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LASKER FOUNDATION ANNOUNCES 2023 LASKER AWARD WINNERS

*America's preeminent biomedical research prize
recognizes insights into human biology and revolutionary technological
advances to help understand, diagnose and treat disease*

The 2023 Albert Lasker Basic Medical Research Award

Demis Hassabis and John Jumper (Google DeepMind)

The 2023 Lasker~DeBakey Clinical Medical Research Award

*James G. Fujimoto (Massachusetts Institute of Technology)
David Huang (Oregon Health & Science University)
Eric A. Swanson (Massachusetts Institute of Technology)*

The 2023 Lasker~Koshland Special Achievement Award

Piet Borst (Netherlands Cancer Institute)

(New York, September 21, 2023) The [Lasker Foundation](http://www.laskerfoundation.org) today announced the winners of its 2023 Lasker Awards: **Demis Hassabis** and **John Jumper** (Google DeepMind) are the recipients of the Albert Lasker Basic Medical Research Award; **James G. Fujimoto** (Massachusetts Institute of Technology), **David Huang** (Oregon Health & Science University), and **Eric Swanson** (Massachusetts Institute of Technology) receive the Lasker~DeBakey Clinical Medical Research Award; and **Piet Borst** (Netherlands Cancer Institute) is honored with the Lasker~Koshland Special Achievement Award.

Established in 1945 by Mary and Albert Lasker, pioneering biomedical research advocates, the Lasker Awards are now widely regarded as America's preeminent biomedical research prize. The awards carry an honorarium of \$250,000 for each category. The awards will be presented at a gala ceremony in New York City on Friday, September 29, 2023. More information – including additional background on this year's winners and specially-created animated videos about their achievements – is available at [laskerfoundation.org](http://www.laskerfoundation.org).

The 2023 Albert Lasker Basic Medical Research Award

For the invention of AlphaFold, a revolutionary technology for predicting the three-dimensional structure of proteins

The **2023 Albert Lasker Basic Medical Research Award** honors **Demis Hassabis and John Jumper** for the invention of Google DeepMind's AlphaFold, a revolutionary technology for predicting the three-dimensional structure of proteins.

Proteins are essential for life. They serve as enzymes, antibodies, signaling molecules, and molecular motors. The role that a protein assumes relies upon its three-dimensional structure; and structure is determined by the way that a nascent protein—a linear chain of amino acids—folds. Scientists have long sought to predict protein structure based upon amino acid sequence; for decades the only way to discern the shape of a protein was through painstaking and time-consuming experimental approaches. Until recently, only a small fraction of protein structures had been experimentally determined; the accuracy of methods to predict protein shape based upon amino acid sequence was low.

This situation changed with the introduction of AlphaFold, a machine-learning artificial intelligence (AI) technology developed by **Hassabis** and **Jumper** and their team. In 2018, their first effort, AlphaFold1, outperformed other protein-prediction schemes in an international biannual competition, yet it was not accurate enough to be useful to biologists. The team then improved their creation by adding geometric and genetic concepts, and integrating established wisdom about proteins. In 2020, the resulting system, AlphaFold2, provided predictions that are accurate to atomic precision and generated excellent results in minutes even for proteins that lacked a template. The following year, AlphaFold2 predicted the structures of 350,000 proteins (including the approximately 20,000 that make up the human proteome).

AlphaFold2 has now predicted structures of nearly all of the ~200 million proteins in organisms whose genomes have been sequenced. Importantly, the results have been shared with scientists everywhere via a publicly available catalog. This triumph has launched a new era in studying and manipulating proteins, sparking myriad explorations into biomedical innovations, from vaccine and drug design to medication delivery and gene therapy.

