

Shannon Stroschein-Stevenson, Ph.D.

University of Minnesota Duluth
207 Swenson Science Building
1035 Kirby Dr
Duluth, MN 55812
218-726-7712, slsteven@d.umn.edu

EDUCATION & TRAINING

University of California - San Francisco (San Francisco, CA),
Microbiology and Immunology, Postdoctoral Fellow, 2002-2007

University of California - Berkeley (Berkeley, CA),
Molecular and Cell Biology, Ph.D., 1997-2001

Carleton College (Northfield, MN)
Biology, Bachelor of Arts, *magna cum laude*, 1993-1997

TEACHING EXPERIENCE

University of Minnesota Duluth Assistant professor, 2007-present

Classes taught

- General Biology 1
- Cell Biology
- Cell Biology Lab
- Molecular Biology of Cancer
- Cell Biology of Human Disease (face-to-face and online)
- Creation of the Duluth Journal of Undergraduate Biology writing course

Curriculum development

- Biology Department Writing Curriculum committee 2012-2015
- Biology Department Strategic Plan for Curriculum 2012
- Biology Department Curriculum committee 2008 to 2013, 2015, 2016-present
- SCSE Curriculum Committee 2016-present

Technology Camp

- Semester long workshop to learn the technology and best practices for teaching online 2013
- Taught first completely online course summer 2014: Cell Biology of Human Disease

Math Prep for STEM Careers Program

- Led an intro to biology and the scientific method workshop for incoming freshman from underrepresented groups during a week-long campus visit. 2014, 2015

Outreach

- Lester Park Elementary 5th Grade, Duluth. (3 days in April 2017).

Carleton College, (Northfield, MN), Visiting assistant professor, 2003

Biochemistry and two associated Biochemistry laboratories

- Taught lecture and lab to 30 upper-division biology and chemistry majors.
- Designed and developed the course including the outline, objectives and selection of material.
- Wrote and presented lectures, wrote and administered quizzes and exams.
- Developed bioinformatics and protein structure lab exercises.

University of California - Berkeley, Teaching Assistant, 1998, 2000

Survey of Biochemistry and Molecular Biology.

- Led discussion sections to improve student understanding.
- Wrote and administered quizzes.
- Helped develop exam questions, graded exams.

Cell Biology.

- Led discussion sections to improve student understanding.
- Helped develop exam questions, graded exams.

Carleton College, (Northfield, MN), Teaching Assistant, 1995-1997

Organic Chemistry, Introduction to Energetics and Genetics, Biochemistry, and Molecular Biology Laboratories.

- Responsibilities included aiding students with set-up and proper running of laboratory experiments, demonstrating laboratory techniques, answering student questions, and grading laboratory reports.

MENTORING EXPERIENCE

University of Minnesota Duluth, Mentor graduate teaching assistants, 2007-present

- Mentored graduate teaching assistants who taught sections of general biology I laboratory and discussion and cell biology laboratory..

University of California - San Francisco, Tetrad graduate program, 2003-2005

- Mentored three first-year graduate students in 10 week projects exploring the use of *Drosophila* as a model host system for *Candida albicans* infections.

University of California - Berkeley, Department of Molecular and Cell Biology, 1998-2000

- Mentored five first-year graduate students in 10 week projects studying Transforming Growth Factor- β signaling.
- Supervised undergraduate research student in year-long project studying Transforming Growth Factor- β signaling.

Carleton College, (Northfield, MN), Department of Biology, 1995-1996

- Supervised undergraduate research student in year-long project .

