

Curriculum Vitae

Margot E. Quinlan, Ph.D. (formerly Leonard)

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Current Position Associate Professor, Department of Chemistry and Biochemistry, UCLA

Education

2007	Wellcome Trust, Hinxton, UK	n/a	<i>Dros.</i> Genetics & Genomics
2002-2008	University of California, SF	Postdoctoral	Biochemistry
1995	Marine Biology Labs, MA	n/a	Physiology
1993-2002	University of Pennsylvania, PA	Ph.D.	Cell and Molecular Biology
1986-1991	Reed College, OR	B.A.	Biology

Positions and Research Experience

2016-present	Associate Professor, Department of Chemistry and Biochemistry, University of California Los Angeles
2008-2016	Assistant Professor, Department of Chemistry and Biochemistry, University of California Los Angeles
2002-2008	Postdoctoral Fellow, Department of Cellular and Molecular Pharmacology, University of California San Francisco (<i>Mentor</i> : R. Dyche Mullins, Ph.D.)
1993-2002	Doctoral Candidate, Department of Physiology, University of Pennsylvania (<i>Mentor</i> : Yale E. Goldman, M.D., Ph.D.)
1991-1993	Wissenschaftliche Hilfskraft (Scientific Help), Internal Medicine, Universität Erlangen-Nürnberg, Germany (<i>Mentor</i> : Prof. Friedrich C. Luft, M.D.)
1990-1991	Undergraduate senior thesis, Biology Department, Reed College (<i>Mentors</i> : Stephen Arch, Ph.D., and Jonathan J. Abramson, Ph.D.)
1988-1989	Lab Assistant I, Department of Orthopaedics, University of California San Diego (<i>Mentor</i> : Richard L. Lieber, Ph.D.)

Honors and Awards

2014	Faculty Career Development Award, UCLA
2013	Glenn T. Seaborg Award, Alpha Chi Sigma, UCLA
2013	Top 20 Women Professors in California, StateStats.org
2012	Faculty Career Development Award, UCLA
2010 – 2012	Basil O'Connor Starter Scholar Research Award, March of Dimes
2009	Faculty Development Grant, Center for the Study of Women
2008 – 2013	Alexander and Renee Kolin Endowed Professorship of Molecular Biology and Biophysics
2006 – 2011	Career Award in the Biomedical Sciences, Burroughs-Wellcome Fund
2006	Postdoctoral Fellowship, American Heart Association, Declined
2004	Postdoctoral Fellowship, American Cancer Society, Honorable Mention
1994 – 1999	Predocotrual Fellow in Biological Sciences, Howard Hughes Medical Institute
1994	Predocotrual Fellowship, National Science Foundation, Honorable Mention
1991	Summer Fellow, American Heart Association
1991	Commended for Excellence in Scholarship, Reed College
1986	Lifetime member, California Scholarship Federation

Teaching Experience

2016	The dynamic actin cytoskeleton: how actin assembly and acto-myosin contraction shapes cells, Graduate seminar, UCLA (MolBiol 254b)
2012	Actin nanomachinery and cellular dynamics, Graduate seminar, UCLA (MolBiol 298)
2011	Bioengineering Bootcamp, California Institute of Technology
2010-2011	Summer School on Actin Dynamics, University of Regensburg, Germany
2010-present	Physical Biochemistry, Undergraduate Biochemistry requirement, UCLA, (Chem 156)
2009 -present	Molecular Recognition and Bioenergetics, Graduate lecture, UCLA (Chem 269b)
2007-2008	Teaching Assistant, Physiology Course, Marine Biology Laboratories, Woods Hole, MA
2005	Undergraduate student mentor, UCSF Summer Research Training Program
2004	Seminar in Cell Motility, Graduate seminar, SFSU, (Biology 865)
2003-2004	Postdoctoral Teaching Fellow, University of California San Francisco and San Francisco State University (FIPSE) (<i>Mentor</i> : Jennifer Breckler, Ph.D.)
1997-1998	Teaching Assistant, Advanced <i>in situ</i> Hybridization and Immunocytochemistry, Cold Spring Harbor, NY
1994-1996	Teaching Assistant, Physiology, School of Medicine, University of Pennsylvania

