Approved by the Regents
May 16, 2024

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF COMPUTATIONAL MEDICINE AND BIOINFORMATICS
DEPARTMENT OF HUMAN GENETICS
SCHOOL OF PUBLIC HEALTH
DEPARTMENT OF BIOSTATISTICS

Stephen C.J. Parker, Ph.D., associate professor of computational medicine and bioinformatics, with tenure, Department of Computational Medicine and Bioinformatics, associate professor of human genetics, without tenure, Department of Human Genetics, Medical School, and associate professor of biostatistics, without tenure, Department of Biostatistics, School of Public Health, is recommended for promotion to professor of computational medicine and bioinformatics, with tenure, Department of Computational Medicine and Bioinformatics, professor of human genetics, without tenure, Department of Human Genetics, Medical School, and professor of biostatistics, without tenure, Department of Biostatistics, School of Public Health.

Academic Degrees:

Ph.D.	2009	Boston University, Boston, MA
M.S.	2000	East Carolina University, Greenville, NC
B.S.	1998	East Carolina University, Greenville, NC

Professional Record:

2021 – present	Associate Professor (without tenure), Department of Biostatistics, University of Michigan
2019 – present	Associate Professor (with tenure), Department of Computational Medicine and Bioinformatics, University of Michigan
2019 – present	Associate Professor (without tenure), Department of Human Genetics, University of Michigan
2014 – 2019	Assistant Professor, Department of Computational Medicine and Bioinformatics, University of Michigan
2014 – 2019	Assistant Professor, Department of Human Genetics, University of Michigan

Summary of Evaluation:

Teaching: Dr. Parker participates significantly in the institution's teaching missions as a frequent course instructor with an impressive reach across several UM schools. In addition to the breadth of his teaching outlets, the quality of his teaching is indicated by very good to excellent teaching ratings. He is the lead instructor for High-throughput Molecular Genomic and Epigenomic Data Analysis (BIONF545/BIOSTAT646), which is an extremely popular offering, and lecturer for the Molecular Basis of Human Genetic Disease (HG542). He has been a lecturer for From GWAS to Therapeutic Targets Using Statistical Molecular Genetics (GTP632), Computational Tools for Genomic Technologies (BME599), and has given many teaching lectures for the Girls Who Code Club (April 2019), and the Single Cell Genomics of Obesity and Diabetes Club (2022). Dr. Parker has mentored graduate students, post-doctoral fellows, undergraduate students, and visiting

scholars. He has served on numerous dissertation committees, preliminary committees, and Ph.D. thesis committees. He demonstrated commitment to DEI in graduate education by increasing the proportion of students from underrepresented groups when he led the Bioinformatics Graduate Program.

Research: Dr. Parker is a leading researcher in the epigenomic regulation of Type 2 Diabetes who has established himself as an internationally prominent expert in super-enhancers in diabetes. His work spans three different departments. He has significant and sustained grant funding with current funding as a multi-principal investigator or principal investigator from the National Institutes of Health (NIH) totaling more than $8M, with an additional recently completed foundation grant from Pfizer that was more than $1M. His current and past funding sources include the NIH, industry, and foundation. Dr. Parker has participated in international consortia such as ENCODE, FUSION, H3Africa sponsored by three NIH institutes. He has authored 64 peer-reviewed publications, in exceptional journals such as *Nature* and *Nature Genetics*. Many of his publications are extremely large consortium group efforts, highlighting the collaborative nature of his work. Dr. Parker is an established leader in the field with visiting professorships and more than 55 extramural invited presentations.

Recent and Significant Publications:

Walker JT, Saunders DC, Rai V, Chen HH, Orchard P, Dai C, Pettway YD, Hopkirk AL, Reihsmann CV, Tao Y, Fan S, Shrestha S, Varshney A, Petty LE, Wright JJ, Ventresca C, Agarwala S, Aramandla R, Poffenberger G, Jenkins R, Mei S, Hart NJ, Phillips S, Kang H, Greiner DL, Shultz LD, Bottino R, Liu J, Below JE; HPAP Consortium; Parker SCJ, Powers AC, Brissova M, "Genetic risk converges on regulatory networks mediating early type 2 diabetes," *Nature*. 2023 Dec 4. doi: 10.1038/s41586-023-06693-2. Epub ahead of print. PMID: 38049589

P. Orchard*, N. Manickam*, C Ventresca*, A. Varshney, V. Rai, J. Kaplan, C. Lalancette, K. Gallagher, C.F. Burant, SCJ Parker, "Human and rat skeletal muscle single-nuclei multi-omic integrative analyses nominate causal cell types, regulatory elements, and SNPs for complex traits," *Genome Research.* 31(12): 1, 2021. PMID 34815310 / PMCID 8647829

R D'Oliveira Albanus, Y Kyono, J Hensley, A Varshney, P Orchard, JO Kitzman, SCJ Parker, "Chromatin information content landscapes inform transcription factor and DNA interactions," *Nature Communications*. 12(1): 1307, 2021. PMID 33637709 / PMCID 7910283

