

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF HUMAN GENETICS

Sundeep Kalantry, Ph.D., associate professor of human genetics, with tenure, Department of Human Genetics, Medical School, is recommended for promotion to professor of human genetics, with tenure, Department of Human Genetics, Medical School.

Academic Degrees:

Ph.D.	2001	Cornell University
A.B.	1993	Cornell University

Professional Record:

2016 - present	Associate Professor of Human Genetics, with tenure, University of Michigan
2009 - 2016	Assistant Professor of Human Genetics, University of Michigan

Summary of Evaluation:

Teaching: Dr. Kalantry is an outstanding educator and mentor in the classroom and the laboratory. He has made significant contributions to the Medical School's educational mission. Since 2014, he has taught at least six lectures and two discussion sections in a popular course on molecular genetics (HG541). Since 2020, Dr. Kalantry has served as the director of this course, which has a large number of students enrolled. He has already made significant improvements to the way we teach molecular genetics to Ph.D., master's, medical, and undergraduate students. In addition, he has taught in several other courses over the past five years, including Advanced Topics in Genetics (HG803), Molecular Basis of Human Inherited Disease (HG542), and Research Responsibility and Ethics (PIBS503), and he has directed a Friday afternoon seminar series for trainees in the Department of Human Genetics. Dr. Kalantry has established himself as an effective and rigorous mentor in the laboratory and his mentorship is highly sought after by trainees at the Medical School. To date, he has successfully trained 15 undergraduates, six Ph.D. students, and seven post-doctoral fellows. Each of these individuals has performed at a very high level, has successfully directed an independent research program, and has published their findings in top journals. As a testament to Dr. Kalantry's skills as a mentor, his former trainees have transitioned to outstanding, research-intensive positions at top academic institutions, and have secured several top awards under his mentorship, including the Harold M. Weintraub Outstanding Graduate Student Award.

Research: Dr. Kalantry has established himself as a world-renowned expert in the fields of epigenetic regulation and X-chromosome inactivation. He has been successful during his tenure at the University of Michigan with major accomplishments, including discovery of the genetic basis of mouse imprinted X-chromosome inactivation; discovery of an evolutionarily-conserved initiator of random X-chromosome inactivation; and discovery of novel *Xist* antisense lncRNAs as candidate regulators of X-inactivation. As a result, he has published 11 manuscripts (with two more in revision) over the past five years and these have appeared in top journals including *PNAS*, *eLife*, and *Genome Biology*. Dr. Kalantry has a long track record of securing external funding for his research program, which includes currently serving as the principal investigator on two NIH R01 awards and as a co-investigator with effort on two additional NIH R01 awards.

Recent and Significant Publications:

Harris, C, Cloutier, M, Trotter, M, Hinten, M, Gayen, S, Du, Z, Xie, W, Kalantry, S: Conversion of random X-inactivation to imprinted X-inactivation by maternal PRC2. *eLife*, 2019 Apr 2;8:e44258 (p.1-30). PMID: 30938678; PMCID: PMC6541438

Cloutier, M, Harris, C, Gayen, S, Maclary, E, Kalantry, S: Experimental Analysis of Imprinted Mouse X Chromosome Inactivation. *Methods Mol Biol*, 2018 Sept 15;1861 (p.177-203). PMID: PM30218368; PMCID: PMC6209079

Maclary, E, Hinten, M, Harris, C, Sethuraman, S, Gayen, S, Kalantry, S: PRC2 represses transcribed genes on the imprinted inactive X chromosome in mice. *Genome Biology*, 2017 May 3;18(1):82 (p.1-17). PMID: 28468635; PMCID: PMC5415793

Zhang, H, Gayen, S, Xiong, J, Zhou, B, Shanmugam, AK, Sun, Y, Karatas, H, Liu, L, Rao, RC, Wang, S, Nesvizhskii, AI, Kalantry, S, Dou, Y: MLL1 Inhibition Reprograms Epiblast Stem Cells to Naïve Pluripotency. *Cell Stem Cell*, 2016, Apr 7;18(4) (p.481-494). PubMed PMID: 26996599; PMCID: PMC4826731

