

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF MOLECULAR AND INTEGRATIVE PHYSIOLOGY
DEPARTMENT OF INTERNAL MEDICINE

Scott F. Leiser, Ph.D., assistant professor of molecular and integrative physiology, Department of Molecular and Integrative Physiology, and assistant professor of internal medicine, Department of Internal Medicine, Medical School, is recommended for promotion to associate professor of molecular and integrative physiology, with tenure, Department of Molecular and Integrative Physiology, and associate professor of internal medicine, without tenure, Department of Internal Medicine, Medical School.

Academic Degrees:

Ph.D.	2009	University of Michigan, Ann Arbor, MI.
B.S.	2002	University of California Davis, Davis, CA.

Professional Record:

2016- present Assistant Professor, Department of Molecular & Integrative Physiology,
University of Michigan

2016- present Assistant Professor, Department of Internal Medicine, Division of Geriatric
and Palliative Medicine, University of Michigan

Summary of Evaluation:

Teaching: Dr. Leiser is an outstanding teacher in the classroom and through training in the laboratory. Dr. Leiser is a highly rated classroom-based teacher. He gives multiple lectures each year in five different graduate courses across CMB, Physiology, and Dentistry and served as the course director for CMB 850 for four years. Since 2016, he has taught the PIBS 503 ethics course. He has further participated in remote learning, including a video lecture for the American Aging Association on Intercellular Signaling. He is a very active mentor having trained undergraduate students, graduate students, post-doctoral fellows, and a visiting scholar. Under the direct supervision of Dr. Leiser, four students have completed their Ph.D. research, and four more are currently pursuing their Ph.D. degrees. Two of his post-doctoral fellows have been recently promoted to research investigator and continue to work towards independent careers in Dr. Leiser's laboratory. Many of his mentees have been successful in obtaining grant funding from the National Institutes of Health including numerous T32 appointments, an Institutional Research and Academic Career Development Award (IRACDA), two National Science Foundation graduate awards, and three F31 National Research Service Awards (NRSA). In 2018, Dr. Leiser was nominated and won the first annual Cellular and Molecular Biology mentoring award. Additionally, Dr. Leiser has also been active in serving on dissertation committees and as an evaluator for graduate student seminars in the Department of Molecular and Integrative Physiology, the Cellular and Molecular Biology, and Neuroscience program as well as the Biology of Aging training program.

Research: Dr. Leiser has had a substantial impact on the field of gerontology and the biology of aging through his basic research program focused on uncovering mechanisms that impact the rate of biological aging and regulate lifespan. His research laboratory uses model organisms such as *C. elegans* to uncover new mechanisms of how the nervous system's and organism's perception of stimuli such as food, temperature, and oxygen levels activates stress responses in other parts of the organism, which can significantly alter an organism's lifespan. These new pathways could identify new targets for extending health span and longevity in other organisms including humans.

He has been highly successful in receiving funding for this work, with five active National Institutes of Health grants, with four as the principal investigator and one as co-investigator. Dr. Leiser has authored 18 peer-reviewed publications in high-impact journals including *eLife*, *Aging Cell*, and *Nature Communications*. He has written two book chapters and provided 59 abstracts. He has been invited on 14 occasions to present his research, including talks in China (which was canceled due to COVID) and South Korea (remote), indicating his research is having an impact at the national and international levels.

Recent and Significant Publications:

Miller HA, Huang S, Dean ES, Schaller M, Tuckowski A, Munneke A, Beydoun, S, Pletcher SP, and Leiser SF, "Serotonin and dopamine modulate aging in response to food odor and availability," *Nature Communications* 13: 3271, 2022.

Huang S, Howington MB, Dobry CJ, Evans CR, Leiser SF, "Flavin-Containing Monooxygenases Are Conserved Regulators of Stress Resistance and Metabolism," *Front Cell Dev Biol* 9: 630188, 2021. PM33644069/PMC7907451

Beydoun S, Choi HS, Dela-Cruz G, Kruempel J, Huang S, Bazopoulou D, Miller HA, Schaller ML, Evans CR, Leiser SF, "An alternative food source for metabolism and longevity studies in *Caenorhabditis elegans*," *Commun Biol* 4(1): 258, 2021. PM33637830/PMC7910432

Miller HA, Dean ES, Pletcher SD, Leiser SF, "Cell non-autonomous regulation of health and longevity," *Elife* 9: e62659, 2020. PM33300870/PMC7728442

Miller H Fletcher M, Primitivo M, Leonard A, Sutphin GL, Rintala N, Kaeberlein M, and Leiser SF, "Genetic interaction with temperature is an important determinant of nematode longevity," *Aging Cell* 16(6): 1425-1429, 2017, PMC5676069.

