual 2020, ASCB/EMBO Annual Meeting, 2020.
    - *Transitions Academy – Advise for Post-doctoral fellows* (panelist), ASCB/EMBO Annual Meeting, Washington, D.C., 7-11 December 2019.

- *Obtaining a faculty position at a research-intensive institution* (panel moderator), Accomplishing Career Transitions, ASCB-IPERT Workshop, Chapel Hill, NC, 24-27 June 2019.
- *Setting up and managing a lab at a research intensive institution* (panelist), Accomplishing Career Transitions, ASCB-IPERT Workshop, Chapel Hill, NC, 24-27 June 2019.
- *Planning your Exit from Graduate School*, ASCB/EMBO Annual Meeting, San Diego, CA, 8-12 December 2018.
- *Constructing your career agenda: post-bacs and college students* (panelist), Biomedical Science Careers Student Conference, Boston (2018).
- *Tools to teach positively, inclusively, and for student success* (panel moderator), Blackboard Jungle 11, University of Vermont, 23 March 2018.
- *Planning your exit from graduate school* (panelist), ASCB EMBO Annual Meeting, Philadelphia PA, 2-6 December 2017.
- *Getting the most out of your thesis committee* (panelist), ASCB EMBO Annual Meeting, Philadelphia PA, 2-6 December 2017.
- *Failed science or experiment in progress? The US territorial relation with Puerto Rico and the legacy of Pedro Albizu Campos* (talk). The Twenty-third Annual Hispanic Forum, University of Vermont (2016).
- *Constructing your career agenda: post-bacs and college students* (panelist), Biomedical Science Careers Student Conference, Boston (2016).
- *Biomedical research opportunities for high school students* (panelist), Biomedical Science Careers Student Conference, Boston (2014).
- *Constructing your career agenda* (panelist), Biomedical Science Careers Student Conference, Boston (2014).
- *Multilingual Writers, Multilingual Lives* (panelist), University of Vermont (2014)
- *Bioinformatics Core Assessments* (talk), Northeast Regional INBRE Conference, University of Delaware (2013)
- *Multiliterate Lives* (panelist), University of Vermont (2013).
- *Plenary Speaker*, College of Arts & Sciences Honors Ceremony, University of Vermont (2012).
- *Constructing your career agenda* (panelist), Biomedical Science Careers Student Conference, Boston (2012).
- *The path to becoming a scientist* (talk), NeuroID Program, University of Puerto Rico, Rio Piedras (2012).
- *How to write a research literature review* (talk), Honors College, University of Vermont (2011).
- *Constructing your career agenda* (panelist), Biomedical Science Careers Student Conference, Boston (2010).
- *Getting published* (panelist), Workshop on Faculty Development, University of Vermont Office of the Provost (2008)
- *Constructing your career agenda* (panelist), Biomedical Science Careers Student Conference, Boston (2008).
- *Constructing your career agenda* (panelist), Biomedical Science Careers Student Conference, Boston (2006).
- *UVM McNair Scholars Program* (talk). Vermont National Science Foundation Experimental Program to Stimulate Competitive Research Annual Conference, Burlington VT (2005).
- *Building strong relationships with faculty mentors* (panelist), New England Consortium of McNair Scholars Conference, University of New Hampshire (2005)

- *Becoming a scientist* (talk), Upward Bound Summer Program, University of Vermont (2004).
- *Shaping Hispanic Identity: The US Agenda* (panelist), Fiftieth Anniversary Celebration of the Brown vs Board of Topeka Kansas, Doctoral Program on Education Leadership and Policy Studies, University of Vermont (2004).
- *Succeeding in college: thinking about STEM careers* (panelist), New England Board of Higher Education Science/Engineering Academic Support Network Annual Conference, MIT (2003, 2004, 2005).
- *How to get into graduate school* (panelist), Biomedical Science Careers Student Conference, Boston (2002).
- *Networking in the sciences* (panelist), New England Board of Higher Education Science Network at MIT (1999, 2000, 2001).
- *Protein pre-fractionation in proteomics* (talk), BioTek, Winooski VT (2000).
- *Writing workshop*, Teacher Advisor Program, University of Vermont (2000).
- *The future of Spanish in the United States: Towards a bilingual North America?*, (panel moderator) The Fifth Annual Hispanic Forum, University of Vermont (1998).
- *How to get into graduate school* (panelist), Biomedical Science Careers Student Conference, Boston (1996).
- *Do I need a mentor?* (panelist), Biomedical Science Careers Student Conference, Boston (1994).
- *Conversations with scientists* (panelist), New England Board of Higher Education Science/Engineering Academic Support Network Annual Conference, MIT (1991, 1992, 1993, 1994, 1995, 1996).
- *Musica y arquitectura mudejar en el Caribe: una presencia viva* (talk), The First Annual Hispanic Forum, University of Vermont (1994).
- *Thinking about careers in science* (panelist), Biomedical Science Careers Student Conference, Boston (1992).

## FUNDING

- Current (Role; total cost)
  - National Institutes of Health, “Improving diversity and career transitions through society support”, 2018-2023, (PI, with Veronica Segarra, MariaElena Zavala, and Ashanti Edwards; \$3,144,274).
- Previous
  - Davis Educational Foundation, “Alternate Academic Delivery”, 2020-2021, (PI, \$25,000).
  - National Science Foundation, “EAGER: Maker: BioFabLab: Making as an entryway to the life sciences for early undergraduates”, 2017-2020, (Co-PI, Andrew Mead PI; \$299,685).
  - Arnold and Mabel Beckman Foundation, “2014 Beckman Scholars Program”, 2014-2017, (PI, \$130,000).
  - Abbott Nutrition, “Effects of HMB on a model of human fast twitch muscle fibers. Part II”, 2013-2015, (PI, \$30,000).
  - National Science Foundation, “Structural role of flightin in thick filaments of Drosophila flight muscle”, 2011-2015 (No cost extension 2016) (PI; \$841,786).
  - National Institutes of Health “Vermont Genetics Networks – Vermont INBRE”, 2010-2015 (Program Coordinator/Associate Director\*, Judith Van Houten PI) (\$2,597,651). \*started 2013.
  - Abbott Nutrition, “Effects of HMB on a model of human fast twitch muscle fibers”, 2012-2013, (PI, \$24,992).



- National Science Foundation, “NEAGEP Summative Evaluation: Identifying effective strategies for paving the pathway to the Professoriate”, 2011-2013 (Sub-contract from Univ. Massachusetts, UVM PI) (\$1514).
- National Science Foundation, “Northeast Alliance Initiative”, 2005-2013 (Sub-contract from Univ. Massachusetts, UVM PI 2010-2013) (\$429,325).
- Department of Education, “Ronald E. McNair Postbaccalaureate Achievement Program”, 2008-2013 (PI; \$924,000).
- National Science Foundation, “Molecular phylogeny of flightin and the evolution of insect flight”, 2007-2012 (PI; \$676,009).
- National Science Foundation “Molecular phylogeny of flightin and the evolution of insect flight”, supplemental award, 2011 (PI; \$5,938).
- National Science Foundation “The role of flightin phosphorylation in thick filament assembly and flight muscle mechanics in *Drosophila*”, 2003-2007 (PI; \$547,866).
- Department of Education “Ronald E. McNair Postbaccalaureate Achievement Program”, 2003-2008 (PI; \$1,100,000).
- National Science Foundation “The role of flightin in thick filament assembly and flight muscle mechanics”, 2001-2003 (PI; \$240,000).
- National Institutes of Health “Do light chain extensions enhance muscle power output?” 2001-2005 (Co-Investigator, David Maughan PI) (\$1,356,185).
- National Institutes of Health “Molecular basis of diabetic cardiomyopathy”, 2000-2004 (Co-Investigator, David Maughan PI) (\$1,479,289).
- National Institutes of Health “Myofibrillar remodeling in human valvular heart disease”, 2004-2009 (Co-Investigator, Peter Van Buren, PI) (\$1,893,750)
- National Institutes of Health “Mechanoenergetics of hypertrophy and failure”, 2003-2007 (Co-Investigator, Martin LeWinter PI) (\$1,893,750).
- National Institutes of Health “Thermo-Finnigan Deca-XP LCMS for proteomics”, 2003-2004 (Co-Investigator, Dwight Matthews PI) (\$333,445).
- National Science Foundation Undergraduate Research Supplement, 1999 (PI; \$10,000).
- National Science Foundation “Functional studies of flightin in *Drosophila* flight muscles”, 1998-2001 (PI; \$300,000).
- National Science Foundation “Role of myosin regulatory light chain in muscle stretch activation”, 1998-2001 (Co-PI; David Maughan, PI) (\$225,000).
- DoD EPSCoR “Nanotechnology in genetically engineered muscle: molecular mechanism of power production”, 1996-1999 (Co-PI; David Maughan PI) (\$461,493).
- NASA “Effects of a sounding rocket flight on *Drosophila*”, 1997-1998 (Co-PI; Tony S. Keller PI) (\$35,000).
- National Science Foundation “Genetic Approaches to Flightin Function in *Drosophila* Flight Muscle”, 1996-1997 (PI; \$25,000).
- National Science Foundation Undergraduate Research Supplement, 1993 (PI; \$5000).
- National Science Foundation “Functional Studies of Mutations Affecting a Novel *Drosophila* Muscle Protein”, 1992-1996 (PI; \$251,000).
- Intramural
  - Vermont Genetics Network “Metabolic adaptations in a fast contracting muscle”, 2002 (\$22,000).
  - Vermont Genetics Network “The role of flightin phosphorylation in flight muscle function in *Drosophila*”, 2002 (\$22,000).
  - Vermont DOE EPSCoR “Analysis of functional protein interactions in *Drosophila* flight muscles through the study of mutant proteomes”, 2001 (\$30,000).
  - Lake Champlain Cancer Research Organization “Genetic study of a gene involved in cell identity”, 2001 (\$10,000).



