PROMOTION RECOMMENDATION
UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF OBSTETRICS AND GYNECOLOGY
DEPARTMENT OF MOLECULAR AND INTEGRATIVE PHYSIOLOGY
DEPARTMENT OF UROLOGY

Approved by the Regents
May 20, 2010

Gary D. Smith, Ph.D., associate professor of obstetrics and gynecology, with tenure, Department of Obstetrics and Gynecology, associate professor of molecular and integrative physiology, without tenure, Department of Molecular and Integrative Physiology, and associate professor of urology, without tenure, Department of Urology, Medical School, is recommended for promotion to professor of obstetrics and gynecology, with tenure, Department of Obstetrics and Gynecology, professor of molecular and integrative physiology, without tenure, Department of Molecular and Integrative Physiology, and professor of urology, without tenure, Department of Urology, Medical School [also being promoted to research professor, Reproductive Sciences Program, Medical School].

Academic Degrees:

Ph.D.	1993	Washington State University
M.S.	1989	Oregon State University
B.S.	1987	Oregon State University

Professional Record:

2002-present	Associate Professor of Obstetrics and Gynecology, Molecular and Integrative Physiology, and Urology, University of Michigan
1998-2002	Assistant Professor of Obstetrics and Gynecology and Physiology, University of Michigan
1998-present	Research Assistant Professor, Reproductive Sciences Program, University of Michigan
1995-1998	Assistant Professor of Obstetrics and Gynecology, University of Chicago

Summary of Evaluation:

Teaching: Dr. Gary Smith is involved in educational programs at all levels, from undergraduate through fellow faculty members. He regularly participates as a lecturer for Women's Studies undergraduate courses, with medical students both in didactics and hands-on in the Assisted Reproductive Technologies (ART) Laboratory, with graduate students in his laboratory in the area of gamete/embryo/human embryonic stem cell biology. He regularly presents lectures to residents and fellows from Obstetrics and Gynecology as well as Urology and, most recently, through an international collaboration between the University of Michigan and the University of Sao Paulo. Within the Department of Molecular and Integrative Physiology, he has supervised

two Ph.D. students who have now graduated. Nationally and internationally, he regularly participates in continuing medical education in the field of andrology, embryology, and assisted reproductive technologies. During his career, Dr. Smith has been involved in the hands-on training of over 600 individuals in oocyte vitrification and warming in North America, Central America, South America, Europe, Australia and Asia.

Research: Dr. Smith is nationally and internationally recognized for his expertise in the area of oocyte developmental biology, cryobiology, and integration of micro- and nanotechnologies into practical applications with gametes, preimplantation embryos, and human embryonic stem cells. His research and scholarship have focused on understanding intra-oocyte kinase/phosphatase pathways regulating meiotic chromatin remodeling and segregation in relation to oocyte-derived aneuplodies; understanding and circumventing oocyte intracellular cryodamage with vitrification; and use of microfluidics and hydrogel technologies to regulate microenvironments and improve culture conditions for gametes, embryos, and stem cells. He currently serves as principal investigator on NIH funded grants involved in the study of insulin signaling pathways and oocyte development, and importance of microenvironment mediated somatic cell/gamete interactions in oocyte meiosis. He has 50 published articles in peerreviewed journals with seven currently under consideration for publication. In addition, he has authored or co-authored 12 chapters in scientific texts and has presented innumerable abstracts and posters at local, national and internationally scientific meetings.
Recent and Significant Publications:

Swain JE, Ding J, Wu J, Smith GD: Regulation of spindle and chromatin dynamics during early and late stages of oocyte maturation by aurora kinases. *Mol Human Reprod* 14:291-299, 2008.

Swain JE, Ding J, Brautigan DL, Villa-Moruzzi E, Smith GD: Proper chromatin condensation and maintenance of histone-H3 phosphorylation during mouse oocyte meiosis requires regulation of protein phosphatase activity. *Biol Reprod* 76:628-638, 2007.

Acevedo NA, Ding J, Dunn R, Smith GD: Insulin signaling in mouse oocytes. *Biol Reprod* 77(5):872-879, 2007.

Morris DS, Dunn RL, Schuster TG, Ohl DA, Smith GD: Ideal culture time for improvement in sperm motility from testicular sperm aspirates of azoospermic men. *Journal of Urology* 178:2087-2091, 2007.

Swain JE, Dunn RL, McConnell D, Gonzalez-Martinez J, Smith GD: Direct effects of leptin on mouse reproductive function: regulation of follicular, oocyte, and embryo development. *Biol Reprod* 71:1446-1452, 2004.

