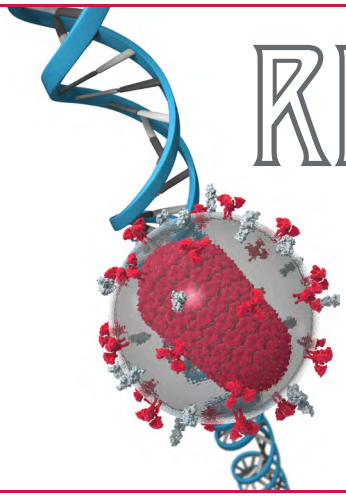

RETRO-ACTIVE NEWS

Newsletter of the Center for Retrovirus Research
at The Ohio State University

2025 Highlights

The Center for Retrovirus Research
2025 Distinguished Research Career Award

Dr. Christopher Aiken is Professor of Pathology, Microbiology and Immunology at Vanderbilt University Medical Center. He completed undergraduate studies in Chemistry at the University of California Santa Barbara and earned a Ph.D. degree in Biochemistry from the University of Illinois. Before joining Vanderbilt University in 1995, Dr. Aiken worked as a post-doctoral fellow at the Salk Institute for Biological Studies, La Jolla, California under the direction of Dr. Didier Trono.

Dr. Aiken's group has made key contributions to two important research areas: the structure and function of the HIV-1 capsid and the antiviral mechanisms of small molecules targeting the HIV 1 Gag proteins. His team pioneered the purification of native mature viral core particles from HIV-1 virions (2000), then developed methods to quantitatively analyze the effects of mutations on the stability of the viral capsid. This ground-breaking work led to the conclusion that the capsid performs key roles in both reverse transcription and nuclear entry of the virus (2002).

In collaborative work with numerous structural biologists, Aiken's group helped define the intersubunit interfaces that determine the optimal stability of the HIV-1 capsid (2009, 2013). Working with Itay Rousso, Aiken's team helped show that HIV-1 nuclear entry is critically dependent on the elasticity of the viral capsid and that the capsid-targeting antiviral compounds PF74 and Lenacapavir act by reducing HIV-1 capsid elasticity (2024, 2025). His group also performed early studies of the antiviral compound bevirimat, showing that it binds specifically to the immature HIV-1 Gag lattice and inhibits the cleavage of a specific site in Gag, thereby inhibiting maturation (2004).

Dr. Christopher Aiken holds the
2025 Distinguished Career Award crystal.

Dr. Aiken has successfully mentored 13 Ph.D. students and 15 postdoctoral fellows. He served as Director of the Vanderbilt Microbiology and Immunology Ph.D. program from 2006-2021. He collaborates widely with members of the HIV research community and has been continuously funded by the NIH since 1998. Dr. Aiken is an elected Fellow of the American Association for the Advancement of Science and an American Academy for Microbiology Fellow. In 2013 he received the Ernest W. Goodpasture Research Award by Vanderbilt, and in 2015 he was awarded the Cornelius Vanderbilt Chair in Pathology, Microbiology and Immunology.

Congratulations to Dr. Chris Aiken for his remarkable scientific achievements and the CRR Distinguished Research Career Award in 2025!

Dr. Aiken's distinguished award lecture was entitled **"The HIV Capsid: A Lynchpin Target for Therapy".** His visit was sponsored by the Center for Retrovirus Research, Department of Veterinary Biosciences, Infectious Diseases Institute, and the Comprehensive Cancer Center.

Patrick Green Named Distinguished University Professor

Patrick L. Green, PhD, Director of the Center and professor in the College of Veterinary Medicine, has been named Distinguished University Professor in 2025, the highest faculty honor at The Ohio State University. Senior leadership surprised Green with the news of his selection during a virtual meeting on April 17. Green is internationally recognized for his pioneering research that has significantly advanced the understanding of human T-cell leukemia viruses (HTLV) and related retroviruses. The relevance of Green's work to human health has been broad and significant, especially with respect to cancer, leading to a long series of prestigious awards and scientific recognitions.

