

Daniel M. Suter

Curriculum Vitae

Department of Biological Sciences
Purdue University
Lilly Hall, Rm 2-239
915 West State Street
West Lafayette, IN 47907-2054, USA

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West Lafayette, IN 47906
USA

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Education and Training

1995-2000 Postdoctoral Fellow in Cellular Neurobiology, Yale University; advisor: Dr. Paul Forscher
1995 PhD in Biochemistry, University of Zurich, Switzerland; thesis advisor: Dr. P. Sonderegger
1993 MS in Biology Education, ETH Zurich, Switzerland
1992 MS in Chemistry Education, ETH Zurich, Switzerland
1988 MS in Natural Sciences, Focus Biology, ETH Zurich, Switzerland

Professional Experience

2009-present Associate Professor, Department of Biological Sciences, Purdue University
2003-2009 Assistant Professor, Department of Biological Sciences, Purdue University
2000-2002 Associate Research Scientist, Department of Molecular, Cellular and Developmental Biology, Yale University
1995-2000 Postdoctoral Fellow, Department of Molecular, Cellular and Developmental Biology, Yale University
1990-1995 Graduate Research Assistant, Department of Biochemistry, University of Zurich, Switzerland
1989-1990 Instructor in Chemistry, Academic High School Büelrain, Winterthur, Switzerland

Awards

2005 Purdue University Seed for Success Award
2003 Purdue Research Foundation International Travel Award
1998-1999 Swiss National Science Foundation Advanced Researcher Postdoctoral Fellowship
1997-1998 Roche Research Foundation Postdoctoral Fellowship,
1995-1997 Swiss National Science Foundation Postdoctoral Fellowship

Professional Associations

2007-present The Society for Neuroscience
1994-present The American Society for Cell Biology
1993-present The Swiss Society for Biochemistry

Areas of expertise

- Cell biology: cell adhesion, cytoskeletal dynamics, signal transduction, cell motility
- Neurobiology: axon guidance; neuronal growth cone motility and guidance
- Biochemistry: protein purification and characterization

- Advanced live cell imaging and biophysical techniques including video enhanced differential interference contrast (DIC) time-lapse microscopy, fluorescence and TIRF microscopy, micromanipulations and microinjections, image processing and analysis

Teaching and Supervisory Experience

2009	Instructor of BIOL 695S/696N "Special Lectures in Neuroscience: Neuronal Migration and Axonal Guidance in Neural Development" (enrollment: 10)
2006-present	Instructor of BIOL 44212 lab module "Light Microscopy and Cell Biology", Department of Biological Sciences, Purdue University (current enrollment: 10)
2003-present	Instructor of BIOL 495N "Introduction to Neurobiology", since 2009 renamed BIOL 436 "Neurobiology", Department of Biological Sciences, Purdue University (current enrollment: 84)
2003-present	Supervision of 1 postdoctoral researcher, 6 graduate students, 24 rotation students and 14 undergraduate researchers, Department of Biological Sciences, Purdue University
1995-2002	Supervision of research assistants, undergraduate and graduate students in the Forscher lab, Department of Molecular, Cellular and Developmental Biology, Yale University
1990-1995	Teaching assistant, Biochemistry courses for biology and medical students, Department of Biochemistry, University of Zurich
1989-1990	Instructor in Chemistry, Academic High School Büelrain, Winterthur, Switzerland

Former Postdocs:

Dr. Boris Decourt (2005-2009), Banner Sun Health Research Institute, Sun City, AZ

Current Graduate Students:

Yingpei He
Cory Weaver

Graduated Students:

Bingbing Wu, PhD 2009, Research Fellow, Singapore Bioimaging Consortium, Singapore
Aih Chen Lee, PhD 2009, Postdoctoral Associate, University of Cambridge, UK
Vidhya Munnamalai, PhD 2009, Postdoctoral Associate, University of Washington, Seattle
Garland, Elisabeth, MS 2010, Research Assistant, Purdue University

Undergraduate Students:

Past: Jeff Fitzgerald, Keira MacIsaac, Goldie Peabody-Dowling, Mamduh Zabidi, Levi Wuethrich, William Kim, Aditi Trehan, Lauren Sanchez, Corinne Weisheit, Desmond Grimm
Current: James Hamilton, Lauren Payne, Christina Atallah, Monique Nichols

