

PROMOTION RECOMMENDATION

Approved by the Regents

May 15, 2008

The University of Michigan
School of Public Health
Department of Epidemiology

Sharon R. Kardia, associate professor of epidemiology, with tenure, Department of Epidemiology, School of Public Health, is recommended for promotion to professor of epidemiology, with tenure, Department of Epidemiology, School of Public Health.

Academic Degrees:

Ph.D.	1991	University of Michigan
M.A.	1990	University of Michigan
B.S.	1985	Carnegie-Mellon University

Professional Record:

2004–present	Co-Director, Life Sciences and Society Programs, University of Michigan
2003–present	Associate Professor, Department of Epidemiology, School of Public Health, University of Michigan
2003-present	Director, Public Health Genetic Program, School of Public Health, University of Michigan
2003–present	Co-Director, Michigan Center for Genomics and Public Health, University of Michigan
1998–2003	Assistant Professor, Department of Epidemiology, School of Public Health
1994–1998	Assistant Research Scientist, Medical School, University of Michigan

Summary of Evaluation:

Teaching: Professor Kardia is an innovative teacher and a dedicated mentor to her students. Since her promotion to associate professor, she has taught three epidemiology courses each year. These courses include EPID 513 - Applications in Public Health Genetics, EPID 515 - Public Health Genetics, and EPID 817 - Advanced Genomic Epidemiology (a new course). Her skill in translating the complexities of epidemiology to students is reflected in the excellent rankings on her annual teaching evaluations. On a five-point scale, her Q1 and Q2 scores in 2005 and 2006 have been above 4.5. Ethics in science is a strong interest of Professor Kardia in both her teaching and research. In fall 2006, she developed and taught a new course for undergraduates, "When Faith Meets Science: An Evolving Dialogue on New Choices and New Technologies" (UC 475). This course attracted 49 students and had scores of 4.5 and 4.36 for its first offering. Professor Kardia is a favorite guest lecturer in other departments in the School of Public Health and the School of Nursing. Her future plans include teaching public health to undergraduates and developing a course on deliberative democracy in public health genetics.

Over the last four years, Professor Kardia has been the advisor for 14 Master's theses. Several of these Master's students went on to become her Ph.D. students. Four of her Ph.D. students have graduated and secured jobs in public health or academia, and five more are in training. In addition, Professor Kardia serves on several training grants. She is on the Genome Sciences Training Program and the Biostatistics Training Program in Research in the Biosciences.

Research: Professor Kardia is recognized as one of the most outstanding, innovative, and productive researchers in her field. Her research interests and reputation are based on her important genetic epidemiology studies to understand the genetic contribution to common diseases, including cardiovascular diseases and risk factors, cancers, and addictive behaviors. She has a special interest in developing statistical methods and strategies for studying gene-environment and gene-gene interactions.

Professor Kardia is the Principal Investigator on three R01 grants investigating the genetic contribution to common chronic diseases including cardiovascular disease, hypertension, and arteriosclerosis of the brain, heart, and peripheral arteries. The newest R01 is a Genome-Wide Association Study funded by the National Heart, Lung, and Blood Institute to genotype 510,000 mutations on over 2,500 participants of the Genetic Epidemiology Network of Arteriopathy Study (GENOA) and to relate them to several pre-clinical measurements of disease. This project is a unique collaboration of the principal investigators of the 13 grants that are part of GENOA.

Currently, Professor Kardia is extending her research portfolio to include work with social epidemiologists to interpret how social factors may interact with genes to predispose to disease risk. The University of Michigan was recently awarded a Center grant from the National Center on Minority Health and Disparities (Diez Roux, PI) where Professor Kardia's research team will be studying the genetic and social factors in blood pressure control in hypertensive individuals.

Professor Kardia is the PI for three subcontracts to the University of Michigan to perform the statistical genetic analysis for a heart failure SSCOR grant (University of Cincinnati), the Family Blood Pressure Program's GENOA study (University of Texas), and a genetic epidemiology study of peripheral arterial disease (Mayo Clinic). In addition, she is a co-investigator on three grants that are currently pending at NIH. Professor Kardia's future research interests involve building a bridge to the social sciences to determine how the social factors represent an environment that shifts biological signaling, modulating gene expression, DNA methylation, or metabolic pathways, which affect how inherited genetic variation is related to disease risk. Using the social factors acquired through the UM Minority Health Center grant, she will conduct one of the first large scale epidemiologic studies that will truly integrate all of these elements into risk prediction models for common, complex diseases.

