Approved by the Regents
May 19, 2016

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF INTERNAL MEDICINE
DEPARTMENT OF HUMAN GENETICS
DEPARTMENT OF COMPUTATIONAL MEDICINE AND BIOINFORMATICS

Cristen J. Willer, Ph.D., assistant professor of internal medicine, Department of Internal Medicine, assistant professor of human genetics, Department of Human Genetics, and assistant professor of computational medicine and bioinformatics, Department of Computational Medicine and Bioinformatics, Medical School, is recommended for promotion to associate professor of internal medicine, with tenure, Department of Internal Medicine, associate professor of human genetics, without tenure, Department of Human Genetics, and associate professor of computational medicine and bioinformatics, without tenure, Department of Computational Medicine and Bioinformatics, Medical School.

Academic Degrees:

D.Phil.	2003	University of Oxford, United Kingdom
B.Sc.	1998	McMaster University, Hamilton, Canada

Professional Record:

2011-present	Assistant Professor of Internal Medicine, Assistant Professor of Human Genetics, and Assistant Professor of Computational Medicine and Bioinformatics, University of Michigan

Summary of Evaluation:

Teaching: Dr. Willer is extremely active in all aspects of teaching and mentoring. She has provided several didactic lectures each year in the Human Genetics HG542 course, "Molecular Basis of Human Genetic Disease," as well as intramural continuing medical education lectures on lipid genetics. Dr. Willer also provides extensive mentoring, both in the laboratory setting and in the context of the Human Genetics graduate student seminar and journal club. She has mentored graduate students, post-doctoral fellows, and rotating medical students on their research projects in her laboratory, and served on dissertation committees for several graduate students, and Ph.D. preliminary exam committees for students in the Department of Human Genetics and the Department of Computational Medicine and Bioinformatics.

Research: Dr. Willer's research encompasses genetic studies of heart disease and obesity. She has made substantial contributions not only through her findings of genetic loci involved in the regulation of lipid levels, but also through the development of new methods, software, and bioinformatics algorithms for conducting such large scale studies. Many of these studies are highly collaborative, and in addition to her authorship on more than 70 peer-reviewed publications, Dr. Willer has contributed to another 40 peer-reviewed publications through her involvement in consortiums such as the NHLBI Exome Sequencing Project, the Genetic Investigation of Anthropometric Traits (GIANT) Consortium, and the DIAbetes Genetics Replication and Meta-analysis (DIAGRAM) Consortium. She has been well-funded throughout her academic career, including an NIH K99/R00 grant, and two current R01 grants, with one as the principal investigator

and one as a co-principal investigator. She is highly regarded by her peers, providing review service for numerous scientific journals and study sections, serving on professional committees, and lecturing at both the national and international level. She was inducted into to the Medical School League of Research Excellence in 2014, as well as named as a Thomas-Reuters Highly Cited Researcher, recognizing her as in the top 1% in her field over the prior decade. In 2015, Dr. Willer was the recipient of the Medical School Dean's Basic Science Research Award.

Recent and Significant Publications:

Do R, Willer CJ, Schmidt EM, Sengupta S, Gao C, Peloso GM ... [many additional authors] ..., Cupples LA, Sandhu MS, Rich SS, Boehnke M, Deloukas P, Mohlke KL, Ingelsson E, Abecasis GR, Daly MJ, Neale BM, Kathiresan S: Common variants associated with plasma triglycerides and risk for coronary artery disease. *Nature Genetics* 45:1345-1352, 2013.

Willer CJ*, Schmidt EM*, Sengupta S*, Peloso GM, Gustafsson S, Kanoni S, Ganna A, Chen J, Buchkovich, ... [many additional authors] ..., Chasman DI, Rotter JI, Franks PW, Ripatti S, Cupples LA, Sandhu MS, Rich SS, Boehnke M, Deloukas P, Kathiresan S, Mohlke KL, Ingelsson E, Abecasis GR: Discovery and refinement of loci associated with lipid levels. *Nature Genetics* 45:1274-1283, 2013.