Chairperson PhD Examining Committee:

Cong Wei, Mandana Amiri, Jessica Verburg, Andrea Campero-Battisti, Kristen Fantetti, Anju Karki, Swathi Devireddy

Member PhD Examining Committee:

Sashi Marella, Vidya Rajagopalan, Ling Huang, Chikka Maddhu, Ying Xiong, Divya Pathak, Nnadozie Onunkwo, Ryan Spaulding, Andrew Huh, Basudev Chowdhury, Kayalvizhi Madhivanan, Daniel Minner, Hyun Sung

Manuscript Reviewer

1995-present *Dev. Neurobiol.*, *EMBO J.*, *FEBS letters*, *J. Biol. Chem.*, *J. Cell Biol.*, *J. Cell Sci.*, *J. Nanosci. Nanotech.*, *J. Neurobiol.*, *J. Neurosci.*, *J. Vis. Exp.*, *Mol. Cell. Neurosci.*, *Mol. Biol. Cell*, *Nature Cell Biology*, *Neuron*, *PNAS*, *PLoS ONE*

Grant Reviewer

2011	Ad hoc reviewer for British Council
2010	Ad hoc reviewer for Canada Foundation for Innovation (CFI)
2009	Ad hoc reviewer for NIH study section group "Neuronal Differentiation, Plasticity and Regeneration" (NDPR), Washington, D.C., June 8-9, 2009
2008	Ad hoc reviewer for NSF
2006	Ad hoc reviewer for NIH study section group "Synapses, Cytoskeleton and Trafficking" (SYN), Washington, D.C., June 15-16, 2006
2006	Oncological Sciences Center, Purdue University, grant reviewer
2005	Ad hoc reviewer for NIH study section group "Neuronal Differentiation, Plasticity and Regeneration" (NDPR), Washington, D.C., June 22-23, 2005
2005	Purdue Research Foundation grant reviewer

Publications

Peer Reviewed

1. **Suter, D. M.**, and K. E. Miller. 2011. The emerging role of forces in axonal elongation. *Prog. Neurobiol.* 94(2):91-101.
2. Snyder, J. E., O. Azizgolshani, B. Wu, Y. He, A. C. Lee, J. Jose, **D. M. Suter**, C. M. Knobler, W. M. Gelbart, and R. J. Kuhn. 2011. Rescue of infectious particles from pre-assembled alphavirus nucleocapsids cores. *J. Virol.* 85(12):5773-81.
3. Xiong, Y., A. C. Lee, **D. M. Suter**, and G. U. Lee. 2009. Topography and nanomechanics of live neuronal growth cones analyzed by atomic force microscopy. *Biophys. J.* 96 (12):5060-5072.
4. Munnamalai, V., and **D. M. Suter**. 2009. Reactive oxygen species regulate F-actin dynamics in neuronal growth cones and neurite outgrowth. *J. Neurochem.* 108 (3):644-661.
5. Decourt, B., V. Munnamalai, A. C. Lee, L. Sanchez, and **D. M. Suter**. 2009. Cortactin colocalizes with filopodial actin and accumulates at IgCAM adhesion sites in *Aplysia* growth cones. *J. Neurosci. Res.* 87(5):1057-1068.
Cover article
6. Wu, B., B. Decourt, M. A. Zabidi, L. T. Wuethrich, W. H. Kim, Z. Zhou, K. Maclsaac, and **D. M. Suter**. 2008. Microtubule-mediated Src tyrosine kinase trafficking in neuronal growth cones. *Mol. Biol. Cell.* 19 (11): 4611-4627.
Cover article and highlighted in InCytes from Molecular Biology of the Cell
7. Lee, A. C., and **D. M. Suter**. 2008. Quantitative analysis of microtubule dynamics during adhesion-mediated growth cone guidance. *Dev. Neurobiol.* 68 (12):1363-1377.
Cover article
8. Lee, A. C., B. Decourt, and **D. M. Suter**. 2008. Neuronal cell cultures from *Aplysia californica* for high-resolution imaging of growth cones. *J. Vis. Experim. (JoVE)* 12, <http://www.jove.com>
9. Grzywa, E. L., A. C. Lee, G. U. Lee, and **D. M. Suter**. 2006. High-Resolution Analysis of Neuronal Growth Cone Morphology by Comparative Atomic Force and Optical Microscopy. *J. Neurobiol.* 66 (14):1529-43
Cover article
10. **Suter, D. M.**, A. W. Schaefer, and P. Forscher. 2004. Microtubule dynamics are necessary for Src family kinase dependent growth cone steering. *Curr. Biol.* 14:1194-1199

