National Institutes of Health Update

Claire Schuster, MPH
National Institute of Allergy and Infectious Diseases
National Institutes of Health

March 2024

Influenza Update

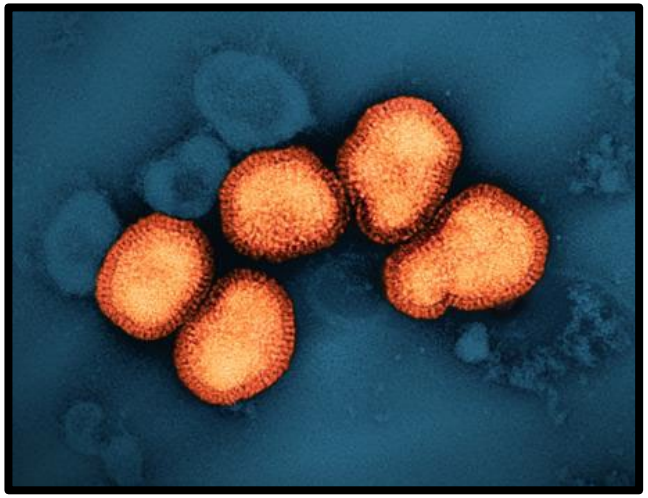
Universal Influenza Vaccine Research

U.S. Department of Health and Human Services
NIH News
National Institutes of Health

National Institute of Allergy and Infectious Diseases (NIAID)
http://www.niaid.nih.gov
September 15, 2023

NIH Clinical Trial of Universal Flu Vaccine Candidate Begins

Nanoparticle Vaccine Targets Six Flu Strains



A colorized transmission electron micrograph of influenza A virus particles.
Credit: NIAID

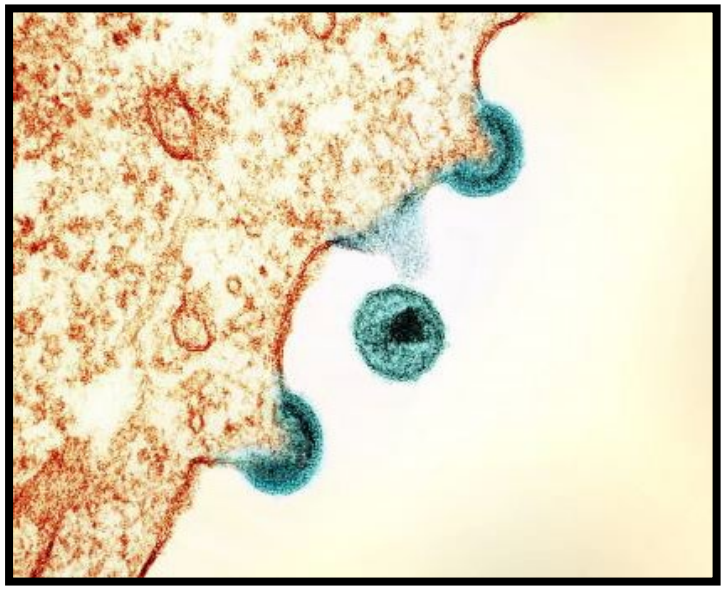
HIV/AIDS Update

HIV/AIDS Research

U.S. Department of Health and Human Services
NIH News
National Institutes of Health

National Institute of Allergy and Infectious Diseases (NIAID)
http://www.niaid.nih.gov
September 20, 2023

Clinical Trial of HIV Vaccine Begins in United States and South Africa



Transmission electron micrograph of HIV-1 virus particles from infected H9 cells, produced in cell culture.
Credit: NIAID

NIH National Institute of Allergy and Infectious Diseases

STI Update

NIH Strategic Plan for Herpes Simplex Virus Research

News & Events › Newsroom › News Releases

NIH Releases Strategic Plan for Research on Herpes Simplex Virus 1 and 2

Plan Will Advance Understanding of Herpes Virology and Accelerate Development of Diagnostics, Vaccines, and Therapies

