Kyle E. Miller

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Michigan State University
Department of Integrative Biology
293 Farm Lane, Room 281
East Lansing, MI 48824

Curriculum Vitae

Positions

Associate Professor in the Department of Integrative Biology at Michigan State University 2013-
Assistant Professor in the Department of Zoology at Michigan State University, 2005-2013.

Education

Ph.D., 1996 Neuroscience, Emory University
B.Sc., 1991 Psychology, Kansas State University

Research experience

2003-2005 Post-doctoral fellow with David Van Vactor, Dept. of Cell Biology, Harvard University - Developed a novel method for visualizing axonal transport *in vivo* in transgenic animals (*Drosophila melanogaster*). Funding was provided through an award to DVV from the National Institute of Neurological Disorders and Stroke.

1997-2003 Post-doctoral fellow with Michael Sheetz, Dept. of Biology, Columbia University, and Dept. of Cell Biology, Duke University Investigation of the relationship between axonal elongation and axonal transport to answer the question of "How do axons grow?" Funding was provided through an NIH F32 Post-doctoral training grant to KM and an NIH RO1 award to MS.

Fall 1999 Visiting Research Fellow with Carlos Dotti, European Molecular Biology Laboratories (EMBL) Heidelberg, Germany
Examination of the regulation of axonal transport in cultured hippocampal neurons. Funding was provided by the EMBL.

1992-1996 Graduate Student with Harish Joshi, Dept. of Anatomy and Cell Biology, Emory University. Investigation of the mechanism of

tubulin transport in neurons. Funding was provided by an NIH RO1 to HJ.

1988-1991 Undergraduate research with Richard Harris, Dept. of Psychology, Kansas State University. Conducted research as an undergraduate to determine the factors that influence decisions regarding organ donation

Peer-Reviewed Publications

h-index of 28 and i10-index of 34 on 3/12/25, total of 2825 citations

1. Craig, E.M., F. Oprea, S. Alam, A. Grodsky, K.E. Miller. *A simple active fluid model unites cytokinesis, cell crawling, and axonal outgrowth*. Frontiers in Cell and Developmental Biology, 2024 **12**, 1491429.
2. Badal, K.K., Y. Zhao, K.E. Miller, S.V. Puthanveettil. *Live Imaging and Quantitative Analysis of Organelle Transport in Sensory Neurons of Aplysia Californica.* Axonal Transport: Methods and Protocols, 2022 23-48.
3. Swarnkar, S. , Y. Avchalumov, I. Espadas, E. Grinman, X. Liu, B. L. Raveendra, A. Zuca, S. Mediouni, S. Valente, D. Page, K. E. Miller, S. V. Puthanveettil. *The Molecular Motor Protein Kif5C Mediates Structural Plasticity and Long-Term Memory by Constraining Local Translation.* Cell Reports, 2021 **36**(2), 109369.
4. McElmurry, K., J.E. Stone, D. Ma, P. Lamoureux, Y. Zhang, M. Steidemann, L. Fix, F. Huang, K.E. Miller, and D.M. Suter. *Dynein-mediated microtubule translocation powering neurite outgrowth requires microtubule assembly.* J. Cell Sci., 2020, **133**(8).
5. Badal, K.K., K. Akhmedov, P. Lamoureux, X.A. Liu, A. Reich, M. Fallahi-Sichani, S. Swarnkar, K.E. Miller, and S.V. Puthanveettil. 2019. Synapse Formation Activates a Transcriptional Program for Persistent Enhancement in the Bi-directional Transport of Mitochondria. *Cell reports*. 26:507-517 e503.
6. Miller, K.E. and D.M. Suter, *An Integrated Cytoskeletal Model of Neurite Outgrowth.* Front Cell Neurosci, 2018. **12**: p. 447.
7. de Rooij, R., E. Kuhl, and K.E. Miller, *Modeling the Axon as an Active Partner with the Growth Cone in Axonal Elongation.* Biophys J, 2018. **115**(9): p. 1783-1795.
8. de Rooij, R., K.E. Miller, and E. Kuhl, *Modeling molecular mechanisms in the axon.* Comput Mech, 2017. **59**(3): p. 523-537.
9. Athamneh, A.I.M., et al., *Neurite elongation is highly correlated with bulk forward translocation of microtubules.* Sci Rep, 2017. **7**(1): p. 7292.