11. **Suter, D. M.**, and P. Forscher. 2001. Transmission of growth cone traction force through apCAM-cytoskeletal linkages is regulated by Src family tyrosine kinase activity. *J. Cell Biol.* 155 (3):427-438
Comment to Suter and Forscher, *J. Cell Biol.* 155 (3):427-438 (2001) by Jay, D. G. 2001. A Src-astatic response to mounting tension. *J. Cell Biol.* 155 (3): 327-330
12. Espindola, F. S., **D. M. Suter**, L. B.E. Partata, T. Cao, J. S. Wolenski, R. E. Cheney, S. M. King, and M. S. Mooseker. 2000. The light chain composition of chick brain myosin-Va: calmodulin, myosin-II essential light chains, and 8 kDa dynein light chain/PIN. *Cell Motil. Cytoskeleton* 47(4): 269-281
13. **Suter, D. M.**, and P. Forscher. 2000. Substrate-cytoskeletal coupling as a mechanism for the regulation of growth cone motility and guidance. *J. Neurobiol.* 44 (2): 97-113
14. Fitzli, D., E. T. Stoeckli, S. Kunz, K. Siribour, C. Rader, B. Kunz, S. V. Kozlov, A. Buchstaller, R. P. Lane, **D. M. Suter**, W. J. Dreyer, and P. Sonderegger. 2000. A direct interaction of axonin-1 and NrCAM results in guidance, but not growth of commissural axons. *J. Cell Biol.* 149 (4): 951-968
15. **Suter, D. M.**, F. S. Espindola, C.-H. Lin, P. Forscher, and M. S. Mooseker. 2000. Localization of unconventional myosins V and VI in neuronal growth cones. *J. Neurobiol.* 42 (3): 370-382
16. **Suter, D. M.**, L. D. Errante, V. Belotserkovsky, and P. Forscher. 1998. The Ig superfamily cell adhesion molecule, apCAM, mediates growth cone steering by substrate-cytoskeletal coupling. *J. Cell Biol.* 141 (1): 227-240
Comment to Suter et al., *J. Cell Biol.* 141 (1): 227-240 (1998) by Heidemann, S., and R. E. Buxbaum. 1998. Cell crawling: First the motor, now the transmission. *J. Cell Biol.* 141 (1): 1-4
17. **Suter, D. M.**, and P. Forscher. 1998. An emerging link between cytoskeletal dynamics and cell adhesion molecules in growth cone guidance. *Curr. Opin. Neurobiol.* 8 (1): 106-116
18. **Suter, D. M.**, G. E. Pollerberg, A. Buchstaller, R. J. Giger, W. J. Dreyer, and P. Sonderegger. 1995. Binding between the neural cell adhesion molecules axonin-1 and Nr-CAM/Bravo is involved in neuron-glia interaction. *J. Cell Biol.* 131 (4): 1067-1081
19. **Suter, D. M.**, and P. Sonderegger. 1994. Evidence for a nonneuronal receptor for axonin-1 and Ng-CAM. *Swiss. Arch. Neurol. Psychiatr.* 145 (3): 37-40
20. **Suter, D. M.**, E. T. Stoeckli, and P. Sonderegger. 1993. Inhibitory effects of the immunoglobulin superfamily molecule axonin-1 on Schwann cells and astrocytes. *Swiss. Arch. Neurol. Psychiatr.* 144 (3): 221-224

Invited Book Chapters

1. **Suter, D. M.** 2011. Live cell imaging of neuronal growth cone motility and guidance *in vitro*. Chapter 6 In *Cell Migration: Methods and Protocols*, 65-86, Second Edition, Claire Wells and Dr. Maddy Parsons (eds.), *Methods in Molecular Biology*.
2. **Suter, D.M.** 2010. Functions of myosin motor proteins in the nervous system. In *The Neurobiology of Actin: From Neurulation to Synaptic Function*, Gianluca Gallo and Lorene Lanier (eds.), *Advances in Neurobiology* 5:45-72.
3. Sonderegger, P., S. Kunz, C. Rader, **D. M. Suter**, and E. T. Stoeckli. 2001. Analysis of cell-cell contact mediated by Ig superfamily cell adhesion molecules. In *Current Protocols in Cell Biology*.

