Approved by the Regents May 15, 2014

PROMOTION RECOMMENDATION
UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF INTERNAL MEDICINE

Jeffrey C. Horowitz, M.D., assistant professor of internal medicine, Department of Internal Medicine, Medical School, is recommended for promotion to associate professor of internal medicine, with tenure, Department of Internal Medicine, Medical School.

Academic Degrees:

M.D.	1999	Rush University-Rush Medical College
B.S.	1993	Syracuse University

Professional Record:

2006-present	Assistant Professor of Internal Medicine, University of Michigan
2004-2006	Lecturer, Department of Internal Medicine, University of Michigan

Summary of Evaluation:

Teaching: Dr. Horowitz is committed to medical education and approaches teaching with enthusiasm, passion, and a commitment to excellence. In addition to clinical teaching in the inpatient and outpatient settings, Dr. Horowitz routinely serves as a small group leader during the M1 and M2 respiratory sequences and has presented core lectures on pulmonary fibrosis and pulmonary function testing for the M2 respiratory sequence. He has served as the faculty mentor for Ambulatory Morning Report in the Department of Internal Medicine. He has been an active member of the Pulmonary Division Fellowship Education Committee since its inception and has served, at the request of the fellowship program director, as the mentor for a clinical fellow in remediation. Moreover, he has been the research supervisor for four undergraduate students, a pre-doctoral student, a medical resident, a master's degree candidate, and a post-doctoral fellow. He has served on the dissertation committee for a doctoral candidate and on the scientific advisory committee for five post-doctoral fellows.

Research: Dr. Horowitz's scholarly focus is based on lung injury and repair, with a focus on the mechanistic regulation of mesenchymal cell survival and apoptosis by soluble mediators and extracellular matrix interactions. Since his appointment to assistant professor, Dr. Horowitz has published 25 publications, with 14 as first or senior author. His research, which helped establish myofibroblast resistance to apoptosis as a mechanism contributing to the pathobiology of lung fibrosis as a potential target for anti-fibrotic therapy, has been funded by the NIH (T32, K08 and R01), the American Lung Association, the Chest Foundation and the Entelligence Young Investigator Program. Collectively, these studies established that soluble and mechanical signals can coordinately promote myofibroblast resistance to apoptosis and laid the foundation for his currently funded NIH R01. These contributions have been further recognized through awards such as the Dalsemer Research Award from the American Lung Association and the T. Franklin Williams Scholar award from the Association of Specialty Professors. The results of his studies

have been published in high-quality journals including the *Journal of Biological Chemistry, International Journal of Biochemistry and Cell Biology, Cellular Signaling, American Journal of Respiratory Cell and Molecular Biology* and *American Journal of Physiology-Lung Cell and Molecular Physiology.*

Recent and Significant Publications:

Horowitz JC, Rogers DS, Sharma V, Vittal, R, White ES, Cui Z, Thannickal VJ: Combinatorial activation of FAK and AKT by transforming growth factor-β1 confers an anoikis-resistant phenotype to myofibroblasts. *Cell Signal* 19:761-771, 2007.

Horowitz JC, Rogers DS, Simon RH, Sisson TH, and Thannickal VJ: Plasminogen activation-induced pericellular fibronectin proteolysis promotes fibroblast apoptosis. *Am J Respir Cell Mol Biol* 38:78-87, 2008.

Kulasekaran P, Rogers DS, Scavone C, Arenberg DA, Thannickal VJ, Horowitz JC: Endothelin-1 and TGF-beta independently induce fibroblast resistance to apoptosis via AKT activation. *Am J Respir Cell Mol Biol* 41:484-93, 2009.

Horowitz JC, Ajayi IO, Kulasekaran P, Rogers DS, White JB, Townsend SK, White ES, Nho RS, Higgins PDR, Huang SK, Sisson TH: Survivin expression induced by Endothelin-1 promotes myofibroblast resistance to apoptosis. *Int J Biochem Cell Biol* 44:158-169, 2012.