Service: Dr. Smith is a translational scientist whose scientific and clinical work has focused on reversible-phosphorylation and chromatin remodeling in oocyte meiosis; oocyte cryopreservation; and integration of microfluidic and hydrogel technologies to improve gamete isolation and function, embryo culture and analysis, and human embryonic stem cell growth and directed differentiation. He has continuously maintained numerous federally-funded projects

since 1997, while still dedicating significant time to clinical and educational responsibilities. He has served as the Assisted Reproductive Technologies (ART) clinical laboratory director for the last 14 years and in this role has developed and supported the highest standards of laboratory patient care including the establishment and maintenance of effective quality assurance, control, and improvement programs in embryology, andrology, and cryobiology; and maintaining College of American Pathology accreditation. He was integrally involved in the design, implementation, and equipping of the laboratories during the creation of Briarwood's Center for Reproductive Medicine. Since 2006, Dr. Smith has served as the director of the internationally recognized Reproductive Sciences Program. In 2008, he was appointed as the co-director for the Alfred A. Taubman Medical Research Institute Consortium for Stem Cell Therapies. Recently, he was selected to serve with a group of faculty to develop a vision for an interdisciplinary Biointerface Institute at the North Campus Research Complex. At the state level, he is a member of the Michigan Infertility Advisory Committee which is funded by the Division of Reproductive Health, National Center for Chronic Disease Prevention and Health Promotion. Nationally, he serves on the editorial board for *Journal of Andrology, Biology of Reproduction,* and *Journal of Assisted Reproduction and Genetics*, and as ad hoc reviewer for peer review medical journals including the *Biology of Reproduction, Developmental Biology, Fertility and Sterility, Human Reproduction, Journal of Animal Science, Journal of Clinical Investigation,* and *Journal of Reproduction and Fertility* as well as other well-respected medical journals. He has served on numerous NIH review panels and study sections. He is a member of prestigious professional societies including the College of American Pathologists, American Society of Andrology, American Society for Reproductive Medicine and Society for the Study of Reproduction. He is serving on the 2009 Annual Meeting Program Committee for the Society for Study of Reproduction.

External Review:

Reviewer A: "Dr. Smith is an accomplished, successful teacher and mentor...I personally know of his mentorship of fellows in Reproductive Endocrinology and Infertility and can attest to their excellent training. Several have gone on to hold academic positions."

Reviewer B: "Dr. Smith's research is imaginative, wide-ranging, very well designed, and analyzed appropriately. He has been extremely productive and has introduced new and important ideas into several sub-disciplines of early embryology. His bibliography both in terms of peer-reviewed experimental reports and of reviews and book chapters is excellent, especially in light of his impressive lecture schedule in the United States and abroad."

Reviewer C: "I consider Gary to be the top academic laboratory directors [sic] in the field of assisted reproductive technologies in the country, and clearly within the top 5 around the world. He has not only run an effective clinical laboratory, but he has provided important new contributions to scientific knowledge in this field. His contributions in the area of microfluidics and its application to culture systems is without equal. His novel work in the area of stem cell study is unique, as it has direct translational applications."

Reviewer D: "...I would rank Dr. Gary Smith as one of the top leaders in his field of gamete biology and the preeminent scientist in relating advances in gamete biology to the clinical

problems of infertility, gamete cyopreservation and assisted reproductive technologies...Gary has certainly developed a diversely funded, highly productive research group whose work is very highly-regarded. He is a well-respected scientist who is highly sought nationally and internationally for consultation, presentations at scientific meetings, and as a teacher and mentor of trainees. His expertise in basic gamete biology and its application to problems in infertility treatment is arguably unrivaled by any of his peers."

Reviewer E: "...Dr. Smith is nationally recognized for his work in oocyte cryopreservation as well as microfluidics. He has published his finding in excellent journals. His papers and presentations are authoritative. I support his promotion wholeheartedly and without any reservation whatsoever."

Reviewer F: "In every area of academic research, Gary Smith has excelled. He is a leader in his field, and has developed new and novel technologies for oocyte cryopreservation that are now being used around the world...He is an award winning scientist. Dr. Smith is singular in his research, and his approaches and ideas are novel and significant. In short, he is essential to the growth of this continuously expanding field...In short, Gary Smith is the type of professor that universities clamor to obtain."

Summary of Recommendation:

Dr. Gary Smith is a nationally and internationally recognized translational scientist. His contributions to oocyte cryopreservation and the development of application of microfluidics to reproductive biology are landmarks and will continue to provide avenues for his research endeavors. He is a well respected teacher and scholar, and as director of the Reproductive Sciences Program he represents the University of Michigan internationally in this important area of biology. I am pleased to recommend him for promotion to professor.

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

May 2010