J. S. Bonifacino, M. Dasso, J. Lippincott-Schwartz, J. B. Harford, and K. M. Yamada, editors.
John Wiley & Sons, Inc, New York. Unit 9.5

Invited Platform Presentations

- 2010 "A Novel Role for NOX-derived ROS in the Regulation of Neuronal Growth Cone Motility" Gordon Research Conference on Nox Family NADPH Oxidases, Les Diablerets, Switzerland, 06/09/10
- 2007 "Microtubule dynamics in neuronal growth cones during adhesion-mediated guidance". Minisymposium talk at 47th Annual Meeting of the American Society for Cell Biology, Washington, DC, 12/03/07
- 2006 "The role of Src tyrosine kinase in neuronal growth cone guidance", Chicago Cytoskeleton meeting, Northwestern University, Chicago, 04/21/06
- 2003 "Substrate-cytoskeletal coupling and force transduction in neuronal growth cone steering" INSERM workshop "Role of mechanical constraints in cell biology: nanomanipulations by optical and magnetic tweezers", Montpellier, France, 11/06/03
- 2003 "Analysis of microtubule extension during growth cone steering" Chicago Cytoskeleton Meeting, Northwestern University, Chicago, 02/21/03
- 2002 "Neuronal Growth Cone Steering: A Complex Cellular Process Studied Using Advanced Light Microscopy Techniques" Genomics Symposium, Purdue University, West Lafayette, IN, 10/13/02
- 1998 "Neuronal growth cone steering mediated by IgCAM-cytoskeletal coupling" Symposium on Molecular Medicine, Max Delbrueck Center for Molecular Medicine, Berlin, Germany, 12/18/98
- 1998 "Neuronal growth cone steering mediated by IgCAM-cytoskeletal coupling" Gordon Research Conference on Developmental Physiology, Plymouth, NH, 08/04/98

Invited Lectures

- 2011 Department of Biological Sciences, Purdue University, West Lafayette, IN, 11/05/11
- 2011 Conway Institute of Biomolecular and Biomedical research, University College Dublin, Dublin, Ireland, 05/06/11
- 2010 NSF-funded Research Experiences for Undergraduates program, Physics Department, Purdue University, 06/30/10
- 2009 Purdue Chapter of Biomedical Engineering Society, Purdue University, West Lafayette, IN, 12/02/09
- 2009 Neuroscience Program, Michigan State University, East Lansing, MI, 03/19/09
- 2008 Department of Cell and Developmental Biology, University of Michigan, Ann Arbor, MI, 10/29/08
- 2008 Department of Biological Sciences, Purdue University, West Lafayette, IN, 10/22/08
- 2008 Brain Research Institute, University of Zurich, Zurich Switzerland, 08/04/08
- 2008 Stark Neurosciences Research Institute, Indiana University School of Medicine, Indianapolis, IN, 03/07/08
- 2008 Department of Biological Sciences, Purdue University Calumet, Hammond, IN, 02/22/08
- 2007 Department of Anatomy, University of Wisconsin Medical School, Madison, WI, 09/13/07
- 2007 Department of Neurobiology and Anatomy, Drexel University, Philadelphia, PA, 03/14/07
- 2005 Department of Biochemistry, University of Zurich, Zurich, Switzerland, 08/12/05
- 2005 Nano Center for Learning and Teaching (NCLT) workshop for K-12 teachers, Purdue University, 07/20/05
- 2005 Department of Biological Sciences, Purdue University Calumet, Hammond, IN, 03/25/05
- 2004 Department of Chemistry, Purdue University, West Lafayette, IN, 04/30/04
- 2003 Department of Physics, Purdue University, West Lafayette, IN, 12/12/03
- 2002 Department of Animal Biology, University of Pennsylvania, Philadelphia, PA, 05/29/02
- 2002 Hospital St. Gallen, St. Gallen, Switzerland, 03/13/02
- 2002 Department of Biochemistry, University of Zurich, Zurich, Switzerland, 03/11/02

