PROMOTION RECOMMENDATION
UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF INTERNAL MEDICINE

Approved by the Regents
May 14, 2009

Crystal A. Gadegbeku, 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.	1991	University of Virginia
B.A.	1987	Bucknell University

Professional Record:

2003-present	Assistant Professor of Internal Medicine, University of Michigan
1997-2003	Assistant Professor of Internal Medicine, Medical University of South Carolina

Summary of Evaluation:

Teaching: Dr. Gadegbeku is an exceptional teacher and outstanding role model. She teaches medical students, internal medicine residents and nephrology fellows in the outpatient clinics. She presents at nephrology clinical conferences, journal club meetings and participates in morning report for medical residents. She participates both in the M-2 Nephrology Lecture Series – Hypertension and the Kidney and Glomerular Filtration Rate. She currently serves on the U of M Fellowship GME Admissions/Advancement Subcommittee and the U of M Fellowship GME Education Subcommittee. She has been a research mentor for more nephrology fellows than any other nephrology faculty member.

Research: As one of a small group of clinician scientists trained to study vascular biology and mechanisms of vascular pathophysiology in humans, Dr. Gadegbeku's research aims to advance our understanding of blood pressure control defects leading to resistant hypertension and accelerated vascular disease in patients with chronic kidney disease (CKD). This area of research has the potential to significantly impact the millions of Americans with CKD and CKD risk factors by 1) improving blood pressure control rates with more effective therapies leading to improved renal outcomes and 2) reducing the extraordinarily high burden of cardiovascular disease in this patient population. In particular, her research focuses on understanding mechanisms for neurohumoral hemodynamic defects contributing to sympathetic over-activity, which is a hallmark for hypertension cardiovascular risk.

Thus far, her work has provided further evidence for links between metabolic and hemodynamic pathophysiology manifest as a cluster of risk factors known as *the metabolic syndrome*. Initially, she characterized uniquely enhanced α_1-adrenergic vascular sensitivity in CKD subjects. Further, she demonstrated that acutely raising lipids systemically increased α_1

vascular responses. Subsequently, it was determined, utilizing specialized invasive cardiovascular monitoring techniques, that the lipid-induced vascular effects were mediated by impairment of baroreflex function. These significant studies performed during her K23 award laid the groundwork for successfully competing for her current R33 award. This award allows her to explore the contributions of nitric oxide defects to α_1 vascular hypersensitivity observed in earlier studies. These studies are critical to advancing our knowledge on pressure control mechanisms that will guide therapeutic trials for effective blood pressure management also aimed at reducing cardiovascular risk. The five-year R33 NIH funding mechanism, a relatively new independent award with more competitive funding rates than R01s, is designed for innovative exploratory research. After completing her K23 award, she successfully competed for this award in her first attempt providing seamless funding to support her research agenda.

In addition to this independent research activity, she has established multiple collaborations with leading NIH-funded clinical investigators through participation in the NIDDK-sponsored Chronic Renal Insufficiency Cohort (CRIC) study, the largest epidemiologic study of CKD in the United States. She is an investigator in seven R01-funded studies with a focus on vascular biology and cardiovascular outcomes in this CKD cohort. As the Michigan site principal investigator for these grants, she has participated in the design and implementation of these studies and directs all research activities at University of Michigan, St. John Hospital and Wayne State University School of Medicine. In addition to her role as an investigator, she has leadership roles in the national CRIC study as Co-Chair of both the Recruitment and Retention Subcommittee and the Publications Subcommittee.

Both major areas of her research have led to first-author publications in major nephrology and hypertension journals for clinical research, including the *American Journal of Kidney Disease*, *Nephrology Dialysis and Transplantation*, and the *Journal of Hypertension*.

In recognition of her research accomplishments, Dr. Gadegbeku has been invited to present at prestigious national and international scientific meetings, including those of the American Heart Association's Council for High Blood Pressure Research, American Society of Nephrology, and the International Symposium on ADMA. Moreover, she has been invited as a visiting professor to Stanford University, Wayne State University, and Medical University of South Carolina.

Recent and Significant Publications:

Gadegbeku CA, Stillman PK, Huffman MD, Jackson JS, Kusek JW, Jamerson KA: Factors associated with enrollment of African Americans into a clinical trial: Results from the African American study of kidney disease and hypertension. *Contemp Clin Trials* (accepted).

Gadegbeku CA, Taylor TP, Dhandayuthapani A, Shrayyef MZ, Grekin J, Garvey WT, Egan BM: Insulin's actions on plasma free fatty acids are normal in stage 2-3 chronic kidney disease: *J Am Soc Hypertension* 1(6):414-422, 2007.

Gadegbeku CA, Shrayyef MZ, Taylor TP, Egan BM: Mechanisms of lipid enhancement of α_1-adrenoceptor pressor sensitivity in hypertension: *J Hypertension* 24(7):1383-1389, 2006.

