

Presenter Profiles



*Howard M. Temin:
Personal and Scientific Recollections*

Rayla Temin, PhD

University of WI–Madison

Dr. Rayla Temin is an emerita professor retired from the Genetics Department at UW-Madison. She received her BS at Brooklyn College. Her PhD was earned at UW-Madison under the mentorship of Professor James Crow on population genetics in *Drosophila*. She measured the effects of lethal and detrimental chromosomes from natural populations. As a faculty member, Dr. Temin pursued this research on viability mutations, showing that recessive lethal genes affect the life span not only of homozygotes but also of heterozygotes. She later directed her research to the genetics of the meiotic drive system, *Segregation Distorter (SD)*. With a major interest in undergraduate education, Dr. Temin taught the introductory genetics course from 1978–2006, introducing more than 3000 students to the elegant concepts of basic genetics.



*From Howard to HIV and HERV:
50+ Years in Retrovirology*

John M Coffin, PhD

Tufts University

Following graduation from the Temin Laboratory, I spent three years with Charles Weissmann, University of Zürich, studying retrovirus genome structure and replication, developing methods to elucidate its size and function. Following my move to Tufts in 1975, I extended my retrovirus work to genetics, evolution, and pathogenesis of endogenous (germline inherited) retroviruses (ERVs) of chickens and mice, and, eventually, humans. In 1995, I wrote a widely cited essay on the newly discovered association of HIV with its human host, leading to my recruitment as founding Director (part-time) of the NCI's HIV Drug Resistance (now Dynamics and Replication) Program, where I was fortunate to recruit a highly productive and collaborative faculty (including four McArdle alumni), who have made important discoveries in the genetics, evolution, and pathogenesis of HIV.



*From McArdle Onwards:
My Forty-three Years of Retrovirology*

Michael Emerman, PhD

University of Washington

Michael Emerman obtained his PhD in Cellular and Molecular Biology at the University of Wisconsin–Madison in 1986 in the lab of Howard Temin and continued postdoctoral training at the Pasteur Institute in Paris to work with the co-discoverer of HIV, Luc Montagnier. Since 1989, Dr. Emerman led a lab at the Fred Hutch Cancer Center in Seattle, where he is now an emeritus professor. His lab focused on the molecular biology of HIV, the evolution and function of host antiviral genes, the concepts of “paleovirology” to trace the ancestors of modern viruses, as well as on HIV cure strategies. He was awarded the McDougall Mentoring Award in 2012 and trained over 20 postdoctoral fellows and 26 graduate students. He taught the graduate course “Human Pathogenic Viruses” for over 20 years based partially on the virology course taught by Dr. Temin. He was co-director of the graduate program and Editor-in-Chief of *Virology*.



*All the World's a Phage:
Intuition and Life Beyond Retroviruses*

Sandra K Weller, PhD

University of Connecticut

Dr. Sandra K. Weller is an internationally recognized molecular virologist. For more than four decades, she has worked on the elucidation the replication strategies of herpes simplex virus, developed innovative antiviral approaches and uncovered evolutionary connections linking herpesviruses, bacteriophages, and ancient genetic elements that predate cellular life. Dr. Weller served for 17 years as Chair of the Department of Molecular Biology and Biophysics at the University of Connecticut School of Medicine where she holds the title of Board of Trustees Distinguished Professor. She has organized more than a dozen national and international conferences (ASM, FASEB, and Keystone) and chaired the Publications Committee of ASBMB. In 2022, she was elected to the American Academy of Arts and Sciences.



*From Murine Leukemia Virus to HIV:
40 Years in Retrovirology*

Eric O Freed, PhD

HIV Dynamics & Replication Program, NIH

Dr. Eric Freed received his PhD in 1990 from the University of Wisconsin-Madison with Rex Risser and did postdoctoral work at UW-Madison in 1991 with Howard Temin. In 1992, he joined the National Institute of Allergy and Infectious Diseases (NIAID) at the NIH as a staff fellow. In 1997, Dr. Freed was appointed as a tenure-track Investigator in NIAID where he received tenure in 2002. In 2003, he joined the HIV Drug Resistance Program (HIV DRP, renamed the HIV Dynamics and Replication Program) in the National Cancer Institute, and in 2015 was appointed Director of the HIV DRP. Dr. Freed is also co-director of the Virology Program at the University of Maryland, College Park and serves as editor-in-chief of *Viruses*.



*You Can Observe a Lot by Watching:
New Insights into Human Retrovirus Particle Assembly by Comparative Analysis*

Louis M Mansky, PhD

University of Minnesota – Twin Cities

The Mansky research group has maintained long-standing interests in the replication, evolution, and virus-host cell interactions of the human retroviruses – human T-cell leukemia virus type 1 (HTLV-1) and human immunodeficiency virus types 1 and 2 (HIV-1, HIV-2). Areas of investigation have included the determinants of HIV-1 mutagenesis, lethal mutagenesis as an antiviral strategy, and the comparative analysis of HTLV and HIV particle assembly and host-cell interactions. Dr. Mansky is the founding director of the University of Minnesota's Institute for Molecular Virology, as well as the founding director of the NIH T32-supported Minnesota Training Program in Virology. Dr. Mansky is married to University of Minnesota faculty member and McArdle Lab alumna Dr. Kim Carpenter Mansky. They have three adult children.