Read the full article.

Shan-Lu Liu Receives 2025 Distinguished Scholar Award

Shan-Lu Liu, MD, PhD, Associate Director of the Center and professor in the Department of Veterinary Biosciences in the College of Veterinary Medicine, has earned The Ohio State University 2025 Distinguished Scholar Award. Senior leadership from the Enterprise for Research, Innovation and Knowledge recently surprised Liu with the honor. Liu also holds an appointment in the College of Medicine's Department of Microbial Infection and Immunity, serves as associate director of the Center for Retrovirus Research and is the co-director of the Infectious Diseases Institute's Viruses and Emerging Pathogens Program.

Read the full article.

NIH/NCI "Retrovirus Models of Cancer" Program Project Grant Renewed for 5th Cycle

An investigative team of Center for Retrovirus Research faculty, in collaboration with colleagues at Washington University and University of Illinois-Chicago, has been awarded a $9.7 million program project grant (PPG) from the National Institutes of Health National Cancer Institute to investigate retroviral models of cancer. This grant originated in 2003 and the current five year cycle (years 20-25) will run from 2025-2030.

The ultimate goal of this integrated, multi-disciplinary and multi-institutional Program Project Grant is to utilize the human T-cell leukemia virus type 1 (HTLV-1) T-cell immortalization model to gain understanding of the micro-environmental, cellular, and viral factors that lead to progression to leukemia, and with this knowledge, to identify unique targets for diagnosis and treatment of HTLV-1 infection and adult T-cell leukemia (ATL) and related leukemia/lymphoma. The grant includes three integrated projects and three cores.

The current team includes: Patrick Green, Amanda Panfil, Stefan Niewiesk, and Kara Corps from Ohio State, Justin Richner from University of Illinois-Chicago, and Lee Ratner, Deborah Veis, Malachi Griffith, and Feng Gao from Washington University, St Louis.
Read More.

Kai Xu Joins Ohio State Faculty and Center for Retrovirus Research

Kai Xu has returned to the Department of Veterinary Biosciences in the College of Veterinary Medicine and the Center for Retrovirus Research. Dr. Xu received his doctoral degree at Cornell University in the laboratory of Dr. Dimitar Nikolov, where his dissertation focused on the structure and function of neuronal receptors and viral entry. As postdoctoral researcher in the laboratory of Dr. Peter Kwong at the Vaccine Research Center, he developed a new antibody-guided and structure-based strategy for HIV vaccine development.

Dr. Xu's work has focused on the structure and function of membrane fusion proteins, particularly HIV-1 Env, and he has pioneered the rational design of HIV vaccine immunogens. After completing career-enhancing development in Houston, Dr. Xu brings back to Ohio State a suite of cutting-edge antibody and vaccine engineering platforms. The Xu lab will continue improve the HIV vaccine efficacy, and expand efforts to develop vaccines and immunotherapies for a broad range of infectious pathogens. His program integrates newly established technologies such as nanoparticle antigen display, high-throughput affinity-matured nanobody discovery, and multispecific antibody engineering.

Dr. Xu has collaborated extensively with several departmental faculty members, including Drs. Shan-Lu Liu, Jianrong Li, Haichang Li, Sanggu Kim, Cody Warren and Amanda Panfil, and he looks forward to growing new collaborations across the university. He is also actively recruiting talented students and postdoctoral researchers.

The Xu laboratory uses advanced structural biology approaches to define viral glycoprotein architecture and their interaction with host receptors and broadly protective antibodies. By integrating these mechanistic insights with rational design principles, Dr. Xu's research program bridges basic discovery with translational impact, accelerating the development of next-generation vaccines and antibody-based immunotherapeutics against diverse infectious pathogens.

Welcome Back Kai!

Amanda Panfil Awarded NIH R21 to Uncover a Drug Approach to Block HTLV-1 Transmission

Amanda Panfil, Assistant Professor, College of Veterinary Medicine, and member of the Center for Retrovirus Research received, a two-year R21 grant from NIH-National Institute of Allergy and Infectious Diseases for the project entitled "Anti-retroviral drugs to block HTLV-1 transmission in vivo".