10. Halievski, K., et al., *Non-Cell-Autonomous Regulation of Retrograde Motoneuronal Axonal Transport in an SBMA Mouse Model.* eNeuro, 2016. **3**(4): p. ENEURO. 0062-16.2016.
11. Roossien, D.H., K.E. Miller, and G. Gallo, *Ciliobrevins as tools for studying dynein motor function.* Front Cell Neurosci, 2015. **9**: p. 252.
12. O'Toole, M., P. Lamoureux, and K.E. Miller, *Measurement of subcellular force generation in neurons.* Biophys J, 2015. **108**(5): p. 1027-37.
13. Miller, K.E., X.A. Liu, and S.V. Puthanveettil, *Automated measurement of fast mitochondrial transport in neurons.* Front Cell Neurosci, 2015. **9**: p. 435.
14. Holland, M.A., K.E. Miller, and E. Kuhl, *Emerging Brain Morphologies from Axonal Elongation.* Ann Biomed Eng, 2015. **43**(7): p. 1640-53.
15. Roossien, D.H., P. Lamoureux, and K.E. Miller, *Cytoplasmic dynein pushes the cytoskeletal meshwork forward during axonal elongation.* J Cell Sci, 2014. **127**(Pt 16): p. 3593-602.
16. Baqri, R.M., et al., *Mitochondrial chaperone TRAP1 activates the mitochondrial UPR and extends healthspan in Drosophila.* Mech Ageing Dev, 2014. **141-142**(1): p. 35-45.
17. Roossien, D.H., et al., *Drosophila growth cones advance by forward translocation of the neuronal cytoskeletal meshwork in vivo.* PLoS One, 2013. **8**(11): p. e80136.
18. Suter, D.M. and K.E. Miller, *The emerging role of forces in axonal elongation.* Prog Neurobiol, 2011. **94**(2): p. 91-101.
19. O'Toole, M. and K.E. Miller, *The role of stretching in slow axonal transport.* Biophys J, 2011. **100**(2): p. 351-60.
20. Lamoureux, P., S. Heidemann, and K.E. Miller, *Mechanical manipulation of neurons to control axonal development.* J Vis Exp, 2011(50).
21. Kemp, M.Q., et al., *Impaired motoneuronal retrograde transport in two models of SBMA implicates two sites of androgen action.* Hum Mol Genet, 2011. **20**(22): p. 4475-90.
22. Lamoureux, P.L., et al., *Slowing of axonal regeneration is correlated with increased axonal viscosity during aging.* BMC Neurosci, 2010. **11**: p. 140.
23. Lamoureux, P., et al., *Growth and elongation within and along the axon.* Dev Neurobiol, 2010. **70**(3): p. 135-49.

24. Baqri, R.M., et al., *Disruption of mitochondrial DNA replication in Drosophila increases mitochondrial fast axonal transport in vivo.* PLoS One, 2009. **4**(11): p. e7874.
25. O'Toole, M., et al., *Modeling mitochondrial dynamics during in vivo axonal elongation.* J Theor Biol, 2008. **255**(4): p. 369-77.
26. O'Toole, M., P. Lamoureux, and K.E. Miller, *A physical model of axonal elongation: force, viscosity, and adhesions govern the mode of outgrowth.* Biophys J, 2008. **94**(7): p. 2610-20.
27. Miller, K.E. and S.R. Heidemann, *What is slow axonal transport?* Exp Cell Res, 2008. **314**(10): p. 1981-90.
28. Miller, K.E. and M.P. Sheetz, *Direct evidence for coherent low velocity axonal transport of mitochondria.* J Cell Biol, 2006. **173**(3): p. 373-81.
29. Miller, K.E., et al., *Direct observation demonstrates that Liprin-alpha is required for trafficking of synaptic vesicles.* Curr Biol, 2005. **15**(7): p. 684-9.
30. Miller, K.E. and M.P. Sheetz, *Axonal mitochondrial transport and potential are correlated.* J Cell Sci, 2004. **117**(Pt 13): p. 2791-804.
31. De Vos, K.J., et al., *Expression of phosphatidylinositol (4,5) bisphosphate-specific pleckstrin homology domains alters direction but not the level of axonal transport of mitochondria.* Mol Biol Cell, 2003. **14**(9): p. 3636-49.
32. Miller, K.E. and M.P. Sheetz, *Characterization of myosin V binding to brain vesicles.* J Biol Chem, 2000. **275**(4): p. 2598-606.
33. Miller, K.E. and D.C. Samuels, *The axon as a metabolic compartment: protein degradation, transport, and maximum length of an axon.* J Theor Biol, 1997. **186**(3): p. 373-9.
34. Miller, K.E. and H.C. Joshi, *Tubulin transport in neurons.* J Cell Biol, 1996. **133**(6): p. 1355-66.
35. Jasper, J.D., et al., *Organ donation terminology: are we communicating life or death?* Health Psychol, 1991. **10**(1): p. 34-41.
36. Harris, R.J., et al., *Consenting to donate organs: whose wishes carry the most weight?* J Appl Soc Psychol, 1991. **21**(1): p. 3-14.