P Orchard, Y Kyono, J Hensley, JO Kitzman, SCJ Parker, "Quantification, dynamic visualization, and validation of bias in ATAC-seq data with ataqv," *Cell Systems.* 10(3): 298-306, 2020. PMID 32213349 / PMCID 8245295

V Rai*, DX Quang*, MR Erdos, DA Cusanovich, RM Daza, N Narisu, LS Zou, JP Didion, Y Guan, J Shendure*, SCJ Parker#*, FS Collins#*, "Single cell ATAC-seq in human pancreatic islets and deep learning upscaling of rare cells reveals cell-specific type 2 diabetes regulatory signatures," *Molecular Metabolism*. 32: 109-121, 2020. PMID 32029221 / PMCID 6961712 [# corresponding author, * equal contributor]

Service: Dr. Parker performs service at the institutional, national, and international levels. Institutionally, he serves as the chair of the Bioinformatics Admission Committee, member of the Medical Scientist Training Program (MSTP) Operations Committee, member of the DNA

Sequencing Core Director Search committee, and on the Scientific Advisory Board for the UM Bioinformatics Core. Nationally, he is currently on the American Diabetes Association Meeting Planning Committee, and as a symposium chair and abstract reviewer for several meetings in rank for different societies. In terms of peer review service, he has considerable scientific service, having served on 16 national and three international review panels in rank. He is also on the editorial board of both *eLife* and *Diabetes* and is an ad hoc reviewer for five journals in rank. Internationally, he has served on planning committees for international meetings and has been prominent in joint research initiatives in Finland and Africa. He has also been on international review panels and currently reviews grants for a United Kingdom-based research funder.

External Reviewers:

Reviewer A: "Steve participates in large-scale team science that is essential in human genetics because of the need for large sample sizes and the broad array of skill sets required to analyze the data… It is clear that Steve has achieved national prominence as a leader in human genetics, particularly in the diabetes field. He is an excellent communicator, highly collegial [sic], and rigorous. You are lucky to have him as a colleague in Ann Arbor and should do everything you can to retain him."

Reviewer B: "Dr. Parker is a leader in the field of computational biology and human genetics. His work on understanding how genetic variation impacts gene regulation and how this, in turn, impacts disease, with a focus on Type 2 Diabetes (T2D), has been pioneering. His productivity has been outstanding and his ability to secure extramural funds for his lab is extremely impressive… Dr. Parker is a leader in the field. His work is innovative, creative, and addresses important questions. I would say he is in the top 10% of his peer group in a very competitive field."

Reviewer C: "Stephen is an active contributor to his discipline at both the national and international levels. He has reviewed grant applications in numerous NIH review panels and is currently a standing member of the NIH Genetics of Health and Disease study section. He has also reviewed grants for numerous international funding agencies, which speaks to his international reputation. He regularly serves as a journal reviewer and is currently on two editorial boards for journals. His expertise has been solicited for multiple national and international scientific committees including the NIDDK Accelerating Medicines Partnership (AMP) steering committee."

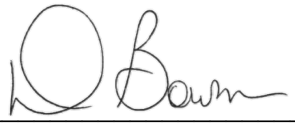
Reviewer D: "I cannot think of another person in the US with greater deep expertise in human islet biology paired with deep diabetes genomics expertise, hands-on capability, bioinformatic credentials, visibility and stature, collaborative interest, and I know this field well. He is recognized as a thought leader and people are bringing their hardest problems to him for help and collaboration, and including him in their projects."

Reviewer E: "His manuscript published in Nature Communications on the role of changes in chromatin architecture in determining variation in biological function, has been well-cited and has inspired significant research. What distinguishes Dr. Parker is his ability to integrate multiomics data in biologically inspired and clever ways to discover novel mechanisms. Dr. Parker's excellent research has earned him substantial extramural funding including consortium-type grants as a

multi-PI. He has been invited to several conferences and serves on NIH study sections. His h-index is 38, mostly appropriate for his stage of career for promotion to a Full Professor. As a comparison two senior professors in his department have an h-index of 40. ”

Summary of Recommendation: Dr. Parker is an internationally renowned expert. He is an impactful scientist, an active and valued teacher, and a strong institutional citizen. He has a record of robust grant funding, and the impact of his publications has established his national and international reputation as a leading expert in his field. His publications, grants, and collaborative team leadership make him a rare, highly sought-after scientist in translational bioinformatics. He is a respected mentor and colleague, an exceptional educator, and a dedicated mentor, with a deep record of service to the University of Michigan, nationally, and internationally. We are pleased to recommend Stephen C. J. Parker, Ph.D. for promotion to professor of computational medicine and bioinformatics, with tenure, Department of Computational Medicine and Bioinformatics, professor of human genetics, without tenure, Department of Human Genetics, Medical School, and professor of biostatistics, without tenure, Department of Biostatistics, School of Public Health.

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



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

May 2024