

PROMOTION RECOMMENDATION
The University of Michigan
College of Literature, Science, and the Arts

Ming Li, assistant professor of molecular, cellular, and developmental biology, College of Literature, Science, and the Arts, is recommended for promotion to associate professor of molecular, cellular, and developmental biology, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	2008	University of Massachusetts
M.S.	2001	Fudan University
B.S.	1998	Fudan University

Professional Record:

2016-present	Assistant Professor, Department of Molecular, Cellular, and Developmental Biology, University of Michigan
2011-2016	Post-doctoral Fellow, Cornell University
2008-2011	Post-doctoral Fellow, University of Massachusetts

Summary of Evaluation:

Teaching: Professor Li is a passionate educator who has contributed significantly to the teaching missions of MCDB. Since joining the UM faculty, he has taught in five courses, including the upper-level, large enrollment course Cell Biology (MCDB 428). Professor Li has updated the material in MCDB 428, working together with the instructors in a lower-level cell biology course (Biology 272) to ensure each course is taught at the appropriate level. Professor Li has also developed an upper-level course for senior undergraduates (MCDB 447: Lysosomes and Diseases), which teaches students to critically evaluate primary research papers. He also taught a graduate seminar (MCDB 600: Lysosome and Endocytosis) and he has also participated in two team-taught graduate level courses (MCDB 614: Experimental Models in MCDB and MCDB 800: Graduate Seminar). In addition, Professor Li has mentored almost twenty undergraduates in his laboratory, several of whom wrote honors theses on their research; he has also mentored or is mentoring four Ph.D. students and one post-doctoral fellow.

Research: Professor Li is a cell biologist studying the regulation of membrane transporters in the lysosomal membrane. Lysosomes are major recycling centers for eukaryotic cells, e.g., degrading proteins and storing the resulting amino acids for when the cell is under nutritional stress. The membrane transport proteins in the lysosomal membrane allow these molecules to move in and out of lysosomes, but little was known about whether they are regulated in response to changes in the environment. Using Baker's yeast as a model, Professor Li discovered that several transporters are highly regulated, and his laboratory has uncovered some of the molecular mechanisms controlling this process. His group has extended these findings to mammalian cells, demonstrating that they share a similar pathway for regulating the level of lysosomal transport proteins. In addition, this work in mammalian cells has led to the discovery of a novel protein involved in lysosome biogenesis, which is defective in humans with skeletal, heart, and cognitive

defects. Professor Li has published productively during his appointment as an assistant professor and his research program has gained international recognition in the area of lysosomal biology; he is well positioned to be a leader in this area for years to come.

Recent and Significant Publications:

- Zhang, W., Yang, X., Li, Y., Yu, L., Zhang, B., Zhang, J., Cho, W., Venkatarangan, V., Chen, L., Burugula, B., Bui, S., Wang, Y., Duan, C., Kitzman, J., & Li, M. (2022). GCAF(TM251) regulates lysosome biogenesis by activating the mannose-6-phosphate pathway. *Nature Communications*, 13(1), 1-17.
- Zhang, W., Yang, X., Chen, L., Liu, Y., Venkatarangan, V., Reist, L., Hanson, P., Xu, H., Wang, Y., & Li, M. (2021). A conserved ubiquitin- and ESCRT-dependent pathway internalizes human lysosomal membrane proteins for degradation. *PLOS Biology*, 19(7), e3001361.
- Arines, F.M., Hamlin, A., Yang, X., Liu, Y., & Li, M. (2021). A selective transmembrane recognition mechanism by a membrane-anchored ubiquitin ligase adaptor. *Journal of Cell Biology*, 220(1), e202001116.
- Yang, X., Zhang, W., Wen, X., Bulinski, P.J., Chomchai, D., Arines, F.M., Liu, Y., Sprenger, S., Teis, D., Klionsky, D., & Li, M. (2020). TORC1 regulates the vacuole membrane composition through ubiquitin- and ESCRT-dependent microautophagy. *Journal of Cell Biology*, 219(3), e201902127.

Service: Professor Li has a strong record of service within MCDB. He has served on the Graduate Admissions Committee for several years and was a member of the Faculty Search Committee in 2021. As a member of the Graduate Studies Committee, he took the lead in organizing the 2021 MCDB departmental retreat. He has also performed valuable service on the MCDB seminar committee and has served as a faculty mentor for the NextGen Professors programs. Beyond UM, Professor Li has served as a reviewer for many scientific journals and has served on multiple NIH study sections reviewing grants.

External Reviewers:

Reviewer (A): “[Professor Li] is a gem, an outstanding investigator who has developed a new area of research in organelle biology.”

Reviewer (B): “[Professor Li] has emerged as a leader in the field of vacuolar/lysosomal protein homeostasis. Indeed, with the caveat that I’m something of an outsider, it seems that he could be regarded as the leader in this field.”

Reviewer (C): “I have been a faculty member at [institution] for 30 years and have reviewed a large number of promotion packages. I’ve served on College-wide committees tasked with reviewing promotion packages from all Arts and Science departments and I have written tenure letters for dozens of colleagues. Dr. Li has one of the strongest cases for promotion that I have seen.”

Reviewer (D): “Taken together, this is a very impressive body of work that has significantly advanced the field. The work is of the highest quality and published in top journals. The number of independent publications is impressive, especially considering the depth of the studies.”

Reviewer (E): “All of these papers from the Li lab exploit clever model systems, excellent genetic tools and high throughput screens, gorgeous fluorescence microscopy, and quantitative measures of protein degradation to address mechanistic questions of physiological importance. The use of multiple approaches and excellent controls gives his work a high level of rigor.”

Reviewer (F): “I find Dr. Li’s research effort and publications to be original and of high quality. In his independent work, Li has published well in excellent journals where all the decisions are made by active scholars, as opposed to the popular commercial journals controlled by anonymous professional editors.”

Summary of Recommendation:

Professor Ming Li is a world leader in the study of how lysosomal membrane transport proteins are regulated in response to changes in the cellular environment. He has established a well-funded research program that is internationally recognized and is poised to make additional discoveries in the area of lysosomal biology, both in yeast and mammalian systems. Professor Li is a passionate educator and has an impressive record of mentoring both undergraduate and graduate students. In addition, he has demonstrated excellent citizenship in service to his department and the wider research community. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Ming Li be promoted to the rank of associate professor of molecular, cellular, and developmental biology, with tenure, College of Literature, Science, and the Arts.



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