HTLV-1 causes severe diseases with inadequate treatments and prevention strategies currently available. Many current pre-exposure prophylaxis (PrEP) antiretrovirals, effective against HIV-1, can block HTLV-1 transmission in cells. This proposal will determine the efficacy of PrEP in preventing HTLV-1 transmission using a preclinical rabbit model of infection and persistence and investigate potential drug resistance, thus informing future treatments and preventive measures for HTLV-1.

Cody Warren is Awarded a $649,999 USDA NIFA AFRI Award to Study H5N1 Influenza Virus Transmission Risk from Cattle to Swine

Cody Warren, PhD, MPH, Assistant Professor in Veterinary Biosciences, has been awarded a $649,999 grant from the USDA National Institute of Food and Agriculture (NIFA) through the Agriculture and Food Research Initiative (AFRI). The project, titled "Evaluating H5N1 Spillover Risk from Cattle to Swine," is conducted in collaboration with Dr. Andrew Bowman in the Department of Veterinary Preventive Medicine.

The recent emergence of highly pathogenic H5N1 clade 2.3.4.4b influenza viruses in U.S. dairy cattle represents a growing threat to animal health and the agricultural economy. If these viruses become endemic in cattle, they could establish a persistent reservoir with the potential for ongoing spillover into other livestock species, including swine.

This project addresses a critical knowledge gap by evaluating whether bovine-associated H5N1 viruses can infect and transmit among swine. By integrating in vivo transmission studies with physiologically relevant cell- and tissue-based models, the research will generate new insights into viral behavior in pigs and host responses to infection. Findings from this work will directly inform surveillance strategies and risk mitigation efforts aimed at protecting the U.S. swine industry and preventing future epizootics.

Namal Liyanage has been Awarded an R21 Grant from NIAID to Study Novel Adjuvant to Enhance HIV Vaccine Efficacy

Namal Liyanage, PhD, Associate Professor in the Department of Microbial Infection and Immunity and Veterinary Biosciences, has been awarded an R21 grant from the National Institute of Allergy and Infectious Diseases (NIAID) for his project titled, "Novel Adjuvant Strategies to Enhance HIV Vaccine Efficacy."

This innovative research aims to develop and characterize adjuvant formulations that specifically target natural killer (NK) cells to reprogram their functional state and amplify innate immune memory. By harnessing NK cells as a central component of vaccine adjuvant design, the project seeks to improve the magnitude, breadth, and durability of vaccine-induced immunity against HIV.

The approach involves identifying molecular pathways that drive NK cell training and leveraging these mechanisms to create next-generation adjuvants capable of boosting both innate and adaptive responses. The anticipated outcomes will provide critical insights into NK cell biology, inform rational vaccine design, and accelerate progress toward an effective HIV vaccine, addressing one of the most pressing challenges in global health.

Selected Grants and Recognitions

NIH 2P01CA100730-21 (NCI), Retrovirus Models of Cancer: Development of an HTLV-1 mRNA vaccine (Project 1) **Patrick Green, Amanda Panfil**, Ratner, Richner (2025 – 2030)

NIH 2P01CA100730-21 (NCI), Retrovirus Models of Cancer: Epigenomic Regulation of HTLV-1 Reactivation & Pathogenesis (Project 3), Ratner, **Patrick Green, Amanda Panfil**, (2025 – 2030)

NIH R21 (NIAID) (**Amanda Panfil**; **Kristine Yoder**): Anti-retroviral drugs to block HTLV-1 transmission in vivo, 2025 – 2027

St. Jude (prime: NIAID) (Andrew Bowman, **Cody Warren**) Investigation of immunity, transmission, and spillover potential of influenza A(H5N1) in dairy cattle (2025 - 2027)

Swine Health Information Center (**Cody Warren**, Andrew Bowman) Evaluation of H5N1 risk to swine: mammary transmission and clinical presentation in lactating sows (2025 - 2026)

USDA NIFA AFRI (**Cody Warren**, Andrew Bowman, Stephanie Langel) Evaluation of H5N1 spillover risk from cattle to swine (2025 - 2028)

Cody Warren invited keynote speaker for the XI Simposio Colombiano y VII Congreso Latinoamericano de Virología, Barranquilla, Columbia.

