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## LASKER FOUNDATION ANNOUNCES 2019 LASKER AWARDS FOR BASIC AND CLINICAL MEDICAL RESEARCH AND PUBLIC SERVICE

***Max D. Cooper** and **Jacques Miller** for their discovery of the two distinct classes of lymphocytes, B and T cells – a monumental achievement that provided the organizing principle of the adaptive immune system and launched the course of modern immunology*

***H. Michael Shepard**, **Dennis J. Slamon**, and **Axel Ullrich** for their invention of Herceptin, the first monoclonal antibody that blocks a cancer-causing protein, and for its development as a life-saving therapy for women with breast cancer*

***Gavi, the Vaccine Alliance** for providing sustained access to childhood vaccines around the globe, saving millions of lives, and for highlighting the power of immunization to prevent disease*

(New York, September 10) The Lasker Foundation today announced the winners of its 2019 Lasker Awards: **Max D. Cooper** from Emory University and **Jacques Miller** from the Walter and Eliza Hall Institute of Medical Research will receive the Albert Lasker Basic Medical Research Award; **H. Michael Shepard**, formerly of Genentech, **Dennis J. Slamon** from the University of California, Los Angeles and **Axel Ullrich** from the Max Planck Institute of Biochemistry (also formerly of Genentech) will be honored with the Lasker~DeBakey Clinical Medical Research Award; and **Gavi, the Vaccine Alliance** will receive the Lasker~Bloomberg Public Service Award. Widely regarded as America's top biomedical research prize, the Lasker Awards carry an honorarium of \$250,000 for each category. The awards will be presented on Friday, September 20, in New York City.

### **The 2019 Albert Lasker Basic Medical Research Award:**

This year's Albert Lasker Basic Medical Research Award honors two scientists, **Max D. Cooper** and **Jacques Miller**, who identified and defined the function of B and T cells, uncovering the organizing principle of the adaptive immune response.

The adaptive immune system "remembers" specific invader organisms (known as pathogens) or other abnormal cells in the body that it has encountered and eliminates them. It is comprised of B and T cells. B cells develop in the bone marrow and produce antibodies in response to pathogens, disabling them or tagging them to be destroyed. T cells mature in the thymus gland and help alert B cells to the presence of pathogens; they can also detect and kill infected or abnormal cells.

Miller showed that the thymus, previously thought to be a vestigial organ, is essential for immune function. Cooper then demonstrated that there are two distinct cell lineages in the adaptive immune system: B cells and T cells. Working with chickens, he showed that an avian organ called the bursa of Fabricius is the site where B cells mature and characterized the different stages of B cell development. Miller established that interactions between B and T cells are essential to their normal maturation and function. Later, Cooper and colleagues showed that, in mammals, B cells are generated in the liver of the fetus and the bone marrow after birth.

These seminal discoveries defined the field of adaptive immunity and serve as the building blocks for current immunology research and clinical advances.

### **The 2019 Lasker~DeBakey Clinical Medical Research Award:**

In the mid-1970s, scientists discovered that certain genes, when mutated, can cause cancer; researchers theorized that targeting these oncogenes, or the proteins they code for, could prevent the spread of malignancies. The combined efforts of **H. Michael Shepard**, **Dennis J. Slamon**, and **Axel Ullrich** culminated in the creation of Herceptin, the first monoclonal antibody therapy that targets a protein encoded by an oncogene.

Monoclonal antibodies are proteins that bind to specific invader organisms or abnormal (e.g. cancerous) cells. Herceptin is a humanized monoclonal antibody. Such antibodies are created in mice and then adapted to be tolerated by the human immune system.

Herceptin is used to treat HER2-positive breast cancer, an aggressive type of breast cancer characterized by multiple copies of the gene coding for the protein HER2 (human epidermal growth factor receptor 2). Over 50,000 women in the United States are diagnosed with this type of breast cancer every year.

Shepard and Ullrich, then working at Genentech, and Slamon, at the University of California, Los Angeles, conducted complementary research that led to powerful clinical results. Herceptin, when coupled with chemotherapy, stalled HER2-positive breast cancer progression and extended survival compared to chemotherapy treatment alone.

Approved by the FDA in 1998, Herceptin was among the earliest targeted therapies designed to block the growth of cancerous cells. Over 2.3 million individuals have been treated with Herceptin to date.

These researchers provided the first demonstration that monoclonal antibodies were a viable and effective strategy to treat solid tumors, opening a new path to develop and deploy antibodies to treat cancer.

### **The 2019 Lasker~Bloomberg Public Service Award:**

Vaccines are one of the most cost-effective ways to save lives and improve health; however, millions of children around the world remain under-immunized.

**Gavi, the Vaccine Alliance** plays an integral role in addressing this disparity by providing a unique and sustainable economic model and innovative delivery systems to expand global childhood vaccine coverage. Since its launch in 2000, Gavi has helped vaccinate over 760 million children and save over 13 million lives in 73 countries.

Gavi buys vaccines for approximately 60% of children worldwide. By buying vaccines in such large quantities, it can negotiate reduced pricing for drugs while sustaining suppliers. The Alliance has helped create new delivery infrastructure, from solar-powered refrigerators to drone delivery.

By pooling the resources of private and public partners, Gavi helps establish and maintain effective immunization programs. These interventions have generated an estimated 150 billion dollars in economic benefits through productivity gains and healthcare cost savings. Gavi ultimately aims to strengthen developing countries' health systems and help them build self-sufficient immunization programs.

**About the Lasker Foundation:** 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. Established in 1942 by Albert and Mary Lasker, 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!"

**About the Lasker Awards:** For 74 years, the Lasker Awards, America's most prestigious biomedical research awards, have recognized the contributions of leaders who made major advances in the understanding, diagnosis, treatment, cure, or prevention of human disease. 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. Lasker~Bloomberg Public Service Award winners are selected by a jury chaired by Alfred Sommer, recipient of the 1997 Lasker Award for Clinical Medical Research. Eighty-eight Lasker laureates have received the Nobel Prize, including 39 in the last three decades. 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](http://www.laskerfoundation.org). Follow the Awards on [Facebook](#) and [Twitter](#).