

PROMOTION RECOMMENDATION
UNIVERSITY OF MICHIGAN MEDICAL SCHOOL
DEPARTMENT OF INTERNAL MEDICINE

Approved by the Regents
May 15, 2008

Robert D. Brook, 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.	1995	University of Michigan
B.S.	1991	Michigan State University

Professional Record:

2001–Present	Assistant Professor of Internal Medicine, University of Michigan
1999–2001	Lecturer, Department of Internal Medicine, University of Michigan

Summary of Evaluation:

Teaching: Dr. Brook has actively participated in the teaching of students, house officers and fellows. On numerous occasions he has given classroom lectures for the M1/M2 “Introduction to the Patient” courses on both hypertension and the cardiac exam and has mentored the cardiac exam clinical laboratory sessions. He has been the course director for both the M4 hypertension and the preventive cardiology/vascular Medicine electives for four years. He mentors house officers rotating through his hypertension clinic during ambulatory months, along with endocrinology fellows in most of his lipid clinics. Both cardiology fellows and vascular surgery residents rotate through his clinics and receive training from him in the interpretation of vascular studies. Dr. Brook has attended at the VA and University Hospital on general medicine services and has participated as part of the ambulatory house officer morning report as the faculty teacher. He has actively participated in community and faculty education by giving two to three CME course lectures per year throughout the State of Michigan.

Research: Dr. Brook’s research has been extremely successful and productive. He has forged a well-defined, independent research career leading to international recognition within seven years. As principal investigator, he has received two major national (and one private agency) grants in his primary area of research; alongside seven additional grant awards for other projects, leading to several top-tier original scientific publications.

Dr. Brook was responsible for creating an independent research field at the University of Michigan - the biological actions and mechanisms of effects of air pollution upon the cardiovascular system, termed “*Environmental Cardiology*.” Partially to this end, he was also principally responsible for establishing the “Vascular Clinical Research Laboratory” at the University of Michigan, serving as the Director for the past five years. His ongoing active research in Environmental Cardiology has thus far received seven extramural grant awards.

The major importance of Dr. Brook’s research and his status as a pioneer and leader in this field has been recognized internationally. He was the lead author on a landmark study

published in *Circulation* in 2002, demonstrating for the first time a vascular effect of air pollutants in humans. He has published numerous manuscripts on this topic in both cardiovascular and environmental journals, and was selected to be the lead author of the American Heart Association (AHA) Scientific Statement on air pollution published in *Circulation* in 2004. He is a member of several scientific advisory committees including the American Heart Association Council on Epidemiology and Prevention and the EPA Clean Air Scientific Advisory Panel for Particulate Matter. Dr. Brook has given scientific communications and/or been a faculty member at several national EPA-sponsored symposia. Moreover, he has given academic talks on air pollution research internationally, including at the Harvard School of Public Health and the 2006 International Society of Atherosclerosis in Rome. During his career, he was selected to give oral presentations of his research at three separate Young Investigator symposia. Additionally, in 2006 he was selected as an American Society of Hypertension Young Scholar and presented his research in New York, NY.

Dr. Brook has over 50 peer-reviewed publications in journals such as *The New England Journal of Medicine*, *JAMA*, *Circulation*, *Atherosclerosis Thrombosis and Vascular Biology*, *Blood*, and *Clinical Science*. He serves as an *ad hoc* reviewer on more than ten journals and is an editorial board member of the *Archives of Internal Medicine*. He is also a committee member of the AHA Council on Epidemiology and Prevention.

Recent and Significant Publications:

Brook RD, Brook JR, Urch B, Vincent R, Rajagopalan S, Silverman F: Inhalation of fine particulate air pollution and ozone causes acute arterial vasoconstriction in healthy adults. *Circulation* 105:1534-1536, 2002.

Brook RD, Franklin B (chair), Cascio W, Hong Y, Howard G, Lipsett M, Luepker R, Mittleman M, Samet J, Smith S Jr, Tager I: Air pollution and cardiovascular disease: A statement for healthcare professionals from the expert panel on population and prevention science of the American Heart Association. *Circulation* 109:2655-71, 2004.

Urch B, Silverman F, Cory P, Brook JR, Lukic KZ, Rajagopalan S, Brook RD: Acute blood pressure responses in healthy adults during controlled air pollution exposures. *Environ Health Perspect* 113: 1052-55, 2005.

