

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

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

Academic Degrees:

Ph.D.	2000	University of Kentucky
B.S.	1996	National Taiwan University

Professional Record:

2005-present	Assistant Professor of Molecular and Integrative Physiology, University of Michigan
2004-present	Assistant Professor of Internal Medicine, University of Michigan

Summary of Evaluation:

Teaching: Dr. Hsu has been actively involved with the education of undergraduate students, medical students and fellows and has taught in various settings including formal lectures presented at national and international conferences, and during laboratory procedures. Through his additional appointment with the Department of Molecular and Integrative Physiology, he taught endocrine physiology as part of the "Integrated Medical Sciences" course (DENT 540) for first-year dental students from 2007-2010. He has been a faculty facilitator of the Endocrinology Small Group for first-year medical students since 2006 with students describing him as "one of the best small group leaders" in a recent evaluation. Since 2008, Dr. Hsu has been serving as a regular faculty participant in the Physiology Student Seminar (PHYS 606) directed by Dr. Ormond MacDougald. In 2011, he further expanded his role as an educator by teaching the biology of aging module of "Integrated Genomics" (PHYS 555), a Ph.D. course. Dr. Hsu has been a faculty sponsor of the Undergraduate Research Opportunity Program (UROP) since 2006, mentoring 2-4 students a year. He has provided mentoring and thesis guidance to two Ph.D. students from the physiology and neuroscience programs. In addition, he has trained four postdoctoral fellows and supported 13 undergraduate students in his laboratory. Dr. Hsu presented *C. elegans* (a nematode) as a model organism for aging research in a summer course hosted by Kaohsiung Medical University in Taiwan as an invited lecturer in August 2011. Over the past few years, Dr. Hsu has actively sought opportunities to interact with students and help them think critically. It is expected that with increased funding, Dr. Hsu will likely expand his lab and take on an even more significant role as a mentor.

Research: Since the beginning of his postdoctoral fellowship, Dr. Hsu's research has been focused on the genetic and environmental factors that influence the rate of aging and longevity, using the short-lived *C. elegans* as the model organism. As aging and longevity studies tend to require more time to develop and complete, after spending the first few years establishing its foundation, his research has now just begun to flourish. He has been quite successful in obtaining grant funding, including two active R01 grants. Dr. Hsu has recently utilized high throughput imaging and computational methods in his research which is the basis for the funding of his very promising R01 grant. This research holds great promise for drug screening and may set the foundation for future development of anti-aging medicines. Dr. Hsu's scholarly niches which include investigating the interface of heat shock factor, quality control mechanisms, protein homeostasis and dietary restriction are important areas in the future of research on aging. Dr. Hsu has been a reviewer of journal articles and has been invited to present his research work at over 20 departments/institutions internationally. In 2005, Dr. Hsu received a New Scholar Award in Aging from the Ellison Medical Foundation for the study of the heat-shock transcription factor (HSF-1) protein, a project now funded by a NIH/NIA R01 award.

Recent and Significant Publications:

Chiang WC, Ching TT, Lee HC, and Hsu AL: DDL-1/2, two novel regulators of HSF-1 that link DAF-2 insulin-like signaling to heat-shock response in *C. elegans*. *Cell* In press, 2011.

Ching TT, Chiang WC, Chen CS, Hsu AL: Celecoxib extends *C. elegans* lifespan via inhibition of insulin-like signaling but not cyclooxygenase-2 activity. *Aging Cell* 10:506-519, 2011.

Ching TT, Hsu AL: Solid plate-based dietary restriction in *Caenorhabditis elegans*. *J Vis Exp* 51, 2011.

Ching TT, Paal A, Mehta A, Zhong L, Hsu AL: *drr-2* encodes an eIF4H that acts downstream of TOR in diet-restriction-induced longevity of *C. elegans*. *Aging Cell* 9:545-557, 2010.

Hsu AL*, Feng Z, Hsieh MY, Xu XZ* Identification by machine vision of the rate of motor activity decline as a lifespan predictor in *C. elegans*. *Neurobiology of Aging*. 30:1498-1503, 2009. (*Co-corresponding authors)

Service: In terms of national and international recognition and services, Dr. Hsu has been invited to serve on grant review panels for the National Science Foundation, American Federation for Aging Research, and Italian Ministry of Health. In addition, he has served as an ad-hoc reviewer for various international scientific journals, such as *Aging Cell*. He has been an invited speaker numerous times since 2004, with seven of these speaking engagements in international locations. He also participated in organizing an international conference on *C. elegans* research. Institutionally, Dr. Hsu has served on dissertation committees and qualifying exam committees.

External Reviewers:

Reviewer A: "...he has a promising future ahead of him, and he will capitalize well on the momentum that he has now built. He has found a niche investigating the interface of heat shock factor, quality control mechanisms, protein homeostasis and dietary restriction, and these are exciting and important areas for the future."

Reviewer B: “His work has been published in highest impact journals and earned him multiple NIH grants, fully attesting to peer’s [sic] recognition....I consider his work to be highly original and of highest quality.”

Reviewer C: “...It is also clear that he has established a productive and diverse research program...it is impressive that he is able to be productive in five research areas. This speaks well of his research and leadership ability. It is also clear that Dr. Hsu has been able to set up fruitful collaborations...It is clear that Dr. Hsu’s research program is on an upward trajectory.”

Reviewer D: “...Dr. Hsu has a demonstrated record of productivity and has made a wonderful progress in establishing his own unique research niche in several high impact and highly competitive research areas...In the last 7 years, Dr. Hsu has been extremely active in making his research findings known to the broader scientific community.”


Reviewer E: “He has an active research program, as [evidenced] by 3 current grants (including 2 NIH R01 grants) and 2 pending grants, and 2 publications so far this year. His work with *C. elegans* and aging has resulting [sic] in several important contributions...He is establishing national recognition through his service on grant review panels and manuscript reviews and as a speaker at national meetings and conferences.”

Reviewer F: “Overall, I perceive his work as original, novel, and of high quality in a highly competitive field.”

Reviewer G: “...it is evident that his creative work has impacted the field of aging research. There is every indication that he will continue to be an increasingly important contributor to this field. At this stage in his career, based on his accomplishments and his trajectory, Dr. Hsu can only be ranked at the very top of his peer group.”

Summary of Recommendation:

Dr. Ao-Lin Hsu is nationally and internationally recognized as a leader in the area of biogerontology. He is known as an outstanding cell biologist, molecular geneticist and educator. He is a key participant in the biogerontology research program of the Geriatrics Center and his laboratory is very well funded from the NIH. He has already made important research contributions in papers published in high impact journals such as *Science* and the *Journal of Biological Chemistry*. He has developed outstanding leadership skills and is active in national organizations and national peer review. I am pleased to recommend Ao-Lin Hsu, Ph.D. for promotion to associate professor of internal medicine, with tenure, Department of Internal Medicine and associate professor of molecular and integrative physiology, without tenure, Department of Molecular and Integrative Physiology, Medical School.


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

May 2012