Book Chapters and Conference Proceedings

1. Miller KE, Chou VT., Van Vactor D. (2016) Liprin-alpha and Assembly of the Synaptic Cytomatrix. Encyclopedia of Neuroscience.

2. **Miller KE**. (2016) Axons. Encyclopedia of Neuroscience.
3. **Miller KE**. Axons. Encyclopedia of Neuroscience. 2012.
4. Abu-Nimeh FT, Miller KE, Salem FM. On-chip Autonomous Axonal Elongation. Nano Imaging and Manipulation, EEE International Solid-State Circuits. 2011;Conference Proceedings, 2011.
5. Miller KE, Van Vactor D. Liprin-alpha and Assembly of the Synaptic Cytomatrix. Encyclopedia of Neuroscience. 2007;4(1).

Grants, Scholarships, Awards

Research Grants

Title: Bidirectional transport of lysosome-related organelles during synapse maintenance and plasticity
PI: Sathya Puthanveettil
Co-PI: Miller, Kyle
Direct Grantor: NSF
Project Dates: 2/2021 - 2/2025
Awarded to the candidate: $109,000

Title: Dynein-dynactin complex-mediated retrograde transport during long term memory storage
PI: Sathya Puthanveettil
Co-PI: Miller, Kyle
Direct Grantor: NIH
Project Dates: 1/9/2018 - 10/31/2023
Awarded to the candidate: $287,000

Title: Axonal Transport and Long-Term Memory Storage
PI: Sathya Puthanveettil
Co-PI: Miller, Kyle
Direct Grantor: NIH
Project Dates: 1/9/2014 - 11/30/2018

Awarded to the candidate: $383,000

Title: The Role of Forces in Axonal Elongation
PI: Miller, Kyle
Direct Grantor: Natl. Science Foundation
Project Dates: 7/1/2010 - 6/30/2015
Project Amount Requested: $967,918
Awarded to the candidate: $967,918.00

Title: Mitochondrial Regulation of Health and Disease
PI: Kaguni, Laurie
CoPIs: Miller, Kyle; Gallo, Kathy; LaPres, John; Ferguson-Miller, Shelagh
Direct Grantor: Michigan State Univ. - Strategic Partnership Grant Program
Project Dates: 6/1/2008 - 6/1/2011
Project Amount Requested: $400,000
Awarded to the candidate: $80,000

Title: Quantitative Biology Graduate Fellowship for Mathew O'Toole
PIs: Miller, Kyle and Chang Yi Wang
Direct Grantor: Mich. State Univ. Quantitative Biology Program
Project Dates: 8/20/2006 - 8/20/2007
Project Amount Requested: $27,000
Awarded to the candidate: $27,000

Title: Developmental funding for research in basic neuroscience
PI: Galligan, James
CoPIs: Symonds, Laura; Miller, Kyle; Yuan, Yukun; Lonstein, Joe; Xu, Hui
Direct Grantor: Michigan State University, HBRI-II (Health and Biomedical Research Initiative)
Project Dates: 6/30/2006 - 6/30/2009
Project Amount Requested: $325,000
Awarded to the candidate: $75,000
Does not includes indirect costs

Title: Purification of Novel Kinesin Receptors, F32 Postdoctoral Training Award

PI: Michael Sheetz
Direct Grantor: NATL INST OF HEALTH - NIH/PHS
Project Dates: 6/1/1998 - 6/1/2001
Project Amount Requested: $80,000
Awarded to the candidate: $80,000

Awards and Honors

2001-2002 President of the "Postdoc Club" at Columbia University
1995 American Society for Cell Biology / Worthington Biochemical Pre-doctoral Student Travel Award
1991 President of the Kansas State University Chapter of Psi Chi, the National Honor Society in Psychology
1990 Eli Lilly undergraduate scholar

Teaching

I have taught over 4,800 students in a variety of undergrad and graduate-level classes. On the 5-point Student Instructional Rating System (SIRS), where 1 is the best, I consistently receive 1s on instructor metrics.