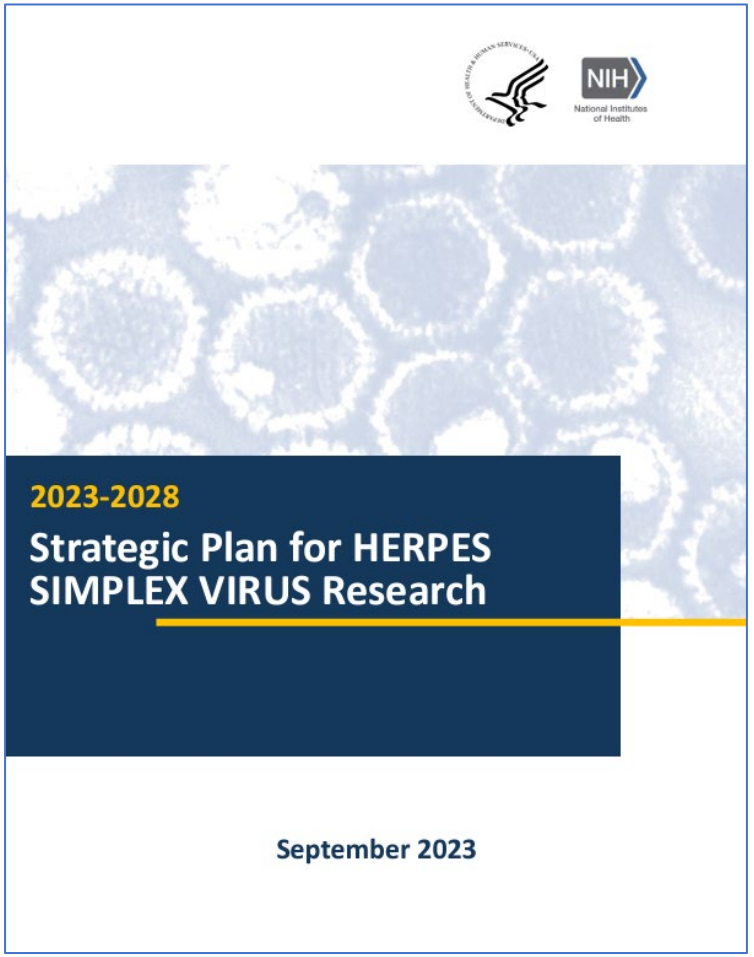
September 19, 2023

In response to the persistent health challenges of herpes simplex virus 1 (HSV-1) and HSV-2, today the National Institutes of Health released the *Strategic Plan for Herpes Simplex Virus Research* PDF. An NIH-wide HSV Working Group developed the plan, informed by feedback from more than 100 representatives of the research and advocacy communities and interested public stakeholders. The plan outlines an HSV research framework with four strategic priorities: improving fundamental knowledge of HSV biology, pathogenesis, and epidemiology; accelerating research to improve HSV diagnosis; improving strategies to treat HSV while seeking a curative therapeutic; and, advancing research to prevent HSV infection.

NIH's approach to HSV research

Credit: NIAID

HSV-1 and HSV-2 are among the most common viral infections in the United States. HSV can cause recurring blisters or sores. In severe cases HSV may lead to life-threatening or long-term complications, typically in the central nervous system. There are no licensed preventive HSV vaccines, and there is no cure. Up to 80% of people between the ages of 14 and 49 years in the United States live with HSV-1, and more than 10% live with HSV-2. HSV symptoms are primarily managed with antivirals that can reduce their frequency and intensity, but those medications do not clear the infection. Asymptomatic HSV is extremely common, and people who are asymptomatic can still transmit HSV to others. HSV is a leading cause of viral encephalitis—brain inflammation from a viral infection—and infectious blindness worldwide. Neonatal herpes, if left untreated, is fatal in 60% of cases.



E Erbelding/NIAID

Dengue Update

Dengue Vaccine Recommendation

- In October 2023, WHO's Strategic Advisory Group of Experts on Immunization (SAGE) recommended the use of Takeda's tetravalent live, attenuated dengue vaccine, QDENGA, in areas with high dengue disease burden and high transmission in children ages 6-16 years of age.
- NIAID provided extensive support to advance the preclinical and clinical development of the vaccine, including IND-enabling toxicology studies and first-in-human clinical testing.

A female *Aedes aegypti* mosquito ingesting a blood meal.