[>> Read the full citation](#)

[>> Watch video](#)

The 2023 Lasker~DeBakey Clinical Medical Research Award

For the invention of optical coherence tomography, a technology that revolutionized ophthalmology—allowing rapid detection of diseases of the retina that impair vision

The **2023 Lasker~DeBakey Clinical Medical Research Award** honors **James G. Fujimoto, David Huang, and Eric A. Swanson**, for the invention of optical coherence tomography, a technology that revolutionized ophthalmology, allowing rapid detection of diseases that impair vision, including major causes of blindness: diabetic retinopathy, glaucoma, and macular degeneration.

Until the 1990s, ophthalmologists relied on examination techniques that produced limited and subjective results. **Fujimoto** (an expert in ultrashort lasers) enlisted **Huang** (then an MD-PhD

student) to harness a light-based phenomenon called interference to see into biological structures such as the retina. They partnered with **Swanson**—an engineer with experience in intersatellite laser communications—and together their work increased the speed and efficacy of the invention. Their efforts led to the development of compact and practical equipment to scan a high-resolution cross-section of the inside of the eye.

Building on their pioneering findings, published in 1991, techniques have been further advanced, leading to noninvasive and precise detection of medical conditions, allowing earlier diagnoses than ever before possible. Today, more than 30 million OCT procedures are performed annually worldwide, approximately one every second. OCT is now being applied in additional medical arenas, such as cardiology, surgical guidance, gastroenterology, and dermatology.

[>> Read the full citation](#)

[>> Watch video](#)

The 2023 Lasker~Koshland Special Achievement Award

For an exceptional 50-year career of scientific discovery, mentorship, and leadership

The **2023 Lasker~Koshland Special Achievement Award in Medical Science honors Piet Borst**, for an exceptional 50-year career of scientific discovery, mentorship, and leadership.

During his wide-ranging research career, Borst was steadfast in his intellectual curiosity, leading to seminal discoveries in fields ranging from parasitology to oncology. He described how the parasite that causes African sleeping sickness evades the human immune system; how drug-resistant cancer cells elude cytotoxic therapies; and how an unanticipated system, dubbed the Borst Cycle, helps eukaryotic organisms extract energy from sugar.

A renowned thought leader, Borst was Director of Research at the Netherlands Cancer Institute (NKI) where he implemented new policies that transformed the institution into one of the world's leading cancer research centers. He used this experience to help shape additional organizations as a member of various advisory boards and award juries. As a mentor, he inspired and trained scores of researchers, including many who have earned international prominence in science. Borst is a passionate advocate for science policy and research; in his newspaper column that ran for 23 years, he discussed how science benefits society and fought against scientific misinformation.

[>> Read the full citation](#)

[>> Watch video](#)

About the Lasker Awards: Since 1945, the Lasker Foundation has awarded more than 410 prizes through the Lasker Awards, renowned as America's preeminent biomedical research prize. The Lasker Awards recognize the contributions of leaders who have made major advances in the understanding, diagnosis, treatment, cure, and prevention of human disease. Over the years, 95 Lasker Laureates have also received the Nobel Prize, including seven since 2018. Recipients of the Lasker Medical Research Awards are selected by a distinguished international jury chaired by Joseph L. Goldstein, recipient of the 1985 Lasker Award for Basic Medical Research and the Nobel Prize in Physiology or Medicine.

More details on the Lasker Award recipients, the full citations for each award category, video interviews and photos of the awardees, and additional information on the Foundation are available at www.laskerfoundation.org.

About the Lasker Foundation: Established in 1942 by Albert and Mary Lasker, The Lasker Foundation seeks to increase support for biomedical research by celebrating the power of biomedical science to save and improve human lives. Through its internationally renowned Lasker Awards, educational initiatives, and public advocacy, the Foundation recognizes the most important achievements in science and public service, supports and encourages the scientific leaders of tomorrow, and raises awareness of the ever-present need for research funding. The Foundation is committed to inspiring robust and sustained support for biomedical research, fueled by Mary Lasker's call to action: "If you think research is expensive, try disease!" More information at laskerfoundation.org.

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