2024-2025 BS 181H Honors Cells and Molecules, Instructor, MSU
2019-2025 NEU 801 Molecular, Cellular, and Developmental Neuroscience I, Co-Instructor
2019-2023 BS 161 Cells and Molecules, Instructor, MSU
2020 NEU 803 Molecular, Cellular, and Developmental Neuroscience II, Co-Instructor
2018 NEU 804 Molecular and Developmental Neurobiology, Co-Instructor
2018 BS 161 Cells and Molecules, Co-Instructor, MSU
2008-2018 MMG 409 Eukaryotic Cell Biology, Co-Instructor, MSU
2006-2018 PHM 827 Physiology and Pharmacology of Excitable Cells, Co-Instructor, MSU
2016 ZOL 101 Preview of Zoology, Co-Instructor, MSU
2015 NEU 804 Molecular and Developmental Neurobiology, Co-Instructor
2012 NEU 992 Women in Science graduate seminar, guest lecture on Work-life balance.

2011	NEU 800 Neuroscience Research Forum, guest lecture on finding a post-doctoral position & your next mentor
2009	NEU 992 Axonal Transport and Disease
2009	ZOL 801, Issues in Professional Development, Guest Lecturer, MSU
2009	NEU 800 Neuroscience Research Forum, guest lecture on tips for improving public speaking
2007-2011	PHM 810 Synaptic Transmission, Co-Instructor, MSU
2007	ZOL 101 Preview of Zoology, Co-Instructor, MSU
2007	MTH 994 Biological Modeling and Computation II, Guest Lecture, MSU
2007	ZOL 494 Independent Undergraduate Study, MSU
2004	Neurobiology of Drosophila - assistant for a three-week summer course at Cold Spring Harbor Laboratory
2002-2003	Confocal Microscopy – Provided training at the core facility in the Biology Dept. at Columbia University
1993	IBS 526 NS II: Neuroanatomy & Systems Neuroscience, teaching and lab assistant, Emory University
1990	BIOL 340 Human Body, Cadaver Dissection Team
1988	PSYCH 110 Introductory Psychology, Teaching Assistant

Conference Papers and Presentations

Bold designates me as the corresponding author.

Invited Conferences:

Miller KE. The Role of Forces in Axonal Elongation. *Wilhelm und Else Heraeus-Stiftung Seminar.* Physikzentrum Bad Honnef; August 17-19; Bad Honnef, Germany 2016.

Roossien, D.H., P. Lamoureux, and **K.E. Miller**, Cytoplasmic dynein pushes the cytoskeletal meshwork forward during axonal elongation. *Chicago Cytoskeleton Meeting*; Northwestern University; September 23; Chicago, IL 2014.

O'Toole, M., P. Lamoureux, and **K.E. Miller**, Measurement of subcellular force

generation in neurons. *Mathematical Biosciences Institute Workshop* "Axonal Transport and Neuronal Mechanics," Ohio State University; November 3 - 7; Columbus, OH 2014.

Miller KE. The Emerging Role of Forces in Axonal Elongation. *Mathematical Biosciences Institute Workshop* "Cellular and Subcellular," Ohio State University; April 8; Columbus, OH 2013.

Roossien DH, Lamoureux P, George AN, David Van Vactor D, **Miller KE**. Growth Cones Advance by Bulk Translocation In Vivo. Forces in Biology, *Exciting Biologies*; October 4 - 6; Dublin, Ireland 2012.

Roossien DH, Lamoureux P, George AN, David Van Vactor D, **Miller KE**. Growth Cones Advance by Bulk Translocation In Vivo. Cell Biology of the Neuron, *Gordon Research Conference*; June 24 - June 29; Waterville Valley Resort, N.H. 2012.

Miller KE. A paradoxical increase in mitochondrial axonal transport following disruption of mitochondrial DNA replication. Mitochondria and Chloroplasts, *Gordon Research Conference*; July 11-16; Lucca (Barga), Italy 2010.

Miller KE. Biophysical Modeling of Axonal Elongation. *Mathematical Biosciences Institute workshop* "Morphogenesis, Limb Growth, Gastrulation, Somitogenesis, Neural Tube Formation", Ohio State University; November 18; Columbus, OH 2008.

O'Toole M, Lamoureux P, **Miller KE**. A Physical Model of Axonal Elongation: Force, Viscosity, and Adhesions Govern the Mode of Outgrowth. *Hillsdale College Mathematics Colloquium*; April 17; Hillsdale, MI 2008.

