

PROMOTION RECOMMENDATION
UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF MOLECULAR AND INTEGRATIVE PHYSIOLOGY
COLLEGE OF ENGINEERING
DEPARTMENT OF BIOMEDICAL ENGINEERING

Approved by the Regents
May 20, 2010

Susan Brooks Herzog, Ph.D., associate professor of molecular and integrative physiology, without tenure, Department of Molecular and Integrative Physiology, Medical School, and assistant professor of biomedical engineering, Department of Biomedical Engineering, College of Engineering, is recommended for the granting of tenure to be held with her appointment as associate professor of molecular and integrative physiology, Department and Molecular and Integrative Physiology, Medical School, and promotion to associate professor of biomedical engineering, without tenure, Department of Biomedical Engineering, College of Engineering.

Academic Degrees:

Ph.D.	1992	University of Michigan (Bioengineering)
M.S.E.	1987	University of Michigan
M.S.	1987	University of Michigan (Bioengineering)
B.S.E.	1985	University of Michigan

Professional Record:

2003-present	Associate Professor of Molecular and Integrative Physiology, University of Michigan
1997-present	Assistant Professor of Biomedical Engineering, University of Michigan
2003-2006	Research Associate Professor, Institute of Gerontology, University of Michigan
1995-2003	Assistant Professor of Molecular and Integrative Physiology, University of Michigan
1995-2003	Assistant Research Scientist, Institute of Gerontology, University of Michigan
1994-1995	Lecturer, Department of Physiology, University of Michigan

Summary of Evaluation:

Teaching: Dr. Brooks Herzog is an enthusiastic and highly effective teacher both in the classroom and the laboratory. Her main teaching is in Physiology 510 (Systems & Integrative Physiology) where she presents five to six hours of lecture and, since 2007, has served as course director. This course is taken by about 15 PIBS (Program in Biomedical Science) students annually. Her other major classroom teaching is in BME 419, BME 519/Physiology 519 (Quantitative Physiology). This course, which she developed and nurtured, is for BME undergraduates and graduate students and is taken by about 100 undergraduates and 40 graduate students annually. She presents six to eight hours of lecture and, in 2005 and 2009, served as

course director. Students rate her teaching as excellent to outstanding and comment on her enthusiastic presentation, the quality of her presentation, the organization of material and the fairness of her approach. In addition, she presents annual lectures to orthopaedic residents and undergraduate students and facilitates small group conferences for medical students. In the laboratory, Dr. Brooks Herzog has supervised 13 graduate student research rotations, mentored five Ph.D. students, three of whom have graduated. She is co-mentoring three other Ph.D. students, and has supervised 16 undergraduate students, in addition to serving on over 30 preliminary committees and over 20 dissertation committees, which are important teaching exercises.

Research: Dr. Brooks Herzog's research has focused on structure-function relationships in skeletal muscle and tendon and their response to injury. Most of her recent work uses mice as models, but the work is highly applicable to humans. She maintains an independent research program evaluating contraction induced injury, defects in muscle regeneration and the decline in skeletal muscle function with aging. This work is supported by a NIH R01 grant. She also collaborates extensively and effectively. This began with the group headed by John Faulkner and she is the associate director of a program project grant to Dr. Faulkner. It is anticipated that the PIship of this program project will be transferred to Dr. Brooks Herzog next year when Dr. Faulkner retires. She has also collaborated with Jeffrey Chamberlain (now at the University of Washington) on models of muscular dystrophy, with Richard Miller on age-sensitive phenotypes and John DeLancey and James Ashton-Miller on skeletal muscle injury of pelvic floor muscles. She has consistently had 50-80% of her effort and salary covered by external grants. She published 33 peer-reviewed papers in top journals in her field, and 24 book chapters, and frequently receives invitations to present her work. Her expertise is recognized by a number of journals that call on her to review papers, and she recently began serving as associate editor for the *Journal of Gerontology: Biological Sciences*. She reviews grants for the NIH, NSF, Natural Sciences and Engineering Research Council of Canada and the Wellcome Trust.

Recent and Significant Publications:

Claflin DR, Brooks SV: Direct observation of failing fibers in muscles of dystrophic mice provides mechanistic insight into muscular dystrophy. *American Journal of Physiology: Cell Physiology* 294:C651-C658, 2008.