- International Advisory Council “Fomenting a research-based link between UVM and La Universidad Autonoma de Madrid, Spain” 1999 (\$1000).
- UCRS “Signal transduction in Drosophila flight muscle development” 1997 (\$5000).
- College of Arts and Sciences Grant Seed Funds, 1996.
- Dean’s Fund for Faculty Development, 1996 (\$1990).
- UCRS “Molecular Cloning of the Gene for a Novel Protein of Drosophila Indirect Flight Muscles” 1992 (\$5000).
- RAC “Multiuser 2-D Protein Analysis System” (Co-PI), 1992.
- RAC “Multiuser Microtome Cryostat” (PI), 1991.
- RAC “Multiuser DNA Synthesizer” (Co-PI), 1991.

## PUBLICATIONS

- Vigoreaux, J.O. (1987) Molecular structure and developmental expression of the 5C actin gene of *Drosophila melanogaster*: An actin gene with a complex transcriptional unit. *Ph.D. dissertation*, University of Oklahoma Health Sciences Center, Oklahoma City, OK. Major advisor, Sara L. Tobin.

## Journal articles (peer-reviewed)

- Vigoreaux, J.O. and Tobin, S.L. (1987) Stage-specific selection of alternative transcriptional initiation sites from the 5C actin gene of *Drosophila melanogaster*. *Genes and Development* 1: 1161-1171.
- Burn, T.C., Vigoreaux, J.O., and Tobin, S.L. (1989) Alternative 5C actin transcripts are localized in different patterns during *Drosophila* embryogenesis. *Developmental Biology* 131, 345-355.
- Saide, J.D., Chin-Bow, S., Hogan-Sheldon, J., Turner, L., Vigoreaux, J.O., Valgiersdottir, K. and Pardue, M.L. (1989) Characterization of components of Z bands in the fibrillar flight muscle of *Drosophila melanogaster*. *J. Cell Biology*, 109, 2157-2167.
- Vigoreaux, J.O., Saide, J.D., and Pardue, M.L. (1991) Structurally different *Drosophila* striated muscles utilize distinct variants of Z band-associated proteins. *J. Muscle Res. Cell Motil.* 12, 340-354.
- Ayme-Southgate, A., Vigoreaux, J.O., Benian, G., and Pardue, M.L. (1991). *Drosophila* has a twitchin/titin-related gene that appears to encode projectin. *Proc. Natl Acad. Sci. USA*, 88, 7973-7977.
- Vigoreaux, J. O., Saide, J. S., Valgeirsdottir, K. and Pardue, M. L. (1993) Flightin, a novel myofibrillar protein of *Drosophila* stretch-activated muscles. *J. Cell Biol.* 121, 587-598.
- Vigoreaux, J. O. (1994) The muscle Z band: Lessons in stress management (Invited review). *J. Muscle Res. Cell Motil.* 15, 237-255.
- Vigoreaux, J. O. and Perry, L. M. (1994) Multiple isoelectric variants of flightin in *Drosophila* stretch-activated muscles are generated by temporally regulated phosphorylations. *J. Muscle Res. Cell Motil.* 15, 607-616.

- Vigoreaux, J. O. (1994) Alterations in flightin phosphorylation in *Drosophila* flight muscles are associated with myofibrillar defects engendered by actin and myosin heavy chain mutant alleles. *Biochem. Genetics* 32, 301-314.
- Kronert, W. A., O'Donnell, P. T., Fieck, A., Lawn, A., Vigoreaux, J. O., Sparrow, J. C. and Bernstein, S. I. (1995) Defects in the myosin rod permit sarcomere assembly but cause muscle degeneration. *J. Mol. Biol.* 249, 111-125.
- Dickinson, M., Hyatt, C., Lehmann, F-O., Moore, J., Reedy, M. C., Simcox, A., Tohtong, R., Vigoreaux, J.O., Yamashita, H. and Maughan, D. (1997) Phosphorylation-dependent power output of transgenic flies: an integrated study. *Biophys. J.* 73, 3122-3134.
- Vigoreaux, J. O., Hernandez, C., Moore, J., Ayer, G. and Maughan, D. (1998) A genetic deficiency that spans the flightin gene of *Drosophila melanogaster* affects the ultrastructure and function of the flight muscles. *J. Exp. Biol.* 201, 2033-2044.
- Maughan, D., Moore, J., Vigoreaux, J., Barnes, B. and Mulieri, L. A. (1998) Work production and work absorption in muscle strips from vertebrate cardiac and insect flight muscle fibers (Invited chapter). *Adv. Exp. Biol. Med.* 453, 471-480.
- Maughan, D. W. and Vigoreaux, J. O. (1999) An integrative view of insect flight muscle: genes, motor molecules and motion (Invited review). *News In Physiol. Science.* 14, 87-92.
- Moore, J., Vigoreaux, J. O. and Maughan, D.W. (1999) The *Drosophila* projectin mutant, *bent<sup>D</sup>*, has reduced stretch activation and altered indirect flight muscle kinetics. *J. Muscle Res. Cell Motil.* 20: 797-806.
- Moore, J. R., Dickinson, M. H., Vigoreaux, J. O., and Maughan, D. W. (2000) The effect of removing the N-terminal extension of the *Drosophila* myosin regulatory light chain upon flight ability and the contractile dynamics of indirect flight muscle. *Biophys J.* 78: 1431-1440.
- Reedy, M. C., Bullard, B., and Vigoreaux, J. O. (2000) Flightin is essential for thick filament assembly and sarcomere stability in *Drosophila* flight muscles. *J. Cell Biol.* 151: 1483-1500.
- Vigoreaux, J. O. (2001) Genetics of the *Drosophila* flight muscle myofibril: A window into the biology of complex systems (Invited review). *BioEssays* 23: 1047-1063.
- Irving, T., Bhattacharya, S., Tesic, I., Moore, J., Simcox, A. Vigoreaux, J., and Maughan, D. (2001) Changes in myofibrillar structure and function produced by N-terminal deletion of the regulatory light chain in *Drosophila*. *J. Muscle Res. Cell Motil.* , 22: 675-683.
- Ayer, G. and Vigoreaux, J. O. (2003) Flightin is a myosin rod binding protein. *Cell Biochem. Biophys.* 38: 41-54.
- Nongthomba, U., Cummins, M, Clark, S., Vigoreaux, J. O., and Sparrow, J. C. (2003) Suppression of the muscle hypercontraction phenotype by mutations in the myosin heavy chain gene of *Drosophila melanogaster*. *Genetics* 164: 209-222.
- Henkin, J., Maughan, D. W. and Vigoreaux, J. O. (2004) Mutations that affect flightin expression in *Drosophila* alter the viscoelastic properties of flight muscle fibers. *Amer. J. Physiol., Cell Physiol.*, 286: C65-C72.

