

60 years of winged victories for biomedical research

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This year marks the sixtieth anniversary of the Lasker Awards, presented annually by the Albert and Mary Lasker Foundation, to honor pioneering achievements in biomedical research. What sets the Lasker awards apart from other prestigious prizes is the Lasker's duality of recognition. Each year, one award—the Basic Award—honors fundamental discoveries that open new fields of biology, and a separate award—the Clinical Award—honors pioneering achievements that change the practice of clinical medicine. Mary Lasker's establishment of two separate awards reflects her philosophy of medical research: major advances come from both the bench and the bedside.

First Lasker Awards in 1946

The first Lasker Awards, presented in 1946, got off to an auspicious start, setting a high standard for creativity and excellence that has persisted to this day. The first Basic Award was given to Carl Cori for the discovery of the enzymes that interconvert glucose and glycogen. One year later he received the Nobel Prize in Physiology or Medicine together with his talented biochemist wife, Gerty Cori. Contemporary historians of science recognize Carl Cori as one of the giants of twentieth-century biochemistry. The Cori laboratory at Washington University in St. Louis became the mecca for aspiring young biochemists and enzymologists in the 1940s and 1950s. Six of the scientists who trained with Carl and Gerty Cori went on to win Nobel Prizes—Arthur Kornberg (1959), Severo Ochoa (1959), Luis LeLoir (1970), Earl Sutherland (1971), Christian deDuve (1974) and Edwin Krebs (1992). Surprisingly, only two of these six Nobel Prize winners received Lasker Awards: Sutherland (1970) and Krebs (1989). Lasker juries in the past were obviously not as prescient as those today!

The first Lasker Clinical Award in 1946 was given for two medical advances that have stood

the test of time: (i) identification of the Rh factor responsible for hemolytic disease of the newborn, a discovery made independently by Karl Landsteiner and Philip Levine (both of Rockefeller University) and by Alexander S. Weiner (Serological Laboratory, Office of Chief Medical Examiner, New York City); and (ii) treatment of syphilis with penicillin, a therapy pioneered by John Mahoney (US Marine Hospital, Staten Island).

Since 1946, 132 individuals have received Lasker Basic Awards and 122 have received Lasker Clinical Awards. As a part of their award, each Lasker winner receives a statuette of the famous ancient Greek sculpture *Winged Victory*, on which is inscribed the citation for the research that led to the award. A close look at these citations over the last 60 years provides an unmatched and rich source of historical material that chronicles the progress and advances in biomedical research (**Timeline**).

Winged Victory

The sixtieth anniversary of the Lasker Awards provides a timely context to comment on the *Winged Victory* sculpture (**Fig. 1**). The original *Winged Victory (Nike) of Samothrace* was created by the Greeks in the period between 190–180 BC and is considered one of the Louvre's three greatest masterpieces, together with Leonardo da Vinci's *Mona Lisa* and the *Venus de Milo* sculpture. *Winged Victory* (eight feet tall) portrays the Greek goddess of victory standing on the prow of a ship with her wings spread and her clinging garments rippling in the wind as she descends from the sky to celebrate the naval triumph of the fleet. In creating the Lasker Awards, Mary Lasker conceived and designed the *Winged Victory* statuette (one foot tall) to symbolize a body of creative biomedical research that produces “victory over disability, disease, and death.”

