

PROMOTION RECOMMENDATION
The University of Michigan
College of Pharmacy

Steven P. Schwendeman, associate professor of pharmaceutical sciences, with tenure, Department of Pharmaceutical Sciences, College of Pharmacy, is recommended for promotion to professor of pharmaceutical sciences, with tenure, Department of Pharmaceutical Sciences, College of Pharmacy.

Academic Degrees:

Ph.D./M.S. 1992 University of Michigan
B.S.E. 1986 University of Michigan

Professional Record:

2002-present Associate Professor of Pharmaceutical Sciences, with tenure, Department of Pharmaceutical Sciences, College of Pharmacy, University of Michigan
2000-2002 Assistant Professor of Pharmaceutical Sciences, Department of Pharmaceutical Sciences, College of Pharmacy, University of Michigan
1995-2000 Assistant Professor, Division of Pharmaceutics, College of Pharmacy, The Ohio State University

Summary of Evaluation:

Teaching: Professor Schwendeman is a very dedicated, effective, and innovative teacher who participates in both the College's professional degree program, as well as the graduate program. He is well-received by our students as evidenced by his remarkable teaching evaluation scores ranging from 3.8 to 4.5 (out of 5.0), despite the difficulty of the subject matter that he teaches. In addition, Professor Schwendeman has provided research training to a large number of graduate students, postdoctoral fellows, and research staff, having graduated seven doctoral students and mentored six postdoctoral fellows and one visiting scientist. He is currently mentoring five graduate students and three postdoctoral fellows in his laboratory. His commitment to teaching is excellent.

Research: Professor Schwendeman is an outstanding scientist who is recognized nationally and internationally as one of the leading scientists worldwide in the area of protein stability. Since his promotion to associate professor five years ago, he has published 21 articles in high impact journals, 19 of which list him as the first and/or corresponding author. What distinguishes Professor Schwendeman most from other scientists in his field is his ability to combine polymer science, microencapsulation techniques, and protein stability in addressing the fundamental physical and chemical properties of the microenvironment of the PLGA-based carriers in delivering macromolecular drugs such as protein drugs and vaccines. Because of this unique expertise, Professor Schwendeman is highly sought after by scientific organizations for symposia, where he has delivered 28 invited lectures. He is also very successful in securing and maintaining funding for his research, garnering support from NIH as well as from the pharmaceutical industry.

Recent and Significant Publications

Wang, J., Wang, B. M. and Schwendeman, S. P., Characterization of the initial burst release of a model peptide from poly(D,L-lactide-co-glycolide) microspheres, *J. Controlled Release*, **82**, 289-307 (2002).
Kang, J. and Schwendeman, S. P., Determination of diffusion coefficient of a small hydrophobic probe in poly(lactide-co-glycolide) microparticles by laser scanning confocal microscopy, *Macromolecules*, **36**, 1324-1330 (2003).
Wang, J., Wang, B. M. and Schwendeman, S. P., Mechanistic evaluation of the glucose-induced reduction in initial burst release of octreotide acetate from poly(D,L-lactide-co-glycolide) microspheres, *Biomaterials*, **25**, 1919-1927 (2004).

Jiang, W., Deshpande, M., Gupta, R. K. and Schwendeman, S. P., Biodegradable poly(lactic-co-glycolic acid) microparticulates for injectable controlled antigen delivery, *Adv. Drug Del. Rev.*, **57**, 391-410 (2005).

Ding, A. G., Shenderova, A. and Schwendeman, S. P., Prediction of microclimate pH in poly(lactic-co-glycolic acid) films, *J. Am. Chem. Soc.*, **128**, 5384-5390 (2006).

Service: Professor Schwendeman exhibits an excellent record of professional service. He is a valuable citizen of the College, having served as a member of several important committees, including the Academic Standing and Teaching Effectiveness Committees, as well as coordinating the graduate enrollment activities for the Department of Pharmaceutical Sciences. He is also an excellent citizen of his profession, maintaining membership in several professional societies. Professor Schwendeman currently serves as an associate editor of the *Journal of Controlled Release* and as an editor of *Pharmaceutical Research*. He has also served as an ad hoc reviewer for several prestigious journals, including *Proc. National Acad. Sci.*, *Nature*, and *Biomaterials*. One of his most distinguished service achievements is his recent selection to the membership of the NIH Biomaterials and Biointerfaces (BMBI) Study Section.