Brook RD, Bard RL, Patel S, Rubenfire M, Clarke NS, Kazerooni EA, Wakefield TW, Henke PK, Eagle KA: A negative carotid plaque area test is superior to other noninvasive atherosclerosis studies for reducing the likelihood of having underlying significant coronary artery disease. *Arterioscler Thromb Vasc Biol* 26:656-662, 2006.

Brook RD, Bard RL, Bodary PF, Eitzman DT, Rajagopalan S, Sun Y, DePaoli AM: Blood pressure and vascular effects of leptin in humans. *Metabolic Syndrome and Related Disorders* 5:270-274, 2007.

Service: Dr. Brook has served as an alternate University Senate faculty member. He currently serves on the American Heart Association Council of Prevention and Epidemiology. He is a member of two Scientific Advisory Committees for large research center grants at outside

universities. Dr. Brook has recently been selected to serve on the EPA Clean Air Scientific Advisory Committee and has a national reputation as a thought leader in Hypertension, Hyperlipidemia, and Vascular Medicine. Lecturing as part of CME courses throughout Michigan has led to tremendous success in attracting patient referrals from across the State and even the Midwest area. He is a member of the American Heart Association, the American Society of Hypertension, the American Lipid Association, and is a fellow of the Society for Vascular Medicine and Biology.

Professional Work: Dr. Brook has several areas of unique clinical expertise and responsibility. He has two half-day per week clinics in Hypertension/Vascular Medicine and Preventive Cardiology/Lipid Management and is one of few faculty members who has official accreditation from the American Board of Vascular Medicine. As such, he has unique clinical skills as an Internal Medicine faculty member in treating patients with a wide variety of vascular diseases. He receives numerous referrals in this regard, most specifically while working in collaboration with physicians in both Cardiothoracic and Vascular Surgery. He interprets a large volume of outpatient vascular laboratory studies twice per week. Dr. Brook has extraordinary clinical expertise in managing patients with refractory hypertension and a wide variety of secondary hypertension disorders, as well as those with dyslipidemia. He receives numerous referrals of patients with genetic and/or severe lipid abnormalities and for comprehensive cardiovascular disease prevention. Dr. Brook developed an ultrasound-based method of atherosclerosis assessment (carotid intima-media thickness and atherosclerotic plaque evaluation) and has unique expertise using this tool for cardiovascular risk assessment in clinical practice.

External Review:

Reviewer A: “In the latter area, air pollution and cardiovascular disease, Dr. Brook has done ground-breaking clinical research, demonstrating that air pollution has significant effects on vascular tone and blood pressure.”

Reviewer B: “The Brook et al. paper in 2002 (PR11) was a seminal paper and it refocused the field entirely. It was the first paper to demonstrate that PM can affect the vascular system....he has taken on a major leadership role in the area of air pollution and his views are routinely sought out by others, as seen by the very large number of outside invitations he has received in the past few years....I view Dr. Brook as a rising star in the area of cardiovascular effects of air pollution. His stature and impact in the field are far beyond what might be expected of an Assistant Professor.”

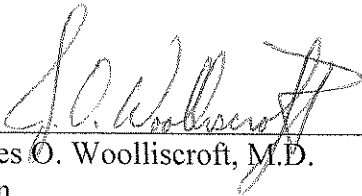
Reviewer C: “Based on the breadth of his teaching as well as the significant quantity of the teaching and instructional efforts, it is evident that Dr. Brook is multi-dimensional in his academic talent and commitment and a committed team player who brings added value to the institution.”

Reviewer D: “His scholarly accomplishments have resulted in national recognition....His work is very topical and has led to numerous invitations to present at other institutions, national and international meetings.”

Reviewer E: “Dr. Brook has carved out a niche with few peers—that of an expert in human vascular medicine exploring health effects of air pollution on the cardiovascular disease....He is frequently sought out as an expert in this field, and definitely considered among the top few working on this topic.”

Summary of Recommendation:

Dr. Brook is one of a kind, with his highly focused work on cardiovascular disease risk factors in regard to fine particulate matter air pollution. His work has been published in several refereed journals, and his reputation is firmly established at the local and national levels. His service to the institution is highly valued. I enthusiastically recommend Dr. Brook for promotion to Associate Professor of Internal Medicine, with tenure.



James O. Woolliscroft, M.D.

Dean

Lyle C. Roll Professor of Medicine

May 2008