

Approved by the
Regents
May 21, 2015

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF MOLECULAR AND INTEGRATIVE PHYSIOLOGY
DEPARTMENT OF COMPUTATIONAL MEDICINE AND BIOINFORMATICS

Santiago Schnell, D.Phil., associate professor of molecular and integrative physiology, with tenure, Department of Molecular and Integrative Physiology, and associate professor computational medicine and bioinformatics, without tenure, Department of Computational Medicine and Bioinformatics, Medical School, is recommended for promotion to professor of molecular and integrative physiology, with tenure, Department of Molecular and Integrative Physiology, and professor of computational medicine and bioinformatics, without tenure, Department of Computational Medicine and Bioinformatics, Medical School.

Academic Degrees:

D.Phil.	2003	University of Oxford, UK
B.S.	1996	Universidad Simón Bolívar, Venezuela

Professional Record:

2008-present	Associate Professor of Molecular and Integrative Physiology, University of Michigan
2013-present	Associate Professor of Computational Medicine and Bioinformatics, University of Michigan
2004-2008	Assistant Professor of Informatics, Indiana University

Summary of Evaluation:

Teaching: Dr. Schnell is an exemplary teacher. In the classroom, Dr. Schnell's primary involvement is the course, "Computational Systems Biology in Physiology." He designed and developed this course and presents 28 lectures per year. He also teaches in Biophysical Methods II (two lectures/year) and in the past has taught in Cell Physiology and Organogenesis of Complex Tissues. In addition, he co-supervises the weekly physiology student seminar and the monthly Systems Biology Journal Club. He is sought out by students and has served on 18 doctoral dissertation committees and 13 Prelim Exam committees. At the University of Michigan, he has supervised in research nine undergrad students, three master's students, eight Ph.D. students and four postdoctoral fellows. His teaching excellence has been recognized recently by several organizations including inaugural membership in the University of Michigan League of Educational Excellence, receipt of a University of Michigan Endowment of Basic Science Teaching Award, and Visiting Professor of Excellence at the University of Barcelona. He also co-organizes the departmental summer undergraduate research program, is the PI on a NIH grant supporting summer undergrads and is co-director of the Systems and Integrative Biology T32 predoctoral training grant.

Research: Over the last six years, Dr. Schnell has continued his primary research on the kinetics of enzymes in cytoplasm, started a new research area modeling protein folding and ER stress and initiated numerous additional collaborations. He has been extraordinarily successful in obtaining research funding. Dr. Schnell is currently listed on six external grants, one internal grant and one foundation grant which cover 88% of his effort. This has led to a number of collaborations at Michigan primarily in the Medical School. He has published 60 original papers, 15 reviews, five book chapters, and two books. A number of his papers have been featured on journal covers. As part of his research, he has mentored or co-mentored seven Ph.D. students, three M.S. students, nine undergrads and four post-doctoral fellows. He is recognized internationally for his research and as a result currently serves on four editorial boards and has served on multiple grant review panels including permanent membership on the NIH Modeling & Analysis of Biological Systems Study Section. He is invited to speak, organize and participate in conferences and workshops around the world as well as presenting many seminars at other universities. His honors include election as a fellow of the Royal Society of Chemistry in the UK and a 21st Century Award from the James S. McDonnell Foundation in the US.

Recent and Significant Publications:

Sandefur CI, Schnell S: A model of threshold behavior reveals rescue mechanisms of bystander proteins in conformational diseases. *Biophysical Journal* 100:1864-1873, 2011. (cover article)

Wynn ML, Kulesa P, Schnell S: Computational modeling of collective cell migration reveals mechanisms that sustain follow-the-leader chain behavior. *Journal of the Royal Society Interface* 9: 1576-1588, 2012.

Walton KD, Kolterudac A, Czerwinskia MJ, Bell M, Prakasha A, Kushwaha J, Grosse AS, Schnell S, Gumucio DL: Hedgehog-responsive mesenchymal clusters direct patterning and emergence of intestinal villi. *Proceedings of the National Academy of Sciences of United States of America* 109:15817-15822, 2012.