Invited Departmental Talks / Seminars:

Miller KE. Why is microtubule assembly needed for neurite outgrowth? The Cytoskeleton of Neurons and Glia webinar series; September 9, 2021.

Miller KE. The Role of Forces in Neurite Outgrowth., *Oxford University*; March 9; Oxford, UK 2021.

Miller KE. Forces in Axonal Elongation., Dept. of Engineering. *Stanford University*; June 4; Palo Alto, CA 2018.

Miller KE. The Role of Forces in Axonal Elongation., Dept. of Neuroscience. *Scripps Institute*, March 24; Jupiter, FL 2017.

Miller KE. The Emerging Role of Forces in Axonal Elongation., Dept. of Engineering. *Stanford University*, November 11; Palo Alto, CA 2015.

Miller KE. The Emerging Role of Forces in Axonal Elongation. Mad Scientist's Club. Dept. of Zoology, *Michigan State University*, February 18; East Lansing, MI 2014.

Miller KE. Using the Fly to Make Superman Walk: The Emerging Role of Forces in Axonal Elongation. Dept. of Zoology, *Michigan State University*, December 4; East Lansing, MI 2012.

Miller KE. The Emerging Role of Forces in Axonal Elongation. Red Table Talk, *Harvard Medical School*, June 29; Boston, MA 2012.

Miller KE. The Emerging Role of Forces in Axonal Elongation. Dept of Mechanical Science and Engineering, *Univ. of Il.l Urbana-Champaign* February 27; Urbana-Champaign, IL 2012.

Miller KE. A New Model for Axonal Elongation. Dept of Biological Sciences, *Purdue University*, November 4; West Lafayette, IN 2011.

Miller KE. The Emerging Role of Forces in Axonal Elongation. Cell and Molecular Biology seminar series, *Michigan State University*, April 13; East Lansing, MI 2011.

Miller KE. The Emerging Role of Forces in Axonal Elongation. Dept of Biological Science, *Wayne State Univ*, November 28; Detroit, MI 2011.

Miller KE, Heidemann SR. Mechanical Forces in Axonal Development. Physiology Dept, *Michigan State University*, November 28; East Lansing, MI 2011.

Miller KE. *Drosophila melanogaster*: a model system for the studies of axons and Parkinson's disease. Department of Entomology, *Michigan State University*, January 13; East Lansing, MI 2008.

Miller KE. How do Axons Grow? Dept of Physiology, Departmental Seminar Series, *Michigan State University*, January 17; East Lansing, MI 2007.

Miller KE. In Vivo Time-Lapse Imaging of Axonal Elongation and Transport in Drosophila. Fly Club, *Michigan State University*, February 21; East Lansing, MI 2006.

Miller KE. Drosophila Liprin-alpha is Required for Trafficking of Synaptic

Vesicles. Dept of Cell Biology Departmental Seminar Series 'Pizza Talk', *Harvard Medical School*; Boston, MA 2004.

Posters and Talks

Oprea, F., B. Hammond, E. Melkonian, A. Ziemer, J. Dibley, S. A. Vorenberg, A. Gezer, M. Amin, P. Lamoureux, B. Jawich, A. Grodsky, S. R. Heidemann, and **K. E. Miller** Paradoxically, docked mitochondria, endoplasmic reticulum, cortical actin filaments, and beads bound to the outside of CNS neurites all flow in bulk towards the cell body during neurite outgrowth. American Society For Cell Biology; December 15 - 18; San Diego, CA 2025.

Oprea, F., B. Hammond, E. Melkonian, A. Ziemer, J. Dibley, S. A. Vorenberg, A. Gezer, M. Amin, P. Lamoureux, B. Jawich, A. Grodsky, S. R. Heidemann, and **K. E. Miller** Paradoxically, docked mitochondria, endoplasmic reticulum, cortical actin filaments, and beads bound to the outside of CNS neurites all flow in bulk towards the cell body during neurite outgrowth. Michigan State University, University Undergraduate Research and Arts Forum (UURAF); April 12; East Lansing, MI, 2025.

Craig, E. M., F. Oprea, C. Rivers, S. Alam, A. Grodsky, and **K. E. Miller** Hypothesis: Neurites are evolutionarily homologous to cytokinetic bridges. Michigan State University, University Undergraduate Research and Arts Forum (UURAF); April 12; East Lansing, MI, 2025.

