

Approved by the
Regents
May 21, 2015

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

Maureen Sartor, Ph.D., assistant professor of computational medicine and bioinformatics, Department of Computational Medicine and Bioinformatics, Medical School, and assistant professor of biostatistics, Department of Biostatistics, School of Public Health, is recommended for promotion to associate professor of computational medicine and bioinformatics, with tenure, Department of Computational Medicine and Bioinformatics, Medical School, and associate professor of biostatistics, without tenure, Department of Biostatistics, School of Public Health.

Academic Degrees:

Ph.D.	2007	University of Cincinnati
M.S.	2000	North Carolina State University
B.S.	1992	Xavier University, Cincinnati, Ohio

Professional Record:

2012-present	Assistant Professor of Computational Medicine and Bioinformatics, University of Michigan
2014-present	Assistant Professor of Biostatistics, University of Michigan
2008-2012	Research Assistant Professor, Center for Computational Medicine and Bioinformatics, Medical School
2008-2014	Research Assistant Professor, Department of Biostatistics, School of Public Health

Summary of Evaluation:

Teaching: Dr. Sartor directly mentored 11 trainees during the time of her appointment at the University of Michigan, including one UROP student, two bioinformatics master's student, five Ph.D. students, and two post-doctoral fellows. Each trainee has had their own independent research project and one of the former fellows has moved on to an assistant professor position. Her service on Ph.D. thesis committees is strong, including 18 students total. Three are her own Ph.D. students, and the other fifteen are for Ph.D. students in bioinformatics and biostatistics. Dr. Sartor has also served on several preliminary examination committees and now chairs the bioinformatics preliminary exam committee. In 2011, Dr. Sartor spearheaded a major revamping of Biostat646/Bioinf545, which included a complete reconstructing of the lectures, lab sessions, homework, reading assignments, discussion material, group project, and syllabus. Dr. Sartor has taught fifteen lectures per year for four years in Biostat 646/Bioinf 545 (Analysis of High-throughput molecular genomic and epigenomic data (25 students, growing to 40). Feedback for the statement "overall, this an excellent course" averaged 4.19/5 for the four years she has been

giving the course, 2011-2014, with a range of 4.68-3.75. Feedback for the statement, "Overall, the instructor was an excellent teacher" averaged 4.32/5, with a range of 4.75-3.92; 2011-2014. Dr. Sartor has given three lectures in Bioinf 527 (Introduction to Bioinformatics) for the past six years (25-38 students), and six lectures in Bioinf 575 (Programming in Bioinformatics) for six consecutive years (13 students). Feedback was positive. She has also given guest lectures in EHS 660 (four years), Bioinf 525 (three years) and IMM 850 (one year). In January 2012, she also organized and hosted a one day Bioinformatics Workshop for the university in the BSRB. The day was a huge success with ~150 registrants and over 100 attending from the Medical School and School of Public Health. Due to its popularity, it will become an annual workshop. Her teaching evaluations have been excellent to outstanding, and she received the Basic Science Teaching Award in Computational Medicine and Bioinformatics in 2012.

Research: The methodological focus of her laboratory is developing bioinformatics methods and tools for the analysis and interpretation of high-throughput epigenomics data. This is accomplished by interfacing high-throughput statistical analysis and bioinformatics approaches to interpret data with respect to specific biological knowledge domains. While her early research was mainly geared towards analysis methods for gene expression data, her recent work has shifted to analysis of gene regulatory and epigenomics data from next generation sequencing experiments. In addition, her lab continues to expand upon her early work in functional enrichment testing approaches. The biological focus of her laboratory is cancer and epigenomics, in particular oropharyngeal/oral squamous cell carcinomas (OP/OSCC). OP/OSCCs are unique in that both tobacco use and infection with high risk Human Papillomavirus (hrHPV) are associated with a substantial portion of tumors, thus serving as a model site from which to study the molecular differences between viral-induced and chemical carcinogen-induced cancers. In her NCI-funded R01, the lab is examining the epigenomic differences between these two subtypes of OP/OSCC, with novel bioinformatics development being an important part of the work. This work has already identified a novel epigenetic biomarker prioritized from our pilot phase and validated as predictive of survival in a large cohort. Dr. Sartor currently has 84 total publications in peer-reviewed journals (ResearchGate score=38.84; Google scholar h-index=30; i10-index=57), three book chapters, and was recently invited to write a fourth book chapter as corresponding author in the book Epigenomics in Health and Disease (Elsevier). She has a very strong track record of NIH external funding as a principal investigator and as a co-investigator, and also has a very significant list of submitted grant proposals in the pipeline. Dr. Sartor is a member of the American Society of Human Genetics, American Association for Cancer Research (AACR), Program, and the International Society for Computational Biology (ISCB). Her international reputation is emerging. She is a NIH Study Section member for Population Sciences and Epidemiology Special Emphasis and was a NIH Study Section member for NIEHS TARGET I FOA in March of 2013. She has been a reviewer for Sage Publications and was a Reviewer for Pennsylvania Department of Health (DOH) grants.

