

# ALBERT AND MARY LASKER FOUNDATION

## 2005 LASKER AWARDS

# 60<sup>TH</sup> ANNIVERSARY LASKER MEDICAL RESEARCH AWARDS

### TORONTO STAR

Sunday, September 18, 2005



"We do not seek celebrity," says Dr. Ernest McCulloch (left), with partner Dr. James Till at Princess Margaret Hospital.

**A**lmost 45 years after their breakthrough discovery, two septuagenarian Toronto scientists — revered within their field of stem cells but largely unknown outside of it — have won North America's most coveted prize in medical research: the Lasker Award.

James Edgar Till, 74, and Ernest Armstrong McCulloch, 79, proved the existence of stem cells while toiling away at the old Ontario Cancer Institute labs on Sherbourne St. Their breakthrough 1961 paper on the formation of what were then called colony-forming cells is regarded as the starting point for the science. That paper, and several that followed, also provided the scientific underpinning to bone-marrow transplantation.

Public recognition, however, has largely eluded them. "Both James and I are private people," the soft-spoken but droll McCulloch said in one of the interviews conducted with the pair last week and last year. "We do not seek celebrity."

After all these decades, however, celebrity may be looking for them: Winning the Lasker — begun in 1946 by philanthropists Albert and Mary Woodard Lasker, and known as "America's Nobel" — is often the prelude to capturing the Nobel Prize. Since 1946, 70 Lasker winners have gone on to win the Nobel Prize, including 19 in the past 15 years.

The men will be honoured Friday in New York, sharing a prize of \$50,000 (U.S.). Calling Till and McCulloch the "Fathers of Stem Cell Research," today's Lasker Foundation's announcement makes the global impact of their discoveries clear: "Their work laid the foundation for all current work on adult and embryonic stem cells and transformed the study of blood-cell specialization from a field of observational science to a quantitative experimental discipline." They also "explained the basis of bone-marrow transplantation, a procedure that prolongs the lives of people with leukemia

## T.O. STEM CELL PIONEERS WIN 'AMERICA'S NOBEL'

Almost 45 years after a breakthrough stem-cell discovery, scientific odd couple wins the prestigious Lasker Award.

By Joe Sornberger

Key is "just people run on slates"), and believes that ever happened to book about the early days at the O.C.I. "The centre of the world was the Toronto General Hospital, and we had bone marrow — well, you can imagine being able to purify that and bank those. Whoa! That was the underpinning

## The Scientist

Monday, September 19, 2005

### 2005 Lasker Awards announced

Foundation honors work on stem cells, genetic tools, and breast cancer

James Till will share the 2005 Mary and Albert Award for Basic Medical Research Award for their stem cell, the Albert and Mary Lasker Foundation will award Southern for developing Southern fingerprinting, respectively. This year's Mary d for Public Service will go to Nancy Brinker for Komen Breast Cancer Foundation, devoted to and increasing public awareness of the disease, nored discoveries arose from a powerful combination of research in the recipients. In the h, a hematology expert, was working with Till, a llular effects of radiation when he noticed small of irradiated mice. Interestingly, the number of proportion to the number of bone marrow cells each mouse. The researchers suspected the ally derived colonies, and soon found that they gely progenitor that differentiated into various Later that year, they showed that the colony-renewing.

re hematopoietic cells, the first stem cells to be a happy situation of accidentally coming across and correctly interpreting it, Till said.

ir work, McCulloch and Till, now University and University Professor, respectively, at the established quantitative, clonal methods for paving the way for all subsequent adult and research.

s who validated the notion of a stem cell," said director of the Harvard Stem Cell Institute, re chosen "in recognition that the stem cell biology explode," he added.

d Alec Jeffreys will be honored for their contributions; the former created Southern hybridization a subtle genetic differences between humans, his device to develop DNA fingerprinting.

Southern, now a professor at the University of porous nature of agarose gels could be used to . The resulting technique has allowed scientists

## NATIONAL POST

### Canadian stem cell 'heroes' awarded prestigious Lasker prize

By Tom Spears

There have to be enough of them to make a difference. They have to be put in the right place (in a patient's body). And they have to be stimulated to do what one wants them to do. And all of these things are challenges, not accomplishments.

"This is a hope. These are not facts; these are dreams. At the moment the people in the field are just grappling with how to make at least some small parts of this dream a reality."

"If I had that kind of clairvoyance I'd be playing the stock market," he said. "That's a hope, and I hope their hope is right."

Still, the Canadian science world is celebrating the news of the Lasker winners. "Typically a scientist's findings are slowly disseminated. These guys started a brouhaha," said Michael Rudnicki of the Ottawa Health Research Institute, one of Canada's leading stem cell researchers. He called them "heroes" who not only established the field, but brought up a younger generation of scientists.

Seventy past Lasker winners have gone on to win the Nobel Prize, including 19 in the past 15 years. There are several Laskers each year for different fields of medicine; Dr. Till and Dr. McCulloch won for "basic science" — the principles underlying diagnosis and treatment of disease.