Brooks SV, Vasilaki A, Larkin LM, McArdle A, Jackson MJ: Reported bouts of aerobic exercise lead to adaptations in free radical generation and NF κ B activation by skeletal muscles of mice. *Journal of Physiology* 596:3979-3990, 2008.

Consolino CM, Duclos F, Lee J, Williamson R, Campbell KP, Brooks SV: Limb muscles of mice deficient in α -sarcoglycan maintain large muscle masses and near control levels for force throughout the life span. *Physiological Genomics* 22:244-256, 2005.

Consolino CM, Brooks SV: Susceptibility to injury induced by single stretches of maximally activated muscles of *mdx* mice. *Journal of Applied Physiology* 96:633-638, 2004.

Koh TJ, Peterson JM, Pizza FX, Brooks SV: Passive stretches protect skeletal muscles of adult and old mice from lengthening contraction-induced injury. *Journal of Gerontology* 58A:B592-B597, 2003.

Service: Dr. Brooks Herzog has carried a significant service load within the Medical School and the Bioengineering Program. She has served on the Graduate Affairs Committee of the Department of Molecular and Integrative Physiology, and on the Graduate Education Committee of the Department of Biomedical Engineering. In the Geriatrics Center she has served as director of the Research and Development Core of the Nathan Shock Center for Basic Biology of Aging since 2005 and on the Steering Committee since 1999. She also serves on the Steering Committee of the T32 Training Program in the Biology of Aging. In the Medical School she is currently serving on the Biomedical Research Council. Outside the University she serves on the Career Opportunities in Physiology Committee and on the Scientific Advisory Council of the American Federation for Aging Research of the American Physiological Society, and serves in journal editing.

External Review:

Reviewer A: “Dr. Brooks is a nationally and internationally recognized scientist in the area of skeletal muscle physiology and mechanics...she has an outstanding publication record with many high profile and high impact publications.”

Reviewer B: “Dr. Brooks has taken an active part in national peer organizational services, serving as Associate Editor for the *Journal of Gerontology*, acted as reviewer for a number of highly ranked physiological and gerontological journals and reviewed research grants for major federal and academic funding agencies, nationally and internationally.”

Reviewer C: “Dr. Brooks also has significant teaching and mentoring achievements, including several successful former students and a scholarly article on teaching of physiology. Given that research is the primary expectation for Dr. Brooks, these achievements are very good...I will rank Dr. Brooks as among the best in her field, and among the best candidates I have reviewed for tenure.”

Reviewer D: “She is a gifted scientist with a thorough, thoughtful approach to the design, implementation and interpretation of experiments. Her abilities as a research scientist have clearly been recognized, evidenced by her reviewing responsibilities, her invitations to present her work at national and international meetings, and by her extramural funding.”

Reviewer E: “Her capacity to sustain productive, high-caliber research programs with colleagues in Texas and Great Britain is impressive, a model for modern interdisciplinary teams.”


Reviewer F: “She has several truly landmark publications that I believe will have a major impact in basic science as well as clinical translation.”

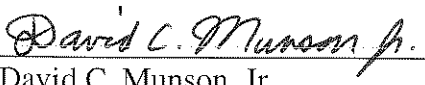
Reviewer G: "The number of students/postdoctoral fellows Dr. Brooks has mentored/advised is remarkable. I was impressed with the number of awards some of them received, indicating that she is showing them the way toward academic success...Taken together with her formal course load, Dr. Brooks' dedication to developing the next generation of biomedical researchers is excellent."

Reviewer H: "To facilitate this published research she has been awarded an independent NIH grant...as well as several multiple PI grants. In addition, she has also served as a grant reviewer for a variety of agencies, both domestic and foreign, and has reviewed manuscripts for about 20 different professional journals. Thus, I conclude that she is making significant contributions with regard to peer review in her field."

Summary of Recommendation:

Dr. Susan Brooks Herzog is an outstanding teacher, mentor and researcher in the field of aging and muscle function. She exemplifies collaborative as well as individual science and her research has important implications for human health. We are very pleased to recommend her for the granting of tenure to be held with her title of associate professor of molecular and integrative physiology, Medical School, and for promotion to associate professor, without tenure, in the Department of Biomedical Engineering, College of Engineering.


James O. Woolliscroft, M.D.
Dean
Lyle C. Roll Professor of Medicine


David C. Munson, Jr.
Robert J. Vlasic Dean of Engineering
College of Engineering

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