
**LAB MANUAL FOR
MOLECULAR GENETICS & CELL BIOLOGY:
A RESEARCH-BASED APPROACH**

K. Joy Karnas, Editor
Cedar Crest College
Allentown, PA

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ABOUT THE BOOK

This book includes several laboratory exercises designed for the undergraduate classroom and is primarily focused on molecular genetics with connections to microbiology and bioinformatics. Most of the activities can be run as individual labs, but several can also be combined as a series of activities that build on one another to reinforce concepts and provide additional experiences. These connections are indicated in the Instructors Notes at the end of each activity along with lab prep instructions and recommend schedules.

The book is modular in format and instructors can choose not only which activities to use but also which portions of the chapters to print out for their students. For each activity, the first module (“Overview”) contains the purpose, an overview, student learning objectives, and safety precautions for the lab. The second module (“Lab Information”) contains the background information for the lab exercise and, assuming that students have already been introduced to most of the basic molecular concepts used in the activity, should be sufficient for contextualizing the activity and reviewing those relevant techniques. The third module (“Assessment and Extension Activities”) contains the procedural information for the students, stepping them through the lab techniques and helping them to think through necessary calculations that they will do. The final module (“Information for Instructors”) is designed to help instructors better understand how to prepare the lab and how to connect it to other activities outlined in the book.

ABOUT THE AUTHORS

K. Joy Karnas, Ph.D., Editor is a Professor of Biological Sciences at Cedar Crest College where she has taught upper-level undergraduate and graduate courses in molecular genetics since 2001. Research in her laboratory focuses on gene expression, examining genetic alterations that lead to triclosan resistance in bacteria and the use of epigenetics in identifying bodily fluids in crime scene analysis. In her tenure at the college, she has served as both the Director of the Genetic Engineering Program and Chair of the Department of Biological Sciences. She currently serves as the Director of the college's Honors Program. In addition, she is the co-chair of the Da Vinci Science Center's WISE Executive Advisory Council and Chair of the Board of Trustees for the Pocono Environmental Education Center. She served a term as President of the Pennsylvania Academy of Science, multiple terms as the Recording Secretary, and currently represents the Academy at the National Association of the Academy of Sciences.

Wendy Boehmler, Ph.D. is an Associate Professor of Biological Sciences at York College of Pennsylvania where she has taught molecular biology, genetics, and neurobiology courses and labs. Her research focuses on using the model organism, zebrafish, to investigate genes involved in neurodevelopment and neurodegeneration as well as the teratogenic potential of various drugs and chemicals.

Lara K. Goudsouzian, Ph.D. is an Associate Professor of Biology at DeSales University. She teaches courses in molecular biology, cell biology, and cancer biology. Her research interests include factors which influence chromosomal stability in the budding yeast *Saccharomyces cerevisiae*, as well as metagenomic analysis of soil bacteria using massive parallel sequencing. She is also active in the scholarship of biology teaching and learning, and has formally mentored other faculty in teaching. Every student enrolled in one of her laboratory courses within the biology major completes and formally presents an authentic research project – the DNA Barcoding series in this manual is one of those projects. Dr. G. founded the DeSales chapter of the Association for Women in Science and is the affiliate chair of the Pennsylvania Academy of Science.

Stuart J. Haring, Ph.D. is an Associate Professor of Biochemistry at North Dakota State University. His research interests involve understanding how cells duplicate their genetic information with high fidelity and preserve the integrity of their genome in the budding yeast *Saccharomyces cerevisiae*, and in human cell cultures.

Cynthia Keler, Ph.D. was a Professor in the Biology Department at Delaware Valley University and retired in 2022. She taught microbiology, molecular biology and virology to upper-level students. While at DelVal she implemented and ran the student research program. Always looking for ways to engage students beyond the traditional microbiology labs she developed the Fruit Fly and the Plant Growth Promoting Bacteria lab for her courses.

Jessica Petko, Ph.D. is an Associate Professor of Biology at Penn State York teaching courses in cell biology, genetics, and developmental biology. Her doctoral thesis focused on characterizing developmental gene expression within the zebrafish inner ear using *in situ* hybridization techniques outlined in this manual. Her lab has since transitioned to studying circadian rhythm genes and their regulation in spiders in an NSF funded project. Undergraduate students are involved in every aspect of her research including grant writing, planning and executing experiments, analyzing data, and communicating findings in peer reviewed journals and at scientific conferences.

Nik Tsotakos, Ph.D. is an Assistant Professor of Biology at Penn State Harrisburg. He teaches courses in Genetics, Developmental Biology, Molecular Biology, and Bioinformatics. His research lab focuses on regulation of gene expression by non-coding RNAs, with a special interest in diabetic complications as well as lung immunity.

André P. Walther, Ph.D. is an Associate Professor of Biological Sciences and is the Director of the Genetic Engineering and Biotechnology Program at Cedar Crest College where he teaches Principles of Cell and Molecular Biology, Biology of Cancer, and labs in Molecular Genetics, Advanced PCR techniques, and Mammalian Cell Culture and Microscopy. His research focuses on the use of yeast as a model system for understanding the underlying causes of human cancer, using yeast as a novel source of biodiesel production, and genetic characterization of yeasts involved in beer fermentation. He is currently serving as the President of the Pennsylvania Academy of Science.

ABOUT THE JUNIOR EDITORS

This project was reviewed by a panel of undergraduate students during the summer 2021 and winter 2021 semester breaks who provided grammatical suggestions and helped to improve the clarity and effectiveness of the writing. These students ensured that the content was properly organized, cohesive, and articulated in such a way as to be understandable for the target undergraduate audience. Their hard work and dedication to this project was greatly appreciated.

Logan P. Exton, Project Leader
Nova Southeastern University

Khoula Jaber
Cedar Crest College

Khushali Vyas, Project Leader
Cedar Crest College

Sydney Jones
Cedar Crest College

Andorra Bastien
Cedar Crest College

Ashlynn Masters-Jones
Delaware Valley University

Audra Bratis
Cedar Crest College

Colton Nester
Delaware Valley University

Megan Dunkle
Cedar Crest College

Aayushi Patel
Penn State University

Rafi Ettinger-Finley
Vassar College

Kelly Reid
Cedar Crest College

Michelle Frank
Arcadia University

Elaina Voletto
Cedar Crest College

Patsy Holtz
Cedar Crest College