Recent and Significant Publications:

Welch RP*, Lee C*, Imbriano PM, Patil S, Weymouth TE, Smith RA, Scott LJ, Sartor MA: ChIP-Enrich: Gene set enrichment testing for ChIP-seq data. (in press at *NAR*).

Park Y, Figueroa ME, Rozek LS, Sartor MA: MethylSig: a whole genome DNA methylation analysis pipeline. *doi:10.1093/bioinformatics/btu339* (in press at *Bioinformatics*).

Kim JH, Karnovsky A, Mahavisno V, Weymouth T, Pande M, Dolinoy DC, Rozek LS, Sartor MA: LRpath analysis reveals common pathways dysregulated via DNA methylation across cancer types. *BMC Genomics* 13:526, 2012.

Sartor MA, Dolinoy DC, Jones TR, Colacino JA, Prince MEP, Carey TC, Rozek LS: Genome-wide methylation and expression differences in HPV(+) and HPV(-) squamous cell carcinoma cell lines are consistent with divergent mechanisms of carcinogenesis. *Epigenetics* 6:777-787, 2011.

Sartor MA*, Mahavisno V, Keshamouni VG, Cavalcoli J, Wright Z, Karnovsky A, Kuick R, Jagadish HV, Mirel B, Weymouth T, Athey B, Omenn GS: ConceptGen: a gene set enrichment and gene set relation mapping tool. *Bioinformatics* 26:456-463, 2010. (*corresponding author)

Service: Dr. Sartor is a member of the Bioinformatics, Proteomics in Cancer and Genome Sciences training grants as well as on the Executive Committee of the Environmental Health Toxicology and Epidemiology training grant. She has been a member and now serves as chair of Bioinformatics Preliminary Examinations Committee, on the CCMB Seminar Committee. She has been active in the Michigan Undergraduate Mathematics Conference (MUMC) graduate student recruitment events. Dr. Sartor served on the PIBS and Bioinformatics Admissions Committee and on the Bioinformatics Faculty Recruitment Committee for one year. She has had invitations to speak at Vanderbilt, the Genomics Research Conference, and at the American Head and Neck Society. She has given poster presentations in Spain, Austria, and Sweden. Internally, she is active in the UM Michigan Comprehensive Cancer Center, Head and Neck Oncology Program and heads the Bioinformatics Core for UM's NIEHS-funded P30 center. Locally, she has given seminars for Biostatistics, the Cardiovascular and Cancer Centers.

External Reviewers:

Reviewer A: "...Dr. Sartor has an exemplary record of teaching and other professional activities. She has served on numerous admissions, thesis and grant review committees. She has been a workshop and meeting organizer and is a sought-after speaker at national and international conferences."

Reviewer B: "Dr. Sartor's research focus is on high throughput bioinformatics analysis. During her entire career, she has published more than 100 papers including both original bioinformatics algorithm and software development as well as applications of data analysis high throughput methods in high impact biological problems."

Reviewer C: "As evidenced by her recently funded R01 and her service on multiple NIH study sections, Dr. Sartor has established herself as an independent investigator and a respected expert in her field."

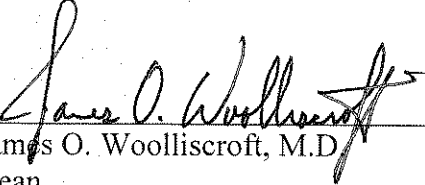
Reviewer D: "...Dr. Sartor's research in bioinformatics has resulted in the development of both tools and techniques to facilitate genetic analysis in research and these have made a national and international contribution to genetic research."

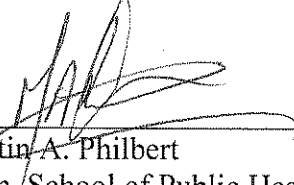
Reviewer E: "Dr. Sartor's extensive publication list reveals multiple collaborations with her as co-author, but also a critical number of publications in her specialty where she is the lead author. ...the mix between leading a study and serving as a collaborator appears to be right on target."

Reviewer F: "Dr. Sartor is a highly gifted and tremendously productive researcher who has contributed a great deal to bioinformatics. Her methods are designed to integrate multiple complementary sources of 'omic' information to tackle the vital but highly complex areas of epigenetics and regulomics."

Summary of Recommendation:

Dr. Sartor is rapidly developing a national and international reputation for her bioinformatics and epigenomics basic and cancer research. We expect her strong trajectory to continue upward and that she will continue to make seminal research contributions and to have a positive impact on her trainees. We therefore strongly recommend Maureen Sartor, Ph.D. for promotion to associate professor of computational medicine and bioinformatics, with tenure, Department of Computational Medicine and Bioinformatics, Medical School, and associate professor of biostatistics, without tenure, Department of Biostatistics, School of Public Health.


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


Martin A. Philbert
Dean, School of Public Health

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