Professional Activities

Society Memberships

2012 – present	The American Society for Biochemistry and Molecular Biology
2008 – present	American Association for the Advancement of Science
2003 – present	American Society of Cell Biology
1995 – 2004	Biophysical Society

Grant Reviewer

2017-2021	Regular member, Nuclear and Cytoplasmic Structure/Function and Dynamics Study Section
2016	Ad hoc, The Wellcome Trust DBT India Alliance
2015	Temporary member, Nuclear and Cytoplasmic Structure/Function and Dynamics Study Section
2015	Ad hoc, ECHO Programme, The Netherlands
2015	Temporary member, Cellular Mechanisms in Aging and Development Study Section, NIH

Conference Session Chair

2017	Gordon Research Conference, Motile and Contractile Systems
2015	Annual Drosophila Research Conference, Session chair: Intracellular Dynamics-Cell Biology & Signal Transduction Session
2013	American Society for Cell Biology Annual Meeting, Minisymposium chair: Cytoskeletal Polymers & Motors: From Single Molecules to Ensembles

Conference Volunteer Work

2016	ASCB Minority Affairs Committee Poster Competition, Judge
2013	Science Table Discussion, Leader
2012	ASCB Minority Affairs Committee Poster Competition, Judge
2011 – present	ASCB Women in Cell Biology Roundtable Discussions, Leader

Journal Review

2009 – present Cytoskeleton, Current Biology, Developmental Cell, Journal of Biological Chemistry, Journal of Cell Biology, Journal of Molecular Biology, Molecular Biology of the Cell, Nature Cell Biology, PLoS, PLoS One, PNAS, and others.

Departmental Committee Service

2016 Biochemistry faculty search committee
2015 – present Development Committee
2015 – present Chair, Biochemistry Instrumentation Facility Advisory Committee
&2010 – 2013
2010 – 2013 Department Representative, Legislative Assembly
2008 – 2010 Biochemistry Instrumentation Facility Advisory Committee
2008 Biochemistry faculty search committee

University Committee Service

2016 – present co-Chair, Molecular Biology Institute Seminars Committee
2015 – 2016 Member, Molecular Biology Institute Seminars Committee
2012, 2016 Judge for Science Poster Day
2012, 2016 Amgen Scholars Program, Admissions
2011 – 2012 Whitcome Fellowship Committee
2010 – present Biomedical Minor admissions interviewer
2010 – 2012 ACCESS Graduate Admissions Committee
2009 Interview Career Panel for PhD and Master's Students - Sciences & Engineering

Invited Seminars

Scientific Meetings

2017 EMBO workshop, Frontiers in Cytoskeleton Research, Pune, India
2017 Annual Drosophila Research Conference, Developmental Mechanics workshop
2015 Annual Drosophila Research Conference, Session chair: Intracellular Dynamics-Cell Biology & Signal Transduction Session
2015 Annual Southern California Fly Conference
2015 American Society for Cell Biology Annual Meeting, Special Interest Subgroup: Nucleation Phenomena in Cell Biology
2015 Biophysical Society Annual Meeting, Mechanisms of Actin Filament Nucleation and Mechanotransduction
2014 Gordon Research Conference, Muscle & Molecular Motors
2013 American Society for Cell Biology Annual Meeting, Minisymposium chair: Cytoskeletal Polymers & Motors: From Single Molecules to Ensembles
2013 Gordon Research Conference, Motile and Contractile Systems (declined due to childbirth)
2011 American Society for Cell Biology Annual Meeting, Minisymposium: Actin Dynamics
2010 American Society for Cell Biology Annual Meeting, Special Interest Subgroup: Formins
2010 Actin Dynamics Meeting, German Society for Cell Biology, Germany
2009 Gordon Research Conference, Motile and Contractile Systems
2008 Annual Southern California Fly Conference
2007 American Society for Cell Biology Annual Meeting, Minisymposium: Cytoskeletal Dynamics and Polarity
2006 Biophysical Society Discussion - Molecular Motors: Point Counterpoint
2005 American Society for Cell Biology Annual Meeting, Special Interest Subgroup: Cell Migration Consortium - Structure Initiative
1999 Gordon Research Conference on Muscle: Contractile Proteins