Craig, E. M., F. Oprea, C. Rivers, S. Alam, A. Grodsky, and **K. E. Miller** Hypothesis: Neurites are evolutionarily homologous to cytokinetic bridges. American Society For Cell Biology; December 3 - 6; Boston, MA 2024.

Badal, K. K., Zhao, Y., **Miller, K. E.**, Puthanveettil, S. Synapse activity differentially regulates mitochondrial and lysosomal-related organelles bidirectional trafficking between synapse and soma of Aplysia presynaptic sensory neurons. Society for Neuroscience;

November 11 - 15; Washington, DC, 2023

Grodsky, A., J. Dibley, M. Amin, P. Lamoureux, B. Hammond, and **K. E. Miller.** Intrinsic differences between central and peripheral nervous system neurite outgrowth; UURAF; April 14th; East Lansing, MI 2023

Ziemer, B. Jawich, M. Amin, O. Triltsch,and **K. E. Miller**. The Effect of Spy555 on neurite outgrowth; ; UURAF; April 14th; East Lansing, MI 2023

Yim, D., K. E. Miller, D. Suter, T. Kim. "Roles of Cytoskeletal Structure in Neurite Outgrowth." Bulletin *of the American Physical Society;* March 15; Chicago, IL, 2022.

McElmurry, K., J. E. Stone, D. Ma, P. Lamoureux, Y. Zhang, F. Huang, **K. E. Miller**, D. M. Suter. "Microtubule assembly is required for dynein-mediated microtubule translocation and neurite elongation" *Society for Neuroscience*; October 19-23; Chicago, IL, 2019.

O'Toole, M., P. Lamoureux, and **K.E. Miller**, Measurement of subcellular force generation in neurons. *Mathematical Biosciences Institute Workshop* "Axonal Transport and Neuronal Mechanics," Ohio State University; November 3 - 7; Columbus, OH 2014.

Roossien DH, Lamoureux P, George AN, David Van Vactor D, **Miller KE**. Disruption of Myosin II Increases Axonal Elongation in Drosophila by Accelerating Bulk Advance of the Growth Cone. *Biophysical Society Meeting;* February 2 - 6; Philadelphia, PA 2013.

O'Toole M, **Miller KE**. The Role of Stretching in Slow Axonal Transport. *Biophysical Society Meeting*; March 5 - 9; Baltimore, MD 2011.

Koslowsky D, Patterson R, Haudek K, Miller J, Miller K, Osteryoung K, Stolzfus J, Trail F. Inquiry-Based Problem Set Development for Molecular Cell Biology. *Spring Institute on College Teaching and Learning*; May 18; East Lansing, MI 2011.

Baqri RM, Turner BA, Rheuben MB, Hammond BD, Kaguni LS, **Miller KE**. Disruption of Mitochondrial DNA Replication Increases Mitochondrial Fast Axonal Transport In Vivo. *Society for Neuroscience*; October 17 - 21;
Chicago, IL 2009.

Miller KE, Lamoureux P, O'Toole M. Differences in Biophysical Properties

Underlie the Limited Regenerative Ability of Adult as Compared to Embryonic Peripheral Neurons. *American Society For Cell Biology*, December 5 - 9; San Diego, CA 2009.

Kemp M, Poort JE, Baqri RM, Breedlove SM, Miller KE, Jordan CL. Live imaging of endosomal trafficking deficits in sciatic nerves of a myogenic mouse model of SBMA *Society for Neuroscience Meeting*, October 17 - 21; Chicago, IL 2009.

Baqri RM, Turner BA, Kaguni LS, **Miller KE**. Impaired Mitochondrial DNA Replication Disrupts Axonal Transport of Mitochondria, but Not of Synaptic Vesicles. *Annual Drosophila Research Conference of the Genetics Society of America*; April 2 - 6; San Diego, CA 2008.

Lamoureux P, Heidemann SR, **Miller KE**. Growth and Elongation Within and Along the Axon. *American Society For Cell Biology*, December 13-17; San Francisco, CA 2008.

O'Toole M, Lamoureux P, **Miller KE**. Modeling Mitochondrial Biogenesis, Transport & Destruction in Neurons. *MSU - U of M Math-Bio Day*, December 2; Ann Arbor, MI 2007.

O'Toole M, Lamoureux P, **Miller KE**. Modeling Mitochondrial Biogenesis, Transport & Destruction in Neurons. *Midwest Quantitative Biology Conference*; September 29 – October 1; Mission Point Resort, Mackinac Island, MI 2006.