2002 Department of Biological Sciences, Purdue University, West Lafayette, IN, 02/16/02
 2002 Department of Biological Sciences, Carnegie Mellon University, Pittsburgh, PA, 01/23/02
 2002 Department of Physiology, Tufts University, Boston, MA, 01/07/02
 2001 Department of Biology, University of Massachusetts, Amherst, MA, 11/14/01
 2001 European Molecular Biology Laboratory (EMBL), Heidelberg, Germany, 02/12/01
 2000 Department of Zoology, University of Zurich, Zurich, Switzerland, 07/10/00
 2000 Institute of Molecular Pathology (IMP), Vienna, Austria, 05/23/00
 2000 Swiss Institute for Experimental Cancer Research, Lausanne, Switzerland, 04/13/00
 2000 Friedrich Miescher Institute, Basel, Switzerland, 04/10/00
 1999 Center for Molecular Biology, University of Heidelberg, Heidelberg, Germany, 10/04/99
 1997 Department of Biochemistry, University of Zurich, Zurich, Switzerland, 01/06/97
 1997 Brain Research Institute, University of Zurich, Zurich, Switzerland, 01/08/97
 1995 Department of Biochemistry, University of Zurich, Zurich, Switzerland, 07/13/95
 1994 Department of Biology, Yale University, New Haven, CT, 12/18/94
 1994 Department of Biology, MIT, Boston, MA, 12/17/94
 1994 Department of Neurosciences, Case Western Reserve University, Cleveland, OH, 12/15/94
 1994 Department of Physiology, University of California, San Francisco, CA, 12/09/94
 1994 The Burnham Institute, La Jolla, CA, 12/06/94

Research Funding

Past

Bindley Bioscience Center:
 Startup Funds for Imaging Instrumentation 08/01/02 – 08/31/05
 Role: PI

Current

NIH R01 NS049233:
 "Regulation of Neuronal Growth Cone Guidance" 02/15/2005 - 01/31/2012
 Role: PI

Collaborators:

Claudio Aguilar, Purdue University, West Lafayette, IN
 Phil Fuchs, Purdue University, West Lafayette, IN
 Alben Ivanisevic, Purdue University, West Lafayette, IN
 David Janes, Purdue University, West Lafayette, IN
 Richard J. Kuhn, Purdue University, West Lafayette, IN
 Gil U. Lee, University College, Dublin, Ireland
 Mark T. Quinn, Montana State University, Bozeman, MT
 Chris J. Staiger, Purdue University, West Lafayette, IN
 Val J. Watts, Purdue University, West Lafayette, IN

Membership In University Centers and Interdisciplinary Programs

Bindley Bioscience Center
 Purdue University Interdisciplinary Life Science Graduate Program PULSe, Integrative Neuroscience and Membrane Biology training groups
 Purdue University Center for Basic and Applied Membrane Sciences (PUBAMS)
 Purdue Cytoskeleton Group

University and Public Service

Department

2010-present Departmental Faculty Teaching Load Committee
2010-present Departmental Safety Committee
2005-2008 Graduate and Advanced Studies Committee
2004-2007 Departmental Seminar Organizer
2005-2006 Departmental Faculty Search Committee "Animal Development"
2004-2005 Departmental Faculty Search Committee COALESCE "Membrane"
2004-2005 Purdue Cytoskeletal Group Research Seminar Organizer
2003-2004 Graduate Studies Admission Committee
2003-present Neurobiology Qualifier Committee
2003-present Member of 24 graduate student committees, chair on 7 committees.

College of Science

2009-present Graduate Education Policy and Curriculum Committee
2009-present College of Science Faculty Council
2007 College of Science White Paper Presentation: "Biology and Physics of the Cytoskeleton"
COS faculty retreat May 9, 2007
2003 Strategic Planning Focus Groups: Membrane Biology and Nanoscience
2003 COALESCE Search Committee "Nanoscience"

University

2009-present PULSe Graduate Program Admissions Committee
2008-2010 Campus Grievance Appeals Committee
2006 Oncological Sciences Center, Purdue University, grant proposal reviewer
2005 PRF grant proposal reviewer

Public

2003-present Demonstration of *Aplysia californica* at the Purdue Spring Fest