- Henkin, J., Jennings, M. E., Matthews, D. E., and Vigoreaux, J. O. (2004) Mass Processing<sup>2</sup> – An improved technique for protein identification with MS data. *J. Biomolecular Tech.*, 15: 227-233.
- Maughan, D. and Vigoreaux, J. (2005) Nature's strategy for optimizing power generation in insect flight muscle (Invited chapter). *Adv. Exp. Med. Biol.*, 565: 157-166.
- Barton, B., Ayer, G., Heymann, G. Maughan, D. Lehmann, F., and Vigoreaux, J. O. (2005) Flight muscle properties and aerodynamic performance of *Drosophila* expressing a flightin transgene. *J. Exp. Biol.*, 208: 549-560.
- Maughan, D. Henkin, J., and Vigoreaux, J. (2005) Concentrations of glycolytic enzymes and other cytosolic proteins in the diffusible fraction of a vertebrate muscle proteome. *Mol. Cell Proteomics* 4.10: 1541-1549.
- Barton, B, Ayer, G., Maughan, D. W., and Vigoreaux, J. O. (2007) Site Directed Mutagenesis of *Drosophila* Flightin Disrupts Phosphorylation and Impairs Flight Muscle Structure and Mechanics. *J. Muscle Res Cell Motil*, 28: 219-230.
- Miller, M.S., P. Lekkas, J. M. Braddock, G. P. Farman, B. Ballif, T. C. Irving, D. W. Maughan, and J. O. Vigoreaux (2008) Aging enhances indirect flight muscle fiber performance yet decreases flight ability in *Drosophila*. *Biophys. J.* 95:2391-2401.
- Previs, M. J., VanBuren, P., Begin, K. J., Vigoreaux, J. O., LeWinter, M. M., and Matthews, D. E. (2008) Absolute Quantification of Protein Phosphorylation by Liquid Chromatography Mass Spectrometry. *Anal Chem.*, 80: 5864-5872.
- Kreplak, L., Nyland, L., Contompasis, J. L., and Vigoreaux, J. O. (2009) Nanomechanics of native thick filaments from indirect flight muscles. *J. Mol. Biol.*, 386: 1403-1410.
- Nyland, L. R., Palmer, B. P., Chen, Z., Maughan, D. W., Seidman, C. E., Seidman, J. G., Kreplak, L., and Vigoreaux, J. O. (2009) Cardiac myosin binding protein-C is essential for thick filament stability and flexural rigidity. *Biophys. J.*, 96: 3273-3280.  
doi: [10.1016/j.bpj.2008.12.3946](https://doi.org/10.1016/j.bpj.2008.12.3946). PMID: PMC2718271
- Farman, G.P., Miller, M.S., M.C. Reedy, F.N. Soto-Adames, J.O. Vigoreaux, D.W. Maughan, and T.C. Irving (2009) Phosphorylation and the N-terminal extension of the Regulatory light chain help orient and align the myosin heads in *Drosophila* flight muscle. *J. Structural Biol.*, 168: 240-249.
- Contompasis, J., Nyland, L., Maughan, D. and Vigoreaux, J. O. (2010) Flightin is necessary for length determination, structural integrity and large bending stiffness of insect flight muscle thick filaments. *J. Mol. Biol.*, 395: 340-348.
- Miller, M.S., Tanner, B. C. W., Nyland, L., and Vigoreaux J. O. (2010) Comparative biomechanics of thick filaments and thin filaments with functional consequences for muscle contraction. (Invited review) *J. Biomed & Biotech.*, Vol 2010, Article ID 473423, 14 pages; doi:10.1155/2010/473423.
- Miller, M.S., G.P. Farman, J.M. Braddock, F.N. Soto-Adames, T. C. Irving, J.O. Vigoreaux, and D.W. Maughan. (2011) Regulatory Light Chain Phosphorylation and N-terminal Extension Increase Cross-Bridge Binding and Power Output in *Drosophila* at *In Vivo*

Myofilament Lattice Spacing. *Biophys J.*, 100: 1737-1746.

- Tanner, B.C. W., Miller, M. S., Miller, B. M., Lekkas, P., Irving, T. C., Maughan, D. W. and Vigoreaux, J. O. (2011) COOH-terminal truncation of flightin decreases myofilament lattice organization, cross-bridge binding, and power output in *Drosophila* indirect flight muscle. *Am. J. Physiol. Cell Physiol.*, 301: C383-391.
- Chakravorty, S. Wadja, M. and Vigoreaux, J. O. (2012) Analysis of mating song in *Drosophila* muscle mutants. (Invited chapter) In *Methods*, 56: 87-94. Benian, G. and Bernstein, S., editors. Elsevier Journals Publishing.
- Vishnudas, V., Guillemette, S., Lekkas, P., Maughan, D., and Vigoreaux, J. O. (2013) Characterization of intracellular distribution of an adenine nucleotide transporter (ANT) in *Drosophila* indirect flight muscles. *CellBio*, 2: 149-162.  
<http://dx.doi.org/10.4236/cellbio.2013.23017>
- Menard L, Nyland L and Vigoreaux JO (2013) The Structural and Biomechanical Properties of Insect Thick Filaments Expressing Flightin and Cardiac Myosin Binding Protein-C. *Microscopy & Microanalysis*, 19 (S2): 80-81.  
<http://dx.doi.org/10.1017/S1431927613002390>.
- Soto-Adames, F., Alvarez-Ortiz, P., and Vigoreaux, J. O. (2014) An Evolutionary Analysis of Flightin Reveals a Conserved Motif Unique and Widespread in Pancrustacea. *J. Mol. Evol.* 78: 24-37. doi 10.1007/s00239-013-9597-5.
- Carlson, B. A., Vigoreaux, J. O., and Maughan, D. W. (2014) Diffusion rates of endogenous cytosolic proteins from rabbit skinned muscle fibers. *Biophys. J.* 106(4): 780-792. <http://dx.doi.org/10.1016/j.bpj.2013.12.044>.
- Chakravorty, S., Vu, H, Foelber, V., and Vigoreaux, J.O. (2014) Mutations of the *Drosophila* Myosin Regulatory Light Chain Affect Courtship Song and Reduce Reproductive Success. *PLOS One*. DOI: 10.1371/journal.pone.0090077.
- Menard, L., Maughan, D. W. and Vigoreaux, J. O. (2014) The structural and functional coordination of glycolytic enzymes in muscle: evidence of a metabolon? *Biology* 3, 623-644; doi:10.3390/biology3030623.
- Lemas, D., Lekkas, P., Ballif, B., and Vigoreaux, J. O. (2015) Intrinsic disorder and multiple phosphorylations constrain the evolution of the flightin N-terminal domain. *J. Proteomics*.  
<http://dx.doi.org/10.1016/j.prot.2015.12.006>.
- Gasek, N., Nyland, L., and Vigoreaux, J.O. (2016) The contributions of the amino and carboxyl terminal domains of flightin to the biomechanical properties of *Drosophila* flight muscle thick filaments. *Biology* 5,16; doi:10.3390/biology5020016.
- Chakravorty, S., Tanner, B.C.W., Foelber, V.L., Vu, H., Rosenthal, M., Ruiz, T., and Vigoreaux, J.O. (2017) Flightin Maintains Myofilament Lattice Organization Required for Optimal Flight Power and Courtship Song Quality in *Drosophila*. *Proc. Royal Society B*. doi:10.1098/rspb.2017.0431.
- Petersen S.L., Erenrich E.S., Levine D. L., Vigoreaux J. and Gile, K. (2018) It's Time To Revise STEM Doctoral Admissions Procedures. *Science Trends*. DOI: [10.31988/SciTrends.44588](https://doi.org/10.31988/SciTrends.44588)

- Bruggemeier, B., Porter, M.A., Vigoreaux, J.O., and Goodwin, S.F. (2018) Female *Drosophila melanogaster* respond to song-amplitude modulations. *Biology Open* 7, bio032003. doi:10.1242/bio.032003.
- Petersen, S.L., Erenrich, E.S., Levine, D.L., Vigoreaux, J., and Gile, K. (2018) Multi-institutional study of GRE scores as predictor of STEM PhD degree completion: GRE gets a low score. *PLOS One*, <https://doi.org/10.1371/journal.pone.0206570>.
- Vigoreaux, J.O. and Leibowitz, M.J. (2021) Obtaining a faculty position in STEM at a research-intensive institution. *BMC Proceedings* 15(Suppl 2):4. <https://doi.org/10.1186/s12919-021-00210-x>.
- Segarra, V.A., Vigoreaux, J., Zavala, M. and Edwards, A. (2021) Accomplishing Career Transitions 2019: facilitating success towards the professoriate. *BMC Proceedings* 15(Suppl 2):13. <https://doi.org/10.1186/s12919-021-00220-9>.
- Menard, L.M., Wood, N. and Vigoreaux, J.O. (2021) Secondary structure of the novel myosin binding domain WYR and implications within myosin structure. *Biology* 2021, 10, 603. <https://doi.org/10.3390/biology10070603>.
- Menard, L.M., Wood, N. and Vigoreaux, J.O. (2021) Contiguity and structural impacts of a non-myosin protein within the thick filament myosin layers. *Biology*, 2021, 10, 613. <https://doi.org/10.3390/biology10070613>.

