

PROMOTION RECOMMENDATION

The University of Michigan
School of Public Health
Department of Epidemiology

Jennifer A. Smith, assistant professor of epidemiology, Department of Epidemiology, School of Public Health, is recommended for promotion to associate professor of epidemiology, with tenure, Department of Epidemiology, School of Public Health [also being promoted to research associate professor, Survey Research Center, Institute for Social Research].

Academic Degrees:

Ph.D.	2011	University of Michigan
M.P.H.	2009	University of Michigan
M.A.	2005	University of Michigan
B.S.	2001	Cornell University

Professional Record:

2016 – Present	Assistant Professor, Department of Epidemiology, School of Public Health, University of Michigan
2016 – Present	Research Assistant Professor, Survey Research Center, Institute for Social Research, University of Michigan
2015 – 2016	Research Assistant Professor, Department of Epidemiology, School of Public Health, University of Michigan
2012 – 2015	Assistant Research Scientist, Department of Epidemiology, School of Public Health, University of Michigan
2011 – 2012	Research Area Specialist Lead, Department of Epidemiology, School of Public Health, University of Michigan
2004 – 2010	Graduate Student Research Assistant / Instructor, Department of Epidemiology, School of Public Health, University of Michigan

Summary of Evaluation:

Teaching – Professor Smith’s major didactic teaching activities have been with two classes: EPID 515 Genetic in Public Health (each Fall semester since 2014) and EPID 516 Genomics in Epidemiology (Winter 2018 and 2019). Both of these courses are important for certificate and training programs and both of these courses have been well received based on excellent student evaluations. She has also given a number of guest lectures in other courses and programs at the University of Michigan. She is currently chairing two doctoral committees and serving on three other committees, and is active in supervising masters students in research projects and internships. Professor Smith’s students and trainees have been the first author of 10 of her papers.

Scholarship – Professor Smith is a highly productive researcher who works in the area of genetic epidemiology. Her research makes use of several large epidemiologic studies concerned with aging, atherosclerosis, arteriopathy, and cardiovascular disease. These studies, with contributions from Professor Smith, have helped characterize the genomics and epigenomics of

many common chronic diseases. Professor Smith's major independent contributions have been in two areas, (1) epigenomics as a mediator between exposures and chronic diseases, and (2) interactions of genomic factors with social and psychosocial factors and their role in chronic diseases. She conducted the first epigenome wide meta-analysis of cigarette smoking, which identified epigenomic biomarkers and showed that the epigenetic effects of smoking may persist for many years after cessation. Professor Smith was the first to study the longitudinal changes in methylation markers and identified a causal role in the relationship between smoking and inflammation. Professor Smith's work in social genomics has shown methylation in key stress and inflammation genes is sensitive to social context. Overall, Professor Smith has undertaken important research both as an independent investigator in a focused area and as a team scientist within large genetics consortia.

Professor Smith has an outstanding record of acquiring extramural grant funding, both as the principal investigator (PI) and as the co-investigator. She is currently the sole PI of two R01's from the National Institutes of Health (NIH), and the co-investigator on eight other extramural grants. She has previously been the PI of an R03 and is the PI of a University of Michigan intramural grant. Professor Smith has published a total of 127 papers in the peer reviewed literature. Eighty-two of these publications are dated 2016 or later. As would be expected for someone who is active and engaged with large genetics consortia, a number of these papers have large authorship lists and some are published in journals with high impact factors. In terms of publications for which Professor Smith is clearly leading the research, the record is also very strong. There are nine first/co-first authored papers, six senior/last authored papers and one second authored paper. Her papers have appeared in respected journals, including *Epigenetics*, *Circulating Cardiovascular Genetics*, *American Journal of Epidemiology*, and *Social Science and Medicine*.

Recent and Significant Publications:

