

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

Justus M. Anumonwo, Ph.D., assistant professor of internal medicine, Department of Internal Medicine, and assistant professor of molecular and integrative physiology, Department of Molecular and Integrative Physiology, Medical School, is recommended for promotion to associate professor of internal medicine, with tenure, Department of Internal Medicine, and associate professor of molecular and integrative physiology, without tenure, Department of Molecular and Integrative Physiology, Medical School.

Academic Degrees:

Ph.D.	1988	SUNY Upstate Medical University, Syracuse, NY
M.Phil.	1984	King's College, University of London, United Kingdom
B.Sc.	1977	University of Ibadan, Nigeria

Professional Record:

2009-present	Assistant Professor of Molecular and Integrative Physiology, University of Michigan
2008-present	Assistant Professor of Internal Medicine, University of Michigan
2003-2008	Assistant Professor, SUNY Upstate Medical University, Syracuse, NY
1993-2003	Research Assistant Professor, SUNY Upstate Medical University, Syracuse, NY

Summary of Evaluation:

Teaching: Dr. Anumonwo has demonstrated a commitment to education throughout his career. He has mentored numerous students, fellows and research scientists at both the University of Michigan and other institutions. At UM, he participates in the Undergraduate Research Opportunity Program and the Michigan Health Sciences Undergraduate Research Academy, and has served on several qualifying examination and doctoral dissertation committees. In addition to extensive research mentoring in his own laboratory, Dr. Anumonwo provides training sessions to individuals and groups, both within the institution and extramurally, on the theory and use of the patch clamp technique for cardiac electrophysiology. He is also active in didactic teaching for the Electrophysiology Fellows Conference at the Cardiovascular Center, and for courses in the Department of Molecular and Integrative Physiology, including Physiology 577 ("Membrane and Cell Physiology") and Physiology 600 ("Pathophysiology"). In his role as a member of the Department of Molecular and Integrative Physiology, Dr. Anumonwo also serves as a small group facilitator for first year medical students in sessions on cardiovascular physiology.

Research: Dr. Anumonwo's research focuses on cardiac ion channels and the mechanisms underlying cardiac arrhythmias. His seminal contributions have included his work on action potentials in Purkinje cells (which was selected as one of the top five papers published in the journal

Heart Rhythm in 2013), and on the characterization of the biophysical effects of proteins involved in cardiac ion channels and arrhythmias. He has over 40 peer-reviewed publications, with more than 20 as first or senior author, and numerous book chapters. Dr. Anumonwo's independent work is funded by the NIH (R01) and the American Heart Foundation, and he is also involved in several collaborative studies with investigators at the University of Michigan and external institutions. He is highly regarded by his peers, and his expertise has been recognized by his role on the editorial board of the journals *Heart Rhythm* and *Frontiers in Physiology*, as well as his service on study sections for several organizations, including the NIH and the American Heart Association.

Recent and Significant Publications:

Vikstrom KL, Vaidyanathan R, Levinsohn S, O'Connell RP, Qian Y, Crye M, Mills JH, Anumonwo JM: SAP97 regulates Kir2.3 channels by multiple mechanisms. *American Journal of Physiology (Heart Circ. Physiol.)* 297:H1387-3197, 2009.

Grzeda KR*, Anumonwo JM*, O'Connell R, Jalife J: A single-cell model of phase-driven control of ventricular fibrillation frequency. *Biophysical Journal* 96:2961-2976, 2009.

Vaidyanathan R, Taffet SM, Vikstrom KL, Anumonwo JM: Regulation of cardiac inward rectifier potassium current (I_{K1}) by synapse-associated protein-97. *Journal of Biological Chemistry* 285:28000-28009, 2010.

Milstein ML, Musa H, Balbuena DP, Anumonwo JM, Auerbach DS, Furspan PB, Hou L, Hu B, Schumacher SM, Vaidyanathan R, Martens JR, Jalife J: Dynamic reciprocity of sodium and potassium channel expression in a macromolecular complex controls cardiac excitability and arrhythmia. *Proceedings of the National Academy of Sciences* 109:E2134-2143, 2012.

Vaidyanathan R, O'Connell RP, Deo M, Milstein ML, Furspan P, Herron TJ, Pandit SV, Musa H, Berenfeld O, Jalife J, Anumonwo JM: The ionic bases of the action potential in isolated mouse cardiac Purkinje cell. *Heart Rhythm* 10:80-87, 2013.

Service: Dr. Anumonwo provides institutional service through his involvement on numerous qualifying examination and doctoral thesis committees, and has served as a peer reviewer for Cardiovascular Center intramural grants programs. He is an active member of several professional societies, having served on the International Affairs Committee for the American Society for Cell Biology, and the Advisory Panel for the Heart Rhythm Society. Dr. Anumonwo provides peer-review service for several journals, is on the editorial board for two journals, and has provided extramural grant review service for the NIH and the American Heart Association, as well as serving on committees at external institutions including the University of Wisconsin and the Canadian Foundation for Innovation.

External Reviewers:

Reviewer A: "Dr. Anumonwo is well known among his peers in the field of cardiac ion channels and their involvements in arrhythmias....His education, experience and internets have made him a very well rounded scientist. He has earned the respect and esteem of his peers and has established several international collaborations."

Reviewer B: “Dr. Anumonwo’s research has made meritorious contributions to the field of cardiac electrophysiology that includes 40 peer reviewed publications, several abstracts submitted to internationally renowned conferences and his contributions to book publications that have become essential in the training in both academic and clinical fields of cardiac electrophysiology. He has made seminal contributions to his field through rigorous and time-consuming research resulting in fundamental contributions that further our understanding of the cellular mechanisms underlying cardiac arrhythmias.”

Reviewer C: “The major impact of Dr. Anumonwo’s independent work beyond his collaborative contributions is related to his studies on Kir/IK1 channels, beginning with an important paper in *Circulation Research* in 2004....In a later study, Dr. Anumonwo was the first to characterize in two papers the biophysical effects of a Kir-interacting protein, Sap97....This is significant work that speaks to one of the major unanswered questions in membrane excitability: what mechanisms control levels of expression of the respective currents?....A third area of Dr. Anumonwo’s work that has had broad impact is his study of Purkinje fiber conduction....This work was a springboard for studies in several laboratories...”

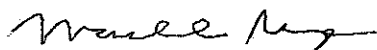
Reviewer D: “...there is no question in my mind that – while a valued member of a group – he is a strong and independent thinker, a truly original individual....Dr. Anumonwo is internationally recognized as a highly respected force in his field and shows the promise of remaining so going forward in his career.”

Reviewer E: “His papers have been submitted and published in first-rate, highly selective journals including *Heart Rhythm*, *PNAS*, *Circulation Research*, *Biophysical Journal*, and *American Journal of Physiology*....I have read his manuscripts and find them thorough and novel....I consider his work to be excellent for its conceptual novelty and depth of mechanistic insight.”

Reviewer F: “His work has been superb as evidenced by his many publications in high quality journals and his success competing for grant support.”

Summary of Recommendation:

Dr. Anumonwo is widely recognized for his contributions as both an independent investigator and a collaborator in the area of cardiac ion channels and the mechanisms of cardiac arrhythmias. He is also a committed educator and is active in service institutionally and extramurally. Therefore, I enthusiastically recommend Justus M. Anumonwo, Ph.D. for promotion to associate professor of internal medicine, with tenure, Department of Internal Medicine, and associate professor of molecular and integrative physiology, without tenure, Department of Molecular and Integrative Physiology, Medical School.



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

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