

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF NEUROLOGY

Sami J. Barmada, M.D., Ph.D., assistant professor of neurology, Department of Neurology, Medical School, is recommended for promotion to associate professor of neurology, with tenure, Department of Neurology, Medical School.

Academic Degrees:

Ph.D.	2006	Washington University
M.D.	2006	Washington University

Professional Record:

2015-present	Angela Dobson Welch and Lyndon Welch Research Professor of Neurology, University of Michigan
2013-present	Assistant Professor, Department of Neurology, University of Michigan
2011-2013	Staff Scientist, J. David Gladstone Institutes, San Francisco
2010-2013	Health Sciences Clinical Instructor, University of California

Summary of Evaluation:

Teaching: Dr. Barmada devotes his time instructing undergraduates, medical students, graduate students, post-doctoral fellows, residents and clinical fellows. He has supervised 19 undergraduate students since 2013, four are currently working in the laboratory, and served as a faculty referee for ENG110, a class offered by the University of Michigan College of Engineering for four years. Dr. Barmada currently mentors or co-mentors two post-doctoral fellows and six graduate students within the laboratory, and serves on the thesis committees of four graduate students. He serves as a guest lecturer for Neuroscience 616, Diseases of the Nervous System, Pathology 581, Tissue, Cellular and Molecular Basis of Disease, and Biochemistry 212, Biochemistry for Nursing and Dental Hygiene Students. Two weeks per year, Dr. Barmada supervises and teaches medical students and residents while attending on the inpatient neurology service or neurology consult service. During this time, he organizes at least one teaching session each on neuroradiology and dementia. Medical students, residents and clinical fellows also rotate through the Cognitive Disorders Clinic, where Dr. Barmada sees patients on a weekly basis. Dr. Barmada also teaches one to two sessions per year of the Department of Neurology Basic Neuroscience series, provides the lecture on dementia for Geriatric Medicine fellows, and recorded a seminar for the Research Education Component of the Michigan Alzheimer's Disease Center.

Research: Dr. Barmada's research takes advantage of a broad toolkit of innovative technologies and methods involving fluorescence microscopy, computer science and engineering, bioinformatics, genome engineering and molecular biology to investigate important yet unanswered questions in neurodegenerative diseases. His work, centering on critical abnormalities in RNA and protein metabolism in amyotrophic lateral sclerosis (ALS), and frontotemporal degeneration dementia (FTD), combines basic biology with translational research and technology development. These studies have the potential to uncover conserved disease mechanisms operating in both ALS and FTD, and may provide an essential link between recent genetic

discoveries and the clinical manifestations of neurodegeneration. More importantly, his research program promises to identify shared pathways that can be targeted for the development of therapies that are urgently needed for patients with ALS and FTD, both relentlessly progressive diseases that lack effective therapies. A growing body of evidence shows that abnormalities in RNA metabolism, inextricably linked to the dysfunction of essential RNA binding proteins, underlie both ALS and FTD. Dr. Barmada's research program capitalizes on these fundamental connections, dissecting the events that lead to protein accumulation, RNA misprocessing and subsequent neurodegeneration in ALS and FTD. In this vein, he has made several seminal contributions to the study of these disorders. He has been well-funded for his research through the NIH, the ALS Foundation and industry.

Recent and Significant Publications:

Flores BN, Li X, Malik AM, Martinez J, Beg AA, Barmada SJ: An Intramolecular Salt Bridge Linking TDP43 RNA Binding, Protein Stability, and TDP43-Dependent Neurodegeneration. *Cell Reports* 27(4): 1133- 1150.e8, 2019.

Malik AM, Miguez RA, Li X, Ho YS, Feldman EL, Barmada SJ: Matrin 3-dependent neurotoxicity is modified by nucleic acid binding and nucleocytoplasmic localization. *eLife* 7: e35977, 2018.

Sharkey LM, Safren N, Pithadia AS, Gerson JE, Dulchavsky M, Fischer S, Patel R, Lantis G, Ashraf N, Kim JH, Meliki A, Minakawa EN, Barmada SJ, Ivanova MI, Paulson HL: Mutant UBQLN2 promotes toxicity by modulating intrinsic self-assembly. *Proceedings of the National Academy of Sciences of the United States of America* 115(44): E10495-E10504, 2018.