From fragments of marble to a masterpiece

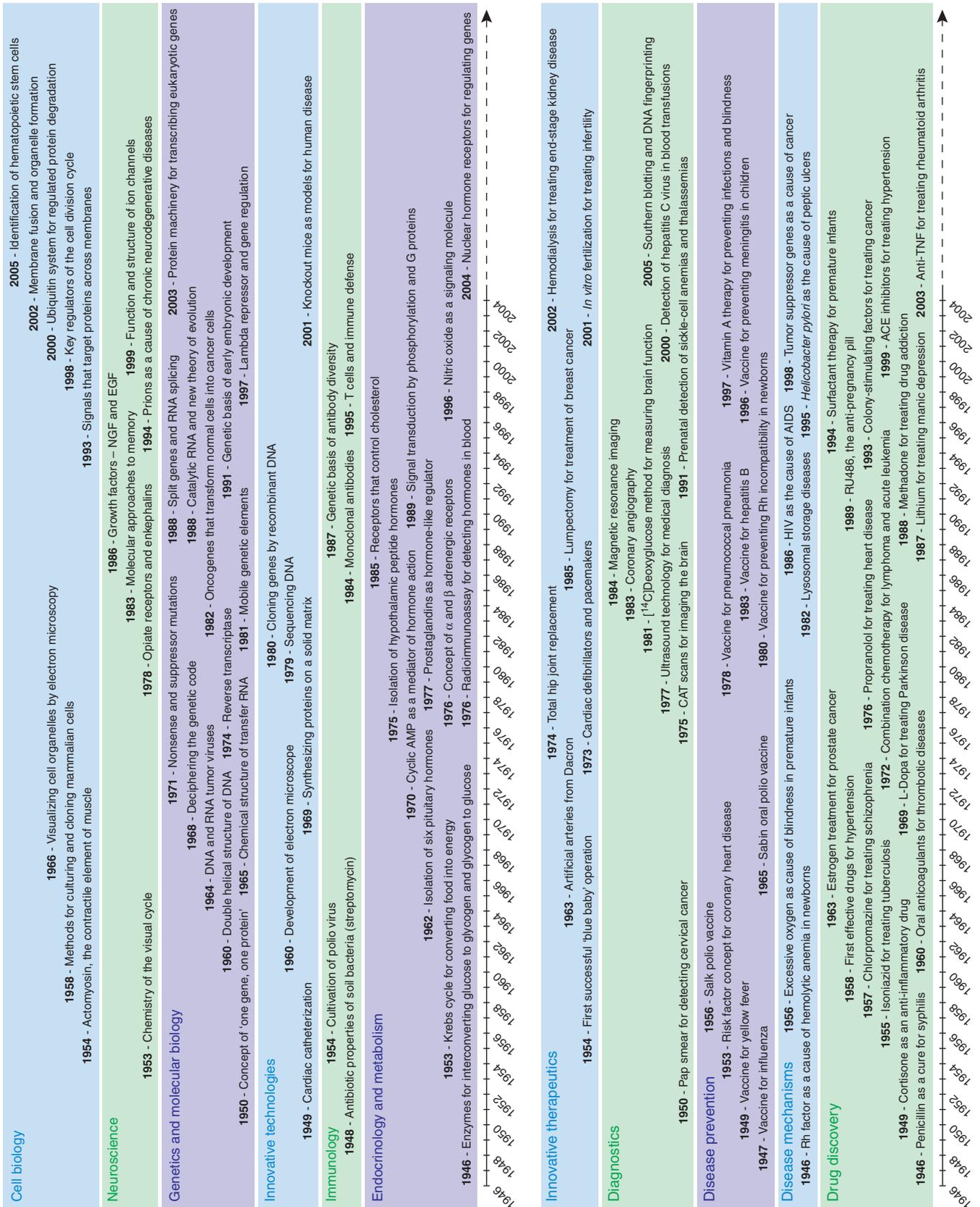
Winged Victory was discovered in 1863 on the Aegean island of Samothrace by an amateur French archaeologist in a mutilated and shattered state consisting of more than 200 fragments of marble. Within one year of being unearthed, the fragments were shipped to the Louvre, where they were painstakingly reassembled over a 20-year period. The original fragments sent to Paris did not include the wings and the ship pedestal, which were discovered in later excavations. The head and the arms have never been found. The right hand was found in 1950.

The first restoration of *Winged Victory* was completed in three years, and the sculpture was first displayed in 1866, wingless and without the ship pedestal. Because of its fragmented condition, it was originally placed in a crowded, poorly lit back room of the Louvre, where it stood ‘buried’ among many more imposing statues (**Fig.**



Figure 1 *Winged Victory (Nike) of Samothrace*.

Réunion des Musées Nationaux / Art Resource, New York.



Timeline 60 years of Lasker Awards in Basic and Clinical research (1946–2005).

2a). Once the wings and ship pedestal were restored, the curators of the Louvre decided that the *Winged Victory* should be moved to a more prominent site so that its monumentality could be appreciated by the viewing public.

In 1883, *Winged Victory* was installed under a sky-lit cupola on the upper landing of the museum's Grand Stairway, which at that time was the sole entrance into the Louvre (Fig. 2b). This new placement ensured that *Winged Victory* would be seen by every visitor to the Louvre, thus granting enhanced prestige to the statue. Despite this new premier location, *Winged Victory* was not centered directly under the cupola, and it shared the spotlight with other classical sculptures that lined the stairwell of the Grand Stairway. It was also surrounded by decorative images on the walls and ceiling of the upper landing.

It was not until 1932 that masterpiece status was conferred on *Winged Victory*, when a new generation of curators at the Louvre singled it out for solo display in the Grand Stairway (Fig. 2c). The stairwell was cleared of all statues, all wall and ceiling displays were removed, and *Winged Victory* was repositioned in the very center of the cupola. On entering the Louvre, all visitors now encountered only one piece of art—*Winged Victory* in all its grandeur.

The Louvre's 1932 installation of *Winged Victory* at the top of the Grand Stairway was so magnificent and monumental that the setting was soon copied by the Metropolitan Museum of Art in New York City. During World War II, the Metropolitan installed a replica of *Winged Victory* at the top of its Grand Stairway.