Some feel the recognition has been slow in coming. Another stem cell pioneer, Stanford's Irving Weissman, recently told the Canadian Stem Cell Network that the two men "should be on postage stamps."

CanWest News Service



## 'American Nobel' prize honors 5

Genetics work earns Lasker

By Kate Holloway USA TODAY

British scientists Edwin Southern and Alec Jeffreys were honored during the weekend for their clinical research award sponsors say dramatically changed the fields of human genetics and forensic science.

Southern, professor of biochemistry at the University of Oxford, and Jeffreys, genetics research professor at the University of Leicester, are the winners of the 2005 Lasker Award for Clinical Medical Research. The awards, which were announced Sunday in New York, have been called the American equivalent of the Nobel Prize. Since the Lasker Awards' 1946 debut, more than 65 of its recipients have gone on to win the Nobel.

Southern and Jeffreys revolutionized the two fields with a technique known as Southern blotting, which enables the detection of a single gene in a complex genome, which in turn enables the rapid sequencing of genomes. Southern blotting supported Southern and Jeffreys' development of genetic fingerprinting.

Their breakthroughs have yielded significant progress in the solving of crimes, the settlement of paternity and immigrant disputes and the understanding of inherited diseases, the Albert and Mary Lasker Foundation says.

Other 2005 Lasker winners: Basic medical research: Ernest McCulloch and James Till, Ontario Cancer Institute, for their discovery of the first stem cell. Their research enabled current work on adult and embryonic stem cells and moved the study of blood cell specialization from observational science to a quantitative experimental discipline.

Mary Woodard Lasker Award for Public Service: Nancy Brinker, founder of the Susan Gomen Breast Cancer Foundation, for starting the foundation dedicated to curing breast cancer and raising awareness.

Jeffreys by Anna Collins and John O'Grady, British Geneticists; Southern by Susan Kamen, Margaret Till by University of Health Network



Brinker

## The Washington Post

Saturday, September 17, 2005

### Work on Stem Cells, DNA Research Honored

By MALCOLM PITTER The Associated Press

NEW YORK — Two scientists who first identified stem cells and two others who did pioneering work in DNA research have won prestigious medical awards.

plum with leukemia or other blood cancers.

The Lasker prize for clinical medical research will be shared by two scientists from the United Kingdom, Sir Alec Jeffreys of the University of Leicester and Sir Edwin Southern of Oxford University.

Southern, in the mid 1970s, devised a now-standard lab technique that allows scientists to detect specific bits of genetic code within an organism's overall DNA. Jeffreys used it in his work, and it played a crucial role in mapping the human genome, the foundation said.

## The Dallas Morning News

Sunday, September 18, 2005

### Creator of Komen Foundation receives Lasker Award

Prestigious medical prize recognizes strides made by Dallas-based group

From Staff and Wire Reports The founder of the Dallas-based Susan G. Komen Breast Cancer Founda-

Nancy Brinker, a nonscientist and herself a breast cancer survivor, is the winner of the 2005 Lasker Public Service Award for pioneering work in creating the foundation. Ms. Brinker could not be reached for comment Saturday night.

"She has really been one of the driving forces in making breast cancer an

amazing things for breast cancer research."

The Lasker Awards for medical research are widely considered the United States' most esteemed medical prizes. The awards are being announced today by the Albert and Mary Lasker Foundation.

Starting with \$200, Ms. Brinker

made to her sister when she was dying was that she would try to do something about this disease," Dr. Evans said. "It wasn't too many years after that that Nancy developed breast cancer herself. She has a strong determination to rid this disease from the face of the earth because of what happened to her sister and herself."



Nancy Brinker created the group for her sister, who died of breast cancer.

## THE GLOBE AND MAIL

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### Stem-cell work wins big award for pair

By Sheryl Ubelacker, Toronto

On the surface, at least, they seem an unlikely duo: one, the offspring of a Toronto physician, educated at Ontario's top Upper Canada College; the other, the son of a Saskatchewan farmer, who attended local public high school. Ernest McCulloch followed his father into medicine; James Till veered sharply from his roots to become a biologist.

But what the two men share is a passionate devotion to science — and their serendipitous pairing led to a discovery that laid the foundation for what may be the most promising and ethically controversial area of international medical research today.

That discovery was recognizing the first stem cell, an entity that had been theorized about since the early 1900s, but never found until Dr. McCulloch and Dr. Till made the intellectual leap in the early 1960s while experimenting with bone marrow in laboratory mice.



Ernest McCulloch, right, and James Till will be



### Stem cell docs win top award

U.S. prize shocks winners — research done in 1960s

Two Canadians considered the "fathers of stem cell research" have been awarded America's most prestigious award for medical research — often a precursor to the Nobel Prize.

Dr. James Till, 74, and Ernest McCulloch, 79, both emeritus professors at the University of Toronto Ontario Cancer Institute, will receive this year's Lasker Award for basic medical research for their groundbreaking work in the 1960s.

