

PROMOTION RECOMMENDATION
The University of Michigan
College of Literature, Science, and the Arts

Laura A. Buttitta, assistant professor, molecular, cellular, and developmental biology, College of Literature, Science, and the Arts, is recommended for promotion to associate professor of molecular, cellular, and developmental biology, with tenure, College of Literature, Science, and the Arts.

Academic Degrees:

Ph.D.	2003	Johns Hopkins University
B.A.	1998	Bard College

Professional Record:

2011 – present	Assistant Professor, Molecular, Cellular, and Developmental Biology, University of Michigan
2004 – 2010	Post-doctoral Research Fellow, Fred Hutchinson Cancer Research Center

Summary of Evaluation:

Teaching – Professor Buttitta is a committed and successful educator, and has been a thoughtful and dedicated mentor to her students. Her primary teaching assignments have been to co-teach the introductory course “Developmental Biology” for which she played a large role in developing the syllabus and teaching materials. This is an important course for biology, cellular, and molecular biology (CMB), and neuroscience majors, as it is the only lower level course in developmental biology to prepare students for the 400 level courses. Professor Buttitta developed the advanced undergraduate course “Cell Cycle Control and Cancer” as her specialty course, which covers aspects of cell cycle control with a focus on cancer. She also taught the research ethics course and delivered lectures in two graduate courses. Her dedication to classroom teaching is evidenced by peer experiences in the classroom. Student evaluations have been very strong to excellent in their responses to questions about teaching style and methods. Students also recognize her as a caring and thoughtful mentor who has trained several excellent students and post-doctoral scholars.

Research – Professor Buttitta’s research addresses a central question in developmental biology; i.e., what are the molecular mechanisms that control the decision of cells to proliferate or to become quiescent and differentiate? She studies the regulation and function of proteins that control the cell cycle. The study of the cell cycle is a large and competitive research field owing to its central importance to cancer research. In 2015, there were more than 17,000 papers published on cell cycle control. Most of these focused on cells in culture. In contrast, Professor Buttitta uses the fruit fly as her model system, which is an outstanding system to study this problem owing to the power of fly genetics and cell biology. Her research addresses a diverse array of biological questions in the fly, and more recently she has expanded her research to mammalian systems of direct relevance to human cancer. During her time at Michigan, Professor Buttitta has made a number of original discoveries and published her work in excellent journals with her trainees as coauthors. She has also been successful in securing a substantial amount of research funding from multiple sources.

Recent and Significant Publications:

“miR-8 modulates actin regulators to influence cell survival and compensatory proliferation,” with K. Bolin, et al., *Developmental Biology*, 412, 2016, pp. 83-98.
“The role of the histone modifying and exchange complex NuA4 in cell cycle progression in *Drosophila melanogaster*,” with K. Flegel, et al., *Genetics*, 203, 2016, pp. 1265-1281.

“Protein phosphatase 2A promotes the transition to quiescence during terminal differentiation in *Drosophila*,” with D. Sun, *Development*, 412, 2015, pp. 3033-3045.

“Hunting complex differential gene interaction patterns across molecular contexts,” with M. Song, et al., *Nucleic Acids Research*, 42, 2014, p. e57.

Service – The quality and quantity of Professor Buttitta’s service to her department and to the university have been exemplary. She served on the Seminar Committee, Curriculum Committee, was recently elected to the Executive Committee, and she was a dedicated and thoughtful member of two faculty search committees. Professor Buttitta has also been involved in several educational outreach programs; e.g., as a faculty advisor for the Females Excelling More in Math, Engineering, and the Sciences (FEMMES) capstone events. She has been a frequent reviewer for prestigious scientific journals, which highlights her stature in the field, and served as ad hoc reviewer for National Institutes of Health study sections and international scientific granting agencies.

External Reviewers:

Reviewer (A)

“In reviewing Dr. Buttitta’s record, I am impressed with her contributions in all areas. ... What I greatly enjoy about [her three major research papers]...is that they are not simply superficial genetic screen studies. Instead, each is a rigorous, mechanistic investigation of the effect in question and its molecular bases. Moreover, Dr. Buttitta makes great use of her expertise, not just in cell cycle, but also in regulation of gene expression and chromatin, so this makes for a powerful intersection of research fields.”

Reviewer (B)

“The feature of Laura’s research abilities that most impressed me was her intense, and thoughtful approach to problems. She is a gifted experimentalist and a mature problem solver. I know that she is a fine speaker, and I have been told that she is a dedicated and excellent teacher. Judging from her productivity at every stage of her career I have no doubt that she merits advancement and will continue to carry out outstanding research.”

Reviewer (C)

“She has the astute recognition of the unique advantages of studying cell cycle exit in normal tissues using a fast growing organism with powerful tools to probe molecular mechanism. She applies these tools creatively and with a vision for how the basic biology discoveries integrate into a larger biological framework. ...Dr. Buttitta has already pushed the boundaries of the field’s thinking about cell cycle exit beyond our historic focus on just the cell cycle kinases (enzymes that modify other proteins by phosphorylation).”

Reviewer (D)

“...Laura has published consistently in respectable journals, with collaborators, and in the general area – cellular quiescence and proliferative activation – that she’s earmarked as her specialty. The latest paper on steroid signaling and cell cycle exit in the fly wing is a beautiful work...”

Reviewer (E)

“I think one of Laura’s greatest strengths, and what makes her research over the past five or so years so interesting is that she really gets ‘the big picture.’ ... Indeed she is unafraid to take her work in any direction that it needs to go and appears to be excellent at forming productive collaborations.”

Reviewer (F)

"I consider this work [changes in chromatin] to be a major breakthrough in the field and it would be, to my knowledge, the first clear delineation of a pathway linking a developmental signal to mitotic quiescence in a living tissue. Her recent discovery of cell-cycle re-activation in aging brains is also a finding of great significance which will undoubtedly receive considerable attention."

Reviewer (G)

"Her lab's papers are thorough and a pleasure to read. ...both her publication and funding record place her among the top tier of her peers at the same career stage, and I view her as a leader within her field. I also thought the research plan and unpublished results that she described sound very exciting, and I fully expect her success to continue."

Reviewer (H)

"She has chosen an important area with significant implications both for developmental biology and the cancer field... Her paper identifying PP2A phosphatase as a regulator of cell cycle exit during development, published in the high-tier journal *Development*, is outstanding. ... This paper will have high scholarly impact."

Summary of Recommendation:

Professor Buttitta has made important discoveries in her research and has demonstrated an outstanding commitment to teaching and service. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Laura A. Buttitta be promoted to the rank of associate professor of molecular, cellular, and developmental biology, with tenure, College of Literature, Science, and the Arts.



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

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