Miller KE. Drosophila Liprin-alpha is Required for Trafficking of Synaptic Vesicles. *Northeast Regional Developmental Biology meeting*, Marine Biological Laboratory; April 23; Woods Hole, MA 2005.

Miller KE, Sheetz MP. Actin-linked Bulk Transport in the Distal Axon Alters Growth Cone Size. *American Society For Cell Biology Meeting*; December 13 - 17; San Francisco, CA 2003.

Miller KE, Samuels D. The Axon as a Metabolic Compartment: Protein Degradation, Transport, and Maximum Length of an Axon. *Society for Neuroscience Meeting*; November 4 - 9; New Orleans, LA1997.

Miller KE, Joshi HC. Microtubules do not move by slow axonal transport, but tubulin does. *American Society For Cell Biology Meeting*; December 9 - 13; Washington, D. C. 1995.

Professional Affiliations and Service

Panels & Workshops

NSF IOS – Neural Systems Funding Review Panel, October 2010
NIH Study Section, Synaptic Transmission and Axonal Transport, October 2019

Organizer of:

Mathematical Biosciences Institute Workshop "Axonal Transport and Neuronal Mechanics," Ohio State University; November 3 - 7; Columbus, OH 2014.
Wilhelm and Else Heraeus Foundation Seminar "Neuronal Mechanics"; Physikzentrum Bad Honnef; August 17 – 19; Bad Honnef Germany, 2016.

Ad Hoc Reviews for Scientific Journals:

Reviewed 100+ Manuscripts for journals, including:
BBA – Molecular Cell Research (1), Biomechanics and Modeling in Mechanobiology (1); Biophysical Journal (4), BMC Genetics (1), Cellular and Molecular Bioengineering (3), Cellular and Molecular Neurobiology (1); Comparative Biochemistry and Physiology (1), Computer Methods in Biomechanics and Biomedical Engineering (1), Current Biology, Cytoskeleton (2), Developmental Neurobiology (2), Elife (3), Frontiers in Cellular Neuroscience (1), Frontiers in Molecular Neuroscience (1); Int J for Num Meth in BioEng (1), Journal of Cell Science (4), Journal of Elasticity (1); Journal of Neuroscience Research (1), Journal of Neuropharmacology (3), Journal of Visual Experiments, JoVE (1), Mitochondrion (1), Molecular Biology of the Cell (1), Molecular and Cellular Neuroscience (1), Physical Biology (1), PloS computational biology (1), Proceedings of the National Academy of Science (1), Progress in Neurobiology (1), Molecular Neurodegeneration (2), Neurotoxicology (2), PLoS one (3), PLoS Computational Biology (2), Physical Review Letters (1) and Scientific Reports (2).

Grant reviews:

NIH panelist (6); NSF External Reviewer (6); NSF Panelist (18); United States – Israel Bi-national Science Foundation (1); Wings of Life (2); Biotechnology and Biological Sciences Research Council (1); Czech Science Foundation (1); Netherlands Organization for Scientific Research (1); Human Frontier Science Program (1)

Societies

2013 - Biophysical Society
1993 - American Society for Cell Biology
1992 - Society for Neuroscience

Committees and Service Positions

University and Departmental Service

2023 Faculty advisor for Student Greenhouse Project
2019-2022 College of Natural Science, Faculty Advisory Committee
2019 Faculty Grievance Panel
2016-2021 University Council
2016-2021 Faculty Senate
2011, 18-19 Zoology Department Chemical Safety Representative to ORCBS.
2014-2019 Neuroscience Faculty Advisory Committee
2015-2019 Integrative Biology Curriculum Committee, Chair.
2015-2017 Integrative Biology Space Committee
2015-2017 Integrative Biology Bylaws Committee
2015-2016 Neuroscience RPT Advisory Committee
2015-2016 Entomology Faculty Search Committee
2013-2015 Chair of the Zoology Departmental Name Change Committee
2013 Chair of the Academic Program Review (APR) Committee for the Department of Zoology
2011-2013 University Committee on Faculty Tenure
2007-2010 Graduate Affairs Committee for the Neuroscience Program
2009 Organizer for the Neuroscience retreat poster presentations
2007-2008 Neuroscience Comprehensive Exam Committee

2009	Chair of Graduate Affairs Committee for the Department of Zoology
2009	Organizer of the slides for the Zoology Departmental Data Blitz
2006-2009	Graduate Affairs Committee for the Department of Zoology
2007	Department of Zoology Chair Five-Year Review Committee
2006	Zoology Faculty Search Committee