- Liu, C., Kraja, A. T., Smith, J. A., Brody, J. A., Franceschini, N., Bis, J. C., ... Chasman, D. I. (2016). Meta-analysis identifies common and rare variants influencing blood pressure and overlapping with metabolic trait loci. *Nature genetics*, 48(10), 1162–1170. doi:10.1038/ng.3660
- Smith, J.A., Zhao, W., Wang, X., Ratliff, S.M Mukherjee, B., Kardia, S.L.R., Liu, Y., Diez Roux, A.V., and Needham, B. (2017) Neighborhood characteristics influence DNA methylation of genes involved in stress response and inflammation: The Multi-Ethnic Study of Atherosclerosis. *Epigenetics*, 12:8, 662-673, DOI: 10.1080/15592294.2017.1341026
- Liu, J., Zhao, W., Ware, E. B., Turner, S. T., Mosley, T. H., and Smith, J. A. (2018). DNA methylation in the APOE genomic region is associated with cognitive function in African Americans. *BMC medical genomics*, 11(1), 43. doi:10.1186/s12920-018-0363-9
- Smith, J., Kho, M., Zhao, W., Yu, M., Mitchell, C., and Faul, J. (2018). Genetic effects and gene-by-education interactions on episodic memory performance and decline in an aging population. *Social Science and Medicine*, DOI: 10.1016/j.socscimed.2019.11.019
- Liu, J., Zhao, W., Ammous, F., Turner, S.T., Mosley, T.H., Zhou, X., and Smith, J.A. (2019): Longitudinal analysis of epigenome-wide DNA methylation reveals novel smoking-related loci in African Americans. *Epigenetics*, DOI: 10.1080/15592294.2019.158158

Service – Professor Smith has demonstrated service to the department, the school, and to the profession nationally. In the Department of Epidemiology, she has served on the admissions committee, research committee, and diversity, equity, and inclusion (DEI) committee. Given her experience with admissions and DEI, Professor Smith now plays an important role in helping the department increase the diversity of the M.P.H. student body. She is the director of the school’s Certificate Program in Public Health Genetics. Nationally, Professor Smith has served as a grant reviewer for two NIH study sections, the Medical Research Council in the United Kingdom, and the American Heart Association. She is the associate editor for the journal *BMC Medical Genomics* and has been a reviewer of manuscripts for 20 different journals including *The Lancet*, *Clinical Epigenetics*, *Circulation: Cardiovascular Genetics*, *Neurology*, and *Journals of Gerontology: Medical Sciences*, among others.

External Reviewers:

Reviewer (A): “Her research and service has helped Dr. Smith establish a national reputation illustrated through her publication record, invited presentations, collaboration with national cohorts, and study section presence.”

Reviewer (B): “...she has shown herself to be a leader in the research arenas that most interest her: 1) the interaction between social, psychosocial and neighborhood factors with genomic factors on chronic disease (especially cardiovascular disease and associated risk factors); and 2) epigenomics as a mediator between social exposures and chronic disease.”

Reviewer (C): “I am impressed with her scholarly work on social and epigenomics. Specifically, evaluating this intersection of social epidemiology which is often incorrectly pitted against genetics, with epigenomic markers. This is an evolving area of study, and Dr. Smith’s contributions and the focus and context of the work that Dr. Smith is leading is especially relevant and exciting.”

Reviewer (D): “One of the specific niches that Dr. Smith has developed is in connecting disease risk factors to epigenetic changes, such as DNA methylation, and then testing whether these changes in concert with DNA variation alter disease risk. She played major roles in publications that identified a large set of epigenomic biomarkers related to smoking and then identified longitudinally the effects of cigarette smoking on DNA methylation, showing that the methylation changes may persist for many years after smoking cessation.”

Reviewer (E): “I think that Dr. Smith and colleagues are helping drive the relatively new field of epidemiological epigenetics, and Dr. Smith has already built a strong reputation as a leader in this area. I also view Dr. Smith’s work in social genomics, to understand biological mechanisms by which genetic and social factors influence disease, as both important and innovative.”

Reviewer (F): “Her body of work to date has been substantial and of high quality. She seems to have a clear vision for her future work on important problems in genomics and social epigenomics, including in health disparities and internationally (particularly India).”

Reviewer (G): “I am very impressed about the quality, quantity, focus and scholarly impact of Dr. Smith’s work. Dr. Smith is a forerunner and leader in the field of social genomics and social

epigenetics. She has produced seminal work that has influenced new research in these growing fields. Her work demonstrates the genomic and biological causality associated with exposure to adverse social factors.”

Summary of Recommendation:

Professor Smith has a very good record in research and is making a significant impact in the field of genetic epidemiology. She will continue to play an important role in strengthening the school’s genetic epidemiology portfolio. She has been an effective teacher and mentor and will continue to play a role in keeping the M.P.H. curriculum rigorous and high quality. Professor Smith has and will continue to provide valuable service both internally, for the department, school, and university, as well as externally, at the regional and national level. It is with the support of the School of Public Health Executive Committee that we recommend Jennifer A. Smith for promotion to associate professor of epidemiology, with tenure, Department of Epidemiology, School of Public Health.

A handwritten signature in cursive script, appearing to read "F. DuBois Bowman". The signature is written in black ink on a white background.

F. DuBois Bowman, Ph.D.
Dean, School of Public Health

May 2020