Gayen, S, Maclary, E, Hinten, M, Kalantry, S: Sex-specific silencing of X-linked genes by the *Xist* RNA. *Proceedings of the National Academy of Sciences of the U.S.A*, 2016 Jan 19;113(3) (p.E309-18). PMID: 26739568; PMCID: PMC4725534

Service: Dr. Kalantry has exceptional service for his department, the university, and the global scientific community. He recently completed a three-year term as the associate chair for research in the Department of Human Genetics and currently chairs the department's faculty search committee and promotions and appointments committee. He also serves as the associate director of the Reproductive Biology T32 training program, on the Executive Committee of the Center for RNA Biomedicine, and is the founder of Michigan Chromatin Club. Dr. Kalantry performs ad hoc grant review for the National Science Foundation, several National Institutes of Health study sections, and for a remarkable number of international agencies in the Netherlands, France, Singapore, Qatar, Canada, and England. He frequently serves as an ad hoc manuscript reviewer for top journals including *Nature*, *Science*, and *Nature Genetics*. He has been a member of 21 Ph.D. thesis committees.

External Reviewers:

Reviewer A: "...Using a combination of molecular, cellular, and genetic approaches, Dr. Kalantry's lab has generated many novel insights into the regulation of X-inactivation over the last decade...His scientific contributions are original and of high quality, which have a significant impact on the field...His research program is currently supported by two NIH R01s and two NRSA fellowships with him as mentor or co-mentor. In addition, he was the past recipient of the highly competitive NIH Director's New Innovator Award, the March of Dimes Basil O'Connor Starter Scholar Research Award, and the Ellison Medical Foundation New Scholar Award."

Reviewer B: "I consider Dr. Kalantry to be doing some of the most innovative work in the field of X chromosome inactivation (XCI) specifically, and transcriptional regulation. His lab has the reputation of doing meticulous, high-quality research in some of the most intensely studied areas of epigenetics research today. In summation, I believe Dr. Kalantry has comfortably met all the requirements for this promotion. His science, reputation, service, and mentoring are all high quality. I believe he would receive this promotion in most top quality genetic or epigenetics programs around the world."


Reviewer C: “In brief, research studies from Sundeep’s lab have consistently provided new conceptual advances that have driven the field of epigenetic regulation and overturned some of the established paradigms. He is a key leader in the field and his research findings have broad implications in genome organization, epigenetic regulation, transcriptional control, mammalian development and fertility...In terms of service contributions, Sundeep provides valuable experience and expertise at local, national, and professional levels...Sundeep is clearly an excellent research scientist, mentor, collaborator, and professional colleague. His work is cutting edge and innovative. He is making a significant and novel impact in the fields of epigenetics and mammalian development with implications for human genetics and fertility.”

Reviewer D: “With no reservations, I am strongly in favor of his case for promotion...His publications are all focused on his interest on epigenetic regulation and X inactivation and their impact can be judged base [sic] on the number of citations and the journals citing this body of work. Per my count, Dr. Kalantry’s recent publications have been cited at least 192 times. This is a robust metric given that I am quite sure many other publications citing his work have been delayed by the pandemic effect on slowing scholarly publications. The journals and scientists citing his work are world leaders in this field of research...Dr. Kalantry is worthy of promotion to Professor with tenure. His scholarly productivity and evidence of impact have the hallmarks of an outstanding successful scientist in the fields of epigenetics and developmental genetics. He is above the average for his peer group.”

Reviewer E: “Dr. Kalantry’s accomplishments since his last promotion as documented in his dossier clearly indicate someone with an increasingly productive and recognized academic career. Dr. Kalantry is an active participant and has established himself as a recognized expert through the peer-reviewed literature and competitive extramural grants in X-inactivation, has been an active contributor to science infrastructure through peer-review, and has maintained an active teaching and service load. Based upon excellence in each of these areas, Dr. Kalantry would be considered exceptionally qualified for promotion to Professor at each of the four institutions that I have held faculty positions.”

Summary of Recommendation:

Dr. Kalantry is an internationally recognized expert in the field of epigenetics and X-chromosome inactivation. He is an effective teacher and mentor in the classroom and laboratory and is highly sought after for his mentoring in research. He is also an active participant through service to the Medical School and to the broader scientific community. I am pleased to recommend Sundeep Kalantry, Ph.D. for promotion to professor of human genetics, with tenure, Department of Human Genetics, Medical School.



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

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