1997 EMBO-Alpbach Workshop on Muscle

Departmental Seminars

2016 Reed College, Biology Department
2015 SUNY Upstate, Department of Cell & Developmental Biology
2014 NIH, Cell Biology and Physiology Center, National Heart, Lung and Blood Institute
2013 UCLA, Embryology Club
2012 Dartmouth Medical School, Keynote Speaker, Department of Biochemistry Retreat
2012 University of Cambridge, Department of Zoology
2011 University of Pennsylvania, Pennsylvania Muscle Institute
2011 University of Chicago, Keynote Speaker, Molecular Cell Biology Training Grant Symposium
2010 Max Plank Institute of Molecular Cell Biology and Genetics, Germany
2010 University of Regensburg, Institute of Functional Genomics, Germany
2010 McGill University, Biology Department, Canada
2009 California State University, Northridge, Department of Chemistry and Biochemistry
2008 UCLA, JCCC/BSCRC seminar
2008 UCLA, ACCESS Graduate Group, annual retreat
2008 UCLA, Molecular Cellular and Developmental Biology, annual retreat
2008 UCLA, Molecular Biology Institute, annual retreat
2008 University of Washington, Department of Biochemistry
2004 UCSF, Research In Progress Seminars
1998 University of Pennsylvania, Sixth Retreat of the Pennsylvania Muscle Institute

Publications

Peer Reviewed

- A1. Jaiswal, R, C.L. Vizcarra¹, M.E. Quinlan[§], B.L. Goode[§]. Spire and the formin Cappuccino directly interact to antagonize capping protein and promote actin filament growth at barbed ends. *Dev. Cell.* (in review) [§]co-corresponding authors
- A2. *Durer, Z.A.O.¹, R.M. McGilivray³, H. Kang, W.A. Elam, C.L. Vizcarra¹, D. Hanein, E.M. De La Cruz, E. Reisler, M.E. Quinlan. Metavinculin tunes the flexibility and the architecture of vinculin induced bundles of actin filaments. *J. Mol. Biol.* 427:2782-2798, 2015.
- A3. *Yoo, H.^{3,#}, E. Roth-Johnson^{2,#}, B. Bor², M.E. Quinlan. Drosophila Cappuccino alleles provide insight into formin mechanism and role in oogenesis. *Mol. Biol. of the Cell* 26:1875-86, 2015. #authors contributed equally
- A4. *Bor, B², J.S. Bois¹, M.E. Quinlan. Regulation of the formin Cappuccino is critical for polarity of Drosophila oocytes. *Cytoskeleton* 72:1-15, 2015.
- A5. *Fattouh, R., H. Kwon, M.A. Czuczman, J.W. Copeland, L. Pelletier, M.E. Quinlan, A.M. Muise, DE. Higgins, J.H. Brumell. The Diaphanous-Related Formins Promote Protrusion Formation and Cell-to-Cell Spread of *Listeria monocytogenes*. *J Infect Dis.* 211:1185-95, 2015.
- A6. *Rasson A.S.², J.S. Bois¹, D.S. Pham³, H. Yoo, M.E. Quinlan. Filament assembly by Spire: Key residues and concerted actin binding. *J. Mol. Biol.* 427:824-39, 2015.
- A7. *Vizcarra, C.L.¹, B. Bor², M.E. Quinlan. The role of formin tails in actin nucleation, processive elongation, and filament bundling. *J. Biol. Chem.* 289:30602-30613, 2014.
- A8. *Roth-Johnson, E.A.², C.L. Vizcarra¹, J.S. Bois¹, M.E. Quinlan. Interaction between microtubules and the *Drosophila* formin Cappuccino and its effect on actin assembly. *J. Biol. Chem.* 289:4395-4404, 2014.
- A9. *Quinlan, M.E. Direct interaction between two actin nucleators is required in Drosophila oogenesis. *Development* 140:4417-4425, 2013.

