

PROMOTION RECOMMENDATION
The University of Michigan
School of Dentistry

Fei Liu, assistant professor of dentistry, School of Dentistry, is recommended for promotion to associate professor of dentistry, with tenure, School of Dentistry.

Academic Degrees:

PhD	2006	Biomedical Science, University of Connecticut Health Center, Farmington, CT
DM	1999	Clinical Dentistry, West China School of Stomatology, Si Chuan University, Chengdu, China
BS, MS	1996	Dual Career, Stomatology, West China School of Stomatology, Si Chuan University, Chengdu, China

Professional Record:

2009 – Present	Assistant Professor of Dentistry, Department of Biologic and Materials Sciences, Division of Prosthodontics, School of Dentistry, University of Michigan
2006 – 2009	Adjunct Clinical Lecturer, Department of Biologic and Materials Sciences, Division of Prosthodontics, School of Dentistry, University of Michigan

Summary of Evaluation:

Teaching: Professor Liu participates in a wide variety of teaching activities including didactic, preclinical, and clinic teaching activities. He is a board certified prosthodontist. His prosthodontic skills combined with his basic science training makes him unique from the other prosthodontist faculty. Since 2014, he has been co-director of one didactic course and lectures in three additional didactic courses and has steadily taught in the fall and winter semester pre-clinic since 2006. In 2011 he was the facilitator for the Grand Rounds for the first year dental student class. He has served as the instructor of the Removable Partial Denture Preclinical Lab and the Complete Denture Preclinical Lab for the past ten years. Additionally, he teaches in the Oral and Maxillofacial Surgery/Hospital Dentistry Clinic Rotation at the University of Michigan Hospital. Professor Liu's student and peer teaching reviews have consistently been positive. Over the years, he has carefully considered all of the student and peer feedback and has made modifications in his teaching to create a balance for all of his students, while providing each student with the concepts and techniques needed to fully understand relevant concepts.

Professor Liu is a highly active research mentor for both pre-doctoral and post-doctoral students. He has mentored five Undergraduate Research Opportunity Program (UROP) students, one dental research pathway student and is primary mentor for one PhD student. Additionally, he maintains a very active laboratory with five post-doctoral trainees and four visiting scientists that routinely rotate through his lab.

Professor Liu has shown significant involvement in teaching at the School of Dentistry and has taken advantage of his unique position to teach basic and clinical sciences simultaneously thus, increasing the significance and relevance of the information being delivered. It is clear that his

teaching strategies centering on critical thinking and his delivery are well received by students and peers demonstrating not only the quantity, but also the quality of his teaching. This along with his high level of mentoring activities displays his leadership as an educator shaping the future leaders of dentistry.

Research: Professor Liu's research focuses on several significant aspects of bone biology. His early investigations initiated during his post-doctoral studies provided the pathway to his current active work which concentrates on the role of autophagy in biology of FIP200, an essential molecule involved in bone autophagy. He also initiated the second line of research more specific to craniofacial bone development and disease that involves understanding the mechanisms leading to bone lesions in tuberous sclerosis. These findings were significant in the bone phenotype of tuberous sclerosis patients and were published in the *Journal of Bone and Mineral Research*. His work is currently supported by two awards as the principal investigator which include an NIH R01 grant and an MCubed 2.0 grant from the University of Michigan. During his time in rank he has received several other grants as the principal investigator including an NIH R03 grant, a University of Michigan, Office of Research grant, and a Rackham Faculty Research grant. During this period, he has published eighteen articles in scientific journals, and has been first or corresponding author on eleven of them. Many of his publications are in first tier biomedical journals including *Blood Autophagy*, *Proceedings of the National Academy of Science*, *Molecular Endocrinology*, *Journal of Bone and Mineral Research*, *Journal of Biological Chemistry* and *Journal of Dental Research*. It is important to emphasize that apart from basic science research, Professor Liu also performs clinical science research. As such, he has an outstanding service record to both basic and clinical research communities. The quantity and quality of Professor Liu's published work is significant. He has developed an identifiable scientific niche, and he collaborates broadly and presents widely at national and international scientific meetings. Based on Professor Liu's scholarship, there is no doubt that he has had an upward trajectory in his scholarly efforts. His work is relevant and provides possibilities for future research efforts. It is likely that Professor Liu's research accomplishments will continue to be highly successful well into the future.

Recent and Significant Publications:

- Liu F, Lee JY, Wei HJ, Tanabe O, Engel JD, Morrison SJ, Guan J-L. FIB200 is required for the cell-autonomous maintenance of fetal hematopoietic stem cells. *Blood*. 2010 Dec 2; 116(23):4806-14. PMID: 20716775.
- Liu F, Fang F, Yuan H, Yang D, Chen Y, Williams L, Goldstein S, Krebsbach PH, and Guan J-L. Suppression of Autophagy by FIP200 Deletion Leads to Osteopenia in Mice Through the Inhibition of Osteoblast Terminal Differentiation. *Journal of Bone and Mineral Research*. 2013 Nov; 28(11):2414-30. PMID: 23633228.
- Liu F*, Kwok V, Agar J. Water aerosol protective device used during tooth preparation for maxillectomy patients, *Journal of Prosthetic Dentistry* 2014 Feb; 111:169-170. PMID: 24314572.
- Barndt P, Zhang H, Liu F*. Immediate loading: From biology to biomechanics. Report of the Committee on Research in Fixed Prosthodontics of the American Academy of Fixed Prosthodontics, *Journal of Prosthetic Dentistry*, 2015 Feb; 113(2):96-107. PMID: 25444287.
- Wang L, Mishina Y, and Liu F. Osterix-Cre Transgene Causes Craniofacial Bone Development Defect. *Calcified Tissue International*. 2015 Jul; 30(7):11950205. PMID: 25639352.

