

TENURE RECOMMENDATION
UNIVERSITY OF MICHIGAN MEDICAL SCHOOL
DEPARTMENT OF PHARMACOLOGY

John J. G. Tesmer, Ph.D., is recommended for the granting of tenure to be held with his title of Associate Professor of Pharmacology, Department of Pharmacology, Medical School. [He also holds the title of Research Associate Professor in the Life Sciences Institute.]

Academic Degrees:

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

Professional Record:

2004-Present	Associate Professor of Pharmacology and Research Associate Professor, Life Sciences Institute, University of Michigan
1999-2004	Assistant Professor of Biochemistry, University of Texas at Austin

Summary of Evaluation:

Teaching: As an Assistant Professor in the Department of Chemistry and Biochemistry at the University of Texas in Austin, Dr. Tesmer was recruited to participate in the department's teaching mission and to fill a void in the general area of structural biology and biochemical/molecular pharmacology. In that capacity, Dr. Tesmer was very heavily involved in teaching Biochemistry, Techniques of Research, and a Chemistry Honors Tutorial to undergraduates; and a Biochemistry Seminar course, a Structural Biology Seminar course, and a Biomolecular Structure Determination course to graduate students. His teaching evaluation for 2003 was an instructor rating of 4.4 on a 5 point scale. Also, for his teaching contributions, Dr. Tesmer received the College of Natural Sciences 2004 Teaching Excellence Award. Additionally, Dr. Tesmer has participated on numerous Dissertation Committees and mentored seven doctoral students. He organized and established a new curriculum in the Structural Biology Graduate Track at the Institute for Molecular and Cellular biology which included the design and implementation of two graduate-level courses, Biomolecular Structure Determination and Structural Biology Seminar. He also designed and implemented the related Structural Biology Track (ICMB) web site.

At the University of Michigan, Dr. Tesmer is serving on the graduate committee for two Pharmacology students and one Biological Chemistry student and has supervised the rotation of three students. He also participates in the teaching of Biophysics 602, presenting lectures that cover the fundamentals of macromolecular structure determination by X-ray crystallography. In Fall term 2006 he will lecture in Chemical Biology 501, which will cover protein folding and ligand interactions.

Research: Dr. Tesmer has made a number of contributions in studying G-protein receptors. His focus has been on important protein complexes relevant to the function and regulation of the

heterotrimeric G proteins. His work on GRK2 culminated in what is viewed as one of the top papers published in the signal transduction field in 2003. This work has opened up the field of receptor regulation and will likely lead to additional new insight into how GRKs function to regulate signaling. As indicated, Dr. Tesmer's laboratory is credited with solving the structure of G protein coupled receptor kinase 2 in complex with G $\beta\gamma$. With his expertise in crystallography, analytical methods, and biochemistry, Dr. Tesmer has developed strategies to understand cellular structure and signal transduction biology and is viewed as an outstanding young scientist who has very rapidly established his own research program. He has been credited with being one of the first structural investigators to truly bridge the gap between the structural biologists and the biochemists/molecular pharmacologists. Through a combination of creative thinking and hard work, he has been able to solve difficult problems. He is effective at implementing solutions and has the broad vision to keep his research focused on important biological questions as evidenced by his successful funding and invitations to speak at the Gordon Conference, the ASBMB Meeting, and the EMBL Signaling Meeting.

Dr. Tesmer is very well organized and is very capable of working independently. He has 23 publications in high quality, peer-reviewed journals such as *Biochemistry*, the *Journal of Biological Chemistry*, *Cell*, the *Journal for Molecular Biology*, *Proteins*, and *Science*, as well as five invited review articles. His work on the G-protein receptor structure has led to invitations to present his research at a number of national and international meetings, and other institutions have actively recruited him. Dr. Tesmer's research has been recognized by his success in obtaining an NIH grant with a funding score in the 1st percentile, research support from the American Heart Association, and support from the American Cancer Society.

Even while carrying a substantial teaching load and a large service commitment in the department of Biochemistry at the University of Texas, Dr. Tesmer was able to build a very successful research program. He has been described as smart, curious, and a joy to interact with while 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:

Kreutz B, Yau DM, Nance M, Tanabe S, Tesmer JJG, Kozasa T: A new approach to producing functional G α subunits yields the activated and deactivated structures of G $\alpha_{12/13}$ proteins. *Biochemistry* 45(1):167-174, 2006. (co-corresponding author)

Lodowski DT, Barnhill JF, Pyskadlo RM, Ghirlando R, Sterne-Marr R, Tesmer JJG: The role of G $\beta\gamma$ and domain interfaces in the activation of G protein-coupled receptor kinase 2. *Biochemistry* 44:6958-6970, 2005.

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

Kristelly R, Gao G, Tesmer JJG: Structural determinants of RhoA binding and nucleotide exchange in leukemia-associated RhoGEF. *J Biol Chem* 279:47352-47362, 2004.

Day PW, Tesmer JJG, Sterne-Marr R, Freeman LC, Benovic JL and Wedegaertner PB: Characterization of the GRK2 binding site of G α_q . J Biol Chem 279(51):53643-53652, 2004.

Service: Dr. Tesmer serves as a referee for several peer-reviewed journals including *Science*, *Nature*, *Journal of Biological Chemistry*, *Journal of Molecular Biology*, and *Biochemistry*. He is a co-organizer for the 8th Annual GPCR Retreat, a regional international meeting to be held in October 2006 and serves on the 2006 review board (Basic Cell & Molecular Biology Study Group) for the national affiliation of the American Heart Association.

External Review:

Reviewer A: "...John is a star whose research interests synergize perfectly with those of many outstanding investigators at Michigan....if John was being recruited as a faculty member at our institution there is no question that he would be appointed as associate professor with tenure."

Reviewer B: "I have no doubt that he will continue to be a leader in the structural biology of signaling field and that he should have no problem maintaining a funded top level research program."

Reviewer C: "I have no doubt that Tesmer's research program will be well-funded for decades to come, and he will continue to be an internationally prominent leader in defining mechanism/structure in signaling proteins."

Reviewer D: "I think the truly unique thing about his work is his creative ability to draw biological and functional insights from the structures he has obtained and these have provided overarching principles for large classes of family member proteins."

Reviewer E: "As Chair of the Department of Pharmacological Sciences, I can state without reservation that Dr. Tesmer, based upon his outstanding record of research accomplishments and scholarly activity would receive unanimous approval for appointment to the rank of Associate Professor with tenure..."

Reviewer F: "His publications have been outstanding and have advanced our understanding of G-protein coupled signaling at the molecular level."

Reviewer G: "...Dr. Tesmer's contributions as an independent investigator have been of excellent quality..."

Summary of Recommendation:

Dr. Tesmer is a nationally and internationally recognized structural biologist with expertise in signal transduction and receptor mechanisms who has made significant 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, 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 tenure to be held in conjunction with his title of Associate Professor of Pharmacology.



Allen S. Lichter, M.D., Dean
*Newman Family Professor
of Radiation Oncology*

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