- A10. *Bor, B.², C.L. Vizcarra¹, M.L. Phillips, and M.E. Quinlan. Autoinhibition of the formin Cappuccino in the absence of canonical autoinhibitory domains. *Mol. Biol. of the Cell* 23:3801-3813, 2012.
- A11. *Chen, C.K., M.R. Sawaya, M.L. Phillips, E. Reisler, and M.E. Quinlan. Multiple forms of Spire-actin complexes and their functional consequences. *J. Biol. Chem.* 287:10684-10692. 2012.
- A12. *Vizcarra, C.L.^{1,#}, B. Kreutz[#], A.A. Rodal, A.V. Toms, J. Lu, W. Zhang, M.E. Quinlan[§], and M.J. Eck[§]. Structure and function of the interacting domains of Spire and Fmn-family formins. *PNAS.* 108:11884-11889. 2011. [#]authors contributed equally, [§]co-corresponding authors
- A13. *Zuchero J.B., A.S. Coutts, M.E. Quinlan, N.B. Thangue, and R.D. Mullins. p53-cofactor JMY is a multifunctional actin nucleation factor. *Nat Cell Biol.* 11:451-459. 2009
- A14. Quinlan, M.E., S. Hilgert, A. Bedrossian, R.D. Mullins, and E. Kerkhoff. Regulatory interactions between two actin nucleators, Spire and Cappuccino. *J. Cell Biol.* 179:117-128, 2007.
- A15. Quinlan, M.E., J.E. Heuser, E. Kerkhoff, and R.D. Mullins. *Drosophila* Spire is an actin nucleation factor. *Nature.* 433:382-388, 2005.
- A16. Quinlan, M.E., J.N. Forkey, and Y.E. Goldman. Orientation of the Myosin Light Chain Region by Single Molecule Total Internal Reflection Fluorescence Polarization Microscopy. *Biophys. J.* 89:1132-1142, 2005.
- A17. Forkey, J.N., M.E. Quinlan, and Y.E. Goldman. Measurement of Single Macromolecule Orientation by Total Internal Reflection Fluorescence Polarization Microscopy. *Biophys. J.* 89:1261-1271, 2005.
- A18. Forkey, J.N., M.E. Quinlan, M.A. Shaw, J.E.T. Corrie, and Y.E. Goldman. Three-dimensional structural dynamics of myosin V by single-molecule fluorescence polarization. *Nature.* 422:399-404, 2003.
- A19. Lieber, R.L., M.E. Leonard, and C.G. Brown. Muscle contraction effects on aponeurosis and tendon load-strain properties. *Cells, Tissues Organs*, 166:48-54, 2000.
- A20. Veelken, R., M.E. Leonard, A. Stetter, K.F. Hilgers, J.F.E. Mann, P.W. Reeh, H. Geiger, and F.C. Luft. Pulmonary serotonin 5-HT₃-sensitive afferent fibers modulate renal sympathetic nerve activity in rats. *Am. J. Physiol.* 272:H979-86, 1997.
- A21. Veelken, R., K.F. Hilgers, T. Ditting, M.E. Leonard, J.F.E. Mann, H. Geiger, and F.C. Luft. Impaired cardiovascular reflexes precede deoxycorticosterone acetate-salt hypertension. *Hypertension.* 24:564-70, 1994.
- A22. Veelken, R., K.F. Hilgers, M.E. Leonard, K. Scrogin, J. Ruhe, J.F.E. Mann, and F.C. Luft. A highly selective cardiorenal, serotonergic, 5-HT₃-mediated reflex in rats. *Am. J. Physiol.* 264:H1871-H1877, 1993.
- A23. Lieber, R.L., M.E. Leonard, C.G. Brown, and C.L. Trestik. Frog semitendinosus tendon load-strain and stress-strain properties during passive loading. *Am. J. Physiol.* 261:C86-C92, 1991.