ACADEMIC SERVICE

Leadership positions:

Chair, Dept of Biology Curriculum Committee 2016-present

Committee membership:

University of Minnesota Duluth, Committee Member

SCSE Search committee for SCSE Dean 2017-2018
UMD Search committee for science and engineering librarian 2017
Dept of Biology Executive committee 2016-present
UMD Competitive bid review for student response systems 2016
SCSE Unit Change Team for Multicultural and Diversity issues 2011-2016
UMD Campus Change Team for Multicultural and Diversity issues 2014-2015
SCSE Curriculum Committee Member 2015-present

University of California - San Francisco, Committee Member 2004-2005

Preparing Future Faculty inaugural committee

- Helped to design and implement a summer seminar series on preparing students and postdocs for future faculty careers with a particular emphasis on teaching.

Carleton College, Northfield, MN 1997-2000

Alumni Volunteer Admissions Interviewer for Carleton College, Northfield, MN

- Interviewed high school students for admission to Carleton College.
- Advised applicants on student life and academics at college.

Other service:

- SCSE Welcome Week Program 2017
- Bulldog Welcome Week Workshop Leader 2015-2017
- Advisement and Registration advisor 2010-11,2017
- Represented biology at content meeting for Dept of Education Review by MN Board of Teaching 2017

- UMD Scholars Day, represented biology at this recruiting event 2017
- Campus Preview, represented biology 2010-2011
2014-2017
- Reviewed nominations for the 2017 Chancellor's award for distinguished teaching 2016
- New faculty Orientation panel 2016
- Review Biology UROP proposals 2015

Textbook Reviewer:

- McGraw Hill Reverse Class Test, online platform 2017
- Cooper 7th Edition of The Cell, A Molecular Approach, reviewed two chapters 2017
- Macmillan How Life Works 2nd Edition focus group on media supplements 2017
- Pearson K-5 Science textbook, reviewed four chapters 2017
- Solomon's 10th Edition of Biology, reviewed one chapter 2016
- Duluth Journal of Undergraduate Biology, reviewed student submissions 2016
- Pearson, Becker, 9th edition of World of the Cell, accuracy checker, 13 chapters 2015
- Garland Science, 4th edition of Essential Cell Biology, reviewed four chapters 2015
- Cengage, Mulnix, Cell Biology Problems, reviewed three chapters 2013
- Pearson, Biological Science 5th edition, reviewed two chapters 2013
- Pearson, The Cancer Cell, reviewed prospectus for potential textbook 2013
- Pearson, 8th edition World of the Cell, reviewed two chapters 2012

AWARDS and FUNDING

- PI: "Update of electronic resources for biology courses." SCSE Educational Grants, (\$1,400) 2017
- PI: "Development of Inquiry based laboratories for General Biology 1." UMD Instructional Development Small Grant, (\$2000) 2016
- PI: "Implementing active learning in Cell Biology." SCSE Educational Grants, (\$1076) 2016
- University of Minnesota Duluth, Chancellor's Award for Excellence in Teaching 2016
- Co-PI: "Duluth Journal of Undergraduate Biology Learning Innovation Fellow" 2014-2015
Provost's Office and Center for Educational Innovation, Experiments in Learning Innovations grant (\$20,000)
- PI: "Flipping the Cell Biology classroom into an interactive class to improve student performance." 2014-2015
Provost's Office and Center for Educational Innovation, Experiments in Learning Innovations Flipping cohort (\$500)
- PI: Development of Duluth Journal of Undergraduate Biology (\$1500) 2013-2014
UMD Chancellor's Small Grants:
- Inspirational Teacher in the Life Sciences Award, Univ. of MN Duluth, 2013
- Jane Coffin Childs Memorial Fund Postdoctoral Fellowship, 2003-2006
- Breast Cancer Research Program, Department of Defense, Pre-doctoral Fellowship, 2000-2001
- National Science Foundation Pre-doctoral Fellowship, 1997-2000
- Phi Beta Kappa Honor Society, 1997
- Sigma Xi, 1997
- National Merit Scholar, 1993-1997

INVITED SPEAKER AND POSTER SESSIONS

Chancellor's Award for Excellence in Teaching seminar, University of Minnesota Duluth April 2017
Engaging diverse students with active learning

