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# 2009 LASKER AWARDS HONOR TRAILBLAZERS IN MEDICAL RESEARCH AND PUBLIC SERVICE:

## John Gurdon and Shinya Yamanaka, for Breakthrough Research in Nuclear Reprogramming and Stem Cells

## Brian J. Druker, Nicholas B. Lydon and Charles L. Sawyers, for Lifesaving Discoveries in Treatment of Leukemia

## Michael R. Bloomberg, for Landmark Policy and Philanthropic Initiatives to Reduce Tobacco Use and Foster Public Health

*New York, Sept. 13, 2009* - The Albert and Mary Lasker Foundation, which for 64 years has championed the greatest breakthroughs in medical research, today announced the winners of the *2009 Lasker Awards* for outstanding accomplishments in basic medical and clinical medical research, and public service. The three awards—recognized as the most prestigious medical research awards in the United States today— honor six visionaries whose insight and courage has led to dramatic advances that will prevent disease and prolong life.

**John Gurdon** of Cambridge University and **Shinya Yamanaka** of Kyoto University will receive the 2009 Albert Lasker Basic Medical Research Award for breakthrough discoveries into the process that instructs specialized adult cells to form stem cells. **Brian J. Druker** of Oregon Health & Science University, **Nicholas B. Lydon**, formerly of Novartis, and **Charles L. Sawyers** of Memorial Sloan-Kettering Cancer Center will receive the 2009 Lasker~DeBakey Clinical Medical Research Award for groundbreaking work on the treatment of chronic myeloid leukemia. New York City Mayor **Michael R. Bloomberg** will receive the 2009 Mary Woodard Lasker Public Service Award for his bold policy initiatives that set a world standard for using public health concerns to propel government action, and for advancing the public's health through enlightened philanthropy.

"The 2009 Lasker Awards underscore the ways in which our commitment to medical research opens up new areas of inquiry, and enables science-based decision making to improve the public's health," said Maria Freire, President of the Lasker Foundation. "All six Laureates have played crucial roles in finding solutions to a host of vexing health problems. Lives everywhere may be saved and improved because of their bold innovations in public health, cell differentiation, and cancer treatments."

"In bestowing these honors, the Lasker Foundation hopes to focus attention on innovative thinkers and researchers whose willingness to challenge assumptions and pursue new paths will expand our scientific knowledge and lead to an enhanced quality of life," said Joseph L. Goldstein, Chair of the Lasker Medical Research Awards Jury.

The Lasker Awards, which carry an honorarium of $250,000 for each category, will be presented at a ceremony on Friday, October 2 at the Pierre Hotel in New York City. Since 1945, the Lasker Awards program has recognized the contributions of scientists, physicians, and public servants internationally who have made major advances in the understanding, diagnosis, treatment, cure, and prevention of human disease.

## Honoring Insight & Innovation in Science

**The 2009 Albert Lasker Basic Medical Research Award** honors **John Gurdon**, 76, of Cambridge University and **Shinya Yamanaka**, 47, of Kyoto University whose discoveries concerning *nuclear reprogramming* opened new avenues for pursuing exciting aspects of embryonic and adult stem cell research, for understanding inscrutable diseases, and for exploring personalized cell-replacement therapies.

Starting in the mid-1950s, Gurdon established that the vast majority of the body's cell types retain all of their genetic information as they specialize and that the right conditions can wake up genes that turn idle during development. Gurdon's discoveries in frog eggs ignited the entire field of "nuclear reprogramming" whereby specialized adult cells turn into stem cells that can then differentiate to form many of the body's tissues. This line of inquiry with amphibian eggs allowed other work to unfold, including the creation by Scottish scientists of Dolly, the sheep that made history in 1997 as the first clone made from the nucleus of a fully specialized mammalian adult cell.

Picking up on Gurdon's findings, but obviating the need for using eggs, Shinya Yamanaka stunned the world in 2006 by reprogramming fully differentiated mouse skin cells into stem cells that can specialize into many fetal and adult types of cells. Subsequent research based on the findings of Gurdon and Yamanaka has the potential to make reprogrammed cells a source of patient-specific cells for use in medicine that will enable the body to regenerate, repair, replace and restore diseased or damaged cells, tissues and organs.