Regulation of HIV-1 Unspliced RNA Functions

Wei-Shau Hu, PhD HIV Dynamics & Replication Program, NIH

Dr. Wei-Shau Hu received her PhD in genetics from the University of California, Davis. Under Dr. Howard Temin's guidance, she studied the mechanisms of retroviral recombination and reverse transcription as a postdoctoral fellow. In 1991, Dr. Hu joined the faculty of West Virginia University as an assistant professor in the Department of Microbiology and Immunobiology and was promoted to associate professor with tenure in 1998. In 1999, she joined the National Cancer Institute (NCI) as Senior Investigator in the HIV Drug Resistance Program (HIV DRP, renamed the HIV Dynamics and Replication Program in 2015). She is an American Academy of Microbiology Fellow, the recipient of Research Awards from Office of AIDS Research, and a member of the Behavior of HIV Viral Environments (B-HIVE) consortium.



Retroviruses as Windows into RNA Biology

Kathy Boris-Lawrie, PhD University of Minnesota – Twin Cities

Dr. Kathy Boris-Lawrie is an internationally recognized scientist whose pioneering work bridges retrovirology, RNA biology, and cancer. She discovered how RNA-binding proteins like DHX9 regulate mRNA fate and viral replication, and the concept that “specialized cap-dependent translation” explains how viruses and stressed cells bypass normal protein synthesis. Her research revealed non-canonical RNA–protein interactions as promising therapeutic targets in cancer. She earned her PhD from George Washington University and trained with Nobel Laureate Dr. Howard Temin. She began her faculty career at Ohio State University and later chaired the Department of Veterinary and Biomedical Sciences at the University of Minnesota. A Fellow of the AAAS and American Academy of Microbiology, Dr. Boris-Lawrie is a dedicated mentor to the next generation of scientific leaders.



A Newly Revised Model of the Early Stage of HIV-1 Replication

Vinay K Pathak, PhD HIV Dynamics & Replication Program, NIH

Dr. Vinay K Pathak received his PhD from the University of California, Davis for work on eukaryotic protein synthesis initiation factors under the guidance of Dr. John WB Hershey. He was a post-doctoral fellow in Howard Temin's lab from 1988–1991. He was a professor in Department of Biochemistry at West Virginia University from 1991–1998. He then joined the National Cancer Institute as Senior Investigator and Head of the Viral Mutation Section in the HIV Drug Resistance Program in 1999 under the direction of John Coffin (now known as the HIV Dynamics and Replication Program). His current research focus is on elucidating the early stage of HIV-1 replication, including HIV-1 core nuclear import, uncoating, nuclear trafficking, and integration site selection.



How and Why Does HIV-1 Modulate the Cell Cycle?

Nathan Sherer, PhD

University of WI–Madison

Nathan Sherer is a molecular virologist and Professor of Oncology and Molecular Virology at the University of Wisconsin–Madison. He is a faculty member in the McArdle Laboratory for Cancer Research and Institute for Molecular Virology (IMV) and currently serves as Director of the IMV and as Director of the UW-Madison Molecular and Cellular Pharmacology (MCP) Graduate Program. He did PhD training at Yale University in microbiology and postdoctoral training at King's College London as an EMBO Long Term Fellow. His research interests include virus-host interactions, live cell imaging, and antiviral therapeutic strategies.



About the Artist – Reverse Transcriptase Sculptor

Bryan Welm, PhD

University of Utah

Dr. Bryan Welm is an associate professor in the Department of Surgery at the University of Utah and a breast cancer researcher at the Huntsman Cancer Institute. His research focuses on developing and applying patient-derived cancer models to investigate tumor heterogeneity, uncover mechanisms of therapy resistance, and evaluate new treatment strategies, with the goal of advancing precision medicine for breast cancer.

Guided by a lifelong curiosity about biology and nature, Dr. Welm has pursued both scientific and artistic paths. As an artist, he creates sculptures that merge rational inquiry with imaginative expression, capturing the spirit of discovery in scientific research. His works include representations of nucleic acids, proteins, drugs, model organisms, and cells—pieces that intertwine the microscopic world with the human experience.

Dr. Welm often incorporates his art into science outreach and education, using it as a tool to spark curiosity, cultivate wonder, and inspire the next generation of scientists and innovators. He is also deeply interested in building bridges between art and science, believing that collaborations between the two fields create a fertile exchange of ideas and perspectives that drive creativity and innovation.