National Association of Biology Teachers, National conference November 2016
Poster: Success of Active Learning Compared to Lecture in a Mid-level Cell Biology Course

Provost's Innovations in Teaching Showcase, University of Minnesota, Twin Cities April 2016
Poster: Creating the Duluth Journal of Undergraduate Biology

Biology Leadership Conference, General Biology teaching conference March 2015
Poster: Assessment of student writing using a revised general biology I writing curriculum

Biology Leadership Conference, General Biology teaching conference March 2014
Poster: Increasing student success in writing: A revision of the General Biology 1 writing curriculum

Inspirational teacher in the life sciences award seminar, University of Minnesota Duluth April 2013
Active Learning in the Large Lecture Hall

American Society for Microbiology general meeting, Microbial Pathogenesis symposium. June 2005
Identification of host genes required for phagocytosis of the human fungal pathogen *Candida albicans*.

Carleton College Department of Biology, Northfield, MN Seminar March 2003
Hitting the slopes with SnoN and Ski: Regulation of Transforming Growth Factor- β Signaling.

American Society for Cell Biology, annual meeting December 2001
Negative Regulation of Transforming Growth Factor- β signaling by SnoN and Ski.

UC-Berkeley Department of Molecular and Cell Biology, Cell Biology Division annual retreat October 2001
Negative Regulation of Transforming Growth Factor- β signaling by SnoN and Ski.

UC-Berkeley Department of Molecular and Cell Biology, Cell Biology Division annual retreat October 1998
TGF β induced transcriptional activation: Transcription gone MAD.

PROFESSIONAL DEVELOPMENT

- Active Learning Teaching Cohort, UMD SCSE 2017
- Canvas Users workshop. 2017
- Majors Biology How Life Works Adopter's Camp, 2017
Macmillan Learning, Austin, Texas. December 1-2, 2017
- Teaching Innovation Cohort. 2016
- Majors Biology Teaching Forum and Focus Group conference 2016
Pheonix, AZ March 11-12, 2016.
- SCSE Active learning teaching workshop, January 6-7 2016
- Active Learning Teaching Cohort, UMD SCSE 2016
- Flipped Classroom Cohort, University of Minnesota, Center for Educational Innovation 2015
- Flipped classroom community of practice, UMD 2015
- Biology Leadership Conference, Austin, Texas March 27-29 2015
- Biology Leadership Conference, Amelia Island, Florida March 14-16 2014
- Early Career Workshop on teaching & learning UMD Instructional Development Service 2011

RESEARCH EXPERIENCE

University of California – San Francisco, Postdoctoral Research Fellow 2002-2007
Principal Investigator: Alexander Johnson, Ph.D.

Goal: To develop *Drosophila* as a model system for understanding the interaction of the human fungal pathogen *Candida albicans* with the host innate immune system.

- Developed methods for infecting *Drosophila* larvae and cell lines with *Candida albicans*.
- Completed high through-put genome wide RNAi screen of *Drosophila* S2 cell line to identify proteins required for phagocytosis of the human fungal pathogen *Candida albicans*.
- Characterized the role of Mcr in marking fungi for phagocytosis by *Drosophila* cells.

Roche Molecular Systems – Alameda, CA, temporary research assistant 2002
Goal: Help develop a PCR based screening tool for rapid identification of blood based bacterial infections.

University of California - Berkeley, Ph.D. in Molecular and Cell Biology 1997-2001
Ph.D. Research Supervisor: Kunxin Luo, Ph.D.

Dissertation title: Regulation of Transforming Growth Factor- β Signaling and the SnoN Oncoprotein.

Goal: To understand how the Smads transduce signals from the TGF β receptors to the nucleus and how this process is regulated.

- Demonstrated the Smad proteins directly bind DNA using EMSA and supershift analysis.