#### Manuscripts Submitted

- Alvarez-Ortiz, P., Guillemete, S., Humphrey, R., Ballif, B. and Vigoreaux, J.O. Down-regulation of *Drosophila* Glutactin, a cholinesterase-like adhesion molecule of the basement membrane, impairs development, compromises adult function and shortens lifespan. (*in revision*)

#### Manuscripts in Preparation

- Price, E., Athalye, H. and Vigoreaux, J.O. The N-terminal domain of flightin impacts mating song quality and mating success in *Drosophila*.
- Alvarez-Ortiz, P. and Vigoreaux, J. O. Glutactin, a taxonomically restricted basement membrane protein of *Drosophila*, is characterized by phylogenetically widespread motifs.
- Chakravorty, S., Rosenthal, M., Santiago, N., and Vigoreaux, J.O. Flight and Mating Behavior of a Dual Heterozygote *Drosophila* expressing Flightin NH2-Terminal and COOH-Terminal Truncated Proteins.
- Nagori, R., Garvey, S. and Vigoreaux, J. O. Ergogenic dietary supplementation improves healthspan and extends lifespan in *Drosophila*.
- Menard, L., Price, E. and Vigoreaux, J. O. Flightin and its kin: An evolutionary perspective on Pancrustacea locomotion:

### Books, Edited Volumes, Manuals

- Vigoreaux, J. O. (2014) Special Issue Editor, *Muscle Structure and Function*, MDPI Biology. [https://www.mdpi.com/journal/biology/special\\_issues/muscle-structure](https://www.mdpi.com/journal/biology/special_issues/muscle-structure).
- Vigoreaux, J. (2006) Editor, *Nature's Versatile Engine: Insect Flight Muscle Inside and Out*, Springer/Landes Bioscience, New York/Georgetown.
- Hoffmann, J. and Vigoreaux, J.O. (1991) *Laboratory Experiences for Biology*.

### Book chapters (peer-reviewed)

- Vigoreaux, J. O., Moore, J. R., and Maughan, D. W. (2000) Role of the elastic protein projectin in stretch activation and work output of *Drosophila* flight muscles (Invited chapter). In "Elastic filaments of the Cell". Pollack, G. and Granzier, H., editors. Kluwer Academic/Plenum Publishers. pp 237-250.
- Swank, D. and Vigoreaux, J. O. (2004) The Development of the Flight and Leg Muscle (Invited chapter). In *Comprehensive Molecular Insect Science*. Volume 2, 45-84. Gilbert, L.I., Iatrou, K., and Gill, S. editors. Elsevier, Oxford.
- Maughan, D. and Vigoreaux, J. (2005) Nature's strategy for optimizing power generation in insect flight muscle (Invited chapter). *Adv. Exp. Med. Biol.*, 565: 157-166; discussion 167, 371-377. In *Mysteries about the sliding filament mechanism: Fifty years after its proposal*, Sugi, H, editor. Kluwer Press).
- Barton, B. and Vigoreaux, J. (2006) Novel myosin associated proteins, in *Nature's Versatile Engine: Insect Flight Muscle Inside and Out*, Vigoreaux, J. editor, Springer/Landes Bioscience, New York/Georgetown. pp 86-96.
- Henkin, J. and Vigoreaux, J. (2006) Mapping myofibrillar protein interactions by mutational proteomics, in *Nature's Versatile Engine: Insect Flight Muscle Inside and Out*, Vigoreaux, J. editor, Springer/Landes Bioscience, New York/Georgetown. pp 270-283.
- Vishnudas, V. and Vigoreaux, J. (2006) Achieving sustained performance: possible strategies for coordinating energetic supply and demand, in *Nature's Versatile Engine: Insect Flight Muscle Inside and Out*, Vigoreaux, J. editor, Springer/Landes Bioscience, New York/Georgetown. pp 188-196.
- Vigoreaux, J. (2006) Molecular basis of muscle structure (Invited chapter), in *Muscle Development in Drosophila*, H. Sink, editor. Springer/Landes Bioscience, New York/Georgetown. pp 143-156.
- Chakravorty, S. and Vigoreaux, J. O. (2010) Amplification of orthologous genes using degenerate primers (Invited chapter). *In vitro Mutagenesis Protocols*. Third Edition. Braman, J., editor. Humana Press, pp 175-185.



### Conference Presentations (published abstracts)

- Cuevas, R.E., Vigoreaux, J.O., and Ramirez-Ronda, C.H. (1981) Comparative activity of moxalactam, cefotaxime, mezlocillin, and piperacillin against 194 bacteremic strains. Ninth Annual Minority Biomedical Sciences Program Symposium.
- Smith, D.J., Maples, P.B., Dorn, A.R., Saucier, W.J., Vigoreaux, J.O., and Broyles, R.H. (1982) Hemoglobin types, red blood cell classes, and erythropoietic loci of the bullfrog *Rana catesbeiana*. 41st Annual Symposium of the Society for Developmental Biology.
- Vigoreaux, J.O. and Tobin, S.L. (1984) Two developmentally regulated mRNAs are transcribed from the *Drosophila melanogaster* 5C actin gene. *J. Cell Biology* 99, 142a.
- Vigoreaux, J.O. and Tobin, S.L. (1985) Developmental variations in the accumulation of multiple *Drosophila* 5C actin mRNAs. Tenth International Congress of the International Society for Developmental Biologist.
- Vigoreaux, J.O. and Tobin, S.L. (1985) Multiple *Drosophila* 5C actin mRNAs differ in 5' and 3' nontranslated sequences. *J. Cell Biology* 101, 80a.
- Vigoreaux, J. O. and Tobin, S.L. (1986) Molecular structure of the *Drosophila* 5C actin gene: Differential exon usage in the generation of multiple transcripts. *J. Cell Biology* 103, 184a.
- Vigoreaux, J.O., Saide, J.D., and Pardue, M.L. (1988) Immunocytochemical localization of Z band proteins during embryonic development of *Drosophila melanogaster*. *J. Cell Biology* 107, 472a.
- Vigoreaux, J.O., Saide, J.D., and Pardue, M.L. (1989) Distribution of Z band components in non-fibrillar muscle of *Drosophila*. *J. Cell Biology* 109, 171a.
- Vigoreaux, J.O., Saide, J.D., Ayme-Southgate, A., Valgeirsdottir, K., and Pardue, M.L. (1990) Novel muscle-type specific proteins of *Drosophila*. *J. Cellular Biochem.* 14A: 19.
- Vigoreaux, J.O., Saide, J.D., and Pardue, M.L. (1990) Expression of multiple variants of projectin during muscle development in *Drosophila*. *J. Cell Biology* 111: 427a.
- Ayme-Southgate, A., Vigoreaux, J.O., Benian, G.M., and Pardue, M.L. (1990) Is projectin the *Drosophila* alias of twitchin and titin? *J. Cell Biology* 111: 427a.
- Ayme-Southgate, A., Southgate, R., Vigoreaux, J.O., Benian, G.M., and Pardue, M.L. (1991) Projectin belongs to the twitchin and titin superfamily. *J. Cell Biology*: 115: 179a.
- Vigoreaux, J.O., Saide, J.D., Valgeirsdottir, K., and Pardue, M.L. (1991) A Novel *Drosophila* muscle protein that is unique to asynchronous flight muscle. *J. Cell Biology*: 115:379a.
- Pardue, M. L., Ayme-Southgate, A., Vigoreaux, J., Saide, J., and Benian, G. (1993) Projectin, flightin, and mp20: Three new proteins associated with the contractile apparatus. *Biophys. J.* 64: A1.

