

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

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

Academic Degrees:

Ph.D.	2003	Michigan State University
B.S.	1996	Alma College

Professional Record:

2014 – present	Associate Professor, Department of Molecular, Cellular, and Developmental Biology, University of Michigan
2008 – 2014	Assistant Professor, Department of Molecular, Cellular, and Developmental Biology, University of Michigan
2003 – 2008	Post-doctoral Fellow, Department of Biology, Massachusetts Institute of Technology
2003 – 2003	Research Fellow, Department of Biochemistry and Molecular Biology, Michigan State University

Summary of Evaluation:

Teaching – Professor Simmons is a dedicated and skilled instructor. He has demonstrated a strong commitment to education in his formal classroom teaching, his mentoring of trainees in the research laboratory, and his service as the associate chair for graduate studies in the Department of Molecular, Cellular, and Developmental Biology (MCDB). While in rank, he has taught “Introductory Biology,” “Genes and Genomes,” “Model Systems,” and he coordinated a graduate seminar on DNA repair. His performance in each of these courses was outstanding. Professor Simmons is an exemplary mentor for trainees in the laboratory where he has trained many undergraduate, Master’s, and Ph.D. students, as well as post-doctoral fellows. He has also been very active in outreach activities through his affiliation with Benzie Central High School, located in the northern lower peninsula of Michigan. He recently traveled to Benzie with a UM film crew to record his activities as part of the “Stories of our State” project.

Research – Professor Simmons is a molecular microbiologist who studies molecular mechanisms of DNA repair and replication in bacteria. His work has provided fundamental knowledge of how bacteria maintain the integrity of their genomes, a process that is central to their survival. Furthermore, findings from Professor Simmons’ research on molecular mechanisms of DNA mutagenesis and repair have provided important insight into how bacteria acquire antibiotic resistance, which is essential knowledge for protecting human and animal health. The external reviewers recognized that Professor Simmons is at the forefront of the field of DNA repair in bacteria, and the MCDB professors agreed with this view. He is one of the top researchers in this field in the world. Professor Simmons is a highly productive researcher, his laboratory is well funded, and his work continues on a strong upward trajectory.

#### Recent and Significant Publications:

“Cryptic protein interactions regulate DNA replication initiation,” with L.A. Matthews, *Molecular Microbiology*, October 2018, doi: <https://doi.org/10.1101/313882>.

“Discovery of a dual protease mechanism that promotes DNA damage checkpoint recovery,” with P. E. Burby, et al., *PLoS Genetics*, 14(7), 2018, e1007512, doi: 10.1371/journal.pgen.1007512.

“Mutagenic cost of ribonucleotides in bacterial DNA,” with J. W. Schroeder, et al., *Proceedings of the National Academy of Sciences, USA*, 114(44), 2017, pp.11733-11738, doi: 10.1073/pnas.1710995114.

“The effect of local sequence context on mutational bias of genes encoded on the leading and lagging strands,” with J. W. Schroeder, et al., *Current Biology* 26, 2016, pp. 692-697.

Service – Professor Simmons’ service has been exemplary. He is currently serving as the associate chair for graduate studies and he has provided confident leadership that has allowed the department to continue to strengthen its graduate program. He is a member of the MCDB Executive Committee. Professor Simmons has devoted considerable time to federal granting agencies and academic professional organizations in his field. He currently serves on the editorial boards of two of the most important journals in his field, the *Journal of Bacteriology* and *Molecular Microbiology*. His service and leadership positions are international in scope, which reflect his reputation as a scientific leader in his field.

#### External Reviews

##### Reviewer (A)

“In my view, Lyle has met or exceeded any possible criteria for promotion at any university. He is a...researcher and educator of exceptional skill and promise. ... Dr[.] Simmons has discovered or helped discover at least two new types of DNA damage and associated repair pathways. His work on the incorporation and removal of ribonucleotides in DNA is especially notable. In this realm, Lyle has been one of the leaders in elucidating a very important process that had remained under the radar until about a decade ago. It is now quite prominent, thanks in no small measure to work from Dr[.] Simmons’ lab.”

##### Reviewer (B)

“Overall, I have always been impressed by the rigor and quality of Dr. Simmons['] contributions. I consider his recent work on rNTP effects on mutagenesis to be of the highest impact and of general importance to the field of bacterial mutagenesis and genome stability. In sum, Dr. Simmons is a nationally and internationally recognized expert on DNA stability and repair processes with a focus on *B. subtilis* as a model system.”

##### Reviewer (C)

“I believe that the quality of Dr. Simmons’ research is outstanding, that he is well recognized by his peers, and that his productivity is sufficient for promotion to full professorship. ... His collaborations with Dr. O’Donnell and Dr. Guarné, both of whom are truly outstanding scientists, illustrate that he chooses wisely regarding scientific questions and collaborations, and that his contributions are highly respected by other experts on replication and MMR. ...he has been continually funded by NIH R01 grants, attesting to his ability to propose important and

feasible experiments on important subjects. Given the significant body of work he has done...I am very pleased to support his pending promotion to the rank of full Professor.”

Reviewer (D)

“Dr. Simmons is on the forefront of the DNA repair field, and importantly one of the only (if not the only) investigators studying the process in a bacterium that is not E. coli. The quality of work from Dr. Simmons’ laboratory is outstanding. Each primary research article is beautifully written, using clear cut experiments and abundant data to make airtight arguments.”

Reviewer (E)

“I respect Dr. Simmons’ research at every level. He knows how to ask important questions, pursue them deeply and creatively, explain them clearly, and has the good taste and fortitude to follow-up surprising findings even if doing so requires him to venture into new technical areas and collaborate with others. .... He is one of the brightest lights in the bacterial genetics/cell biology field...”

Reviewer (F)

“Dr. Simmons is a very deep thinker, and is capable of conceiving explanations, and devising experimental tests that would escape most people’s minds. His tests are realistic, down to earth, sensible experiments that get at the heart of the matter at hand. He is completely non-dogmatic, a very free thinker and totally unafraid of pushing the boundaries of a topic into new areas depending on what the data say, not depending on what it ‘should’ say.”

Summary of Recommendation:

Professor Simmons is a recognized leader at both the national and international level in the field of DNA repair and replication. He is a gifted teacher who is highly rated by his students, a devoted mentor to his research trainees, and a valued colleague. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Associate Professor Lyle A. Simmons be promoted to the rank of professor of molecular, cellular, and developmental biology, with tenure, College of Literature, Science, and the Arts.



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Elizabeth R. Cole, Interim Dean  
Professor of Women’s Studies, Psychology,  
and Afroamerican and African Studies  
College of Literature, Science, and the Arts

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