Approved by the Regents
May 19, 2016

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF INTERNAL MEDICINE
DEPARTMENT OF CELL AND DEVELOPMENTAL BIOLOGY

Deneen M. Wellik, Ph.D., associate professor of internal medicine, with tenure, Department of Internal Medicine, and associate professor of cell and developmental biology, without tenure, Department of Cell and Developmental Biology, Medical School, is recommended for promotion to professor of internal medicine, with tenure, Department of Internal Medicine, and professor of cell and developmental biology, without tenure, Department of Cell and Developmental Biology, Medical School.

Academic Degrees:

Ph.D.	1996	University of Wisconsin-Madison
A.B.	1986	Washington University, St. Louis, MO

Professional Record:

2010-present	Associate Professor of Internal Medicine, University of Michigan
2010-present	Associate Professor of Cell and Developmental Biology, University of Michigan
2003-2010	Assistant Professor of Internal Medicine, University of Michigan
2003-2010	Assistant Professor of Cell and Developmental Biology, University of Michigan

Summary of Evaluation:

Teaching: Dr. Wellik has committed significant time to teaching the next generation of scientists, clinicians, and other science professionals at the University of Michigan. During her tenure as an associate professor, she has taken a more active leadership role in teaching, becoming a co-director and then director of the flagship course for the Center for Organogenesis. This course provides a foundation of the understanding of the use and research in stem cells and the importance of understanding organogenesis in health and disease. Additionally, Dr. Wellik became the director of the center's NIH T32 training grant, *Program in Organogenesis*, which funds both graduate students and post-doctoral fellows. In this role, she has led the trainee meetings and met with each trainee individually to advise on their professional development plans. She also serves as a coach for the R01 Boot Camp for junior investigators trying to achieve initial major funding. In this role, she meets with her co-coaches to formulate, review and improve R01 submissions. Dr. Wellik has been invited and accepted opportunities to teach in national and international settings. In 2015, she served as a visiting instructor at the Instituto Gulbenkian de Ciência in Oeiras, Portugal, spending a week at the institute participating in class lectures and lecturing to students. She serves as the sole instructor at Cold Spring Harbor Laboratories for their long-standing course in Mouse Development, Stem Cells and Cancer, in Cold Spring Harbor, NY.

Research: The primary focus of Dr. Wellik's research is understanding of the role of the *Hox* genes, which are a highly conserved group of transcription factors that initiate expression during embryogenesis as the body plan is being established. The focus of her lab has recently broadened to the recognition and exploration of the continued function of *Hox* genes through postnatal and adult stages and in repair and disease in addition to normal development. This work is made possible by a number of highly productive collaborations with investigators from within the University of Michigan in Orthopaedic Surgery, Physiology, Pediatrics, and Pathology as well as other divisions within Internal Medicine including MEND and Pulmonary and Critical Care Medicine. These collaborations have resulted in new lines of funding as well as new insights into the mechanisms of *Hox* function. Dr. Wellik currently serves as the principal investigator on two NIH grants, a grant from the American Diabetes Association, and a grant from the University of Michigan Cancer Center. Since her appointment as an associate professor, she has published 18 peer-reviewed publications, nine as first or senior author. Dr. Wellik also serves on the editorial boards of *Development Biology, Developmental Dynamics,* and the *Journal of Genetics and Development.*

Recent and Significant Publications:

Yallowitz AR, Hrycaj SM, Short KM, Smyth IM, Wellik DM: Hox10 genes function in kidney development in the differentiation and integration of the cortical stroma. *PLoS One* 6(8):e23410, 2011.

Xu B, Wellik DM: Axial Hox9 activity establishes the posterior field in the developing forelimb. *Proc Natl Acad Sci U S A* 108:4888-4891, 2011.

Xu B, Hrycaj SM, McIntyre DC, Baker NC, Takeuchi JK, Jeannotte L, Gaber ZB, Novitch BG, Wellik DM: Hox5 interacts with Plxf to restrict Shh expression in the developing forelimb. *Proc Natl Acad Sci U S A* 110:19438-19443, 2013.

Swinehart IT, Schlientz AJ, Quintanilla CA, Mortlock DP, Wellik DM: Hox11 genes are required for regional patterning and integration of muscle, tendon and bone. *Development* 140:4574-4582, 2013.

Hrycaj SM, Dye BR, Baker NC, Larsen BM, Burke AC, Spence JR, Wellik DM: Hox5 genes regulate the Wnt2/2b-Bmp4-signaling axis during lung development. *Cell Rep* 12:903-912, 2015.