- Vigoreaux, J. (1993) Characterization of flightin, a new myofibrillar protein of flight muscles. Workshop on muscle development, structure and function. 34th Annual Drosophila Research Conference.
- Maughan, D., Yamashita, H., Tohtong, R., Simcox, A., Vigoreaux, J., Haeberle, J., Hurley, J. and Hyatt, C. (1993) Assessment of role of phosphorylation of the myosin regulatory light chain by in vivo mutagenesis in Drosophila. Gordon Research Conference on Muscle: Contractile proteins.
- Vigoreaux, J. O. and Perry, L. M. (1993) In vivo phosphorylation of flightin in Drosophila flight muscles. *Mol. Biol. Cell* 4: 387a.
- Kronert, W. A., Fieck, A., O'Donnell, P. T., Vigoreaux, J. O., Sparrow, J. C. and Bernstein, S. I. (1994) Defects in the myosin rod permit normal thick filament assembly but cause muscle degeneration. *J. Cellular Biochem.* 51: 509.
- Yamashita, H., Tohtong, R., Simcox, A., Vigoreaux, J., Haeberle, J., Hyatt, C., Brown, S., and Maughan, D. (1994) Assessment of the role of myosin regulatory light chain (MLCR) phosphorylation by in vivo mutagenesis in Drosophila. *Biophys. J.*, 66: A123.
- Yamashita, H., Tohtong, R., Simcox, A., Vigoreaux, J., Haeberle, J., Hyatt, C., Brown, S., and Maughan, D. (1994) Impairment of flight ability and flight muscle function caused by mutations of phosphorylation sites of myosin regulatory light chain. 35th Annual Drosophila Research Conference.
- Vigoreaux, J. O. and Perry, L. M. (1994) In vivo phosphorylation of flightin in Drosophila flight muscles. 35th Annual Drosophila Research Conference.
- Vigoreaux, J. O. (1994) Alterations in flightin phosphorylation in defective flight muscles. Muscle Biology Workshop, 35th Annual Drosophila Research Conference.
- Hernandez, C., Perry, L. M. and Vigoreaux, J. O. (1995) Genetic and molecular analysis of the 76D region encompassing the flightin gene. 36th Annual Drosophila Research Conference.
- Yamashita, H., Hyatt, C., Tohtong, R., Symcox, A., Vigoreaux, J., Haeberle, J., Sleeper, G. and Maughan, D. (1995) Disruption of myosin light chain kinase (MLCK)-dependent phosphorylation site alters the recruitment of activated crossbridges in Drosophila indirect flight muscle. *Biophys. J.* 68: A142.
- Hernandez, C., Maughan, D. W. and Vigoreaux, J. O. (1996) Genetic and functional studies of flightin, a thick filament protein of Drosophila flight muscles. *Mol. Biol. Cell* 7S: 200a.
- Moore, J., Vigoreaux, J. O. and Maughan, D.W. (1997) The Drosophila projectin mutant *bent<sup>P</sup>* has normal IFM ultrastructure but altered crossbridge kinetics. *Biophys. J.* 72: A279.
- Moore, J., Vigoreaux, J. O. and Maughan, D.W. (1998) Removal of the 44 amino acid N-terminal extension of the Drosophila myosin regulatory light chain has no effect on stretch activation of indirect flight muscles. *Biophys. J.* 74: A335

- Moore, J., Hernandez, C., Ayer, G., Maughan, D.W. and Vigoreaux, J.O. (1998) The effect of a genetic deficiency that spans the flightin gene of *Drosophila melanogaster*. *Biophys J.* 74: A156
- Mohan-Ram, V., Moore, J., Haeberle, J., Vigoreaux, J. and Maughan, D. (1999) The *Drosophila* regulatory light chain extension may play a role in thin filament cooperativity. *Biophys J.* 76:A37
- Moore, J., Irving, T., Vigoreaux, J. and Maughan, D. (1999) N-terminal truncation of the *Drosophila* myosin regulatory light chain reduces indirect flight muscle dynamic stiffness and alters myofibril spacing and alignment in vivo. *Biophys. J.* 76:A33.
- Nongthomba, U., Cummins, M., Vigoreaux, J. O. and Sparrow, J. C. (1999) Suppression of muscle hypercontraction phenotypes in *Drosophila melanogaster*. *European Muscle Conference*.
- Vigoreaux, J. O., Nongthomba, U., Cummins, M. and Sparrow, J. C. (1999) Genetic analysis of flight muscle hypercontraction in *Drosophila*. *Mol. Biol. Cell* 10S; 246a.
- Vigoreaux, J. O., Cox, A., and Reedy, M. C. (1999) Flightin is essential for thick filament length regulation and normal contractile function of *Drosophila* flight muscle. *Mol. Biol. Cell* 10S;
- Vigoreaux, J. O., Cox, A., Barnes, W. D., Reedy, M. C., and Maughan, D. W. (2000) A knockout mutation of *Drosophila* flightin affects oscillatory work and thick filament length and stability in flight muscle fibers. *Biophys. J.* 78: 135A.
- Henkin, J., Cox, A., Barnes, W., Maughan, D. W., and Vigoreaux, J. (2001) Reduction in muscle stiffness and loss of power output in *Drosophila* flight muscles that lack flightin. *Biophys. J.* 80: 510a.
- Vigoreaux, J.O., Henkin, J. A., and Maughan, D. W. (2001) Analysis of functional protein interactions in *Drosophila* flight muscles through the study of mutant proteomes. Fifth International Conference on Muscle Energetics, Burlington, VT
- Ayer, G. A. and Vigoreaux, J. O. (2001) *Drosophila* flightin is a myosin rod binding protein. *Mol. Biol. Cell* 12: 159a.
- Henkin, J. A., Maughan, D. and Vigoreaux, J. (2002) Discovering protein interactions in *Drosophila* flight muscle through combined techniques of genetics and proteomics. *FASEB J.* 16: A881.
- Lemus, J. and Vigoreaux, J. O. (2002) Proteome analysis of *Drosophila* muscle mutants in myosin and flightin. 2002 SACNAS National Conference, Anaheim, CA.
- Cajigas, I., Valsky, E. Gorrochategui, M. and Vigoreaux, J. O. (2002) Phylogenetic analysis of *Drosophila* flightin reveals a hybrid protein with conserved and rapidly evolving sequences. *Mol. Biol. Cell*, 13S: 40a.
- Vishnudas, V., Maughan, D. and Vigoreaux, J. O. (2002) Molecular adaptations to meet metabolic demands in fast contracting muscles. *Mol. Biol. Cell*, 13S: 320a.
- Barton, B., Ayer, G., Cajigas, I., Maughan, D., and Vigoreaux, J. (2002) Defects in flight

muscle ultrastructure and function in transgenic *Drosophila* with mutations of phosphorylation sites in flightin. *Mol. Biol. Cell*, 13S: 319a.

- Henkin, J., Jennings, M. E., Matthews, D. E., Maughan, D. W. and Vigoreaux, J.O. (2003) Mass processing<sup>2</sup>: an improved technique for protein identification with MS data. BioTechniques Live Science Fair, Boston.
- Humphrey, R. and Vigoreaux, J. O. (2003) Expression of human cardiac myosin binding protein C in *Drosophila* flight muscles deficient for flightin. Pfizer Undergraduate Research Conference, Groton, CT.
- Barton, B. E., Ayer, G., Maughan, D., and Vigoreaux, J. O. (2003) Mutations of phosphorylation sites in flightin are responsible for loss of function and ultrastructural defects in *Drosophila* indirect flight muscle. *Mol. Biol. Cell* 14S: 309a.
- Lemas, D. and Vigoreaux, J. O. (2004) Dynamic changes in phosphorylation of *Drosophila* flightin during flight. SACNAS National Conference, Austin TX.
- Vigoreaux, J., Barton, B., Ayer, G., Heymann, G. Maughan, D. and Lehmann, F. (2004) Flight muscle properties and aerodynamic performance of *Drosophila* expressing a flightin transgene. *Mol. Cell Biol.* 15S:46a.
- Henkin, J. A., Maughan, D. W., and Vigoreaux, J. O. (2004) Characterization of the flight muscle myofibrillar proteome of normal and mutant *Drosophila*. *J. Muscle Res. Cell Motil.* 25(3): 265.
- Maughan, D. W., Henkin, J. A., and Vigoreaux, J. O. (2005) Stoichiometry of glycolytic enzymes in a diffusible component of the rabbit skeletal muscle proteome. *Biophys. J.* 88(1), 398a.
- Miller, M., Brown, E., Braddock, J. M., Maughan, D. W., and Vigoreaux, J. O. (2005) Age related changes in *Drosophila* flight muscle mechanics and structure. *Biophys J.* 88(1): 19a.
- Guillemette, S., Vishnudas, V. and Vigoreaux, J. O. (2005) Energy transport in insect flight muscle: A confocal microscopy study of the intracellular distribution of adenine nucleotide translocase. SACNAS National Conference, Denver CO.
- Lemas, D., Previs, M., and Vigoreaux, J. O. (2005) Mapping and functional characterization of phosphorylation sites in *Drosophila* flightin. SACNAS National Conference, Denver CO.
- Lacy, R., Previs, M., and Vigoreaux, J. O. (2005) Changes of troponin I phosphorylation in a rat model of heart failure. SACNAS National Conference, Denver CO.
- Vishnudas, V. K., Guillemette, S. S. and Vigoreaux, J. O. (2005) Intracellular distribution of an adenine nucleotide translocase in *Drosophila* flight muscles and the challenges of nucleotide transport. *Mol Cell Biol.*, 16S: 158a.
- Maughan, D., Henkin, J., and Vigoreaux, J. O. (2005) Evidence of glycolytic enzyme complexes in rabbit myoplasm based on stoichiometry and diffusivity. Presented at the 15<sup>th</sup> IUPAB and 5<sup>th</sup> EBSA International Biophysics Congress, Montpellier, France.