Service: Dr. Leiser has a record of service, where he is the review editor for *Frontiers in Genetics*, the associate editor for *Translation Medicine of Aging Journal*, and on the Reviewing Editors Board of *Elife*, and serves as an ad hoc reviewer for some of the field's top journals. Institutionally Dr. Leiser has been actively engaged as a member of the following committees: Physiology Graduate, Physiology Seminar, and the Physiology Master's Program and is presently a representative of the Safety Committee whereby he is the safety liaison for BSRB. Nationally, he has served on five study sections for various organizations, including the National Institutes of Health, the American Federation for Aging, the John Temple Foundation, and the European Research Council. He is a standing member of the National Institutes of Health National Institute on Aging AGCD-4 study section. Dr. Leiser is a board member of the American Aging Association and he is a biological sciences representative for the Gerontological Society of America Public Policy Committee.

External Reviewers:

Reviewer A: “Dr. Leiser’s scholarship and mentoring activities are also complemented by his extensive service at University of Michigan and at the national and international levels. His growing reputation in the field is further supported by invitations to serve on NIH study sections and his current membership on the roster of the NIA AGCD 4 study section. Likewise, his editorial activities, such as his membership in the eLife Board of Reviewing Editors, show the value the field places on his judgement. Dr. Leiser is well-poised to emerge as a leader among his peers.”

Reviewer B: “This is solid area for Dr. Leiser. He has led or participated in recurring coursework including being the Course Director for CMB850 since 2016, and returning instructor for Phys502, Phys555, and Dent538 since 2017/2018. Furthermore, he has provided guidance and resources for an impressive 25 undergraduate students engaged in directed independent research. He is clearly a sought after mentor with 11 graduate students and seven post-doctoral fellows trained or in-training to date, and has supported the training of a further 14 graduate students through participation on thesis committees. This record shows dedication and commitment to the academic mission at the University of Michigan.”

Reviewer C: “Dr. Leiser is bright and his training in multiple model systems and in aging will continue to serve him well bringing unique perspective to the field...His recent work in the aging field is significant and builds on his strong background. I find his papers to be thoughtful and methodical, showcasing his care in experimental design and his ability to develop and present interesting projects. As mentioned, he has made discoveries that are impactful to the aging field especially those involving the flavin-containing monooxygenases and their role in cellular stress and longevity. The area of stress resistance is challenging and his innovative approach to address this issue is notable. His publications reflecting this work are garnering attention in the field.”

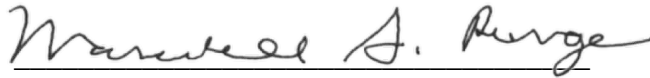
Reviewer D: “Dr. Leiser has been the PI on multiple research awards, and currently has three active R01 (this is remarkably high for an assistant professor). He also reports proposals that are currently under review. In addition, Dr. Leiser is coI on the NIA Intervention Testing program, which is a nationally recognized consortium to study pharmacological interventions in murine models for increased lifespan and is also coI on the Paul Glenn Center. These leadership roles are exemplary for a scientist at his career stage. Beyond this, Dr. Leiser received more than \$1M a year for research funding in his own group. This level of funding is deemed outstanding and beyond expectations for faculty member at Dr. Leiser’s career stage.”

Reviewer E: “Dr. Leiser’s research is groundbreaking and original...a leading pioneer in the research field...His work is multidisciplinary, because he has been successfully employing techniques using *C. elegans* as a molecular genetic model, and continuously developing new analytical tools at the highest level. Dr. Leiser is a rigorous and brilliant scientist who always finds the most exciting and novel questions in the research field. He has provided outstanding services to the scientific community, by actively organizing and participating in various activities associated with aging research field. He has also been an invited speaker at multiple international venues, and his presentations have been among the most enthusiastic and engaging. Dr. Leiser has been involved in reviewing of numerous grants and papers.”

Reviewer F: “Dr. Leiser also has a consistent publication record. He listed five research articles and three review articles for which he is the senior author since his faculty appointment in 2016. These papers are of high quality and published in well-recognized international journals. Among them, the 2022 Nature Communication paper which reports on non-cell autonomous signaling important for dietary restriction-mediated longevity and a manuscript currently in review that reports the mechanisms of how FMO impacts longevity represent the two papers that are likely the most impactful from the Leiser lab to date. The two papers summarize the major findings from the Leiser lab on the two research foci that are actively funded by the NIH.”

Summary of Recommendation:

Dr. Leiser is an outstanding scientist and an educator, with a growing national and international reputation. He is a rising star in the field of aging and aging research. He has been successful in obtaining independent funding for his research and is an excellent educator and mentor. I enthusiastically recommend Scott F. Leiser, Ph.D. for promotion to associate professor of molecular and integrative physiology, with tenure, Department of Molecular and Integrative Physiology, and associate professor of internal medicine, without tenure, Department of Internal Medicine, Medical School.



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

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