Approved by the Regents
May 15, 2008

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

Liangyou Rui, Ph.D., Assistant Professor of Molecular and Integrative Physiology, Department of Molecular and Integrative Physiology, Medical School, is recommended for promotion to Associate Professor of Molecular and Integrative Physiology, with tenure, Department of Molecular and Integrative Physiology, Medical School.

Academic Degrees:

Ph.D.	1998	University of Michigan
M.S.	1990	Peking Union Medical College
B.S.	1987	East China Normal University

Professional Record:

2002-Present	Assistant Professor of Molecular and Integrative Physiology, University of Michigan

Summary of Evaluation:

Teaching: Each year since 2004, Dr. Rui has presented the pulmonary physiology lectures (five) in the Dental School's Integrated Medical Sciences I program. This is an excellent example of an individual teaching outside their research area and he has done a highly competent job in an area that is difficult to present. In his own area of signal transduction and metabolism, he has taught the material on tyrosine kinase linked receptors in Physiology 576 (Signal Transduction) and taught in and administered Physiology 591 (Advanced Signal Transduction) which was titled, "Special Topics in Obesity, Diabetes, Aging and Neurogenesis." He has also presented guest lectures on obesity in Physiology 201 (Human Physiology), served as a small group instructor in M1 physiology conferences and as a faculty supervisor in Physiology 606 (Student Seminar). In the laboratory, he has mentored and supervised one graduate student carrying out thesis research and ten postdoctoral fellows. In addition, he supervised five graduate student rotation projects, six undergraduate students, and one high school student. He has also served on seven other thesis committees and nine preliminary exam committees.

Research: Dr. Rui's research has focused on intracellular signaling mechanisms that mediate the ability of hormones and growth factors to regulate growth, energy balance and metabolism. As a graduate student he identified SH2-B, an adaptor molecule that activates JAK2 and mediates Growth Hormone Receptor Signaling. His research was outstanding for a graduate student and led to eleven research papers. As a postdoctoral fellow with Morris White at Harvard Medical School, he examined the role of IRS1 and IRS2 in insulin action and defined novel mechanisms for regulatory phosphorylation of IRS and its degradation which led to four high quality papers. He also began work to genetically delete SH2-B1 which was completed in his laboratory at Michigan. As an Assistant Professor, his work has

focused on the role of SH2B as a mediator of insulin and leptin action both in peripheral target organs and in the brain. He has also investigated the role of another signaling molecule, NIK in insulin resistance. Work from his laboratory has been published in very high quality journals including the *Journal of Clinical Investigation* and *Cell Metabolism*, and led to unquestioned national visibility in his field. Overall, he has published 32 reviewed original research papers. His scientific reputation has led him to be a member of a VA Study Section, an American Diabetes Association Study Section, an Editorial Board Member for the *American Journal of Physiology: Endocrinology and Metabolism*, and a session Chair for meetings of the American Diabetes Association (ADA). He also has received multiple invitations to present his research at other universities with seven invitations in the last two years. His research program has been well funded by external sources. He currently holds two NIH R01 grants and an ADA Career Development Award as well as an interdisciplinary pilot project from the MDRTC.

Recent and significant Publications:

Decheng Ren, Yingjiang Zhou, David Morris, Minghau Li, Zhiqin Li, and Liangyou Rui: Neuronal SH2B1 is essential for controlling energy and glucose homeostasis. *Journal of Clinical Investigation* 117:397-406, 2007.

Minghua Li, Zhiqin Li, David Morris and Liangyou Rui: Identification of SH2B2β as an inhibitor for SH2B1- and SH2B2α-promoted Janus Kinase-2 activation and insulin signaling. *Endocrinology* 148(4):1615-1621, 2007.

Minghua Li, Decheng Ren, Masanori Iseki, Satoshi Takaki, and Liangyou Rui: Differential Role of SH2-B and APS in Regulating Energy and Glucose Homeostasis. *Endocrinology* 147(5):2163-2170, 2006.

Decheng Ren, Minghua Li, Chaojun Duan, and Liangyou Rui: Identification of SH2-B as a key regulator of leptin sensitivity, energy balance, and body weight in mice. *Cell Metabolism* 2:95-104, 2005.

Chaojun Duan, Minghua Li, Liangyou Rui: SH2-B promotes insulin receptor 1 (IRS1)- and IRS2-mediated activation of the PI 3-kinase pathway in response to leptin. *Journal of Biological Chemistry* 279(42):43684-91, 2004.

Service: In the Department of Molecular and Integrative Physiology, Dr. Rui has served three and one-half years on the Graduate Committee and, as part of this role, coordinated the Annual Integrative Biology Student Research Forum and participated in PIBS recruitment events. He served two years as coordinator of the weekly departmental seminar. In the Medical School, he served on the MDRTC Biomedical Research Task Force. Outside the University, he served multiple times as a Chair for oral sessions at the American Diabetes Association Meeting and, as noted earlier, served on national grant review panels for the Veterans Administration and the ADA and on the Editorial Board for the *American Journal of Physiology*.

External Review:

Reviewer A: "The success of the Rui laboratory and contribution to the diabetes/obesity field have become well-recognized as indicated by his success in obtaining national grant funding, a Career Development Award by the American Diabetes Association, service as manuscript reviewer for several journals and on grant review boards as well as invitations to present his research findings at various meetings and at several national and international institutions."

Reviewer B: "Both his research publications as well as his grant funding strongly support the idea that he is an outstanding researcher with a very strong future in basic research."

Reviewer C: "...his performance as a scientist has been truly outstanding. He has had numerous and high-impact publications in an area in which he is quickly emerging as a leading force. He is very well funded with two R01 grants, an ADA grant, and other federal funding. Dr. Rui has spoken about his work in many national venues by invitation and has already served on [a] VA study section for several years. In the realm of education, Dr. Rui has already mentored numerous postdoctoral fellows and has trained graduate students in his own and other labs."

Reviewer D: "...Dr. Liangyou Rui is an outstanding investigator with an exemplary track record of publications, substantial competitive independent funding, and an emerging national reputation."

Reviewer E: "I am very impressed (and excited!) by his ability to both explore detailed mechanisms involved in signal transduction at the molecular level, and to create and apply genetic models to examine the significance of these findings at the whole animal level. This set of skills and range of thinking is exactly what is needed to perform cutting-edge research in the fields of signal transduction, energy metabolism obesity and diabetes, and distinguishes Dr. Rui [sic] research from many of his peers."

Reviewer F: "Dr. Rui is well known [in] the field as a...dynamic and insightful scientist who has made seminar contributions in the area and is considered a leader in the field."

Reviewer G: "As for his future promise, it's fair to say that Liangyou is a most promising investigator. I think that he represents a great investment and that he will continue to be productive at the highest levels for years to come."

Reviewer H: "His accomplishments in the field of insulin and leptin signaling are substantiated by his funding, his publication record, and his invitations to speak at national and international meetings."

Reviewer I: "He has done an outstanding job of characterizing the role of this molecule in energy homeostasis and delineating the basis for its effects. This novel work helps to clarify how neuronal signaling by insulin, leptin, and PI3-kinase participate in the control of food intake and body weight."

Summary of Recommendation:

Dr. Liangyou Rui has developed a respected reputation as an emerging force in the fields of insulin action, body energy balance and obesity. He is also an important contributor to the teaching of professional and graduate students. I am pleased to recommend him for promotion to Associate Professor, with tenure, in the Department of Molecular and Integrative Physiology.

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

May 2008