Invited

- B1. *Quinlan, M.E. Cytoplasmic Streaming Mechanisms in the *Drosophila* Oocyte. *Ann. Rev. Cell and Dev. Biol.*, 6;32:173-195, 2016.
- B2. *Beausang JF, Y. Sun, M.E. Quinlan, J.N. Forkey, and Y.E. Goldman. The Acquisition and Analysis of Polarized Total Internal Reflection Fluorescence Microscopy (poTIRFM) Data. *Cold Spring Harb Protoc.* doi: 10.1101/pdb.prot069419, 2012.

- B3. *Beausang JF, Y. Sun, M.E. Quinlan, J.N. Forkey, and Y.E. Goldman. The Polarized Total Internal Reflection Fluorescence Microscopy (polTIRFM) Twirling Filament Assay. *Cold Spring Harb Protoc.* doi: 10.1101/pdb.prot069401, 2012.
- B4. *Beausang JF, Y. Sun, M.E. Quinlan, J.N. Forkey, and Y.E. Goldman. The Polarized Total Internal Reflection Fluorescence Microscopy (polTIRFM) Processive Motility Assay for Myosin V. *Cold Spring Harb Protoc.* doi: 10.1101/pdb.prot069393, 2012.
- B5. *Beausang JF, Y. Sun, M.E. Quinlan, J.N. Forkey, and Y.E. Goldman. Construction of Flow Chambers for Polarized Total Internal Reflection Fluorescence Microscopy (polTIRFM) Motility Assays. *Cold Spring Harb Protoc.* doi: 10.1101/pdb.prot069385. 2012.
- B6. *Beausang JF, Y. Sun, M.E. Quinlan, J.N. Forkey, and Y.E. Goldman. Preparation of Filamentous Actin for Polarized Total Internal Reflection Fluorescence Microscopy (polTIRFM) Motility Assays. *Cold Spring Harb Protoc.* doi:10.1101/pdb.prot069377, 2012.
- B7. *Beausang JF, Y. Sun, M.E. Quinlan, J.N. Forkey, and Y.E. Goldman. Fluorescent Labeling of Myosin V for Polarized Total Internal Reflection Fluorescence Microscopy (polTIRFM) Motility Assays. *Cold Spring Harb Protoc.* doi: 10.1101/pdb.prot069369, 2012.
- B8. *Beausang JF, Y. Sun, M.E. Quinlan, J.N. Forkey, and Y.E. Goldman. Fluorescent labeling of calmodulin with bifunctional rhodamine. *Cold Spring Harb Protoc.* doi: 10.1101/pdb.prot069351, 2012 .
- B9. *Beausang JF, Y. Sun, M.E. Quinlan, J.N. Forkey, and Y.E. Goldman. Orientation and Rotational Motions of Single Molecules by Polarized Total Internal Reflection Fluorescence Microscopy (polTIRFM). *Cold Spring Harb Protoc.* doi: 10.1101/pdb.top069344, 2012.
- B10. Quinlan, M.E. and E. Kerkhoff. Actin Nucleation: Bacteria get InSpired. *Nat. Cell. Biol.* 10:13-15, 2008.
- B11. Beausang, J.F., Y. Sun, M.E. Quinlan, J.N. Forkey, and Y.E. Goldman. Orientation and rotational motions of single molecules by polarized total internal reflection fluorescence microscopy. *Single-Mol. Tech.* 121-148. 2008.
- B12. Rosenberg, S.A., M.E. Quinlan, J.N. Forkey, and Y.E. Goldman. Rotational motions of macro-molecules by single-molecule fluorescence microscopy. *Acc. Chem. Res.* 38:583-593, 2005.
- B13. Quinlan, M.E., J.N. Forkey, and Y.E. Goldman. KinesinADP: whole lotta shakin' goin' on. *Nat. Struct. Biol.* 8:478-480, 2001.
- B14. Forkey, J.N., M.E. Quinlan, and Y.E. Goldman. Protein structural dynamics by single-molecule fluorescence polarization. *Prog. Biophys. Mol. Biol.* 74:1-35, 2000.

*published since UCLA appointment

¹Postdoctoral Fellow

²Graduate Student

³Undergraduate Student