- Lemas, D. J., Previs, M. and Vigoreaux, J.O. (2005) Mapping and functional characterization of phosphorylation sites in *Drosophila* flightin. *Mol. Cell Biol.*, 16S: 194a.
- Nyland, L., Maughan, D. and Vigoreaux, J. O. (2005) The role of flightin in *Drosophila* indirect flight muscle thick filaments. Presented at *Seeing at the Nanoscale III International Conference*, Santa Barbara, CA.
- Vigoreaux, J. O., Henkin, J., Vishnudas, V., Heim, J. and Maughan, D. (2006) Microvolumetric fractionations and mutational proteomics: towards a systems level understanding of muscle function. Presented at *UPR-Protein Research Center Spring Conference*, San Juan, PR.
- Miller, M.S., G.P. Farman, F.N. Soto-Adames, J.M. Braddock, J.O. Vigoreaux, and D.W. Maughan (2006) Functional consequences of Regulatory Light Chain Mutations in *Drosophila* flight muscle. *Biophys J.*, 50<sup>th</sup> Annual Meeting Abstracts, 105a-106a.
- Miller, M.S., G.P. Farman, F.N. Soto-Adames, M.C. Reedy, J.O. Vigoreaux, D.W. Maughan, and T.C. Irving (2006) Structural consequences of Regulatory Light Chain Mutations in *Drosophila* flight muscle. *Biophys J.*, 50<sup>th</sup> Annual Meeting Abstracts, 158a-159a.
- Barton, B, G. Ayer, D. W. Maughan, J. O. Vigoreaux (2006) Mutagenesis of Phosphorylation Sites in *Drosophila* Flightin Impair Flight Muscle Structure and Function. *Mol. Biol. Cell* 17 (suppl): 1573
- Miller, M.S., E. G. Brown, P. Lekkas, J. M. Braddock, G. P. Farman, T. C. Irving, D. W. Maughan, J. O. Vigoreaux (2006) Age impairs flight and increases muscle stiffness in *Drosophila*. *Mol. Biol. Cell* 17 (suppl): 515.
- Soto-Adames, F. and J. O. Vigoreaux (2006) Evolutionary analysis of flightin reveals a putative myosin rod binding domain. *Mol. Biol. Cell* 17 (suppl): 1574.
- Miller, M. S. , G. P. Farman, F. N. Soto-Adames, M. C. Reedy, J. M. Braddock, T. C. Irving, J. O. Vigoreaux, D. W. Maughan (2006) Additive Roles of Phosphorylation and the Extended N-terminus of the Regulatory Light Chain in *Drosophila* Flight Muscle Function. *Mol. Biol. Cell* 17 (suppl): 2240.
- Lehmann, F.O., Mronz, M., Barton, B., Ayer, G., Heymann, N., Maughan, D. W., and Vigoreaux, J. O. (2007) Efficiency and mechanical power output of the asynchronous flight muscle limit locomotor capacity in *Drosophila* expressing a flightin transgene. Göttingen Neurobiology Conference.
- Guillemette, S., Humphrey, R., and Vigoreaux, J. O. (2007) Immunocytochemical Localization of a Glutactin-Like protein in *Drosophila*: Evidence for Diversity of Extracellular Matrix. *Mol. Biol. Cell* 18 (suppl): 492.
- Contompasis, J., Nyland, L., and Vigoreaux, J. O. (2007) Biomechanical Comparison of Wild-Type and Flightin-Null Thick Filaments from *Drosophila* Flight Muscle. Poster Presentation at the Annual meeting of the Society of Mathematical Biology, July 31 - August 3, 2007, San Jose, CA.

- Montalvo, A., Lemas, D., Lekkas, P., Ballif, B. A. and Vigoreaux, J. O. (2007) Functional and phylogenetic analysis of flightin phosphorylation reveal lineage-specific differences in phosphorylation site selection. *Mol. Biol. Cell* 18 (suppl): 200.
- Nyland, L., Contompasis, J., Palmer, B., Maughan, D. and Vigoreaux, J. O. (2007) The Contribution of Myosin Binding Proteins to the Biomechanical Properties of Thick Filaments: A Comparison of Normal and Mutant Thick Filaments from Flies and Mice Using Atomic Force Microscopy. *Mol. Biol. Cell* 18 (suppl): 199.
- Miller, M. S., Soto-Adames, F. N., Farman, G. P., Braddock, J. M., Wang, Y., Robbins, J., Irving, T. C., Vigoreaux, J. O., Maughan, D. W. (2008) Dual evolution of the myosin light chain amino terminal extensions. In: *The XXXVIth European Muscle Conference Meeting Program*, Stockholm, Sweden, September 8-12, 46, 2007. *J. Muscle Res. Cell Motil.*, 28, 442.
- Carlson, B. A., Vigoreaux, J. O., and Maughan, D. W. (2008) A theoretical model of the diffusion of glycolytic enzymes and other cytosolic proteins from rabbit skinned muscle fibers. *FASEB J.* 22:962.31.
- Maughan, D. W., Miller, M. S., Soto-Adames, F. N., Wang, Y., Robbins, J. and Vigoreaux, J. O. (2008) Phylogenic and functional analysis of the myosin light chain amino terminal extensions. *Biophys. J.* 94: 185a.
- Previs, M. J. Van Buren, P. Begin, K. J., Vigoreaux, J. O., LeWinter, M., and Matthews, D. E. (2008) Absolute Quantification of Protein Phosphorylation by Liquid Chromatography Mass Spectrometry. 56<sup>th</sup> ASMS Conference on Mass Spectrometry.
- Contompasis, J., Nyland, L., and Vigoreaux, J. O. (2008) The role of flightin in Drosophila native thick filament flexural rigidity and assembly. Poster presented at the Annual meeting of the Society for Mathematical Biology, July 29-August 2, 2008, Toronto CA.
- Alvarez-Ortiz, P., Guillemette, S., Humphrey, R., and Vigoreaux, J. O. (2008) Immunocytochemical localization of a tracheal like protein in Drosophila: Evidence for diversity of extracellular matrix. Poster presented at 2008 SACNAS National Conference, October 9-12, Salt Lake City, UT.
- Contompasis, J., Nyland, L. and Vigoreaux, J.O. (2008) The contribution of myosin binding proteins to the biomechanical properties of thick filaments: A comparison of normal and mutant thick filaments from flies and mice using atomic force microscopy. 2008 Student Research Conference, University of Vermont.
- Vigoreaux, J., Lekkas, P. Soto-Adames, F. and Ballif, B. (2008) Comparative phosphogenomics of flightin in Drosophila flight muscles reveal conserved basal and lineage specific phosphorylation sites. *Mol. Biol. Cell* 19 (suppl): 308.
- Vigoreaux J, Nyland L, Contompasis J, Kreplak L, Maughan D, and Palmer B. (2009) Role of myosin binding proteins on the structural stability and flexural rigidity of thick filaments. *Biophys J.*, 96: 201a.
- Gutierrez-Roman, E., Martin-Caraballo, M., and Vigoreaux, J. O. (2009) The Aging Synapse: Function of the Neuromuscular Junction in Adult Drosophila melanogaster.



Poster presented at the Annual Biomedical Research Conference for Minority Students, November 4-7, Phoenix, AZ.

