

SNAPSHOTS

\$100,000 Lemelson-MIT Lifetime Achievement Award Winners

Winners, Lemelson-MIT Lifetime Achievement Awards, 1995–2006

William Hewlett and David Packard,
1995

Wilson Greatbatch, 1996

Gertrude B. Elion, 1997

Jacob Rabinow, 1998

Stephanie Kwolek, 1999

Al Gross, 2000

Raymond Damadian, 2001

Ruth Benerito, 2002

William Murphy Jr., 2003

Edith M. Flanigen, 2004

Robert Dennard, 2005

Sidney Pestka, 2006

All awards programs evolve over time, and the Lemelson-MIT Program is no exception. Over the years, the program has adapted its awards to keep pace with both the recognition-prize ecosystem and with changes in society.

From 1995 to 2006, the program presented the \$100,000 Lifetime Achievement Awards, honoring outstanding individuals whose pioneering spirit and inventiveness throughout their careers inspired others and improved society. From 2007-2011, recognizing growing interest in sustainability, technology, and international development, and the need for role models in those areas, the program presented the \$100,000 Award for Sustainability to inventors whose products and processes enhanced economic opportunity and community well-being while protecting and restoring the natural environment.

In 2012 and 2013, the program presented the \$100,000 Award for Global Innovation, which honored inventors whose innovations help people in the developing world live safer, healthier lives. The continuing wave of positive and sustainable outcomes in all those areas, including the growth of college courses and competitions in international development that shed light on role models, prompted the Lemelson-MIT Program to set aside this award series to focus on other current and future initiatives.

Following are snapshots of the four pioneering women who received the \$100,000 Lemelson-MIT Lifetime Achievement Award.



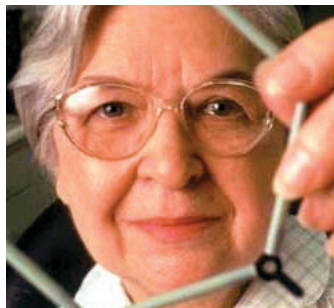
Gertrude B. Elion, 1997

Gertrude Elion always called her work in medical development both her vocation and her avocation. "Science to me is almost like a religion," she once said. "To me, science is truth, and truth is beautiful." When she was unable to help her grandfather fight cancer or her fiancé combat a life-threatening bacterial infection, she devoted her life to developing medicine that could help combat these and other serious conditions.

Despite a paucity of opportunities for women in science, she earned 45 patents. During the 1950s, she developed 6-mercaptopurine and thioguanine, successful treatments for leukemia. She also developed azathioprine, which helps suppress the immune system to facilitate organ transplants, and numerous other successful

medications. She worked for Burroughs Wellcome (now GlaxoSmithKline) alongside chemist and physician George Hitchings (1905–1998). Their research methodology earned them the Nobel Prize in Medicine in 1988 and led to the development of AZT, the first effective drug for treating AIDS. Gertrude B. Elion passed away in 1999.

Lemelson-MIT Lifetime Achievement Award Winners



Stephanie Kwolek, 1999

Stephanie Kwolek once dreamed of becoming a doctor, but her accomplishments as a chemist have ultimately saved more lives. Kwolek, who spent 40 years as a DuPont chemist, invented Kevlar. The high-strength fiber is best known as a material in bulletproof vests, but it's also used to strengthen helmets, tires, brake pads, tennis rackets, fiber-optic cable, and many other products. Kwolek was instrumental in developing

other commercially successful fabrics such as Lycra, Spandex, Kapton, and Nomex. When she retired in 1986, she held 17 U.S. patents. She was inducted into the National Inventors Hall of Fame in 1995.

Kwolek encountered gender discrimination through much of her career, but persevered and urged other women to do the same. "I recommend that parents encourage their daughters to pursue scientific careers," she said upon receiving the award. "The opportunities for both sexes are far more equal now." Kwolek passed away in 2014.

Ruth Benerito has been called "the savior of the cotton industry." The method she discovered for creating wrinkle-resistant cotton helped the industry reinvent itself in the years following World War II. For her lifetime of innovations in the textile industry and her commitment to education, she received the Lemelson-MIT Lifetime Achievement Award at age 86.



Ruth Benerito, 2002

During the 1950s, Benerito's research team discovered how to treat cotton fibers so that the chainlike cellulose molecules became chemically joined. This new treatment strengthened the bonds between the cellulose molecules by inserting short organic molecules, like rungs of a ladder. The new product consisted of one enormous molecule with properties completely different from the original molecules. This cross-linking resulted in wrinkle-resistant cotton, commonly marketed as "permanent press." Benerito received more than 50 patents and was inducted into the National Inventors Hall of Fame in 2008. She passed away in 2013, at age 97.



Edith M. Flanigen, 2004

Edith Marie Flanigen began her career in chemistry in the early 1950s, a time when few women worked in any scientific field. In 2004, Flanigen was awarded the Lemelson-MIT Lifetime Achievement Award for her achievements in zeolite and molecular sieve technology, which have made worldwide gasoline production more efficient, cleaner, and safer. She holds more than 100 patents and is widely considered the

foremost authority on zeolite chemistry and materials.

Flanigen worked at Union Carbide for most of her career, becoming the first woman to be named as a corporate research fellow. She continues to serve as a consultant with UOP, a joint venture between Union Carbide and Allied Signal. She was inducted into the National Inventors Hall of Fame in 2004.

Winners, Lemelson-MIT Awards for Sustainability and Global Innovation, 2007–2013

Lee Lynd
Award for Sustainability, 2007

Martin Fisher
Award for Sustainability, 2008

Joel Selanikio
Award for Sustainability, 2009

BP Agrawal
Award for Sustainability, 2010

Elizabeth Hausler Strand
Award for Sustainability, 2011

Ashok Gadgil
Award for Global Innovation, 2012

Rebecca Richards-Kortum/Maria Oden
Award for Global Innovation, 2013

“ To me, science is truth, and truth is beautiful. ”

— Gertrude B. Elion

Lemelson-MIT Lifetime Achievement Award Recipient, 1997