The Lasker Awards are America's most distinguished honor for outstanding contributions to basic and clinical medical research. Seventy of the 99 Lasker Award winners have received the Nobel Prize, including 19 in the last 15 years.

Till and McCulloch's long-

## The New York Times

SUNDAY, SEPTEMBER 18, 2005

### Five Pioneers Are Awarded Lasker Medical Prizes

Race for the Cure's Founder Is Honored

By Lawrence K. Altman

The 2005 Lasker Awards for medical research are going to scientists who discovered stem cells, invented genetic fingerprinting and developed a powerful technology that played a crucial role in mapping the human genome.

And a nonscientist, Nancy Brinker, the winner of the Lasker Public Service Award for creating the Susan G. Komen Breast Cancer Foundation, which has helped transform a disease once rarely mentioned in polite conversation into an international issue.

The awards, widely considered the United States' most prestigious medical prizes, are being announced today by the Albert and Mary Lasker Foundation. The two scientific awards each carry a \$50,000 prize, split between the winners; the public service award has no monetary prize.

Starting with \$200, Ms. Brinker created the Komen foundation in 1982 to fulfill a promise to her sister, Susan Komen, who had died of breast cancer two years earlier, at age 36.

Among other things, Ms. Brinker started the Komen Race for the Cure, a series of five-kilometer running and walking races around the country that have helped the foundation raise more than \$750 million to support breast cancer research, education, screening and treatment.

Ms. Brinker started and "nurtured the grass-roots breast cancer advocacy movement," the Lasker Foundation said. Now 58, Ms. Brinker is also a breast cancer survivor.

Mary Lasker created the awards in 1946 as a birthday gift to her husband, Albert, in hopes of curing cancer in 10 years. The research award for stem cell work is going to Dr. Ernest A. McCulloch and James E. Till, emeritus professors at the University of Toronto and the Ontario Cancer Institute.

Scientists had long theorized that the body contained cells that could renew themselves, mature and specialize in various ways. But no one had found them until Dr. McCulloch, now 79, and Dr. Till, 74, proved their existence in the blood-forming system.

Their work started in the late 1950s, when scientists were trying to understand when and how radiation therapy stopped cancer and the military was seeking ways to treat personnel exposed to radiation from nuclear weapons.

Working with mice, Dr. McCulloch and Dr. Till designed a system to measure the sensitivity of bone marrow cells to radiation. With rigorous experiments that relied on principles from microbiology, they showed that the spleen contained cells that divided into the three main types of blood cells — red, white and platelets.

The findings led to a system for studying the factors that send the stem cells down different developmental paths, and helped transform the study of blood cells from an observational science to a more experimental one. Dr. McCulloch and Dr. Till found that molecules both within and outside a cell can determine its fate.

Their work also helped scientists learn how and why bone marrow transplants replenish blood cells, thereby improving a procedure that can prolong the

lives of people with leukemia and other blood-cell cancers.

Sir Edwin Southern of the University of Oxford and Sir Alec J. Jeffreys of the University of Leicester in England received the Lasker Award for developing two powerful technologies, Southern blotting and DNA fingerprinting, that the foundation said, "together revolutionized human genetics and forensic diagnostics."

Working in Edinburgh in the 1970s, Dr. Southern, now 79, developed the technique now known by his name that allowed detection of a single gene in a complex genome and that eventually enabled the rapid sequencing of entire genomes.

Suddenly, scientists had a new way to search for gene sequences of particular interest and to detect subtle DNA differences among individuals.

Scientists used the technique, for example, to pinpoint mutations linked to inherited diseases. Detection of such mutations has led to tests for prenatal detection of diseases like sickle cell anemia and thalassemia.

### Recognizing stem cell discoveries and genetic fingerprinting.

Southern blotting also led to the second breakthrough, genetic fingerprinting. The method provides a way to distinguish every person from every other person, except an identical twin.

Genetic fingerprinting has changed the way law enforcement agencies have solved new and old crimes like murder and rape, and has absolved the innocent, settled paternity and immigration disputes, helped improve techniques for transplanting organs and tissues, led to tests to detect and better understand inherited diseases, and helped establish human origins and migrations.

Dr. Jeffreys, now 55, was interested in uncovering genetic variation in different populations. He used the Southern blot technique to study certain DNA segments present in all humans. In 1984, he noticed in one Southern blot that the pattern of these segments varied from person to person, creating a unique genetic "fingerprint" of an individual.

He also found that parents passed the patterns on to their offspring, with each child carrying half of each parent's fingerprint. Dr. Jeffreys' predictions about the utility of the method not only have been borne out, but have been surpassed," the Lasker Foundation said.

Although the discoveries were made decades ago, the awards are being given this year because newer research has shown their broad potential, said Dr. Joseph L. Goldstein, chairman of the Lasker jury. Dr. Goldstein, a Nobel laureate from the University of Texas Southwestern Medical Center in Dallas, said that because it can take years to appreciate a discovery's significance, awards are often given long after the discovery is made.