



PRESS RELEASE

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Golden Goose Award Announces 2023 Awardees for Discoveries in DNA Sequencing Technique, A Bacteria-Inspired Method that Saves Crops and Chicken Pedigree Lines

Five Scientists Honored for these Unexpected Discoveries

WASHINGTON, D.C. – The Golden Goose Award, which celebrates federally funded research that sounds silly, but ultimately benefits society, has selected five researchers across the fields of biology, agriculture and genomics for their unexpected breakthroughs as 2023 awardees. On September 27, 2023, the [American Association for the Advancement of Science](#) (AAAS), the world's largest multidisciplinary scientific society, will co-host the 12th annual [Golden Goose Award](#) ceremony with the Association of American Universities, a founding member of the Golden Goose Award, at the Library of Congress to celebrate the awardees' achievements.

Thanks to funding from federal agencies, these five scientists were able to take research risks or pursue wonky research, yielding unexpected discoveries that benefit humanity. As Congress is considering cutting research and development funding in the 2024 budget, these scientific achievements serve as a reminder that this funding is a cornerstone for how discoveries are made, while keeping the nation competitive, broadening the U.S. research portfolio and fostering collaboration across sectors.

For this year's awardees, their scientific quests unfolded in unique ways:

- **Reviving a dormant idea that has dramatically advanced DNA sequencing.**

Awardees: Mark Akeson (UC Santa Cruz), Daniel Branton (Harvard University), and David Deamer (UC Santa Cruz)

A scientist conceived of an approach to DNA sequencing that later catalyzed the technology industry to create a commercialized and cost-effective pocket-sized device, enabling analyses in any setting with several potentially life-saving applications. The original idea for nanopore sequencing struck David Deamer while he was driving along a forested road in Oregon in 1989. He immediately pulled to the side of the road and scribbled down a concept, which quickly became just another set of notes stored in a dusty desk drawer. As genomics research expanded, Deamer dug up those field notes after a conversation with Daniel Branton and later teamed up with Mark Akeson to successfully pull a single strand of DNA through a channel to read its genetic sequence, a technique known as nanopore sequencing, which served as the foundation for the widely used device.

Despite the rejection from top-tier journals and the scientific community's skepticism, the road to success took 30 years of research, persistence and a bit of serendipitous fortune to prove many wrong. In 2014, nanopore sequencing was commercialized into a \$1,000 pocket-sized device and is widely used for pathogen analysis in outbreak surveillance of infectious diseases such as tuberculosis, Ebola, Zika and COVID-19. It has been used virtually anywhere, including the top of an arctic iceberg, a

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remote settlement in Africa where electrical power is unreliable, and on board the International Space Station.

- **Using millions of years-old bacteria to genetically modify plants resistant to pests.**

Awardee: Mary-Dell Chilton (Syngenta)

In the 1970s, scientists were trying to uncover whether bacteria's ability to repair their own DNA could also hijack plant growth — a survival strategy which, while savvy, threatened agricultural crops. Determined to find the answer, Mary-Dell Chilton analyzed data at her kitchen table after her kids had gone to bed. To her surprise, she discovered that bacteria could transfer their DNA into plants. The technique she eventually developed based on the bacteria's natural abilities, known as *Agrobacterium*-mediated transformation (AMT), is now widely adopted by U.S. corn, soybean and cotton farmers.

Cotton with pest-resistant traits has contributed to a massive decrease in insecticides applied (66% between 1994-2019), which decreases costs and environmental impacts while increasing crop yields and profits. Today, AMT is still used to deliver CRISPR/Cas9 components into plants and is ubiquitous in biotechnology research.

- **A 65-year-old experiment helped inform what we know about chickens today.**

Awardee: Paul Siegel (Virginia Tech)

Imagine a single science experiment – run by a single scientist – for 65 years and counting. Paul Siegel's curiosity about how to best breed and raise chickens ignited from his time raising chickens from the age of three on a 35-acre farm. Nearly daily, Siegel, now 90, still visits the Virginia Tech lab where he began his seminal work in 1957. That's when Siegel began breeding two pedigree lines of chickens, one high-weight and one low-weight. Those lines continue today, along with another longtime set of lines related to immunity, yielding discoveries about immune function, reproductive biology, genomic evolution and more.

This work is well known to poultry scientists throughout the world and serves as a foundation for modern methods of raising and breeding chickens, a major global food source. The impact of Siegel's work on humans, rather than chickens, is perhaps his most profound contribution: He has trained and mentored hundreds of students throughout his distinguished career.

“The Golden Goose Award reinforces the importance of investing in basic research across disciplines to propel innovation and improve lives,” said **Sudip S. Parikh, chief executive officer at AAAS and executive publisher of the *Science* family of journals.** “We can trace thousands of patents, like the DNA sequencing device, which stemmed from federal investments in research and development.”

Former U.S. Representative Jim Cooper (D-TN) conceived of the award as a counterpoint to criticisms that basic research is a waste of federal spending, leading to a coalition of business, university and scientific organizations establishing the award in 2012. Thanks to his [legacy](#), the award will continue to elevate the importance of recognizing basic science that ultimately improves people's quality of life.

The Golden Goose Award is grateful for the support of sponsors, including Wiley, a global knowledge company and a leader in research, publishing, and knowledge solutions, and Google.



For Reporters Only

Media are welcome to attend the award ceremony in the Library of Congress on September 27, 2023, from 5:30 p.m. to 8:30 p.m. ET. Please RSVP to media@aaas.org.

The ceremony will also be livestreamed, and you can tune in [here](#).

Interview opportunities: The nanopore sequencing team, Paul Siegel (chicken), and Sonny Ramaswamy, who nominated Mary-Dell Chilton (Agrobacterium), are available for interviews.

Videos of the winners' stories and contact information for winners are available upon request.

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The American Association for the Advancement of Science (AAAS) is the world's largest general scientific society and publisher of the journal *Science*, as well as *Science Translational Medicine*; *Science Signaling*; a digital, open-access journal, *Science Advances*; *Science Immunology*; and *Science Robotics*. AAAS was founded in 1848 and includes more than 250 affiliated societies and academies of science, serving 10 million individuals. The nonprofit AAAS is open to all and fulfills its mission to “advance science and serve society” through initiatives in science policy, international programs, science education, public engagement, and more. For additional information about AAAS, visit www.aaas.org.