Credit: CDC

E Erbelding/NIAID

All of Us Research Program

U.S. Department of Health and Human Services
NIH News
National Institutes of Health

http://www.nih.gov
February 19, 2024

275 million new genetic variants identified in NIH precision medicine data

Study details the unprecedented scale, diversity, and power of the All of Us Research Program.

The All of Us Research Program Genomics Investigators. Genomic data in the All of Us Research Program. *Nature* (2024 February)

U.S. Department of Health and Human Services
NIH News
National Institutes of Health

http://www.nih.gov
February 20, 2024

Researchers optimize genetic tests for diverse populations to tackle health disparities

Improved genetic tests more accurately assess disease risk regardless of genetic ancestry.

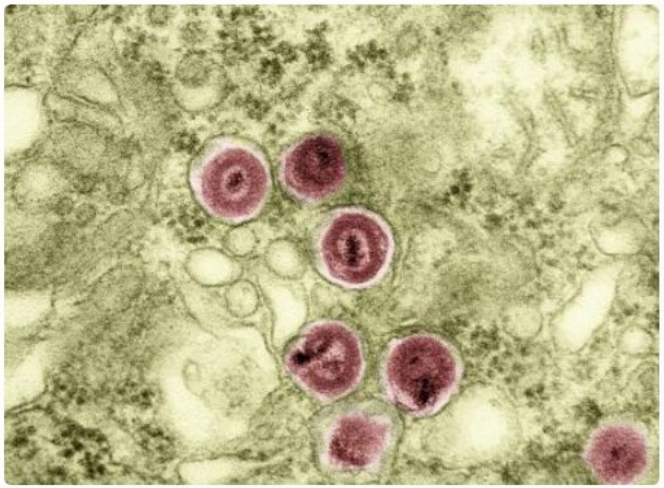
Cytomegalovirus Update

Novel CMV Vaccine Generates Stronger Response in Key Immune Cells Than Previous Candidate

NIAID Now | February 21, 2024

A messenger RNA (mRNA) vaccine designed to prevent human cytomegalovirus (CMV) elicited long-lasting CMV-specific responses from several types of immune cells, outperforming a previous vaccine concept in multiple measures in a NIAID-supported laboratory study. The findings were published in the *Journal of Infectious Diseases*.

CMV has been present in much of the global population for centuries. Most people with CMV experience no symptoms and are unaware that they are living with the virus, but CMV is dangerous for people with compromised immune systems and for babies. It is the most common infectious cause of birth defects in the United States. When babies acquire CMV through birth it is called congenital CMV, and it affects about 1 out of every 200 children. Of babies with CMV, about 1 in 5 will experience long-term health effects, including hearing or vision loss, developmental and motor delays, seizures, or microcephaly (a small head). Infants born before 30 weeks' gestational age or with low weight for age that have CMV may be susceptible to additional complications.



Transmission electron micrograph of cytomegalovirus (CMV) particles (burgundy) found within intracellular vesicles of an infected macrophage (green). Image captured at the NIAID Integrated Research Facility in Fort Detrick, Maryland.

Credit: NIAID

COVID-19 Update

Post-acute Sequalae of COVID-19

PEDIATRICS®

STATE-OF-THE-ART REVIEW | FEBRUARY 07 2024 EARLY PUBLICATION

Postacute Sequelae of SARS-CoV-2 in Children

Suchitra Rao, MBBS, MSCS ✉; Rachel S. Gross, MD, MS; Sindhu Mohandas, MD; Cheryl R. Stein, PhD; Abigail Case, MD; Benard Dreyer, MD; Nathan M. Pajor, MD; H. Timothy Bunnell, PhD; David Warburton, MD; Elizabeth Berg, MD; Jonathan B. Overdevest, MD; Mark Gorelik, MD; Joshua Milner, MD; Sejal Saxena, BA; Ravi Jhaveri, MD; John C. Wood, MD, PhD; Kyung E. Rhee, MD, MSc, MA; Rebecca Letts, BA; Christine Maughan, BS; Nick Guthe, BA; Leah Castro-Baucom, MA; Melissa S. Stockwell, MD, MPH

Open Forum Infectious Diseases

Reduction in Long COVID Symptoms and Symptom Severity in Vaccinated Compared to Unvaccinated Adults

