

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF PSYCHIATRY

Srijan Sen, M.D., Ph.D., associate professor, of psychiatry, with tenure, Department of Psychiatry, Medical School, is recommended for promotion to professor of psychiatry, with tenure, Department of Psychiatry, Medical School [also being promoted to research professor, Michigan Institute for Data Science].

Academic Degrees:

2005	M.D.	University of Michigan
2005	Ph.D.	Neuroscience, University of Michigan
1997	B.A.	Neurobiology and Behavior, Cornell University

Professional Record:

2017-present	Research Associate Professor in Data Science Initiative, University of Michigan
2016-present	Frances and Kenneth Eisenberg Professor of Depression and Neurosciences
2016-present	Adjunct Associate Professor of Psychology, University of Michigan
2015-present	Associate Professor of Psychiatry, University of Michigan
2015-present	Research Associate Professor of Molecular and Behavioral Neuroscience Institute, University of Michigan
2014-2015	Research Assistant Professor of Molecular and Behavioral Neuroscience Institute, University of Michigan
2012-2015	Assistant Professor, Center for Computational Medicine and Bioinformatics, University of Michigan
2011-2015	Assistant Professor of Neuroscience Program, University of Michigan
2009-2015	Assistant Professor of Psychiatry, University of Michigan
2009	Clinical Lecturer of Psychiatry, University of Michigan

Summary of Evaluation:

Teaching: Dr. Sen dedicates is an accomplished teacher across several domains. Within his research programs, he has served as a primary mentor or dissertation committee member for eleven graduate students, and a mentor for eleven undergraduate students, four medical students, two post-doctoral fellows and two resident physicians. Many of these trainees have published first-author papers where Dr. Sen served as a senior author, including several in high-impact journals. He also lectures extensively to undergraduate and medical students and psychiatry residents, with these didactics consistently receiving strong evaluations. He provides classroom instruction, clinical supervision and leads initiatives to improve the well-being of learners. On a national level, Dr. Sen works on similar issues through the National Academy of Medicine Collaborative on Clinician Well-Being. Dr. Sen worked with the Medical School to develop and shape the Medical School Mistreatment reporting system, a valuable mechanism that allows students to anonymously report incidents of mistreatment and help to create a safer and more effective learning environment.

Research: Dr. Sen's research focuses on understanding how stress leads to depression, with the ultimate goal of improving the lives of patients through better prevention and treatment. He commenced and leads the Intern Health Study, a prospective cohort study of stress and depression during medical internship that has enrolled more than 20,000 interns from over 100 institutions. Dr. Sen has been successful in securing grant funding from the National Institutes of Health, including a study that he has played a fundamental role in, identifying the prevalence of depression among training physicians, the individual and institutional factors driving physician depression and potential pathways to improving physician wellness. Dr. Sen's research group uses the internship model as a prospective stress model to delineate genomic factors that increase risk of depression under stress and identify changes in telomere length, cortisol, endothelial function and other biological factors with stress. In addition, the Intern Health Study has been critical in the early development of digital psychiatry, identifying objective, mobile factors that predict near-term risk for depression and the positive effects of mobile data on health. Dr. Sen's work is consistently published in high impact journals, with each paper garnering an average of over 120 citations. His work has received widespread press coverage in outlets such as *Time Magazine*, *the Washington Post* and the *The New York Times* and *CBS This Morning* and influenced medical education policies and guidelines put forward by healthcare institutions, the ACGME and National Academy of Medicine. He has published more than 55 peer-reviewed articles, and has been invited to present his research on 25 occasions regionally, nationally and internationally. In 2016, Dr. Sen was a recipient of the University of Michigan Endowment for Basic Sciences Award.

Recent and Significant Publications:

Y Fang, L Scott, M Burmeister, P Song and S Sen: Genomic Predictors of Depression During Physician Training Stress. *Nature Human Behaviour* (in press).

DA Kalmbach, Y Fang, JT Arnedt, AL Cochran, PJ Deldin, A Kaplin and S Sen: Effects of Nightly Sleep Duration, Physical Activity and Shift Work on Daily Mood in First Year Residents: A Prospective Longitudinal Mobile Monitoring Study. *Journal of General Internal Medicine*. 33(6), 914-920, 2018.

C Guille, EM Frank, Z Zhao, D Kalmbach, D Mata and S Sen. Work-Family Conflict and the Sex Difference in Depression Among Training Physicians. *JAMA Internal Medicine* 177(12):1766-1772, 2012.

D Mata, M Ramos, N Bansal, R Khan, C Guille, E Di Angelantonio and S Sen: Prevalence of Depression and Depressive Symptoms among Resident Physicians. *JAMA*. 314 (22), 2373-2383, 2015.

C Guille, J Krystal, B Nichols, J Zhao, K Brady and S Sen: Web-Based Cognitive Behavioral Therapy Intervention for the Prevention of Suicidal Ideation in Medical Interns: A Randomized Controlled Trial. *JAMA Psychiatry*. 72(12), 1192-1198, 2015.