External Reviewers:

Reviewer A: "Dr. Schwendeman's professional career reflects exactly what you would like to see from a candidate. He has been active in different disciplines and institutions and challenges himself continuously with new approaches and ideas reflecting his creative mind. ... Dr. Schwendeman's output reflects high productivity. ... The papers are of top quality and were published in excellent journals. ... the quality of his scientific work has been excellent. ... he is one of the worldwide leading experts. ... Dr. Schwendeman's service to the scientific community is substantial. ... He holds great promise as an excellent scientist working on unique topics in the biomedical field."

Reviewer B: "His work...has been ground breaking... His publication list is excellent. ... His work is well received by the scientific community as reflected by the high number of citations his papers received."

Reviewer C: "I believe that Steve Schwendeman has few, if any, peers in the...field. ... The Controlled Release Society recognized Steve's studies by its Young Investigator Award in 2002. He won this major international award [at a very early stage in his career]. ... Dr. Schwendeman has become a major presence in the field."

Reviewer D: "Dr. Schwendeman is a leading scientist in the areas of protein delivery. His research...is outstanding. Dr. Schwendeman's publication record is excellent and demonstrates that he is a creative, productive, and energetic research investigator. I have the highest regard for Dr. Schwendeman both as a teacher and an intellectual. ...his scientific achievements are well recognized by his peers. ... I witnessed the outstanding contribution of Dr. Schwendeman to the successful evaluation of grant proposals in his area of expertise."

Reviewer E: "...he has become a leader...with a large number of excellent publications, and significant funding from federal institutions and industry. ... Dr. Schwendeman has done pioneering research in a number of fields. In reading a sampling of his articles, I am struck by the fact that his studies are very well-designed, with particular attention to theoretical basis, quantitative treatment, statistical rigor and experimental design. They are concerned with very important issues... The discovery of spontaneous aqueous pore closing in PLGA is another fascinating finding of a very high practical value as it led to a new approach for self microencapsulation. ... In addition to his originality, high quality and impact of research, Steven also significantly contributed in teaching and service... Dr. Schwendeman is an extremely impressive scientist, and a world leader in the field. ...his research addresses important scientific matters with immediate and obvious relevance to medicine."

Reviewer F: "Steve has made numerous important research contributions. ... I view him as one of the international leaders in the study of protein stability. ... Steve has excellent collaboration, management, and teaching skills. His numerous national and international invitations to lecture speak to the quality of his research as well as his ability to teach."

Reviewer G: "What most impressed me about Dr. Schwendeman was the quality of his publications in the Journal of Controlled Release. Each one of these papers are a source of information to all of my students. ... He is an accomplished scientist, creative and dedicated teacher who is well received nationally..."

Reviewer H: "Steve is generally acknowledged to be one of the world's experts on the controlled release of macromolecules from polymer-based delivery vehicles. In particular, I think it is fair to say that the scientific community in this area regard him as THE EXPERT on the subject... His papers...are widely recognized to be of fundamental importance and serve as a critical guide to scientists..."

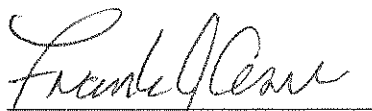
Reviewer I: "I believe that Steve represents the best quality that the drug delivery field is proud of, and I was able to elevate the quality of the *Journal of Controlled Release* to another higher level by simply appointing Steve as one of the editors. I don't think I need to say any more about Steve how highly I think of him."

Reviewer J: "In my judgement, Dr. Schwendeman is one of the top 3 international researchers investigating kinetics and mechanism using rigorous, academic techniques. ... (His exceptionally high priority scores from NIH are excellent evidence for the importance of his basic and applied work with protein-loaded microspheres.)"

Reviewer K: "...it is clear that Steve has done very well in all aspects of his professional position... The overall quality of his published work is really outstanding. There are no shortcuts in his science. Indeed, I have always been greatly impressed with the rigorous detail with which Steve pursues his research."

Summary of Recommendation

Professor Schwendeman is an outstanding scholar whose performance in teaching, research, and service is exemplary. He has demonstrated a strong commitment to furthering the objectives and goals of the College of Pharmacy, is a dedicated teacher, and is a recognized leader in the pharmaceutical sciences community with an international reputation. It is with the enthusiastic support of the College of Pharmacy Executive Committee that I recommend Steven P. Schwendeman for promotion to professor of pharmaceutical sciences, with tenure, in the Department of Pharmaceutical Sciences, College of Pharmacy.



Frank J. Ascione
Dean, College of Pharmacy

May 2008