

PROMOTION RECOMMENDATION
UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF INTERNAL MEDICINE

Subramaniam Pennathur, M.B.B.S., 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.B.B.S.	1991	Tirunelveli Medical College, Madurai University, India
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Professional Record:

2006-present	Assistant Professor of Internal Medicine, University of Michigan
2003-2006	Acting Instructor in Medicine, University of Washington
2002-2003	Clinical Instructor in Medicine, Washington University, St. Louis, MO
2001-2003	Clinical Instructor and Staff Physician in Medicine, Barnes-Jewish Hospital and Washington University, St. Louis, MO

Summary of Evaluation:

Teaching: Dr. Pennathur is a gifted educator and mentor. During his tenure as assistant professor he trained or mentored five high-school students, three undergraduate students, three subspecialty clinical fellows, eight masters/postdoctoral/research faculty and one senior investigator. The work of his trainees has resulted in numerous peer reviewed publications and oral presentations at national and international meetings. Five of his previous trainees have transitioned into independent faculty appointments. Additionally, he currently mentors four University of Michigan faculty members. Dr. Pennathur is well regarded by the nephrology fellows, as evident in the excellent evaluation scores he receives. He is also a gifted speaker. He gives several annual presentations within the University and has given 18 invited talks at national venues and other peer institutions since joining the faculty at Michigan.

Research: Dr. Pennathur's research focuses on the application of biological mass spectrometry in disease pathogenesis with an emphasis on oxidative mechanisms. While he has used these approaches in multiple settings, he has particularly focused on diabetic complications. In this area he has made fundamental discoveries in oxidative stress, proteomics, metabolomics and biomarker discovery. As a newly independent investigator, he discovered that oxidized high-density lipoprotein can serve as a marker and mediator of cardiovascular disease in humans. Subsequently, Dr. Pennathur identified key novel oxidative pathways that cause end organ damage in several disease processes. More recently he has employed state-of-the-art proteomic and metabolomic profiling to identify key protein and metabolite alterations in chronic kidney

disease and cancer. He has a long established history of successful grant funding from a variety of sources including multiple grants from the NIH. He has been the recipient of the Doris Duke Foundation Clinical Scientist Development Award and was one of the inaugural members of the League of Research Excellence as well as one of the initial grant awardees from the Joint Institute with the University of Beijing. Dr. Pennathur sat on the editorial review board for the *American Journal of Physiology–Renal Physiology* and is now on the review board for the *ISRN Vascular Medicine* journal. Dr. Pennathur is also an ad-hoc reviewer for 19 journals including the *Journal of American Society of Nephrology*, the *Journal of Clinical Endocrinology and Metabolism*, and the *Journal of Clinical Investigation*. He is also a long-standing member of the Juvenile Diabetes Research Foundation's study section on diabetic complications and currently serves on a NIH study section for translational research. These positions and his multiple invited presentations nationally and internationally demonstrate his standing as a national expert in several fields of study.

Recent and Significant Publications:

Vivekanandan-Giri A, Slocum JS, Buller CL, Basrur V, Ju W, Pop-Busui R, Lubman DM, Kretzler M and Pennathur S: Urine glycoprotein profile reveals novel markers for chronic kidney disease. *International Journal of Proteomics* (in Press; 2011).

Miller M, Stone NJ, Ballantyne C, Bittner V, Criqui MH, Ginsberg HN, Goldberg AC, Howard WJ, Jacobson MS, Kris-Etherton PM, Lennie TA, Levi M, Mazzone T and Pennathur S: Triglycerides and cardiovascular disease. *Circulation* 123:2292-2333, 2011.

Pennathur S, Maitra D, Byun J, Sliskovic I, Abdulhamid I, Saed GM, Diamond MP, Abu-Soud HM: Potent antioxidative activity of lycopene: A potential role in scavenging hypochlorous acid. *Free Radic Biol Med* 49:205-213, 2010.

Sreekumar A, Poisson LM, Rajendiran TM, Khan AP, Cao Q, Yu J, Laxman B, Mehra R, Lonigro RJ, Li Y, Nyati MK, Ahsan A, Kalyanasundaram S, Han B, Cao X, Byun J, Omenn GS, Ghosh D, Pennathur S, Alexander DC, Berger A, Shuster JR, Wei JT, Varambally S, Beecher C, Chinnaiyan AM: Metabolomic profiles delineate potential role for sarcosine in prostate cancer progression. *Nature* 457:910-914, 2009.