Service: Dr. Sen's clinical services involve clinically treating UM medical students, house officers and attending physicians with depression and anxiety. He serves as the co-chair the House Officer Wellness Committee, providing guidance on improving work conditions and mental health care treatment for training physicians. Since 2015, Dr. Sen has been influential in several leadership

positions in the Department of Psychiatry including as the associate chair for research and faculty development, the associate director of the University of Michigan Depression Center, helping to secure the recruitment of several research faculty and the development of initiatives including the internal grant review program; early career faculty group; research incentive program and Mental Health Biobank. He serves on the Taubman Institute Executive Committee, the Clinical Sciences Scholar Program Committee, the Faculty and Physician Health Initiative Task Force and other initiatives in Michigan Medicine and across the university. Dr. Sen is serving as the associate vice president for research – health sciences for the University of Michigan. Nationally, his expertise in physician well-being has led to service in several national initiatives on this topic, including the National Academy of Medicine Clinician Well-Being Collaborative and similar initiatives through the ACGME and NBME. He has served as an ad hoc reviewer for two NIH study sections and is a member of the American Foundation for Suicide Prevention Research Grant Committee. Additionally, he sits on the Editorial Advisory Board of *Acta Psychiatrica Scandinavica*.

External Reviewers:

Reviewer A: “Dr. Sen is an outstanding psychiatric researcher, one of the best of his generation...he has published groundbreaking reports...These articles are impressive in their scope and their rigor...it is fair to say that Dr. Sen has transformed our understanding of medical education in the United States through his rigorous research...The outlets, the rigor, the citations, and the altmetrics data all point to impactful productivity...He is serving on national committees, consulting with multiple research groups, delivering important addresses, and attracting research funding. His work is discussed widely in Europe, too...Clearly, his work is being watched and tracked by multiple users...Dr. Sen has come very far remarkably fast...He is at the top of the game, producing transformative research that is being discussed everywhere!”

Reviewer B: “He has been a pioneer in recognizing the value of internship and residency training of physicians as a model of chronic stress with psychiatric consequences...His research includes genetic analysis of susceptibility to this stress, as well as physiologic investigations. He has a very good publication record...His research collaborators are distinguished, and he has an excellent record of funding, including an active NIH R01 grant, on which he is PI...His educational contributions, from his CV, are substantial...He serves as Associate Chair for Research and Faculty Development of the Department of Psychiatry; this is a most important function for the academic distinction of any Department.”

Reviewer C: He has been first or senior author on 37 out of 51 publications...of more relevance are the journals he publishes in...The pace of important publications all point to a rapid and highly successful career. There, he continued to establish himself as a rising-star researcher, despite substantial clinical responsibilities...Srijan continued his impressive work building up the Intern Health Study...Beyond his own work, Srijan has grown into a sought-after leader and mentor...led several important initiatives including grant review and grant incentive programs that helped increase departmental NIH funding by over \$5M/year...I have no doubt that Srijan will continue to make important contributions to our field of the first order.”

Reviewer D: “Dr Sen’s work is so pivotal...Its implications have had a huge impact on national bodies like the AAMC, ACGME and National Academy of Medicine...He has also been promoted to Associate Chair for Research and Faculty Development and he is Associate Director of the

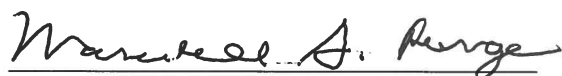
Comprehensive Depression Center at the University of Michigan. This is impressive. His current and submitted grants are substantial...He is making a national and international impact.”

Reviewer E: “Many times a K-Award does not go beyond a post fellowship training experience in terms of scientific contributions but in this case the project has blossomed to become a landmark contribution to not only stress and depression but also to understanding so-called physician burnout...His initial study has ballooned to some 4,000 [sic] subjects [sic], now across several countries. The results have been incredibly impressive...This work has not only had important scientific traction but has also been featured in mainstream media...His research has been funded by a K-Award, a BRAINS Award from the NIMH, and ROI 's from the NIMH and the Department of the Navy...I see him as one of the outstanding translational researchers in psychiatry...”

Reviewer F: “His findings also received wide coverage though news briefs in sources as prominent and varied as Nature and The New York Times...Most notably, Dr. Sen initiated the truly innovative Intern Health Study...Dr. Sen has emerged as a creative and impactful researcher and a leader in his generation of mental health researchers.”

Summary of Recommendations:

Dr. Sen continues to excel clinically, and scientifically with demonstrable impact of his work in research, physician training and wellness. He is a very highly productive clinical scientist, who is a leader in the field of psychiatric genetics and genomics. I am pleased, therefore, to recommend Srijan Sen, M.D., Ph.D. for promotion to professor of psychiatry, with tenure, Department of Psychiatry, Medical School.



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

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