Hannah E. Maier,[1,a,©] Theresa Kowalski-Dobson,[1,a,©] Ashley Eckard,[1] Carmen Gherasim,[2,©] David Manthei,[2] Alyssa Meyers,[1] Dawson Davis,[2] Kevin Bakker,[1,©] Kathleen Lindsey,[1] Zijin Chu,[1] Lauren Warsinske,[1] Matthew Arnold,[1] Anna Buswinka,[1] Emily Stoneman,[3] Riccardo Valdez,[2] and Aubree Gordon[1,©]

U.S. Department of Health and Human Services
NIH News
National Institutes of Health

***Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD)**
https://www.nichd.nih.gov/
December 19, 2023

Science Update: Widespread COVID-19 vaccination likely halted spike in preterm birth, NIH-funded analysis suggests

F Torche and J Nobles. Vaccination, immunity, and the changing impact of COVID-19 on infant health. *PNAS* (2023 November)

U.S. Department of Health and Human Services
NIH News
National Institutes of Health

***Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD)**
https://www.nichd.nih.gov/
January 31, 2024

Science Update: Preterm infants protected by maternal COVID-19 vaccination, NIH-funded study suggests

A Kachikis, *et al*. Timing of maternal COVID-19 vaccine and antibody concentrations in infants born preterm. *JAMA Network Open* (2024 January)

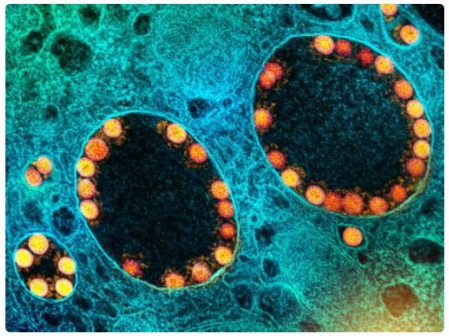
U.S. Department of Health and Human Services
NIH News
National Institutes of Health

National Institute of Allergy and Infectious Diseases (NIAID)
http://www.niaid.nih.gov

COVID-19 Vaccination and Boosting During Pregnancy Protects Infants for Six Months

February 14, 2024

Women who receive an mRNA-based COVID-19 vaccination or booster during pregnancy can provide their infants with strong protection against symptomatic COVID-19 infection for at least six months after birth, according to a study from the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health. These findings, published in *Pediatrics*, reinforce the importance of receiving both a COVID-19 vaccine and booster during pregnancy to ensure that infants are born with robust protection that lasts until they are old enough to be vaccinated.



Transmission electron micrograph of SARS-CoV-2 virus particles (orange) within endosomes of a heavily infected nasal Olfactory Epithelial Cell.

Credit: NIAID

CV Cardemil *et al*. Maternal COVID-19 Vaccination and Prevention of Symptomatic Infection in Infants. *Pediatrics* (2024 February)

NIH National Institute of Allergy and Infectious Diseases

Pandemic Preparedness

15 October 2023
Volume 228
Supplement 6

The Journal of Infectious Diseases

Pandemic Preparedness at NIAID: Prototype Pathogen Approach to Accelerate Medical Countermeasures—Vaccines and Monoclonal Antibodies

A Supplement to *The Journal of Infectious Diseases*

OXFORD UNIVERSITY PRESS

academic.oup.com/jid

NIH Update

NEWS RELEASES

Thursday, November 9, 2023

Monica Bertagnolli, M.D., takes the helm at NIH

Monica M. Bertagnolli, M.D., started today as the 17th director of the National Institutes of Health, the nation's biomedical research agency and largest public funder of biomedical research in the world. She is the first surgeon and the second woman to hold the position. Nominated by President Biden, Dr. Bertagnolli was confirmed on a bipartisan basis by the U.S. Senate on November 7. She transitioned from her role as the 16th director of the National Cancer Institute, a position she has held since October 2022. NCI Principal Deputy Director Douglas R. Lowy, M.D., will serve as the NCI acting director until President Biden appoints a new director.

In his nomination announcement earlier this year, President Biden stated: "Dr. Bertagnolli has spent her career pioneering scientific discovery and pushing the boundaries of what is possible to improve cancer prevention and treatment for patients and ensuring that patients in every community have access to quality care. Dr. Bertagnolli is a world-class physician-scientist whose vision and leadership will ensure NIH continues to be an engine of innovation to improve the health of the American people."

Thank you