Vaisar T*, Pennathur S*, Green P, Gharib SA, Hoofnagle AN, Cheung MC, Byun J, Vuletic S, Kassim S, Singh P, Chea H, Knopp RH, Brunzell J, Geary R, Chait A, Brown G, Zhao X-Q, Elkon K, Marcovina S, Ridker P, Oram J, Heinecke JW: Shotgun proteomics implicates protease inhibition and complement activation in the anti-inflammatory properties of HDL. *Journal of Clinical Investigation* 117:746-756, 2007. *co-first author

Service: Dr. Pennathur was instrumental in the development of the Michigan Metabolomics and Obesity Center and the Nutrition Obesity Research Center (NORC) which is funded by the NIH. He currently serves as the director of the Molecular Phenotyping and Metabolomics Core and is on the executive administrative committee for the NORC. This core facility is utilized by more than 200 faculty members spanning across several departments in the Medical School, College of Literature, Science, and the Arts (Chemistry), School of Public Health, College of Pharmacy and

School of Kinesiology. Dr. Pennathur is also a dedicated clinician that provides outpatient care during one weekly clinic at the Ann Arbor VA Medical Center and inpatient care at both the Ann Arbor VA and UMHS.

External Reviewers:

Reviewer A: “Dr. Pennathur epitomizes an ideal physician-scientist: outstanding researcher and innovator, superb clinician, committed educator and a leader instrumental in developing successful interdisciplinary programs. I am most impressed with his energy, creativity and commitment to academic medicine.”

Reviewer B: “With respect to his peers I would rank Dr. Pennathur quite highly for his sustained high level of research productivity and both the quality and quantity of his high-impact publications. I view him in the top 10% nationally among similar individuals at leading academic medical centers.”

Reviewer C: “I ranked his work as the most newsworthy in the final survey of the WOR [Within Our Reach] annual meeting in 2010....I have realized that he and his colleagues have made several significant contributions to this very important field [lipid metabolism]....His training in nephrology and endocrinology, an unusual combination, has place him in a unique niche and will enable him to spearhead many interdisciplinary studies in the near future.”

Reviewer D: “...Dr. Pennathur is a tremendous physician-scientist who is a multi-talented asset to the University of Michigan. He is not only deeply dedicated to advancing our understanding of human disease, but he also richly contributes to the scholastic missions of the school. His record amply demonstrates his commitment to these causes and his success in pursuing them.”

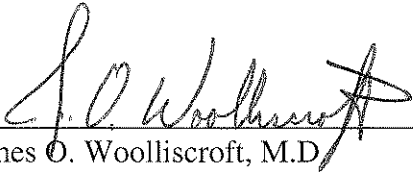
Reviewer E: “Dr. Pennathur has shown outstanding productivity with nearly 50 papers, some of them appearing in the very best journals in biomedical sciences....In both publications and research grants he clearly shows evidence of both independence and interdisciplinary collaboration, which have significantly enriched the research enterprise at your medical school.”

Reviewer F: “Subramaniam has 49 publications, including reviews, in high impact journals. He has [an] excellent track record of funding from the National Institutes of Health, and I anticipate that he will continue to successfully garner extramural grant support.”

Reviewer G: “...he is an outstanding researcher, committed leader, remarkable teacher, astute clinician and dedicated mentor....he has earned national and international reputation as a leader, academician and expert in his field....Dr. Pennathur has proven himself to be an outstanding researcher who adapts to the changing scientific landscape, capable of integrating diverse areas of human biology and diseases process through collaborative research.”

Summary of Recommendation:

Dr. Pennathur is a dedicated and highly gifted physician scientist. His contributions have improved patient care and our understanding of kidney and metabolic diseases. He has collaborated successfully and productively and now has five NIH grants for which he is the principal investigator. He is recognized internationally and gives back to the field through society contributions, grant review positions and the mentorship of developing physicians. I am pleased to recommend Subramaniam Pennathur, M.B.B.S. 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

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