**The 2009 Lasker~DeBakey Clinical Medical Research Award** honors **Brian J. Druker**, 54, of Oregon Health & Science University, **Nicholas B. Lydon**, 52, formerly of Novartis, and **Charles L. Sawyers**, 50 of Memorial Sloan-Kettering Cancer Center. Druker and Lydon's research led to the development of *imatinib* (or Gleevec). Sawyers' research spearheaded efforts toward combating the resistance to Gleevec that arises in some patients. The team's discoveries converted chronic myeloid leukemia (CML) from a fatal cancer to a manageable condition. Gleevec has revolutionized the world of cancer drug discovery and therapy by its mode of action, which specifically targets a cancer-causing molecule, killing abnormal cells and avoiding damage to normal cells. Rather than aiming at rapidly proliferating cells and provoking toxic

side effects, as standard chemotherapeutic agents do, the awardees stymied the single rogue enzyme that triggers CML—a tactic that most scientists predicted would fail.

Druker and Lydon persevered, and in 1996 they reported that Gleevec destroys cells that require the enzyme to survive but not other cells. Sawyers, who was studying the enzyme, joined the effort and clinical trials got underway in 1998 leading to astonishing results. At one point they witnessed something no oncologist had seen before – patients on the edge of death were climbing out of bed and leaving the hospital within one week of their first Gleevec dose. In May 2001, the US Food and Drug Administration approved the drug. Sawyers then led efforts toward combating the resistance to Gleevec that arises in some patients. In an unprecedented approach for the field, he ferreted out the molecular basis of resistance and, based on this information, conceived ways to once again strangle the cancer cells that no longer succumb to the drug. The dramatic success of Druker, Lydon, and Sawyers has provided a model that extends well beyond CML. Indeed, many potential drugs for cancer that attack specific troublesome molecules are now in development and dozens have been approved. Druker, Lydon and Sawyers have radically improved the prognosis for CML and have provided a new paradigm for cancer therapy.

**The 2009 Mary Woodard Lasker Public Service Award** honors New York City **Mayor Michael R. Bloomberg**, 67, for employing sound science in making policy decisions and advancing public health through enlightened philanthropy. In doing so, he faced down fierce opposition from vested interests to reduce tobacco use and promote healthy eating habits, helping stop disease before it starts. Mayor Bloomberg's efforts continue to resonate throughout the world, contributing to a decline in tobacco use among New York City teenagers and an increased reliance on healthier ingredients by restaurants. Without political action to curb the consumption of harmful substances and major educational initiatives to nurture responsible choices in diet and lifestyle, even the most promising medical advances will not reverse the incidence of heart disease, cancer, obesity and diabetes. Bloomberg has fueled advances not only through his activities as an elected official, but also by backing higher education in public health with unprecedented levels of support and committing $350 million to a global initiative to combat tobacco use. By relentlessly translating knowledge about public health into bold government action, he has benefited a large urban community and set an example and a new standard for cities and countries across the globe.

**Additional information:** Brian Druker and Charles Sawyers are Investigators at the Howard Hughes Medical Institute. Shinya Yamanaka is a Senior Investigator at the Gladstone Institute of Cardiovascular Disease.

**The Albert and Mary Lasker Foundation** fosters the prevention and treatment of disease and disabilities by honoring excellence in basic and clinical science by educating the public and by advocating for support of medical research. Founded in 1942, the Lasker Foundation presents the prestigious Lasker Awards, which recognize the world's leaders in basic and clinical medical research, and individuals with outstanding public service. For much of the 20th Century, the Foundation was led by Mary Lasker, who

was America's most prominent citizen-activist for public investment in medical research. She is widely credited with motivating the White House and the Congress to greatly expand federal funding for medical research, particularly through the National Institutes of Health.

**About the Lasker Awards:** The Lasker Awards are among the most respected science prizes in the world. Recipients of the Lasker Medical Research Awards are selected by an international jury chaired by Joseph L. Goldstein, recipient of the 1985 Lasker Award for Basic Medical Research and the Nobel Prize in Medicine. The Public Service Award Selection Committee is chaired by Harvey V. Fineberg, President of the Institute of Medicine of the National Academies of Science. Lasker Laureates receive a citation highlighting their achievements and an inscribed statuette of the Winged Victory of Samothrace, the Lasker Foundation's traditional symbol representing humanity's victory over disease, disability, and death. Seventy-six Lasker Laureates have received the Nobel Prize, including 28 in the last two decades. More details on the 2009 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.