Stefan Niewiesk Director of Core B: Animal Core (2025-2030), NIH 2P01CA100730-21 Retrovirus Models of Cancer (PI Ratner)

NIH 2R01 AI153216-06 (**Karin Musier-Forsyth**) RNA Binding and Packaging by Retroviral Gag Proteins (2025-2029)

NIH R21 AI194334 (Multi-PI: **Karin Musier-Forsyth** and Dehua Pei) bioPROTAC-mediated degradation of HIV-1 Rev (2025-2027)

Karin Musier-Forsyth elected 2025 American Society for Biochemistry and Molecular Biology Fellow

Patrick Green invited to present the Keynote lecture at the 34th International Workshop on Retroviral Pathogenesis conference (October 6-9, 2026; Tübingen, Germany)

Patrick Green invited to present the Keynote lecture at the XVII International Symposium on HTLV in Brazil (October 27-29, 2026; São Luís, Maranhão, Brazil)

Namal Liyanage promoted to associate professor with tenure

Amanda Panfil invited to give the Keynote lecture at the HTLV European Research Network conference in Erlangen, GERMANY in July 2025

Amanda Panfil re-elected as International Retrovirology Association (IRVA) Treasurer (2026-2030)

Jian Zhu elected standing member of the HIV Coinfections and HIV Associated Cancers (HCAC) Study Section, NIH

Shan-Lu Liu invited plenary speaker at the 44thAmerican Society for Virology Annual Meeting

Shan-Lu Liu invited Keynote Speaker at The 35th Annual Buffalo Conference on Microbial Pathogenesis

Upcoming Meetings

2026 Conference on Retroviruses and Opportunistic Infections (CROI), Feb 22-25, 2026, Denver, USA. croiconference.org

Viruses 2026 – New Horizons in Virology, March 11–13 2026 , Barcelona, Spain. sciforum.net/event/Viruses2026

Cold Spring Harbor Retrovirus Meeting, May 18-23, 2026. Cold Spring Harbor, New York, USA. meetings.cshl.edu/meetings.aspx?meet=RETRO

22nd International Conference on Human Retrovirology: HTLV and Related Retroviruses, June 3-6, 2026, Philadelphia, Pennsylvania, USA. htlv2026.org

45th American Society for Virology Annual Meeting, July 27 - 30, 2026. University of Minnesota, Minneapolis, Minnesota, USA. asv.org/asv2026

West Coast Retrovirus Meeting, Oct 1-3, 2026. Palm Springs, California, USA. seattlechildrens.org/research/centers-programs/immunity-and-immunotherapies/west-coast-retrovirus-meeting

The 26th International AIDS Conference, July 26-31, Rio de Janeiro, Brazil. iasociety.org/conferences/aids2026

PhD graduate student highlights

Emily King, DVM, PhD, DACVP (Amanda Panfil lab)

Dr. King's thesis work was focused on characterizing the role of N-6-methyladenosine (m6A) in HTLV-1 pathobiology. Her studies have helped position m6A RNA modifications as a central regulatory mechanism in HTLV-1 biology by coordinating the expression of both viral and host transcripts.

During her Combined Pathology/PhD training (2021-2025), **Emily published 7 papers**, including **5 first author papers**. She was also a recipient of the **Dean's Distinguished University Fellowship** from Ohio State. In 2025, Emily was awarded the **ACVP Harold W. Casey Award** recognizing academic excellence and contributions to the field of veterinary pathology and the **Davis-Thompson Foundation Pathology Trainee and Scholarship Award**. After graduation, Emily became a Principal Pathologist in Preclinical Safety at AbbVie.

