

PROMOTION RECOMMENDATION
UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF PHARMACOLOGY

John J. G. Tesmer, Ph.D., associate professor of pharmacology, with tenure, Department of Pharmacology, Medical School, is recommended for promotion to professor of pharmacology, with tenure, Department of Pharmacology, Medical School [also being promoted to research professor, Life Sciences Institute].

Academic Degrees:

Ph.D.	1995	Purdue University
B.A.	1990	Rice University

Professional Record:

2005-present	Associate Professor of Pharmacology, University of Michigan
2005-present	Research Associate Professor, Life Sciences Institute, University of Michigan
1999-2005	Assistant Professor, Department of Biochemistry, University of Texas at Austin
1999-2005	Fellow, Institute for Cellular and Molecular Biology, University of Texas at Austin

Summary of Evaluation:

Teaching: Dr. Tesmer has made major contributions to the teaching missions of the department, Medical School, and the University. He has participated in department graduate courses such as Pharmacology 501, Pharmacology 502, Pharmacology 602, and Pharmacology 619, and in University (LS&A) undergraduate courses such as Chemistry 453 and Chemistry 463/575. Dr. Tesmer has earned high marks from students and colleagues alike in terms of his organization; his ability to make the material interesting; his enhancing student understanding; and the respect and professional behavior he exhibits to students. In all of the courses he has taught, Dr. Tesmer has proven to be an excellent communicator and teacher. Dr. Tesmer has also excelled in graduate student mentoring of pre and postdoctoral fellows. His students have been highly productive with numerous publications in high quality journals. Because of his reputation, he is routinely asked to serve on the thesis committees of graduate students not only in Pharmacology, but in Cellular and Molecular Biology, Chemical Biology, Biological Chemistry, Biophysics, and Microbiology and Immunology.

Research: Dr. Tesmer's primary area of research interest has been the study of the structural biology and mechanism of the G protein-coupled receptor (GPCR). His focus has been on important protein complexes relevant to the function and regulation of the heterotrimeric G proteins. With his expertise in crystallography, analytical methods, and biochemistry, he has developed strategies to understand cellular structure and signal transduction biology and is viewed as an outstanding scientist who has made very seminal discoveries in a very short period

of time. He has successfully established his own research program and he has been credited with being one of the first structural investigators to bridge the gap between the structural biologists and the biochemists/molecular pharmacologists. Using X-ray crystallography, he and his colleagues have identified the atomic structures of various GPCRs alone and in complexes with various targets in signal transduction pathways and have gained several valuable insights into the molecular basis of signal transduction as well as into disease states related to aberrations in the regulation of these pathways. Dr. Tesmer has 20 peer-reviewed publications in high quality, peer-reviewed journals such as the *Journal of the American Chemical Society*, *Biochemistry*, the *Journal of Biological Chemistry*, *Genes and Development*, the *Journal for Molecular Biology*, and *Science*. He has also been asked to write a number of invited review articles in the most rigorous peer-reviewed journals, including the *Journal of Biology*, *Molecular Pharmacology*, *Nature Structural and Molecular Biology*, and *Science*. He has been successful in obtaining support for his research program. He is currently the principal investigator on two R01s as well as one R03. He was also successful in obtaining an ARRA grant and is a co-investigator on another R01. His work on the G-protein receptor structure has also led to invitations to present his research at a number of national and international meetings, and other institutions have actively recruited him. His work forms the basis upon which investigators are designing RGS inhibitors that may be of significant therapeutic value for the treatment of diseases affecting the nervous, immune, or cardiovascular systems.

Recent and Significant Publications:

Tesmer VM, Kawano T, Shankaranarayanan A, Kozasa T and Tesmer JJG: Snapshot of activated G proteins at the membrane: the $G\alpha_q$ -GRK2-G $\beta\gamma$ complex. *Science* 310:1686-1690, 2005.

Lutz S, Shankaranarayanan A, Coco C, Nance M, Vettel C, Baltus D, Evelyn C, Neubig R, Wieland T and Tesmer JJG: Structure of $G\alpha_q$ -p63RhoGEF-RhoA complex reveals a pathway for the activation of RhoA by GPCRs. *Science* 318:1923-1927, 2007.

Shankaranarayanan A, Thal DM, Tesmer VM, Roman DL, Neubig RR, Kozasa T and Tesmer JJG: Assembly of high order $G\alpha_q$ -effector complexes with RGS proteins. *J Biol Chem* 283:34923-34934, 2008.

