

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

Subramaniam Pennathur, M.B.B.S., associate professor of internal medicine, with tenure, Department of Internal Medicine, and associate professor of molecular and integrative physiology, without tenure, Medical School, is recommended for promotion to professor of internal medicine, with tenure, Department of Internal Medicine, and professor of molecular and integrative physiology, without tenure, Medical School.

Academic Degrees:

M.B.B.S.     1991     Tirunelveli Medical College, Tirunelveli, India

Professional Record:

2016-present	Associate Professor of Molecular and Integrative Physiology, University of Michigan
2012-present	Associate Professor of Internal Medicine, University of Michigan
2006-2012	Assistant Professor of Internal Medicine, University of Michigan
2003-2006	Acting Instructor in Medicine, University of Washington, Seattle, WA
2002-2003	Clinical Instructor in Medicine, Washington University, School of Medicine, St. Louis, MO

Summary of Evaluation:

Teaching: Dr. Pennathur plays a significant role in education at the University of Michigan. His teaching activities are comprised of research education to undergraduate, graduate, and post-doctoral research fellows in the laboratory setting, and clinical teaching to medical students, residents and fellows in the clinic and hospital setting. Since 2012, two of his graduate trainees have moved on to post-doctoral and fellow positions. He works with six other graduate and post-graduate trainees with funding from various sources including NIH K08. He has also been the director of the Physician Scientist Training Program for the Internal Medicine Residency Program since 2012, and teaches medical students (Renal Pathophysiology Group Sessions) and clinical fellows (Nephrology and Endocrinology).

Research: Dr. Pennathur has a distinguished research career specializing in the applications of biological mass spectrometry in disease pathogenesis, and defining the role of oxidative stress on disease pathogenesis. His work has been well funded throughout his career. His current grants as the principal investigator includes an R24 Multi-PI grant which was recently renewed. He has 110 peer-reviewed publications in high-impact journals with 52 published since his last promotion that includes 14 as first or senior author. He has 35 abstracts and eight book chapters. Dr. Pennathur's national and international reputation is recognized by his numerous extramural invited presentations including 13 since his last promotion. He serves on numerous study sections and reviews grants for multiple agencies including the American Diabetes Association, the Juvenile Diabetes Research Foundation, and the National Institutes of Health. Dr. Pennathur has had a substantial international presence in both the Cardiovascular and Kidney sections of the Joint Institute between UM and

Peking University Health Sciences Center with his role as the lead investigator for the HDL Project. Dr. Pennathur has had several presentations in Beijing, and was also on an international study section. In 2016, he was the conference chair for the International Society of Nephrology (ISN) Forefronts Symposium.

#### Recent and Significant Publications:

Vivekanandan-Giri A, Slocum JL, Byun J, Tang C, Sands RL, Gillespie BW, Heinecke JW, Saran R, Kaplan MJ, Pennathur S: High density lipoprotein is targeted for oxidation by myeloperoxidase in rheumatoid arthritis. *Ann Rheum Dis* 72:1725-1731, 2013.

Abu-Soud HM, Maitra D, Shaeib F, Khan SN, Byun J, Abdulhamid I, Yang Z, Saed GM, Diamond MP, Andreana PR, Pennathur S: Disruption of heme-peptide covalent cross-linking in mammalian peroxidases by hypochlorous acid. *J Inorg Biochem* 140:245-54, 2014.

Sas KM, Nair V, Byun J, Kayampilly P, Zhang H, Saha J, Brosius FC 3rd, Kretzler M, Pennathur S: Targeted lipidomic and transcriptomic analysis identifies dysregulated renal ceramide metabolism in a mouse model of diabetic kidney disease. *J Proteomics Bioinform Suppl* 14: 002, 2015.

Pennathur S, Vivekanandan-Giri A, Locy ML, Kulkarni T, Zhi D, Zeng L, Byun J, de Andrade JA, Thannickal VJ: Oxidative modifications of protein tyrosyl residues are increased in plasma of human subjects with interstitial lung disease. *Am J Respir Crit Care Med*. 193:861-868, 2016.

Sas KM, Kayampilly P, Byun J, Nair V, Hinder LM, Hur J, Zhang H, Lin C, Qi NR, Michailidis G, Groop P-H, Darshi M, Sharma K, Schelling JR, Sedor JR, Weinberg JM, Soleimanpour SA, Abcouwer SF, Gardner TW, Burant CF, Feldman EL, Kretzler M, Brosius FC III, Pennathur S: Tissue-specific metabolic reprogramming drives nutrient flux in diabetic complications, *JCI Insight*. In press.

Service: Dr. Pennathur specializes in the care of patients with renal disease. As a board-certified physician in nephrology, Dr. Pennathur is a respected international leader in his field and sought after by his peers for his expertise in renal research. Dr. Pennathur's service contributions are exemplary. At the University of Michigan, he holds key leadership positions as director of the Physician Scientist Training Program, director of the Molecular Phenotyping and Metabolomics Core, associate director of the Biomedical Mass Spectrometry Facility, faculty member of the Bioinformatics Graduate Program, and as the chief of the Division of Nephrology. Outside of the university, Dr. Pennathur has been very active on international and multiple national study sections, and national committees. In addition, he has served on the editorial boards of *ISRN Vascular Medicine*, and *Journal of Diabetes Research*.

#### External Reviewers:

Reviewer A: "Dr. Pennathur is a highly creative, bright and dedicated physician-scientist who is well published, is highly respected in the field and has been successful in obtaining significant external funding for his research program."

Reviewer B: "Dr. Pennathur is a brilliant scientist who has been highly successful at the University of Michigan, and has made substantial and ongoing contributions to the field of CKD biomarkers... Because of his efforts, Dr. Pennathur has opened up a new area of research by identifying key metabolites that could be potentially involved in progression of diabetic kidney disease."

Reviewer C: “The depth, breadth, quality, and quantity of the scholarly impact of Sub’s work have always been very impressive, and he is also unusually collaborative, embracing a multi-disciplinary, team-based effort, which is very much in line with the overall direction of scientific progress... I would place him in the top 5% nationally among similar individuals at leading academic medical centers.”

Reviewer D: “Dr. Pennathur has clearly served the scientific community well in areas of service including three editorial boards, ad hoc reviewing for countless high impact journals, and several NIH special emphasis panels. He serves on several national committees including three for NIH on the topics of Translational Research, Metabolomics Resource Centers, and Children’s Health Exposure.”

Reviewer E: “In addition to Research, Dr. Pennathur makes very important contributions to the Service mission of your institution. That he was appointed as the Associate Division Chief of Nephrology recently is an acknowledgment of his superior administrative skills.”

Reviewer F: “His teaching, mentoring and career development abilities would be rated as outstanding. He leads the Physician Scientist Training Program at the Department of Medicine at the University of Michigan and recruits and mentors ~ 24 MD/PhDs in various subspecialties in Medicine... Importantly, he is the lead mentor for three physician scientists who have KO8 awards in his laboratory, which is a testament for his ability to nurture and develop physician scientists.”

Summary of Recommendation:

Dr. Pennathur is an exceptional physician scientist who is internationally known for his important research, teaching and service contributions. His professional activities and scholarly work have had a significant impact on our institution and on his field of research. I enthusiastically recommend Subramaniam Pennathur, M.B.B.S. for promotion to professor of internal medicine, with tenure, Department of Internal Medicine, and professor of molecular and integrative physiology, without tenure, Medical School.



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Marschall S. Runge, M.D., Ph.D.  
Executive Vice President for Medical Affairs  
Dean, Medical School

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