

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

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

Academic Degrees:

Ph.D.	2000	University of Michigan
B.S.	1995	Calvin College, Grand Rapids, Michigan

Professional Record:

2011-present	Associate Professor of Molecular and Integrative Physiology, University of Michigan
2011-present	Associate Professor of Internal Medicine, University of Michigan
2004-2011	Assistant Professor of Internal Medicine, University of Michigan
2004-2011	Assistant Professor of Molecular and Integrative Physiology, University of Michigan

Summary of Evaluation:

Teaching: Dr. Michele has mentored in his laboratory two post-doctoral trainees, six Ph.D. students, one M.S. student and more than 30 undergraduate students, and he takes considerable pride in providing his students with experiences that will drive a life-long interest and success in research. He established the Frankel Cardiovascular Center (CVC) Summer Undergraduate Fellowship Program which has grown to offer 16 fellowship slots that allows the students to select a mentor from 41 potential host mentor laboratories each summer. Dr. Michele was the leading faculty in the creation of the Cardiovascular Research and Entrepreneurship Training Program that aims to prepare graduate students for careers in translational research and moving discoveries to clinical application. He was awarded an NIH K26 award to develop a mentored training experience in comprehensive mouse phenotyping which allowed a unique hands-on training course as well as modular training activities. In addition to directing the K26 course, Dr. Michele teaches a physiology course at the College of Pharmacy that serves approximately 100 students per semester as well as masters and undergraduate students. Dr. Michele has received several teaching awards, including the 2016 MICHR Distinguished Mentor in Clinical and Translational Research Award.

Research: Early in his career Dr. Michele's laboratory successfully established new model systems in cardiac muscle cells for studying how genetic disruption of muscular dystrophy proteins caused instability of the muscle cell membrane. That research led to several publications, a March of Dimes grant, an independent NIH R01 grant, and several collaborations. His laboratory has subsequently moved into two new exciting areas of research: (i) understanding the mechanisms of membrane repair

in muscle, which is activated in dystrophic muscle cells that are damaged by normal contractile activity; and (ii) understanding how mechanical stress activates signaling in striated muscle and how this is disrupted in dystrophic muscle cells. For these studies, his laboratory created novel genetic models and protocols for studying the membrane repair process in real-time using live muscle cell imaging. Just recently, his patented discovery of membrane sealing compounds was awarded an investigative new drug application for a clinical trial in human muscular dystrophy patients.

#### Recent and Significant Publications:

Gumerson JD, Davis CS, Kabaeva ZT, Hayes JM, Brooks SV, Michele DE. Muscle-specific expression of LARGE restores neuromuscular transmission deficits in dystrophic LARGE(myd) mice. *Hum Mol Genet* 22:757-768, 2013.

McDade JR, Michele DE: Membrane damage-induced vesicle-vesicle fusion of dysferlin-containing vesicles in muscle cells requires microtubules and kinesin. *Hum Mol Genet* 23:1677-1686, 2014.

McDade JR, Archambeau A, Michele DE: Rapid actin-cytoskeleton-dependent recruitment of plasma membrane-derived dysferlin at wounds is critical for muscle membrane repair. *FASEB J* 28:3660-3670, 2014.

Garbincius JF, Michele DE: Dystrophin-glycoprotein complex regulates muscle nitric oxide production through mechanoregulation of AMPK signaling. *Proc Natl Acad Sci USA*. 112:13663-13668, 2015.

Campbell MD, Witcher M, Gopal A, Michele DE: Dilated cardiomyopathy mutations in delta-sarcoglycan exert a dominant-negative effect on cardiac myocyte mechanical stability. *Am J Physiol-Heart C* 310:H1140-H1150, 2016.

Service: Dr. Michele was instrumental in establishing a Phenotyping Core that is based in the Department of Molecular and Integrative Physiology (MIP) and he has served as the core director for the past five years. The core provides state of the art phenotyping to more than 100 users across campus and has supported many NIH R01, P01, U01 as well as numerous trainee fellowship applications. Related to his interest in animal research and animal models of disease, Dr. Michele serves on the Animal Care and Experimentation Committee for the American Physiological Society and through this committee he plans to lobby congress about the importance of animal research in addition to lobbying for additional support of biomedical research. Dr. Michele serves as an associate director of the MIP Graduate Program and an associate director of the Cardiovascular Research and Entrepreneurship training grant.

#### External Reviewers:

Reviewer A: "I have had the pleasure of interacting with him over the past few years at national and international meetings, where his presentations have been cogent and cutting-edge. He is an outstanding scientist, whose promotion to Professor I strongly support... He holds US and European patents for methods to prevent cardiomyopathy and heart disease."

Reviewer B: "Dr. Michele has demonstrated outstanding performance in research productivity as evidenced by his excellent and rigorous publications. Dr. Michele has a reputation for producing high quality and impactful work. He has excelled at creating innovative cellular tools as well as generating

highly valuable mouse models to investigate neuromuscular diseases. His teaching and mentoring is superb and has been recognized with campus-wide teaching awards. Dr. Michele is an engaging colleague who genuinely cares for contributing to the academic mission of producing the next generation well-trained and thoughtful scientists. He has integrity in both his interactions with the scientific community and in his approach to research. Dr. Michele would be enthusiastically promoted to full Professor at my own home institution.”

Reviewer C: “Dr. Michele has demonstrated an outstanding ability to continuously obtain peer reviewed research grants. Dr. Michele is recognized as an expert in the field of muscle and myopathy studies, evident by the fact that he has continuously been invited to review grants for funding agencies and research manuscripts for high impact international journals... I would rank Dr. Michele at the top 10% among independent investigators in North America at a similar stage of career development.”

Reviewer D: “In short, Dan has met the bar for promotion to professor. By external measures, he is publishing in interesting areas and his work has gained attention for its contributions. He is funded to do this work through several sources. He is [a] terrific mentor, and he has transmitted his enthusiasm for physiology to his trainees. I endorse his promotion and can assure you that he will be a contributing and valuable member of your faculty for years to come.”

Reviewer E: “Dan has always been known for his careful, physiologically-relevant experiments and the manuscripts produced from his lab are considered of outstanding quality...He has made important novel contributions that will enable an understanding of membrane repair during injury and disease....Dan’s lab is creating tools that will enable labs around the world to define membrane repair processes in different systems and conditions....His nationally and internationally recognized research program is thriving and growing.”

Summary of Recommendation:

Dr. Michele is a highly creative, esteemed and productive member of the Medical School. His scholarly contributions as a researcher, his departmental and institutional service, and his vast contributions in mentoring make him deserving of promotion. I am pleased to recommend Daniel E. Michele, Ph.D. for promotion to professor of molecular and integrative physiology, with tenure, Department of Molecular and Integrative Physiology, and professor of internal medicine, without tenure, Department of Internal Medicine, 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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