- Used biochemical co-immunoprecipitation to identify two oncoproteins (SnoN and Ski) that directly interact with the Smad proteins.
- Demonstrated that SnoN and Ski regulate TGF β signaling by repressing the Smad's ability to activate transcription at TGF β responsive promoters.
- Characterized the regulation of SnoN by TGF β signaling and demonstrated that Smad3 recruits the anaphase promoting complex to SnoN to promote its degradation after activation of TGF β signaling.
- Ten week rotation with Dr. Jeremy Thorner: Mutation analysis of Ste5p to determine requirements for mating in *Saccharomyces cerevisiae*.

Carleton College, Northfield, MN Bachelor of Arts in Biology 1995-1997
Undergraduate Research Mentor: John Tymoczko, Ph.D.

Goal: To clone the genomic copy of prolyl endopeptidase from genomic phage library.

- Used Southern hybridization to screen phage library for prolyl endopeptidase gene
- Subcloned gene into pBS.
- Spent summer 1995 in laboratory of Dr. Alan Hooper, University of Minnesota: Cloned the gene encoding hydroxylamine oxidoreductase from *Nitrosococcus oceanus*.
- Spent summer 1996 in laboratory of Dr. Kendall Blumer, Washington University, St. Louis: Visual genetic screen to determine what controls localization of Ste2p in *Saccharomyces cerevisiae*.

PUBLICATIONS

Stroschein-Stevenson, S.L., Foley, E., O'Farrell, P.H., and Johnson, A.D. (2009) Phagocytosis of *Candida albicans* by RNAi treated *Drosophila* S2 cells. *Methods in Molecular Biology: Host Pathogen Interactions* 470:347-358

Stroschein-Stevenson, S.L., Foley, E., O'Farrell, P.H., and Johnson, A.D. (2006) Identification of *Drosophila* gene products required for phagocytosis of *Candida albicans*. *PLoS Biology* 4:e4.

Pan, D., Estevez-Salmeron, L.D., **Stroschein, S.L.**, Zhu, X., He, J., Zhou, S., and Luo, K. (2005) The integral inner nuclear membrane protein MAN1 physically interacts with the R-Smad proteins to repress signaling by the transforming growth factor beta superfamily of cytokines. *J. Biol. Chem.* 280:15992-16001.

Stroschein, S.L., Bonni, S., Wrana, J.L., and Luo, K. (2001) Smad3 recruits the anaphase promoting complex for ubiquitination and degradation of SnoN. *Genes Dev.* 15:2822-2836.

Bonni, S., Wang, H.R., Causing, C.G., Kavsak, P., **Stroschein, S.L.**, Luo, K., and Wrana, J.L. (2001) TGF- β induces assembly of a Smad2-Smurf2 ubiquitin ligase complex that targets SnoN for degradation. *Nature Cell Biol.* 3:587-595.

Sette, C., Inouye, C.J., **Stroschein, S.L.**, Iaquinta, P.J., and Thorner, J.T. (2000) Mutational analysis suggests that activation of the yeast pheromone response mitogen-activated protein kinase pathway involves conformational changes in the Ste5 scaffold protein. *Mol. Biol. Cell* 11:4033-4049.

Stroschein, S.L., Wang, W., Zhou, S., Zhou, Q., and Luo, K (1999) Negative feedback regulation of TGF- β signaling by the SnoN oncoprotein. *Science* 286:771-774.

Luo, K., **Stroschein, S.L.**, Wang, W., Chen, D., Martens, E., Zhou, S., and Zhou, Q. (1999) The Ski oncoprotein interacts with the Smad proteins to repress TGF- β signaling. *Genes Dev.* 13:2196-2206.

Stroschein, S.L., Wang, W., and Luo, K. (1999) Cooperative binding of Smad proteins to two adjacent DNA elements in the Plasminogen Activator Inhibitor-1 promoter mediates Transforming Growth Factor β -induced Smad-dependent transcriptional activation. *J. Biol. Chem.* 274:9431-9441.