Since the mid-1980s, *Winged Victory* has lost some of its preeminence, owing to the creation of a new entrance for the Louvre—the glass pyramid designed by I. M. Pei. As the pyramid offers three different entry paths to the museum wings (only one of which leads to the Grand Stairway), some visitors of the Louvre may completely miss *Winged Victory*. I. M. Pei's original plan called for placing *Winged Victory* inside the pyramid, but technical problems in moving the 13-ton sculpture made this change impossible.

The 50-year history of how *Winged Victory* advanced in the hierarchy of the Louvre from a collection of marble fragments to a reassembled statue of relative obscurity to its preeminent position at the top of the Grand Stairway is a fascinating story that is vividly recounted in a book by Victoria Newhouse, titled *Art and the Power of Placement*. In addition to her analysis of *Winged Victory*, Newhouse examines a range of art masterpieces—from Velazquez's *Jester* to Picasso's *Demaiselles d'Avignon* to Jackson Pollock's *Mural*—to shed light on the fundamental questions of what makes certain art great art and how a piece of art becomes singled out and elevated to the status of masterpiece.



Figure 2 Ascent of *Winged Victory* within the hierarchy of the Louvre: the making of a masterpiece. (a) 1866–1883. *Winged Victory* (without wings and ship pedestal) was first installed in the Louvre in several poorly lit rooms that were cluttered with multiple statues. *Winged Victory* is shown at the extreme left in the *Salle du Tibre* (late 1870s). (b) In 1883, *Winged Victory* (now with its restored wings and ship pedestal) was moved to the upper landing of the Grand Stairway, although not centrally located under the cupola. The surrounding wall and ceiling displays competed for attention with *Winged Victory*. Not shown are the multiple classical statues that lined both sides of the stairwell of the Grand Stairway. (c) In 1932, all of the surrounding wall and ceiling displays and statues lining the stairwell of the Grand Stairway were removed so that *Winged Victory* could be singled out as one of the Louvre's treasured masterpieces.

The same questions can be asked of scientific research. What makes certain science great science? How does a fragmentary piece of scientific research, like the marble fragments of *Winged Victory*, evolve over many years into a compelling scientific story, like the reassembled statue, that is singled out by Lasker jurors, like the Louvre curators, to become a scientific masterpiece, like solo presentation in the Grand Stairway?

2005 Awards: masterpieces of research

There is no better way to ponder these questions about scientific research than to read the personal stories behind the 2005 Lasker Awards in Basic Research and Clinical Research. The winners of the 2005 Lasker Basic Award, James E. Till and Ernest A. McCulloch, tell how their discovery in 1964 of white lumps in the spleen of an irradiated mouse injected with bone marrow led to the identification of the first stem cell—the blood-forming stem cell. This historic work defined the two cardinal properties of a stem cell—pluripotency and self-renewal—powerful concepts that opened the field of stem cell biology and set the stage for all subsequent work on adult and embryonic stem cells.

The winners of the 2005 Lasker Clinical Award, Edwin Southern and Alec Jeffreys, tell equally compelling stories of how tedium spurred the diagnostic technique of Southern blotting and how a sample of frozen seal muscle revealed the forensic technique of DNA fingerprinting. Southern's 1974 invention of gel blotting for analyzing fragments of DNA arose out of pure frustration. While purifying DNA restriction fragments of 5S ribosomal RNA genes, Southern had to perform the repetitively tedious and boring task of cutting hundreds of gels, each into hundreds of slices, eluting the DNA from each gel slice, and binding each eluted sample to a

filter that would then be hybridized and counted for radioactivity. One experiment took forever. Some rapid technique had to be invented. As Southern himself has remarked, "Laziness, the father of invention, stepped in."

Alec Jeffreys recalls the story of how his 1984 invention of DNA fingerprinting arose from a labyrinthian network of events: his passionate pursuit to study the evolution of myoglobin genes using the Southern blotting technique led him to a sample of seal muscle stored in a British Antarctic Survey freezer, which he used to clone the myoglobin gene, which led to the DNA probes that revealed the astonishing array of hypervariable repeat sequences in the genome, which then led to DNA fingerprinting.

The stories behind the scientific masterpieces of Till, McCulloch, Southern and Jeffreys are reminiscent of the story behind *Winged Victory*'s tortuous route from shattered marble fragments to its solo presentation as a treasured masterpiece in the Grand Stairway of the Louvre. What makes great art great is also what makes great science great—the creativity of the artist or scientist and the proper presentation of the art or the predictive power of the science.

Joseph L. Goldstein
Chair, Lasker Awards Jury

Lasker Award recipients receive an honorarium, a citation highlighting their achievements and an inscribed statuette of the Winged Victory of Samothrace, which is the Lasker Foundation's symbol of humankind's victory over disability, disease and death.

To read the formal remarks of speakers at the Lasker ceremony, as well as detailed information on this year's awardees, please refer to the Lasker website (<http://www.laskerfoundation.org/>).