Taylor TP, Wang W, Shrayyef MZ, Cheek D, Hutchison F, Gadegbeku CA: Glomerular filtration rate can be accurately predicted using lean mass measured by dual-energy X-ray absorptiometry from serum creatinine and quantification of lean mass. *Nephrol Dial Transplant* 21:84-87, 2006.

Gadegbeku CA, Shrayyef MZ, LaPorte FB, Egan BM: Lipids enhance α_1-adrenoceptor pressor sensitivity in patients with chronic kidney disease. *Am J Kidney Dis* 44(3):446-454, 2004.

Service: Dr. Gadegbeku serves as the co-chair for the Renal Section of the National Medical Association Annual Meeting, the CRIC NIH Multi-Center Clinical Trial Ancillary Studies Committee, the CRC NIH Multi-Center Trial Recruitment and Retention Committee and the Publication Committee. She serves on the editorial board of *Integrated Blood Pressure Control* and is frequently asked to review manuscripts for numerous journals including *Hypertension*, *Journal of Investigative Medicine*, *American Journal of Kidney Disease*, and *Clinical Pharmacology and Therapeutics*, to name a few. She has served on two NIH study sections. At the University of Michigan, she staffs the outpatient nephrology clinic and consultation service and serves on two GME fellowship committees.

External Review:

Reviewer A: "After reviewing Dr. Gadegbeku's curriculum vitae in the context of your criteria for promotion...she has a consistent publication record throughout her career with nine first author papers and two first author book chapters. Additionally she has a very good track record of collaboration on major multi-centered grants....her notoriety is growing....her reputation in general is growing as evidenced by her interaction and participation with thought leaders around the country and has the potential to develop into a senior investigator over the coming years. ...I think that Dr. Gadegbeku has the 'tickets' needed for promotion to Associate Professor and thus, strongly support her application."

Reviewer B: "Her publication record, at the level of Assistant Professor, is excellent. This portfolio of active projects is very impressive for a [of her cohort] investigator. ...it is quite apparent that she clearly has a nationally recognized reputation in clinical research and nephrology. She is recognized in the renal community and is contributing to many research projects as well as advancing her own studies. In my institution, Dr. Gadegbeku would be appreciated as a valuable faculty member and would be considered deserving of this promotion."

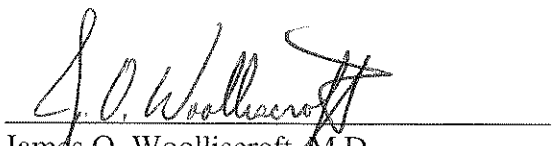
Reviewer C: "First it is noteworthy that she has completed a K23 award and now holds an R33 as principal investigator. As evidence of Dr. Gadegbeku's national stature, she has been appointed this year to the editorial board of *Integrated Blood Pressure Control.* Dr. Gadegbeku's publication record includes 18 original peer-reviewed research articles, 11 of which have been published since she was appointed Assistant Professor at the University of Michigan. ...it is noteworthy that she is on the first or senior author on 12 papers. ...her accomplishments are admirable and her promise for continued important and high impact scholarly contributions is great."

Reviewer D: "Studies such as these carefully controlled clinical studies examining pathophysiologic mechanisms are difficult to do, and are time consuming but provide essential data which animal laboratory experiments cannot provide. Dr. Gadegbeku is to be congratulated on completion of these studies and their publication in high impact journals. While the number of her publications is somewhat modest, they are distinguished by their quality as well as by their production in high impact journals. I believe Dr. Gadegbeku has contributed significant original scholarship to her discipline and with respect to this critical element of a promotion decision, is well qualified for advancement to Associate Professor. She has the national recognition as evidenced by participation in NIH Special Emphasis Panels ...that would suggest that she is the emerging national authority in the area of the pathophysiology of chronic renal diseases. I believe that Dr. Gadegbeku would be promoted to Associate Professor at [my institution] and that she is well along the path of becoming an accomplished clinical scientist of the kind that CTSA grants are designed to nurture."

Reviewer E: "Dr. Gadegbeku has asserted herself brilliantly in this major leadership role in the large profile national study. Her committee assignments at the institution more than satisfy even the most rigorous standards for institutional service. She consistently presents herself as a dedicated professional who has consistently campaigned for the generation of the highest quality scientific data and for its interpretation by the most credible and objective criteria. Her intellect, her work ethnic, her personal attributes, and her accomplishments thus far in this very competitive funding environment have already established her as an outstanding independent clinical/translational investigator and position her for more exciting accomplishments in the future. She would more than meet the criteria for this academic rank at my current institution and those which I have been associated."

Summary of Recommendation

In summary, Dr. Gadegbeku is an experienced, highly talented and productive physician scholar and a gifted clinical teacher. She has clearly achieved national prominence in the area of chronic kidney disease. Therefore, I am pleased to enthusiastically recommend Dr. Gadegbeku for promotion to associate professor, with tenure.



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

May 2009