Service: Dr. Wellik is an incredibly active faculty member in terms of institutional service at the University of Michigan. In addition to her roles as the training grant director for the Training program in Organogenesis, Dr. Wellik serves as the assistant director of the Center for Ogranogenesis and chairs the Center's Symposium Committee. She serves as a member of the Musculoskeletal Research Core Center, the Steering Committee for the Microscopy Image Analysis Laboratory, the Scholars Program Committee for the Center of Organogenesis, and on the Operating Committee for the TEAM Training Program with the University of Michigan School of Dentistry. On the national level, Dr. Wellik is serving as a co-organizer for the Midwest Society for Developmental Biology Regional Meeting. She is a standing member of

the National Institutes of Health DEV1 study section and serves as a grant reviewer for numerous organizations including the NIH, the New York State Stem Cell Science Program, the French National Research Agency, Cancer Research UK, and Israeli Science Foundation, among others.

External Reviewers:

Reviewer A: "Dr. Wellick's [sic] novel approach has led to numerous discoveries…she recently showed that *Hox5* genes regulate *Wnt/Bmp* genes for lung differentiation. Historically, the focus of *Hox* gene function has been on their patterning activities. Dr. Wellick's [sic] research is novel because it focuses on their roles in organogenesis. An important example of Dr. Wellick's [sic] standing in the field is that she not only served on the NIH DEV1 Study Section but she also served as Co-Chair and has been invited to serve as the Chair of the Study Section in 2017."

Reviewer B: "Dr. Wellik's research path is studded with papers that have transformed the thinking of the field…Her expertise is so well known that she has become the 'go-to' person for studies on Hox function in musculoskeletal and organ development and disease. Equally impressive is Deneen's ability to produce these elegant papers while devoting considerable effort to teaching, training, and service…Dr. Wellik's development as a scholar and researcher compares extremely favorably with others at a similar stage in their careers…Her work continues to build on her exceptional findings, and these basic-research studies have led to more clinically focused applications as well."

Reviewer C: "…Dr. Wellik's scholarship has impacted her field significantly: she is considered a world leader on the role of Hox genes in development and disease. Dr. Wellik does a fantastic job of communicating her work to her colleagues. When I have seen Dr. Wellik give talks at meetings, I have always been impressed by her presentations, which are well delivered, thoughtful, and provocative. Thus, she represents Michigan well at national and international venues….In particular, it is important to note Dr. Wellik's enormous service to the international mouse genetics community over the past few years, when she has been running the SCSHL mouse course. This is a critical job, as it trains students from all over the world who are the future leaders of our field….I believe that this promotion is well deserved, and that Dr. Wellik would be assured of receiving such a promotion were she at a comparable institution, such as ours."

Reviewer D: "From the start of Dr. Wellik's career as an independent researcher, she has been a pioneer in using complex mouse genetics to do the analysis of genetic redundancy that is necessary if we are to understand how Hox genes work. In the last five years or so she has emerged as a leader in this field of Hox function and I would rank her in one of the top five geneticists in the world working in this area…Dr[.] Wellik is impacting both American and international science through her work on NIH study sections as well as a large list of overseas granting agencies. She is also making an impact through her teaching at University of Michigan and abroad."

Reviewer E: "In my view, Dr[.] Wellik's research work has strongly impacted the Hox field and Developmental biology in general. She only had the courage to systematically dissect the

function of Hox genes by generating mouse mutants in all Hox paralogs....I recently heard her present this work and was really impressed by the quality of the work and by the importance of the findings. I have no doubt that this work will have a strong impact not only in the field of developmental biology but also for more clinically oriented domains such as orthopedic surgery and research focusing on bone repair. Dr[.] Wellik is one of the very few world-recognized experts in Hox biology, which is an important area of developmental biology."

Reviewer F: "I consider her one of a few I know who has impeccable scientific instinct, and who is not afraid to make her opinion known. I cannot think of a more deserving candidate for promotion. Dr. Wellik has risen to becoming a leader in the study of limb formation... Dr. Wellik's dedication to her studies is rewarded by her success in obtaining grants, no easy feat in this funding climate...I sincerely believe that Dr. Wellik excels at all aspects of her academic pursuit. There is no doubt that if she were at my home institution, she would be promoted."

Reviewer G: "Dr. Wellik is a highly recognized researcher in her area and in the last years she has evolved to become a well-established, productive and creative scientist. Her latest scientific contributions have opened new research avenues that are likely to change concepts and provide opportunities to control organ healing and regeneration. Her contributions to teaching and service at the University of Michigan and within the broader scientific community seem to me rather exceptional."

Summary of Recommendation:

Dr. Wellik is widely considered an expert in the field of Hox genes and their role in development and disease. In addition to her very productive and well-funded research, she has been an incredibly active educator of not only graduate students and post-doctoral fellows but her peers as well. Dr. Wellik is active at the institutional, national, and international level, serving on multiple committees, study sections, and grant review panels. It is for these reasons that I strongly recommend Deneen M. Wellik, Ph.D. for promotion to professor of internal medicine, with tenure, Department of Internal Medicine, and professor of cell and developmental biology, without tenure, Department of Cell and Developmental Biology, Medical School.

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

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