

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY

Mary X.D. O’Riordan, Ph.D., associate professor of microbiology and immunology, with tenure, Department of Microbiology and Immunology, Medical School, is recommended for promotion to professor of microbiology and immunology, with tenure, Department of Microbiology and Immunology, Medical School.

Academic Degrees:

Ph.D.	1999	University of California, San Francisco
M.A.	1994	Princeton University
B.S.	1990	University of Washington, Seattle, WA

Professional Record:

2010-present	Associate Professor of Microbiology and Immunology, University of Michigan
2003-2010	Assistant Professor of Microbiology and Immunology, University of Michigan

Summary of Evaluation:

Teaching: Dr. O’Riordan is a respected teacher with substantial educational experience. Since her last promotion in 2010, she has been an instructor in five different graduate level courses (Microbiol 607, Microbiol 641, Immuno 851, PIBS 800 and M1 host defenses). She received excellent evaluations from students in all of these courses. In 2013, she received the UMMS Endowment for the Biomedical Sciences Teaching Award and was inducted into the UMMS League of Educational Excellence. Within her own laboratory, Dr. O’Riordan has mentored five postdoctoral fellows and two graduate students as well as numerous masters, post-baccalaureate and undergraduate students since her last promotion. In addition, Dr. O’Riordan has served on 18 Ph.D. thesis committees for students in multiple different PIBS (Program in Biomedical Sciences) programs during this period. From 2010-2013, Dr. O’Riordan served as the chair of the Graduate Studies Committee of the Department of Microbiology and Immunology and from 2014-2015 served as the director of PIBS. In 2015, she was appointed as the associate dean for graduate and post-doctoral studies of the Medical School.

Research: Dr. O’Riordan’s laboratory studies mechanisms of bacterial virulence and the host innate immune response to pathogen infection. She has made major contributions to our understanding of how intracellular bacteria utilize host molecules in their own biosynthetic pathways necessary for their growth and survival. Her work has also revealed multiple novel aspects of the innate response to pathogens including a role for ER stress sensors as innate immune response modulators. Since her last promotion, she has published 20 papers (14 as senior author), including in high impact journals such as the *Proceedings of the National Academy of Sciences USA* and *Immunity*. As evidence of the recognition of her research contributions by her peers, she has been invited to give presentations at 19 national meetings and 18 universities and colleges since her last promotion. In 2014, she was elected as a National Academy of Sciences Kavli fellow. She has maintained consistent funding from the NIH, and her research is currently supported by a NIH R33 grant, entitled, “Targeting Host

Deubiquitinases for Broad Spectrum Anti-infective Therapy” (through June 2017) and an NIH R01 grant, entitled, “Role of *Listeria* CodY in Integrating Metabolism and Virulence” (through February 2020). She is also a co-investigator with effort on a NIH U19 grant and an additional R01 grant based at the Medical School. In February of 2017, Dr. O’Riordan was appointed as the inaugural Frederick Neidhardt Collegiate Professor of Microbiology and Immunology.

Recent and Significant Publications:

Radtke AL, Anderson KL, Davis MJ, DiMagno MJ, Swanson JA, O’Riordan MX: *Listeria monocytogenes* exploits cystic fibrosis transmembrane conductance regulator (CFTR) to escape the phagosome. *Proc Natl Acad Sci U.S.A.* 108:1633-1638, 2011.

Burkholder KM, Perry JW, Wobus CE, Donato NJ, Showalter HD, Kapuria V, O’Riordan MX: A small molecule deubiquitinase inhibitor increases localization of inducible nitric oxide synthase to the macrophage phagosome and enhances bacterial killing. *Infect Immun* 79:4850-4857, 2011.

Cassidy SK, Hagar JA, Kanneganti TD, Franchi L, Nuñez G, O’Riordan MX: Membrane damage during *Listeria monocytogenes* infection triggers a caspase-7 dependent cytoprotective response. *PLoS Pathog* 8(7):e1002628, 2012.

Abuaita BH, Burkholder KM, Boles BR, O’Riordan MX: The endoplasmic reticulum stress sensor inositol-requiring enzyme 1 α augments bacterial killing through sustained oxidant production. *MBio* 6(4):e00705, 2015.

Bronner DN, Abuaita BH, Chen X, Fitzgerald KA, Nuñez G, He Y, Yin XM, O’Riordan MX: Endoplasmic reticulum stress activates the inflammasome via NLRP3- and caspase-2-driven mitochondrial damage. *Immunity* 43:451-462, 2015.

Service: Since her last promotion, Dr. O’Riordan has served on numerous committees. At the international/national level, she has served and continues to serve as an editor for five different microbiological and immunological journals and she regularly participates as a reviewer of grant applications submitted to the NIH and private foundations. Recently, she accepted an invitation to serve as a permanent member of a NIH study section. At the university level, she has served on the M-Cubed Executive Board and currently serves as a member of the Task Force on Institutional Climate for Diversity and the UM GEO Advisory Committee. At the Medical School level, she serves on the Biological Scholars Search Committee, and the UMMS Host-Microbiome Initiative Local Executive Board. As noted above, she is currently the associate dean for graduate and post-doctoral studies of the Medical School.

External Reviewers:

Reviewer A: “Most impressive...is Mary’s ability to synthesize a large amount of disparate information and turn it into a lucid description that is understandable to non-experts, yet insightful and provocative for experts. Her reviews (and seminars) are gifts to the research community... She is an outstanding scientist, mentor, educator, organizer and a natural leader. She is productive and well-funded. And she has earned the respect of her colleagues both nationally and internationally...”

Reviewer B: "...Dr. O'Riordan is a highly regarded investigator in the area of bacterial pathogenesis and host innate immunity. Furthermore, she is a dedicated citizen and educator and has assumed leadership roles in the scientific community and university."

Reviewer C: "The papers Dr. O'Riordan authors are beautifully written and always framed within the greater scientific context. Her oral presentations are also lucid and she has been invited to give numerous talks, both at universities and at several national and international meetings... As an indication of the high esteem that the scientific community holds her, she has served on study sections for national foundations...as well as at NIH, and serves a variety of editorial roles at scientific journals."

Reviewer D: "Mary is an exceptional community participant, having served as the Director of a Biomedical program and as an Associate Dean of Graduate & Postdoctoral Studies... She is an outstanding role model in general for young people in the community and women in particular."

Reviewer E: "I have followed her career closely and would jump at the chance to recruit here if the possibility ever presented itself. She has distinguished herself as a scholar, educator, administrator and citizen in the microbiology community on a local and national basis."

Summary of Recommendation:

Dr. O'Riordan has established herself as an outstanding educator and researcher who has earned the admiration of her peers and colleagues at the University of Michigan and at the national and international levels. In each of the areas of teaching, research and service, Dr. O'Riordan has exceeded the expectations of an associate professor at the University of Michigan. I am pleased to recommend Mary X.D. O'Riordan, Ph.D. for promotion to professor of microbiology and immunology, with tenure, Department of Microbiology and Immunology, Medical School.



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

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