

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS

Approved by the
Regents
May 21, 2015

Patricia J. Wittkopp, associate professor of ecology and evolutionary biology, with tenure, and associate professor of molecular, cellular, and developmental biology, without tenure, College of Literature, Science, and the Arts, is recommended for promotion to professor of ecology and evolutionary biology, with tenure, and professor of molecular, cellular, and developmental biology, without tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D. 2002 University of Wisconsin
B.S. 1997 University of Michigan

Professional Record:

2011 – current Associate Professor, Department of Ecology and Evolutionary Biology and Department of Molecular, Cellular, and Developmental Biology, University of Michigan
2005 – 2011 Assistant Professor Department of Ecology and Evolutionary Biology and Department of Molecular, Cellular, and Developmental Biology, University of Michigan
2002 – 2005 Damon Runyon Cancer Research Foundation Post-doctoral Fellow, Cornell University

Summary of Evaluation:

Teaching – Professor Wittkopp is an exemplary teacher. Over the years she developed her own teaching philosophy and an innovative approach to actively engaging her students, and she consistently applies them in all of her courses. She has an extraordinarily good teaching record at all levels within our program, from large enrollment core courses to advanced graduate courses. This superior performance is reflected in her outstanding teaching evaluations and in numerous awards, including an Excellence in Education Award (2013) and a Class of 1923 Memorial Teaching Award (2011). Her record as a mentor is also excellent. In the last four years, she has mentored or is still mentoring 25 undergraduate students, ten graduate students, and eight post-doctoral scholars.

Research – Professor Wittkopp is a world-renowned geneticist who has made seminal contributions to our understanding of the evolution of gene regulation and its role in morphological variations within and between species. She has published extensively, producing some of the most influential articles in her area. Professor Wittkopp pioneered the dissection of regulatory evolution into *cis*- and *trans*-regulations, a powerful method for uncovering the genetic mechanism of regulatory evolution, and used this dissection to address a series of fundamental questions in evolutionary genetics. In addition, her recent study of the mutational effects on gene expression in yeast substantially expanded her research program and provided novel insights into the role of mutation in regulatory evolution. Professor Wittkopp's groundbreaking contributions to evolutionary genetics and genomics are recognized by all of the external reviewers.

Recent and Significant Publications:

“Tempo and mode of regulatory evolution in *Drosophila*,” with J. D. Coolon, et al., *Genome Research*, 24, 2014, pp. 797-808.

“Sources of bias in measures of allele-specific expression derived from RNA-seq data aligned to a single reference genome,” with K. Stevenson and J. D. Coolon, *BMC Genomics*, 14, 2013, p. 536 (PMCID: PMC3751238; selected by Faculty of 1000).

“Contrasting properties of gene-specific regulatory, coding, and copy number mutations in *Saccharomyces cerevisiae*: frequency, effects, and dominance,” with J. D. Gruber, et al., *PLoS Genetics*, 8, 2012, e1002497 (PMCID: PMC3276545; selected by Faculty of 1000).

“Cis-regulatory elements: molecular mechanisms and evolutionary processes underlying divergence,” with G. Kalay, *Nature Reviews Genetics*, 13, 2011, pp. 59-69.

Service – Professor Wittkopp has an excellent record of service within Ecology and Evolutionary Biology, the university, and the international scientific community. She has served on key committees and was recently appointed as associate chair for graduate studies. At the university level, she has been heavily involved in mentoring panels on teaching and preparing future faculty. Externally, she has served as an editor for five leading journals in her field, reviewed manuscripts for 29 journals, organized sessions at major scientific meetings, reviewed proposals for several international funding agencies, and served on multiple review panels for both the National Science Foundation and the National Institutes of Health.

External Reviewers:

Reviewer (A)

“Trisha has emerged as one of the few leading investigators into the mechanisms underlying the evolution of gene expression, traits, and species. She is an exceptionally creative scientist with a very sharp intellect, great benchtop acumen, and a superb track record of productivity in research, and has established herself as an out[st]anding mentor and teacher.”

Reviewer (B)

“...Dr. Patricia Wittkopp is a star faculty member who is has already had a highly visible impact on the field of evolutionary genomics. ... On top of her attributes as an insightful and tenacious scientist, it is this attribute of pulling in people to engage in science with her that will assure her a place as a major figure in the field of evolutionary genetics.”

Reviewer (C)

“This term I have written a large number of promotion letters, for many excellent colleagues. But, in many respects, this has been the easiest one yet. There are no apparent weaknesses. From my perspective, Trish is an excellent scholar, colleague, teacher and mentor.”

Reviewer (D)

“I have always found Dr. Wittkopp’s work to be notable for its focus on important questions, the use of clever and original experimental strategies to attack those questions, and the high quality and rigor with which these strategies are executed. Dr. Wittkopp is in my view one of the most successful and productive scientists who is integrating evolutionary biology (including population and quantitative genetics) with molecular biology (including developmental molecular genetics and the molecular determinants of gene expression) – a synthesis that will continue to transform both fields in the coming years.”

Reviewer (E)

“Prof. Wit[t]kopp is one of the brightest stars in our field. She is extremely creative and prolific. Every paper she writes says something new.”

Reviewer (F)

“Patricia Wittkopp is an outstanding biologist and has made major contributions to evolutionary genetics and evolutionary developmental biology. Her work just continues to improve with each passing year. She consistently produces ‘must-read’ papers and I had a great time reading the unpublished work in her package.”

Reviewer (G)

“...the scholarly achievements of Patricia are evident. She is pursuing well defined and important fundamental research question (origins of phenotypic diversity between related species) and is doing this in innovating and smart ways, leading to novel insights. ... Patricia visibility is clearly very high and she is greatly appreciated by her colleagues. She is invited to major meetings (e.g. multiple Gordon conferences) and is successful in achieving grants. This is a clear indication of her visibility and standing at the international level.”

Reviewer (H)

“...my assessment of Tricia’s scholarship is that she is doing extremely well. All of the usual metrics — peer-reviewed publications, invitations to speak at national and international venues, invitations to write high-profile reviews, and extramural funding — are notably strong. Her research has been highly successful and illuminating, and she’s been productive in terms of original research publications. Tricia is not afraid to take risks with projects and she’s not afraid to adopt technologies that lie outside the standard approaches in her field. Her papers are consistently thorough, the analyses incisive, and conclusions appropriately tempered. Tricia’s work has had a major impact and I fully expect that she will continue to make important contributions to the field for many years to come.”

Summary of Recommendation:

Professor Wittkopp is a leading scholar in evolutionary developmental genetics and has made important contributions to our understanding of the evolution of gene regulation. Her teaching is extraordinary and she has contributed valuable service to her department and profession. The Executive Committee and the College of Literature, Science, and the Arts and I recommend that Associate Professor Patricia J. Wittkopp be promoted to the rank of professor of ecology and evolutionary biology, with tenure and professor of molecular, cellular, and developmental biology, without tenure, College of Literature, Science, and the Art.



Andrew D. Martin
Dean, and Professor of Political Science
College of Literature, Science, and the Arts

May 2015