Shellman ER, Burant CF, Schnell S: Network motifs provide signatures that characterize metabolism. *Molecular BioSystems* 9:352-360, 2013. (cover article)

Mourão M, Kreitman D, Schnell S: Unravelling the impact of obstacles in diffusion and kinetics of an enzyme catalysed reaction. *Physical Chemistry Chemical Physics* 16:4492-4503, 2014. (cover article)

Service: Dr. Schnell has served on a number of committees at the University of Michigan and around the world. At Michigan, he served on the Physiology Graduate Program Committee, the Master's Degree Program in Physiology Development Committee, the Center for Computational Medicine and Bioinformatics Operating Committee, the MSTP Operating Committee and as faculty advisor to the Association of Multicultural Scientists Program in Biomedical Sciences. He has served on a number of advisory committees and review panels around the US and the world including the Bellman Prize Committee and the Mathematical Bioscience Institute Advisory Committee at Ohio State University. He has served on a number of committees of the Society of Mathematical Biology and is currently chair of the Finance Committee and president

elect of the Society. He also serves on the Minority Affairs Committee of the Biophysical Society and is a life member of the Society for the Advancement of Chicanos/Latinos and Native Americans in Science (SACNAS). He serves on the editorial boards of five journals and has served on several NSF grant review committees and is currently a permanent member of the Modeling & Analysis of Biological Systems Study Section. He has also reviewed grants for a number of European organizations including the French National Cancer Institute and the Human Frontier Science Program.

External Reviewers:

Reviewer A: "Since receiving his PhD, Dr. Schnell has been very much involved in mentoring students...Significantly, he has also received funding for many of his students and postdocs. Writing the proposal or application package is a very good experience for the student, and being awarded the grant demonstrates high quality mentoring. His former students and postdocs have also gone on to very good positions in academia and industry. You can't ask for better mentoring than what Dr. Schnell provides...I believe that Dr. Schnell is a rising star in the biomathematics field. Evidence for this is his recent election as the President of the Society for Mathematical Biology. He is also a standing member of the MABS study section of the NIH. This is the only study section dedicated to proposals involving considerable mathematics, and membership on this study section is very highly regarded by the community."

Reviewer B: "Dr. Schnell has an outstanding track record of scholarship and his work has made, and continues to make, a major impact on the field...He is President-elect of the Society for Mathematical Biology (the premier learned Society in the field), has served on an extraordinary number of scientific meeting committees. Overall his levels of service are exemplary."

Reviewer C: "His research output in printed articles is very impressive and indicates the wide diversity of areas in which he has made major contributions."

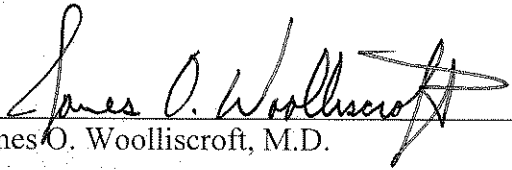
Reviewer D: "In addition to his strengths in research, he has contributed a great deal to the development of mathematical biology and is highly respected in the field..."

Reviewer E: "I consider Santiago to be in the top rank of mathematical biologists practicing today. This is based on the size and diversity of his contributions to the mathematical and cognate experimental literature, both original articles and reviews, and the extent to which they have been cited."

Reviewer F: "Dr. Schnell has persistently served the scientific community in numerous ways. He has reviewed articles for about 70 different journals and several book publishers, and served as a grant evaluator for a large number of funding agencies...Dr. Schnell has been an excellent citizen. His research is impressive, his funding is excellent, and he has a superb scientific reputation nationwide."

Summary of Recommendation:

Dr. Schnell is a highly valuable, collaborative and productive member of multiple departments and centers. His record of research accomplishments and his contributions to teaching and service to the department, university and other professional organizations are all stellar. I am pleased, therefore, to recommend Santiago Schnell, D.Phil. for promotion to professor of molecular and integrative physiology, with tenure, Department of Molecular and Integrative Physiology, and professor of computational medicine and bioinformatics, without tenure, Department of Computational Medicine and Bioinformatics, Medical School.

A handwritten signature in black ink, reading "James O. Woolliscroft". The signature is written in a cursive style with a horizontal line underneath it.

James O. Woolliscroft, M.D.

Dean

Lyle C. Roll Professor of Medicine

May 2015