Approved by the Regents May 15, 2014

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

Yatrik Shah, 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, Departments of Molecular and Integrative Physiology, and associate professor of internal medicine, without tenure, Department of Internal Medicine, Medical School.

Academic Degrees:

Ph.D.	2005	Medical College of Ohio
B.S.	2000	Bowling Green State University

Professional Record:

2009-present	Assistant Professor of Molecular and Integrative Physiology and Assistant Professor of Internal Medicine, University of Michigan

Summary of Evaluation:

Teaching: Dr. Shah has been an enthusiastic and active teacher in both the classroom and laboratory. He continues to teach the Gastrointestinal Module at the School of Dentistry and the Research Responsibility and Ethics section of PIBS 503. He has taught Physiology 600 and 610 in the physiology master's program and most recently the Physiology 555 graduate school course for Ph.D. students. His students from the Physiology 555 course ranked him as excellent to fantastic. Dr. Shah has led Physiology 606, a weekly seminar course designed to give feedback on student research and presentation skills. Dr. Shah's participation in the graduate program has been invaluable. Overall, he is an exceptional teacher in the classroom. Furthermore, he is a recruiter for Ph.D. graduate students and is one of three representatives of the physiology department during the annual recruitment weekend. In his laboratory, Dr. Shah oversees the work of four post-doctoral students, one graduate student, two technicians and five undergraduate students. In addition to coordinating the efforts of a growing laboratory, meeting with laboratory members and overseeing the various projects, he has served on the dissertation committees for four Ph.D. candidates. One of his graduate students (Erik Anderson) has already completed his Ph.D. training in Dr. Shah's laboratory. Dr. Shah's approachable demeanor makes him a very popular mentor among students.

Research: Dr. Shah's research progress since his appointment has been outstanding. He is the principal investigator on two NIH R01 awards. One is focused on Hypoxia Inducible Factor (HIF)-2 in cancer from the National Cancer Institute and the second, from NIDDK, focuses on HIF2 in iron metabolism. His research program is growing in two different health-related areas thereby demonstrating Dr. Shah's research interest diversity and improving his opportunity for funding resources. In addition to his NIH research awards, he recently received a two-year Department of Defense grant related to the role of the transcription factor NFκB in colitis and colon cancer and a three-year award from the Crohn's and Colitis Foundation to study the role of hypoxia pathways in

inflammatory bowel disease. Dr. Shah's productivity is impressive. He has authored 51 publications, nine as senior author since joining the University of Michigan as an assistant professor. He has given four intramural seminars since his appointment in 2009, and he has an impressive list of 18 extramural presentations as invited speaker that highlight his growing stature on the national and international scenes. Notably, the American Physiological Society recognized Dr. Shah in 2012 with a New Investigator Award.

Recent and Significant Publications:

Taylor M, Aijuan Q. Anderson E, Matsubara T, Martin A, Gonzalez FJ, Shah YM: Hypoxia-inducible factor-2α is required for the adaptive increase of intestinal ferroportin during iron deficiency. *Gastroenterology* 140:2044-2055, 2011.

Anderson ER, Xiang X, Shah YM: Intestinal hypoxia-inducible factor-2α is critical for efficient erythropoiesis. (2011). *J Biol Chem* 286:19533-19540, 2011.

Xue X, Taylor M, Anderson E, Hao C, Qu A, Geenson JK, Zimmerman E, Gonzalez FJ, Shah YM: Hypoxia-inducible factor-2α promotes colorectal cancer progression by dysregulating iron homeostasis. *Cancer Research* 72:2285-2293, 2012.

Xue X and Shah YM: Hypoxia-inducible factor-2α is essential in activating the COX2-mPGES-1-PGE_2 signaling axis in colon cancer. *Carcinogenesis* 34:163-169, 2012.

Anderson ER, Taylor M, Xue X, Martin A, Moons DS, Omary MB, Shah YM: The HIF-C/EBPα axis controls ethanol-mediated hepcidin repression. *Mol Cell Biol* 32:4068-4077, 2013.

Service: Dr. Shah has an excellent service record in the Department of Molecular and Integrative Physiology and is a highly valued faculty member. His peers have voiced glowing comments about his collegiality. He volunteers for service within the department, actively engages new collaborations and is an outstanding colleague. He is presently a member of the operating committee for the Medical Scientist Training Program, the department website committee and has served on the Cell and Molecular Biology (CMB) admissions committee. At the national level he is on the editorial board of *Gastroenterology* (the premier journal in the field of digestive health and disease) and has reviewed for 12 journals in the past year. Dr. Shah also reviews grants for NIH study sections, the Broad Foundation, Crohn's and Colitis Foundation of America and the Cariplo Foundation. This year he is the organizer of the two-day, East-West Coast Iron Club meeting, which is an important event that will bring the top iron researchers in the country together at the University of Michigan.

External Reviewers:

Reviewer A: "...Yatrik has established expertise in HIF-2 and novel signaling in inflammation-associated cancer and in HIF-2-dependent erythropoiesis. He has published his work in some of the very best journals and has gained a national reputation as an innovative, careful and meticulous scientist. He has been an invited speaker at national symposia related to intestinal inflammation and inflammation-associated cancer, and has established important collaborations with highly respected labs around the world."

Reviewer B: "I view him as one of the emerging leaders in the field of iron physiology and the molecular biology of colon cancer. I am convinced that he has a very bright future in academic research....His collective body of research on fundamental iron biology includes many seminal advances. He has effectively used his background to obtain impressive research support....I would rank him among the top of his peers."

Reviewer C: "Even in these difficult times he has had abundant grant support, attesting to the confidence of his peers in his ability to contribute to the advancement of science and biomedicine."

Reviewer D: "...his mind in clearly on broad and fundamental science with a mission to disclose novel mechanisms of functional significance. This in fact defines him as an outstanding scientist with unlimited potential....In my personal view, he does possess qualifications to be recruited as Associate Professor to any other comparable medical institution including our university."

Reviewer E: "...many, including myself, consider Dr. Shah to be a future leader in the field. I would therefore rank Dr. Shah among the top 5% of all investigators at this level."

Reviewer F: "The journals in which Yatrik publishes are of high quality with wide readership and high impact factors. This represents outstanding research productivity and Yatrik's research career is clearly in a rapidly expanding phase....Overall, it is clear to me that Yatrik's teaching, research and service activities are outstanding and are integral to the strategic goals of the University of Michigan."

Reviewer G: "[Dr. Shah's] candidacy is among the strongest that I have seen for promotion to associate professorship. He would easily make this leap in either of the two institutes that I have served."

Summary of Recommendation:

Dr. Shah is an outstanding candidate for promotion to associate professor based on his contributions to all missions: research and scholarly activities, education and mentoring, and service. His external letters of evaluation are outstanding and strongly supportive of his promotion, and reaffirm the support he has within his department and the school. It is anticipated that he will continue to excel and grow his academic career at the University of Michigan and serve as a superb role model. Therefore, I most enthusiastically support Yatrik Shah, 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.

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

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