- Alvarez-Ortiz, P. and Vigoreaux, J. O. (2009) Flightin and cardiac Myosin binding protein C: functional convergence of two distinct myosin rod binding proteins. Poster presented at 2009 SACNAS National Conference, October 15-18, Dallas, TX.
- Tanner, B.C. W., Miller, M. S., Miller, B. M., Lekkas, P., Maughan, D. W . and Vigoreaux, J. O. (2010) A C-terminal truncation of flightin slows actomyosin cycling, elevates passive tension, and decreases power output in *Drosophila* flight muscle fibers. *Biophys. J.*, 98(3): 545a.
- Nyland, L., Vigoreaux, J., and Ruiz, T. (2010) Elucidation of the *Drosophila* Myosin Filament Binding Protein Flightin: An Electron Microscopic Approach. Poster presented at *Microscopy & Microanalysis 2010*, Portland OR.
- Alvarez-Ortiz, P., Soto-Adames, F. and Vigoreaux, J. O. (2010) Functional evolution of flightin from a common aquatic ancestor. 2010 SACNAS National Conference, Sept 30-Oct 3, Anaheim, CA.
- Nyland, L. and Vigoreaux, J. O. (2010) Convergent Role of Myosin Binding Proteins in Thick Filament Mechanics. 50th ASCB Annual Meeting, December 11-15, Philadelphia, PA.
- Paskin-Flerlage, S., Alvarez-Ortiz, P. and Vigoreaux, J.O. (2010) Characterization of the spatial expression of flightin among arthropods: an evolutionary investigation of the specialization of a flight muscle protein. 2010 Student Research Conference, University of Vermont.
- Tanner, B.C. W., Miller, M. S., Miller, B. M., Lekkas, P., Irving, T. C., Maughan, D. W . and Vigoreaux, J. O. (2011) Truncating the C-terminus of flightin disrupts flight muscle ultrastructure and reduces mechanical performance in *Drosophila*. SICB Annual Meeting, Jan 3-7, Salt Lake City, UT.
- Chakravorty, S., Wadja, M. and Vigoreaux, J. (2011) Functional role of flight muscle in male courtship song of *Drosophila melanogaster*. Poster presented at the 52<sup>nd</sup> Annual *Drosophila* Research Conference, March 30-April 3, 2011, San Diego, CA.
- Vigoreaux, JO, Nyland, LR, Budzik, J, and Ruiz, T (2011) Structural characterization of thick filaments from *Drosophila* flight muscles. *Mol. Biol. Cell* 22 (suppl), 299.
- Chakravorty S, Foelber V, Tanner BC, and Vigoreaux J (2012) Requirement of the Flightin Amino Terminal Sequence for Flight and Species-Specific Courtship Song in *Drosophila melanogaster*. *Drosophila* Genetics Conference, March 7-11, 2012, Chicago, IL.
- Vigoreaux, JO, Alvarez-Ortiz, P, and Soto, F (2012) Molecular Evolutionary Analysis of Flightin Reveals a Novel Protein Motif unique to Pancrustacea. *Drosophila* Genetics Conference, March 7-11, 2012, Chicago, IL.
- Alvarez-Ortiz P, Ballif BA, Guillemette S, Humphrey R, and Vigoreaux JO (2012) Expression and Function of Glutactin in *Drosophila* Larvae and Adults. *Drosophila* Genetics Conference, March 7-11, 2012, Chicago, IL.

- Vigoreaux, JO, Vu, H, and Chakravorty, S (2012) Separate evolution of flightin domains reflect functional duality in flight and courtship in *Drosophila*. Annual Main Meeting, Society for Experimental Biology. June 29-July 2, 2012, Salzburg, AUSTRIA.
- Gonzalez-Vega, M, Rios-Rodriguez, K, Alvarez-Ortiz P, and Vigoreaux JO (2012) Evolution of flightin expression in Diptera. SACNAS 2012 National Conference, October 11-14, Seattle, WA.
- Rios-Rodriguez, K, Gonzalez-Vega, M, Alvarez-Ortiz, P, and Vigoreaux JO (2012) Is flightin expression restricted to the indirect flight muscles in all *Drosophila* species? SACNAS 2012 National Conference, October 11-14, Seattle, WA.
- Gonzalez-Vega, M, Rios-Rodriguez, K, Alvarez-Ortiz P, and Vigoreaux JO (2012) Evolution of flightin expression in insects. 2012 Annual Biomedical Research Conference for Minority Students, San Jose, CA.
- Chakravorty S, Tanner BCW, Ruiz, T and Vigoreaux J (2013) N-Terminal Truncation of Flightin Reduces Oscillatory Power Output without Affecting Cross-Bridge Kinetics in *Drosophila* Indirect Flight Muscles. *Biophys J* 104(2): 37a.
- Vigoreaux JO, Chakravorty S, Tanner BCW, Alvarez-Ortiz P, Rosenthal M, Foelber VL, and Soto-Adames FN (2013). The evolution of flightin across Pancrustacea: achieving functional adaptability through separately evolving protein domains. Annual Main Meeting, Society for Experimental Biology, Valencia, 3-6 July.
- Menard L, Nyland L and Vigoreaux JO (2013) The Structural and Biomechanical Properties of Insect Thick Filaments Expressing Flightin and Cardiac Myosin Binding Protein-C. Microscopy & Microanalysis 2013 Conference, Indianapolis, 4-8 August.
- Maughan DW, Carlson BE and Vigoreaux, JO. (2013) Efflux measurements of endogenous proteins from rabbit skinned muscle fibers provide evidence of muscle glycolytic enzyme complex dissociation. 42<sup>nd</sup> European Muscle Conference, Amsterdam, 21-25 September.
- Vigoreaux, JO (2013) *Drosophila melanogaster*: an integrated model system for muscle, aging, and nutrition research. Muscle & Mobility Research Symposium, Abbott Nutrition, Columbus, OH, 20-22 August.
- Stevens-Sostre, WA, Menard, L, and Vigoreaux, JO (2013) Expression and localization of flightin and transgenic cMyBP-C in *Drosophila melanogaster* indirect flight muscles. 2013 ABRCMS Annual Conference.
- Maughan DW, Carlson BE and Vigoreaux, JO. (2014) Do glycolytic enzyme complexes provide a structural basis for compensating aerobic metabolic dysfunction in Myalgic Encephalomyelitis/Chronic Fatigue Syndrome? IACFS/ME 11<sup>th</sup> Biennial International Research and Clinical Conference, San Francisco, 20-23 March.
- Beattie A, Garvey S, and Vigoreaux JO (2014)  $\beta$ -hydroxy- $\beta$ -methylbutyrate extends lifespan and attenuates age-dependent loss of flight ability in *Drosophila melanogaster*. Experimental Biology 2014 Conference, San Diego, April 26-30.

- Maughan D, Carlson B and Vigoreaux J (2014) Efflux Time Courses of Cytosolic Proteins from Rabbit Skinned Muscle Fibers Reflect Dissociation of Enzyme Complexes. *Biophys J.* 106(4):56a.
- Vigoreaux JO and Chakravorty S. (2014) Dual function of muscle proteins in flight and courtship behaviours in *Drosophila*. Seventh International Symposium on Molecular Insect Science, Amsterdam, The Netherlands, 13-16 July.
- Mead A, Nagori R, and Vigoreaux JO (2014) ExerFlyzer: A High-Throughput System For Inducing and Quantifying Flight Behavior in *Drosophila* Over Extended Time Periods. 2014 APS Intersociety Meeting: Comparative Approaches to Grand Challenges in Physiology, San Diego, CA, October 5 - 8.
- Gasek NS, Nyland LR and Vigoreaux JO (2015) Contributions of the Amino and Carboxyl terminal domains of flightin to the biomechanical properties of *Drosophila* flight muscle thick filaments. Beckman Scholars Annual Research Symposium, Irvine, CA.
- Mead AF, Nagori R, and Vigoreaux JO (2015) ExerFlyzer: A high-throughput system for inducing and quantifying flight behavior in *Drosophila* over extended time periods. Society for Experimental Biology Annual Meeting, Prague, Czech Republic, 30 June-3 July.
- Gasek NS, Nyland L and Vigoreaux JO (2015) Contributions of the amino and carboxyl terminal domains of flightin to the biomechanical properties of *Drosophila* flight muscle thick filaments. Society for Experimental Biology Annual Meeting, Prague, Czech Republic, 30 June-3 July.
- Menard, L., Maughan, D. W. and Vigoreaux, J. O. (2016) The structural and functional coordination of glycolytic enzymes in muscle: evidence of a metabolon? Colloquium on Emerging Metabolomics 2016, Las Vegas, NV 25-27 July.
- Vigoreaux, J.O., Tanner, B.C., Gasek, N. and Chakravorty, S. (2016) The contribution of flightin to cellular and thick filament biomechanics. Annual Meeting of the American Society for Cell Biology, P2471, p112.
- Callahan, DM., Mead, A.F., Beattie, A., Garvey, S., Vigoreaux, J. and Maughan, D.W. (2017) Testing the Efficacy of  $\beta$ -hydroxy- $\beta$ -methylbutyrate (HMB) to Preserve Mitochondrial Function in Aging *Drosophila melanogaster*. Experimental Biology Conference, Chicago, IL, 22-26 April.
- Menard LM, Wood NB, and Vigoreaux JO (2018) Interaction of the novel WYR domain of flightin with the myosin rod changes its coiled-coil secondary structure. Annual Meeting of the American Society for Cell Biology, P3491, p627.
- Menard LM, Wood NB, and Vigoreaux JO (2018) Interaction of the novel WYR domain of flightin with the myosin rod changes its coiled-coil secondary structure. 60<sup>th</sup> Annual *Drosophila* Research Conference, Dallas, TX, 27-31 March.
- Vigoreaux, J.O., Chakravorty, S., Price, E., and Menard, L. (2019) Bridging the nexus between physiology and behavior in insect evolution: lessons from a muscle protein. Eighth International Symposium on Molecular Insect Science, 7-10 July, Sitges, SPAIN.