Sun S, Chen S, Liu F, McHugh J, Bergin IL, Gupta A, and Guan J-L*. Constitutive Activation of mTOR in Endothelial Cells Leads to the Development and Progression of lymphangiosarcoma through VEGF Autocrine Signaling, *Cancer Cell* 2015 Dec 14;28(6):758-72. PMID: 26777415

Fang F, Sun S, Wang L, Guan J-L, Giovannini M, Zhu Y, and Liu F. Neural Crest-Specific TSC1 Deletion in Mice Leads to Sclerotic Craniofacial Bone Lesion. *Journal of Bone and Mineral Research*. 2015 July; 30(7):1195-205. PMID: 25639352.

Sun C, Yuan H, Wang L, Wei X, Williams L, Krebsbach PH, Guan J-L, and Liu F. FAK promotes osteoblast progenitor cell proliferation and differentiation by enhancing Wnt signaling. *Journal of Bone and Mineral Research*. 2016 Dec;31(12):2227-2238. PMID: 27391080

Service: Professor Liu has participated in a wide variety of service activities while in his current rank. At the departmental level, he is an attending staff prosthodontist at the University of Michigan Hospital, he has served on the Dr. Dziewiatkowski Award Committee and has served on a faculty search committee. At the school level, he is a member of the research and PhD admission committee, has participated in the Asian American Health Fair as faculty supervisor, and as a Research Day poster judge. One of Professor Liu's most important contributions has been the organization of a monthly grant review meeting that serves the entire research community within the school. At the national level, Professor Liu has served as the chair of the Research Committee in Fixed Prosthodontics of the American Academy of Fixed Prosthodontics and is currently the chair of the Tylman Research Committee of the same academy. He has been a member of the Constitution Committee of the American Association for Dental Research and member of the Research Committee of the American College of Prosthodontists. Additionally, he has served as a judge of several research awards for the American Society of Bone and Mineral Research and the American Academy of Fixed Prosthodontics. He also reviews manuscripts for numerous scientific journals and gives presentations regularly. Professor Liu's contributions to service is inclusive of the school's service mission.

External Reviewers:

Reviewer A: "I am extremely impressed by all of the accomplishments that Dr. Liu has accomplished in such a short time. He stands head and tails above those of equal time in academics."

Reviewer B: "Considering his entire body of work, as a graduate student, post-doctoral fellow, and now as a PI, Dr. Liu has made significant and major contributions to the field of bone biology."

Reviewer C: "The trajectory of publications of Dr. Liu in the last 2 years is significant. Dr. Liu listed 6 publications in 2015 alone, of which he served as the corresponding author in 5 articles. The more recent publications in high-ranking journals such as *Cancer Cell* and *Scientific reports* suggest his fruitful collaborations in new areas of research."

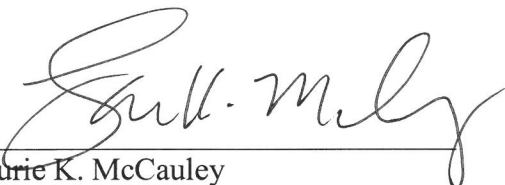
Reviewer D: "After surveying the landscape of dentist scientists in the nation, I find that Dr. Liu is clearly one of the top five among his cohort."

Reviewer E: "I have also attended several of his presentations at scientific meetings. Consistently, Dr. Liu is well prepared, clear, comprehensive and thoughtful. The material is covered in detail, yet the big picture is never lost. He demonstrates a unique ability to integrate information from patient care, clinical research, developmental biology and basic bone homeostasis."

Reviewer F: "His publication record is outstanding in terms of the quantity and quality of his papers, which have an identifiable focus. He has a total of 32 peer-reviewed manuscripts and is first or corresponding author on 22 of those publications."

Summary of Recommendation:

Professor Liu is a conscientious, dedicated teacher, brilliant scientist and well-rounded service member at the school, university, national and international levels. He has gained distinction as a bone biologist and as a leader and innovator in the field of autophagy research. He is highly committed to the training of future professionals, both as a dentist and scientist. A particular strength is that he continues a solid scientific background with his noted clinical board certification. This combination of scientific and clinic expertise is extremely rare in his specialty. Equally, his commitment to teaching and service parallels his research works as being exemplary. It is with the support of the Executive Committee, that I recommend Fei Liu for promotion to associate professor of dentistry, with tenure, School of Dentistry.



Laurie K. McCauley
Dean, School of Dentistry

May 2017