Congratulations!

Joseph Kanlong, BS (Musier-Forsyth lab)

Congratulations to **Joe Kanlong**, recipient of the inaugural **OSBP Graduate Student Research Award** and a **Best Poster Award** at the Retroviral Symposium, Prague.

Rocio Zaldivar, MS (Amanda Panfil lab)

Congratulations to **Rocio Zaldivar** for winning the Daniel Wolf **Best Poster Award** and the first place **Retrocard Prize** at the 2025 Cold Spring Harbor Retroviruses Conference.

Way to go Rocio!

Graduate Student & Post-doc Awards, Career Moves & Positions

Jared Compaleo (**Cody Warren lab**) awarded the C. Glenn Barber Fund Fellowship

Jovanna Fusco (**Cody Warren lab**) appointed to the NIH T35 for the Ohio State Veterinary Summer Student Research Program.

Jared Compaleo and Christina Sanders (**Cody Warren lab**) receive competitive travel awards to attend the 2025 ASV meeting in Montreal Canada.

Kalyna Kulchytsky (**Cody Warren lab**) accepted into the Undergraduate Research Apprenticeship Program (URAP).

Kalyna Kulchytsky (**Cody Warren lab**) received an Academic Enrichment Grant from the undergraduate student government.

Hannah Lathrop (**Karin Musier-Forsyth lab**, OSBP), NIH Cellular and Molecular Biochemical Sciences T32 Fellowship

Joseph Kanlong (**Karin Musier-Forsyth lab**), OSBP graduate student research award, SP25

Joseph Kanlong (**Karin Musier-Forsyth lab**) received a Best Poster Award at the 13th International Retroviral Symposium: Assembly, Maturation and Uncoating

Shihyoung Kim (**Sanggu Kim & Kai Xu lab**) awarded the 2025 NIH Post-doctoral T32 Fellowship

Emily King (**Amanda Panfil lab**) received ACVP Harold W. Casey Award recognizing academic excellence and contributions to the field of veterinary pathology

Emily King (**Amanda Panfil lab**) received Davis-Thompson Foundation Pathology Trainee and Scholarship Award

Bethany Pepple (**Amanda Panfil lab**) received Midwest Virology Symposium travel award

Cameron Phelps (**Amanda Panfil lab**) received distinguished Poster award winner at CVM Research Day 2025

Rocio Zaldivar (**Amanda Panfil lab**) received Daniel Wolf Prize for the best poster presentation at Cold Spring Harbor Retroviruses meeting

2025 PhD Graduates

Julia Faraone (Shan-Lu Liu lab, MCDB Program) received their PhD

Yehong Qiu (Musier-Forsyth lab, Chemistry & Biochemistry Program) received their PhD

Rylan Watkins (Musier-Forsyth lab, Chemistry & Biochemistry Program) received their PhD

Christina Ross (Musier-Forsyth lab, MCDB Program) received their PhD

Sara Justiniano (Amanda Panfil lab, BSGP program) received their MS

Emily King (Amanda Panfil lab, CVM graduate program) received their PhD

Youngmin Park (Jian Zhu lab, Molecular Genetics Graduate Program) received their PhD

2025 Passage of Candidacy Exam

Yajie Liu (Shan-Lu Liu lab) passed PhD candidacy exam

Tasnin Nila (Musier-Forsyth lab) passed PhD candidacy exam

Grace Crowe (Musier-Forsyth lab) passed PhD candidacy exam

Jared Compaleo (Cody Warren lab) passed PhD candidacy exam

Makky Moussa-Makky (Cody Warren lab) passed PhD candidacy exam

Selected Publications

Warren CJ, Barbachano-Guerrero A, Bauer VL, Stabell A, Dirasantha O, Yang Q, Sawyer SL. Adaptation of CD4 in gorillas and chimpanzees conveyed resistance to simian immunodeficiency viruses. **Elife**. 2025 May 14;13:RP93316.

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