Huang C, Yoshino-Koh K and Tesmer JJG: A surface of the kinase domain critical for the allosteric activation of G protein-coupled receptor kinases. *J Biol Chem* 284:17206-17215, 2009.

Boguth CA, Singh P, Huang C-c and Tesmer JJG: Molecular basis for activation of G protein-coupled receptor kinases. *EMBO J*, 2010, in press.

Service: Dr. Tesmer actively participates on a number of committees in the department, the Medical School, and in the University. Since 2007, he has been the University of Michigan representative for the Life Sciences Collaborative Access Team (LS-CAT) at the Argonne National Labs Advanced Photon Source. In 2009, he was appointed as faculty mentor for the Life Sciences Institute Perrigo Undergraduate Fellowship Program, and in 2007 he was a member of the department's tenure review committee. Dr. Tesmer also has outstanding national and international visibility. He has served as an *ad hoc* reviewer for many top tier scientific journals and is on the editorial board of the *Journal of Biological Chemistry*. He has served on

several NIH review panels and study sections, as well as a study section of the American Heart Association. He has also been elected to a variety of different leadership positions including serving as a member of the ASPET (American Society of Pharmacology and Experimental Therapeutics) Molecular Pharmacology Executive Committee, and the ASPET Awards Committee. He has been a co-organizer of the Annual GPCR Retreat, and he has received numerous invitations to speak at national/international symposia including the Gordon Research Conference, the American Society for Biochemistry and Molecular Biology (ASBMB), and a number of prestigious universities such as the University of Heidelberg, the University of Montreal, Purdue University, the University of Texas Medical School, and Wake Forest University. He has been recognized in a variety of ways including being elected to chair the Gordon Conference on Phosphorylation and G Protein Mediated Signaling Networks in 2012. In addition, his accomplishments and contributions to the field have been recognized by a number of major awards that he has received including the Basic Science Research Award from the University of Michigan Medical School in 2008; the John Jacob Abel Award from ASPET in 2009; and the ASBMB Young Investigator Award in 2010.

External Review:

Reviewer A: "...I am certain that John would be granted promotion to professor at our institution. He has tackled important and difficult problems with spectacular success. He has a stellar international reputation, obtained substantial external funding, and attained key positions of leadership and service to the field."

Reviewer B: "He works on important problems and has the experimental skill, patience and ingenuity to achieve highly difficult structural feats. He is also active in the broader community, participating appropriately in national service functions including NIH panels and the editorial board of J. Biol. Chem...I believe that John would meet the criteria for promotion to Full Professor at [my institution]..."

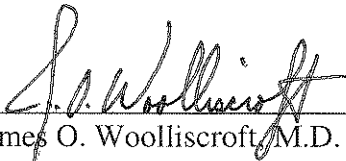
Reviewer C: "...I believe Dr. Tesmer's outstanding research accomplishments, and his commitment to service and teaching are consistent with the efforts of other highly successful candidates for promotion and tenure at other top institutions. Dr. Tesmer's record in research, funding, teaching and service certainly would place him in a very favorable position for (certain) promotion to Full Professor within [my institution]."

Reviewer D: "Dr. Tesmer is a very talented and highly respected structural biologist addressing important and challenging questions in GPCR signaling and regulation...His work is of the highest quality....Dr. Tesmer has few contemporaries in this very challenging field."

Reviewer E: "I support the proposed promotion of Dr. Tesmer to full Professor without reservation. He definitely meets the requirements for promotion and would be proposed in this same time frame at my institution....Dr. Tesmer's publications are of uniform high quality...are top-notch and represent groundbreaking advances in the field."

Summary of Recommendation:

Dr. Tesmer is a nationally and internationally recognized structural biologist with expertise in signal transduction and receptor mechanisms who has made seminal contributions to understanding the structure of G-protein coupled signaling at the molecular level. He has emerged as a leader in the field and is recognized for his talents in biochemistry, biophysics, molecular biology, and crystallography. He has also shown a commitment to teaching and has made valuable service contributions to the teaching of graduate students and postdoctoral fellows in the laboratory, as well as to his department. I am very pleased to recommend Dr. Tesmer for promotion to professor of pharmacology, with tenure, Department of Pharmacology, Medical School.



James O. Woolliscroft, M.D.

Dean

Lyle C. Roll Professor of Medicine

May 2011