Professor Kardia has made outstanding scholarly contributions through her numerous, top quality, and innovative research papers in highly regarded peer-reviewed journals. Her publications include new genomic methods of analysis, public health, implications of genomics, and new insights into disease etiology. Since her promotion to associate professor in May 2003, she has 67 new peer-reviewed publications (five as first author, 10 as second author, and 15 as last author). She has five articles currently in press.

Recent and Significant Publications:

- Kullo IJ, Turner ST, Boerwinkle E, Kardia SLR, de Andrade M. (2005) A novel quantitative trait locus on chromosome 1 with pleiotropic effects on HDL-cholesterol and LDL particle size in hypertensive sibships. *Am J Hypertens* 18(8):1084-1090. PMID: 16109322.
- Sun YV, Levin AM, Boerwinkle E, Robertson H, Kardia SLR. (2006) A scan statistic for identifying chromosomal patterns of SNP association. *Genet Epidemiol* 30(7): 627-635. PMID: 16858698.
- Kardia SR, Chu J, Sowers MR. (2006) Characterizing variation in sex steroid hormone pathway genes in women of 4 races/ethnicities: The Study of Women's Health Across the Nation (SWAN). *Am J Med* 119(9 Suppl 1): S3-S15. PMID: 16949386.
- Meyers KJ, Mosley TH, Fox E, Boerwinkle E, Arnett DK, Devereux RB, Kardia SLR. (2007) Genetic variations associated with echocardiographic left ventricular traits in hypertensive blacks. *Hypertension* 49: 992-999. PMID: 17339538.
- Kullo IJ, Greene MT, Boerwinkle E, Chu J, Turner ST, Kardia SLR. Association of polymorphisms in NOS3 with the ankle-brachial index in hypertensive adults. *Atherosclerosis* (in press).

Service: Professor Kardia has taken on major, new administrative responsibilities to advance genomics and the life sciences in the Department, the School of Public Health, and the University community. She has been an active member of the Department's Curriculum Committee and the Admissions Committee. For the last four years, Professor Kardia has served as the director of the Public Health Genetics Program. She has also devoted extensive energy to student outreach -- recruiting, career advising, internship placement, job recommendation, and alumni outreach. In addition, she has fulfilled many service roles

service roles for the government ranging from grant reviewer to scientific expert. She has served on three National Academy of Science committees and is a consultant for the National Human Genome Research Institute.

Professor Kardia is co-director of the Life Sciences and Society Program, a University-wide program that is part of the UM collective that was awarded a Ford Foundation grant for outreach to students on issues that raise religious tensions on campus. This funding, along with funds awarded through the President's Initiative in Public Ethics at UM, was used to develop a course for undergraduates. Last year, Professor Kardia was the leader in launching the Genetics Equity Network with Howard University and the Joint Center for Economic and Political Studies in Washington, D.C. with her grant from the National Center for Institutional Diversity.

External Reviewers:

Reviewer (A): "Dr. Kardia is among the leading genetic epidemiologists in the country, one of a small elite group....[She] has demonstrated an exceptional level of productivity in her contributions to the scientific literature...Dr. Kardia's work on the role of genetic influences and gene-environment interactions in cardiovascular disease has greatly advanced the field."

Reviewer (B): "She has an impressive list of publications not only in number, but also in breadth of research....Sharon's record also reveals a strong commitment to teaching and mentoring of students in masters and doctoral programs. Her record would certainly be rewarded with a full professorship at our institution."

Reviewer (C): "...undoubtedly one of the brightest and most articulate mid-career scientists that I encountered in my 30+ years in academia."

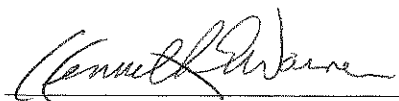
Reviewer (D): "Her scholarly and academic leadership is well established....national and international recognition achieved....is a very impressive individual who has an outstanding academic record."

Reviewer (E): "These high quality papers have contributed significantly to our knowledge in these areas....This level of success [in securing grant funding] is truly exceptional and speaks to her talents as a leader in the field of genetic epidemiology....In short, Dr. Kardia is a star."

Reviewer (F): "[Her CV] indicates her being incredibly productive in her area of research expertise. This productivity is further reflected in her success in obtaining very competitive NIH grants."

Summary of Recommendation:

Professor Kardia is an innovative and dedicated teacher, and an outstanding researcher in her field. Her productivity as a leader in genetic epidemiology studies has provided research and training opportunities for students and created valuable opportunities for the department. I enthusiastically recommend Professor Sharon Kardia for promotion to professor of epidemiology, with tenure, Department of Epidemiology, School of Public Health.



Kenneth E. Warner, Ph.D.
Dean, School of Public Health

May 2008