Graduate Committees

Current Students:

Ashoka Bandla	Ibio

Past Students:

Wiwatratana, Duanghathai	Neuroscience
Wasserman, Aaron	Cell & Molecular Biology
Acharya, Pankaj	MMG
Al Temaimi, Rabeah	Genetics
Brady, Briana	Integrative Biology and Psychology
De Rooij, Rijk	Stanford, Dept. of Engineering
Gokhale, Rewatee	Biochemistry and Molecular Biol.
Harper, Emily	Cell & Molecular Biology
Handee, Witawas	Cell & Molecular Biology
Khurshid, Khawar	Dept. of Engineering
Oliveira, Marcos	Biochemistry
Poort, Jessica	Neuroscience
Rattanasinchai, Chotirat	Cell & Molecular Biology
Tiernan, Chelsea	Neuroscience
Thompson, Ryan	Cell & Molecular Biology

Academic Advising: ~ 35 undergraduates, four graduate students, and one post-doctoral fellow have worked in my lab

Undergraduate:

Current students

Sajid Alam, Lyman Briggs, Michigan State University

Malhar Amin, Lyman Briggs, Michigan State University

Jenny Dibley, Physiology, Michigan State University
Bashar Jawich, Physiology, Michigan State University
Lorenzo Thrasher, Lyman Briggs, Michigan State University
Francesca Oprea, Lyman Briggs, Michigan State University
Sydnie Schafer, Lyman Briggs, Michigan State University
Shakthishree Velmurugan, Lyman Briggs, Michigan State University
Ashley Ziemer, Genetics, Michigan State University

Former students:

Ania Grodsky, Lyman Briggs, Michigan State University
Nadeen Al-Ostaz, MSU Broad College of Business student
Neha Gopalakrishnan, Michigan State University
Elise Bonnema, Medical School, University of Toledo
Olivia Triltsch, Wildlife Service Technician in Detroit
Jack Duffield – Senior Operations Manager at Hajoca Corporation
Lucas Fix – Quality Control Manager at Surefil, Grand Rapids, MI
Andrew George – Life Science Manufacturing Ambassador Program in Durham, NC.
Brad Hammond - Science Teacher at North Broward Preparatory School in fort Lauderdale, FL
Javier Howard – Otolaryngology Head and Neck Surgery Resident Physician at Stanford Health Care
Chris Johnson - Resident Doctor at University of Chicago Medical Center in Orthopaedic Surgery
Robert Latham – Deceased.
Sam Lee – Applied to medical school
Nathan Martzke - Owner at Modern Dentistry of Royal Oak, MI
Erica Melkonian – D.O. at Intermountain Health in Colorado
Arielle Pietron – Pharmacy School U of Maryland
John Purakal - Emergency Medicine Physician & Assistant Professor
Sreeker Reddy - Medical Doctor at K Heart & Vascular Institute, Troy, MI
Brittany Turner – attended College of Human Medicine, MSU
Stephen Vorenberg – Pediatric Resident at Baystate Medical Center, Middletown, NY

Graduate:

Former Students:

• Rehan Baqri, Ph. D. – Post-doctoral fellow with Sam Kunes, Harvard University. Now Senior Director, US Launch Lead, Hematology Oncology at Sanofi.
• Faisal Abu-Nimeh, Ph. D. – Joint student from the Engineering program with Fathi Salem, currently an Engineer at Apple
• Matthew O'Toole, Ph. D. – Associate Professor in the Department of Mathematics at Kettering University
• Douglas Roossien –Ph. D.– Assistant Professor in the Department of Biology at Ball State University, Indiana.

Post-doctoral fellow:

• Julie Taylor – Research and Development Officer, in the School of Clinical Medicine, Cambridge University Addenbrooke's Hospital, Cambridge, UK.

Service within the Broader Community

- Faculty Advisor, Student Greenhouse Project, 2023
• Brain Bee and Neuroscience Fair at MSU, 2010-2013
• Invited to write four articles for the Encyclopedia of the Neuroscience. This publication is written at a level suitable for university undergraduates.
• Participated in a Faculty Learning Community (FLCs), entitled "Inquiry-Based Problem Set Development for Molecular Cell Biology," 2010 - 2011.
• Frontiers in Biological Science workshop for secondary physical science teachers – discussed research and latest finding on axonal growth and regeneration, 2008
• Michigan Science Olympiad, 2007
• Judge at the Boston Latin School Science Fair, 2003