- Menard LM, Wood NB, and Vigoreaux JO (2019) Altering the backbone: A mechanism for how flightin-myosin interaction impacts structure and mechanics of muscle thick filaments. 2019 Annual ASCB/EMBO Meeting, 7-11 December, Washington, D.C. P106
- Vigoreaux, JO, Erenrich, E, Levine, DL, Gile, K and Petersen, SL. (2019) Diversifying the STEM doctoral population: Time to look beyond the GRE and revise graduate admissions policies. 2019 Annual ASCB/EMBO Meeting, 7-11 December, Washington, D.C. P882.
- Perdrial, N., Bierman, P., Whittaker, J., Vigoreaux, J. (2020) Soil and Water Pb Education in the Time of Covid and Black Lives Matter. GSA Abstracts with Programs, Online Meeting. v. 52(6), Abstract 167-6. doi:10.1130/abs/2020AM-356095
- Menard L, Wood N, and Vigoreaux J (2021) Secondary structure of the novel myosin binding domain WYR and implications within myosin structure. 62<sup>nd</sup> Annual Drosophila Research Conference, 23 March – 1 April. 547A.

### Student Presentations (partial list)

- Henkin, J., Jennings, M. E., Matthews, D. E., Maughan, D. W. and Vigoreaux, J.O. (2003) Mass processing<sup>2</sup>: an improved technique for protein identification with MS data. State of Vermont DOE EPSCoR Initiative in Structural Biology and Computational Biology/Bioinformatics Annual Retreat, Burlington VT.
- Lemus, J. and Vigoreaux, J. O. (2003) Proteome analysis of *Drosophila* muscle mutants in myosin and flightin. State of Vermont DOE EPSCoR Initiative in Structural Biology and Computational Biology/Bioinformatics Annual Retreat, Burlington VT.
- Compton, D., Henkin, J., Maughan, D. W. and Vigoreaux, J. O. (2003) Loss-of-function myosin and actin mutants have broad effects on the flight muscle proteome of *Drosophila*. State of Vermont DOE EPSCoR Initiative in Structural Biology and Computational Biology/Bioinformatics Annual Retreat, Burlington VT.
- Lemas, D. and Vigoreaux, J. O. (2004) Dynamic changes in phosphorylation of *Drosophila* flightin during flight. McNair Summer Research Symposium, University of Vermont.
- Lacy, R. and Vigoreaux, J.O. (2005) Changes in troponin I phosphorylation during the progression to heart failure. McNair Summer Research Symposium, University of Vermont.
- Contompasis, J., Nyland, L. and Vigoreaux, J.O. (2007) Biomechanical comparison of wild-type and flightin null thick filaments from *Drosophila* flight muscle. Scholarly Undergraduate Research Fair, University of Vermont.
- Montalvo, A. and Vigoreaux, J.O. (2008) Functional and phylogenetic analysis of flightin phosphorylation reveal lineage specific differences in phosphorylation site selection. 2008 Student Research Conference, University of Vermont.
- LeClerc, J. and Vigoreaux, J.O. (2008) Myosin binding activity of flightin fragments. 2008 Student Research Conference, University of Vermont.
- Chakravorty, S. and Vigoreaux, J.O. (2009) Molecular evolution of flightin. 2009 Student Research Conference, University of Vermont.

- Contompasis, J., Nyland, L. and Vigoreaux J.O. (2009) The Contribution of Flightin to the Structural and Biomechanical Properties of Thick Filaments. 2009 Student Research Conference, University of Vermont.
- Alvarez-Ortiz, P. and Vigoreaux, J. O. (2009) Immunocytochemical Localization of a Tracheal-like Protein in *Drosophila*. 2009 Student Research Conference, University of Vermont.
- Paskin-Flerlage, S., Alvarez-Ortiz, P. and Vigoreaux, J.O. (2009) Characterization of Flightin Expression in the Primitive Crustacean, *Daphnia pulex*. 2009 Student Research Conference, University of Vermont.
- Alvarez-Ortiz, P. and Vigoreaux, J. O. (2010) Flightin and cardiac Myosin Binding Protein C: functional convergence of two distinct myosin rod binding proteins. 2010 Student Research Conference, University of Vermont.
- Chakravorty S and Vigoreaux JO (2010) Molecular evolution of *Drosophila* flightin: Role of the amino terminal region in species-specific male courtship song. 2010 Student Research Conference, University of Vermont.
- Wadja, M., Chakravorty, S. and Vigoreaux, J.O. (2010) Functional role of flight muscle in male courtship song of *Drosophila melanogaster*. 2010 Student Research Conference, University of Vermont.
- Alvarez-Ortiz P and Vigoreaux JO (2011) Functional evolution of flightin from an aquatic ancestor. 2011 Student Research Conference, University of Vermont.
- Chakravorty S and Vigoreaux JO (2011) Functional role of flight muscle in male courtship song of *Drosophila melanogaster*. 2011 Student Research Conference, University of Vermont.
- Contompasis J, Alvarez-Ortiz P and Vigoreaux JO (2011) Comparative analysis of flightin expression in Crustacea. 2011 Student Research Conference, University of Vermont.
- Foelber V, Chakravorty S and Vigoreaux JO (2011) An amino terminal deletion of *Drosophila* flightin affects flight and courtship behavior. 2011 Student Research Conference, University of Vermont.
- Wadja M, Chakravorty S and Vigoreaux JO (2011) Analysis of courtship behavior in flight muscle mutants of *Drosophila melanogaster*. 2011 Student Research Conference, University of Vermont.
- Chakravorty S and Vigoreaux JO (2012) Functional requirement of the flightin amino terminal region for flight and courtship song in *Drosophila melanogaster*. 2012 Student Research Conference, University of Vermont.
- Alvarez-Ortiz and Vigoreaux JO (2012) Expression and function of glutactin in *Drosophila* larvae and adults. 2012 Student Research Conference, University of Vermont.
- Rosenthal M, Chakravorty S, and Vigoreaux JO (2013) Flight and mating behavior of a dual heterozygote *Drosophila* expressing flightin NH<sub>2</sub>-terminal and COOH-terminal truncated proteins. 2013 Student Research Conference, University of Vermont.



- Beattie A and Vigoreaux JO (2013) An analysis of the effect of  $\beta$ -hydroxy- $\beta$ -methylbutyrate on *Drosophila melanogaster* flight ability and lifespan. 2013 Student Research Conference, University of Vermont.
- Menard L, Nyland L and Vigoreaux JO (2013) The Structural and Biomechanical Properties of Insect Thick Filaments Expressing Flightin and Cardiac Myosin Binding Protein-C. 2013 Student Research Conference, University of Vermont.
- Gasek N, Nylan L, and Vigoreaux JO (2015) The Contributions of the Amino and Carboxyl Terminal Domains of Flightin to the Biomechanical Properties of *Drosophila* Flight Muscle Thick Filaments. UVM Student Research Conference, Burlington VT, April 23.
- Athalye H, Price E, and Vigoreaux JO (2015) Functional characterization of a *Drosophila* transgenic line expressing a chimeric flightin: Implications on flight muscle structure and mating behavior. UVM Student Research Conference, Burlington VT, April 23.
- Menard L and Vigoreaux JO (2015) Mapping the interaction between thick filament proteins myosin and flightin. UVM Student Research Conference, Burlington VT, April 23.
- Nagori R, Mead A and Vigoreaux JO (2015) The ExerFlyzer: A high throughput *Drosophila* monitoring system. UVM Student Research Conference, Burlington VT, April 23.
- Price E and Vigoreaux JO (2015) Localization of cMyBP-C in transgenic *Drosophila melanogaster* flight muscle. UVM Student Research Conference, Burlington VT, April 23.
- Menard L., Wood N, and Vigoreaux JO (2019) Interaction of the novel WYR domain of flightin with the myosin rod changes its coiled-coil secondary structure. UVM Student Research Conference, Burlington VT, April 17.