Holmen OL*, Zhang H*, Schmidt EM, Fan Y, Hovelson D, Zhou W, Gou Y, Zhang J, Langhammer A, Lochen M-L, Ganesh SK, Vatten L, Skorpen F, Dalen H, Zhang J, Pennathur S, Chen J, Platou C, Mathiesen EB, Wilsgaard T, Njølstad I, Boehnke M, Chen YE, Abecasis GR, Hveem K, Willer CJ: Systematic evaluation of coding variation identifies a candidate causal variant in TM6SF2 influencing total cholesterol. *Nature Genetics* 46:345-351, 2014.

Lange L*, Hu Y*, Zhang H*, Xue C, Tang Z, Bizon C, ... [many additional authors], Cupples LA, Kooperberg C, Wilson JG, Nickerson DA, Abecasis GR, Rich SS, Tracy RP, Willer CJ, NHLBI Exome Sequencing Project: Whole-exome sequencing identifies rare and low-frequency coding variants associated with LDL cholesterol. *American Journal of Human Genetics* 94:233-245, 2014.

Schmidt EM, Zhang J, Zhou W, Chen J, Mohlke KL, Chen E, Willer CJ: GREGOR: Evaluating global enrichment of trait-associated variants in epigenomic features using a systematic, data-driven approach. *Bioinformatics* (In press)

Service: Dr. Willer has made a significant contribution to the University of Michigan Cardiovascular Center by establishing a biorepository of biological specimens and clinical information on aortic disease, and she serves as director for this Cardiovascular Health Improvement Project (CHIP) Biobank. She also serves on intramural grant review panels for such programs as the McKay Heart of a Champion grants, and was the co-chair of the Personalized Medicine Cardiovascular Subgroup for the University of Michigan FastForward Initiative. Nationally, she is the lead for the Metabochip Writing & Analysis Group for the Global Lipids Genetics Consortium, and is an ad hoc reviewer for the NIH Special Emphasis Panel for Population Sciences and Epidemiology.

External Reviewers:

Reviewer A: "Her work with lipids and heart disease is outstanding, and she is clearly recognized as an authority in the field even at a relatively junior level, because of the strength of her work. Her curricular vitae shows a remarkable funding record despite these austere times."

Reviewer B: "...she truly is a team-based investigator and has many publications to her credit. An important distinction is that she is first or senior author on several of the publications. Given that she has achieved the lead or senior position speaks to the importance of her scholarly contributions and her independence as an investigator."

Reviewer C: "...I believe Dr. Willer is a productive researcher who is held in high repute by her peers, is making significant contributions to her field, and is ably fulfilling the mission of the University of Michigan to educate and train the next generation of researchers in her chosen field."

Reviewer D: "Although all of her work is of unusually high quality, I personally find her recent development of algorithms to synthesized and quantify epigenetic evidence from public functional databases to be particularly exciting....Dr. Willer is a rising star who has already demonstrated her potential to make a huge impact in cardiovascular genomics."

Reviewer E: "...Cristen has achieved recognition in our field of human genetics and has already had a major and positive impact in our field....It is clear that Cristen has been productive, successful in her research and obtaining funding, and a good mentor to her students, and there is every reason to believe that she will continue to be so."

Summary of Recommendation:

Dr. Willer is recognized as an expert in the area of human genetics and cardiovascular disease. She is also committed to the training of the next generation of scientists, and is active in service at both the institutional and national levels. Therefore, I enthusiastically recommend Cristen J. Willer, Ph.D. for promotion to associate professor of internal medicine, with tenure, Department of Internal Medicine, associate professor of human genetics, without tenure, Department of Human Genetics, and associate professor of computational medicine and bioinformatics, without tenure, Department of Computational Medicine and Bioinformatics, Medical School.

Marschall S. Runge, M.D., Ph.D.
Executive Vice President for Medical Affairs
Dean, Medical School

May 2016