Ajayi IO, Sisson TH, Higgins PDR, Booth AJ, Sagana RL, Huang SK, White ES, King JE, Moore BB, Horowitz JC: X-linked inhibitor of apoptosis regulates lung fibroblast resistance to fas-mediated apoptosis. *Am J Resp Cell Mol Bio* 49:86-95, 2013.

Service: Dr. Horowitz's clinical practice consists of general pulmonary and critical care medicine, with specific interests in interstitial lung disease, acute lung injury, and the diagnosis/staging of lung cancer. He was among the first in his division to learn, incorporate and teach the routine use of endobronchial ultrasound for mediastinal lymph node sampling, a technique which has become the standard of care in the field. Additionally, he has worked as part of the multidisciplinary oncology team to facilitate the comprehensive and efficient diagnostic and therapeutic approach to patients with suspected thoracic malignancies. Dr. Horowitz is very active on both institutional and national committees with appointments to committees in the Respiratory Cell and Molecular Biology Assembly of The American Thoracic Society (Program Committee, Website Committee Chair and Executive Committee) and the American College of Chest Physicians (Interstitial and Diffuse Lung Disease Network Steering Committee). As an extension of his research, he has organized, chaired, and presented in scientific sessions at the ATS and ACCP meetings, served on the editorial boards of two journals, served as a referee for more than thirty journals, and reviewed grants for several foundations.

External Reviewers:

Reviewer A: "...Dr. Horowitz is a dedicated and accomplished physician scientist who has already made major contributions to the field and is nationally and internationally recognized for his work in mesenchymal phenotype in pulmonary fibrosis."

Reviewer B: "His work is highly regarded by the entire pulmonary fibrosis research community and is also considered to have broader implications for our understanding of the mechanisms leading to fibrosis in other organ systems....He has an impressive track-record in terms of speaking invitations at local, regional and national level[s]. His international profile is also growing as evidenced by regular invitations to act as moderator or plenary speaker at major international meetings."

Reviewer C: "I frequently cite the work of Dr. Horowitz and his group at my presentations and in my own manuscripts. The active projects of Dr. Horowitz that I know of are all innovative and have the property of being translated from bench to bedside....He has shown excellence in research and active leadership in International Societies which go far beyond that of being just a member. He is always visible at the International Meetings, asking questions and interacting with senior and junior colleagues in scientific discussions. He is an excellent clinician already, and is recognized as an excellent bedside teacher and post-graduate educator."

Reviewer D: "...over the years he has both chaired and moderated important scientific and clinical sessions related to lung injury and repair at National meetings for the ATS meeting, as well as the American College of Chest Physicians....All told, he is a highly valued citizen in the scientific and the clinical pulmonary communities at large."

Reviewer E: "His national recognition is highlighted by his work in the editorial board of the Am J Pathology and his involvement in the review of manuscripts submitted to prestigious journals, his role in study sections of programs like the Pulmonary Fibrosis Foundation, his membership in the executive committee of the Respiratory Cell & Molecular Biology Assembly of the American Thoracic Society, and the visiting professorships listed on his CV."

Reviewer F: "Jeff has had outstanding productivity in the lab and has published high quality manuscripts in high impact journals...His work has shed important insight into the mechanisms of pulmonary fibrosis....Jeff has a rapidly growing national and international reputation as evidenced by frequent speaking invitations in the US and Europe, his appointments on Editorial Boards and his involvement with ATS. Jeff is a generous citizen of the scientific community and a great collaborator."

Reviewer G: "...Dr. Horowitz is an excellent physician scientist. He has been productive in terms of his contributions to our understanding of pulmonary fibrosis, mesenchymal cell fate and the role of extracellular matrix. He has distinguished himself with important publications in high ranking journals, has obtained funding in a competitive environment, and has evidence of excellent citizenship both locally and nationally."

Summary of Recommendation:

Dr. Horowitz is an outstanding educator, researcher, and clinician with national and international stature. His contributions to the field of idiopathic pulmonary fibrosis have been exemplary. It is with great enthusiasm that I recommend Jeffrey C. Horowitz, M.D. for promotion to associate professor of internal medicine, with tenure, Department of Internal Medicine, Medical School.

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

May 2014