Tank EM, Figueroa-Romero C, Hinder LM, Bedi K, Archbold HC, Li X, Weskamp K, Safren N, Paez- Colasante X, Pacut C, Thumma S, Paulsen MT, Guo K, Hur J, Ljungman M, Feldman EL, Barmada SJ: Abnormal RNA stability in amyotrophic lateral sclerosis. *Nature Communications* 9(1): 2845, 2018.

Barmada SJ, Serio A, Arjun A, Bilican B, Daub A, Ando DM, Tsvetkov A, Pleiss M, Li X, Peisach D, Shaw C, Chandran S, Finkbeiner S: Autophagy induction enhances TDP43 turnover and survival in neuronal ALS models. *Nature Chemical Biology* 10(8): 677-85, 2014.

Service: Dr. Barmada organizes the semi-weekly neurology and neuroscience seminar series for the Department of Neurology, and served on the organizing board for two Annual Symposia for the Protein Folding Diseases Initiative in 2017 and 2019. He is a member of the faculty search committees for the Kresge Hearing Institute and the Biological Sciences Scholars Program, and is the scientific advisory board for the Live Like Lou foundation. Additionally, he is an associate editor for the journal *Autophagy*, a consulting editor for the *Journal of Clinical Investigation Insights*, and a regular reviewer of proposals for the National Institutes of Health, the ALS Association, the Association for Frontotemporal Degeneration, and the Motor Neuron Disease Foundation. Dr. Barmada maintains a close relationship with Ann Arbor Active Against ALS, a local grassroots foundation, organizing tours of the laboratory and speaking at several fundraising events and meetings. He is a standing member of the Society for Neuroscience, the American Neurological Association, and the American Academy of Neurology.

External Reviewers:

Reviewer A: "...I was struck by Dr. Barmada's productivity. Further, some of the data in his Scientific Reports paper challenged the current dogma and data reported by other groups in the field. The arguments from the Barmada laboratory were presented fairly and professionally, and demonstrated that Dr. Barmada's pursues biomedical research with a high level of integrity. In short, I have a tremendous amount of respect for Dr. Barmada. He is an honest and highly capable scientist, truly a rising star within his field; I would rate him within the top 5-10% of his peers."

Reviewer B: "He has also done very well with obtaining competitive grant support, with one NIH R01 grant as Principal Investigator and five more NIH grants as Co-Investigator with others at the University of Michigan, including Drs. Lois Weisman, Andrew Lieberman, Peter Todd, and Hank Paulson, as well as foundation and industry support. Finally, he has an impressive list of invited lectures at meetings and academic institutions throughout the USA and abroad..."

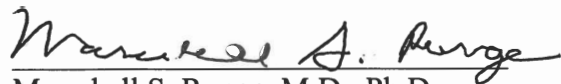
Reviewer C: "Dr. Barmada is an internationally recognized scientist who has outstanding record of publications in high-impact journals and getting highly competitive grant awards from the NIH, and private foundations. I enthusiastically support his promotion to Associate Professor with tenure..."

Reviewer D: "In sum, Sami is a talented and innovative researcher who has succeeded in achieving the difficult balance of a true physician-scientist. His research has already significantly advanced our field and I have no doubt that his future work will have a profound and meaningful impact not only for ALS but for neurodegeneration more broadly."

Reviewer E: "Dr. Barmada is highly respected in the field as evidenced by his numerous invitations to seminars and national/international conferences. He is an active participant, always ready with great questions and engaging discussion at meetings. In my view, Dr. Barmada is at the top of his peer group in regards to scholarship. He is also a skilled and caring mentor, an essential quality for building and maintaining a successful research program."

Summary of Recommendation:

Dr. Barmada is an outstanding physician-scientist who has made significant contributions to the understanding of the molecular pathogenesis of neurodegenerative disease. He is nationally and internationally renowned for his expertise. I am pleased to recommend Sami J. Barmada, M.D., Ph.D., for promotion to associate professor of neurology, with tenure, Department of Neurology, Medical School.



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

May 2020