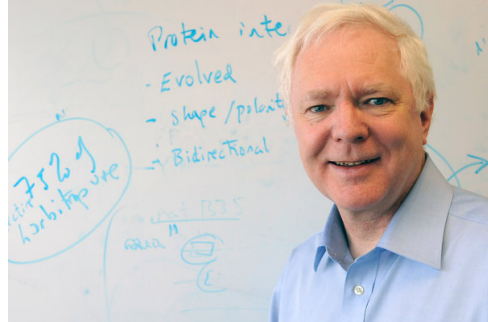


http://www.nytimes.com/2013/08/30/world/americas/anthony-pawson-biologist-in-cell-protein-breakthrough-dies-at-60.html?_r=0

Anthony Pawson, Biologist in Cell-Protein Breakthrough, Dies at 60



Michael Stuparyk/Toronto Star

Anthony Pawson in 2009. His discoveries helped spur the development of drugs for cancer, diabetes and other diseases.

Anthony Pawson, a Canadian cell biologist whose pathbreaking insights about how cells communicate with one another resolved one of science's oldest mysteries and helped spur the development of a class of drugs that target cancer, diabetes and other diseases, died on Aug. 7 in Toronto. He was 60. Family members and colleagues declined to disclose the cause.

In his 1990 breakthrough, Dr. Pawson and his research team identified the specific protein interactions involved in cell signaling, the process by which cells tell one another what to do, when to do it and when to stop.

Scientists had long known that cells communicated, but no one knew the exact cellular mechanism involved until Dr. Pawson's research pinpointed it: a protein structure on the surface of every cell membrane. The structure, which he called the SH2 domain, serves as a landing pad for signaling proteins, which in turn set off a molecular chain reaction carrying information to the cell's nucleus.

SH2 domain proved to be the linchpin of the cell communications system, and its discovery basically confirmed Dr. Pawson's initial theory, that "when cells fail to communicate properly, disease happens," as he defined it in an interview.

Anthony Hunter, a professor of molecular and cell biology at the Salk Institute Cancer Center in San Diego, called the identification of the SH2 domain an "enormously influential idea" that introduced scientists to a fundamentally new principle about how cells work.

"It was a seminal finding," said Dr. Hunter, who collaborated with Dr. Pawson on several papers about cell communication.

Dr. Pawson's research opened a new field of study into the causes and effects of breakdowns in cellular communication. And studies based wholly or in part on his discoveries have produced new treatments for cancer, autoimmune diseases, diabetes and heart ailments, essentially by blocking or unraveling intercellular miscues.

Perhaps the best-known of these is **Gleevec, a cancer drug that blocks the abnormal cell signal that causes a rare form of blood cancer called chronic myelogenous leukemia.**

Dr. Pawson, who was frequently nominated and [widely considered](#) to be a shortlisted candidate for the Nobel Prize in Physiology or Medicine, received many international awards for his work, including the 2008 Kyoto Prize in basic sciences and the Wolf Prize in Medicine in 2005. British-born, he was named to the Order of the Companions of Honour in 2007 by Queen Elizabeth II.

Dr. Pawson had worked at the [Lunenfeld-Tanenbaum Research Institute](#) in Toronto since 1985, serving as director [of research](#) there from 2000 to 2005. At his death, colleagues said, he was continuing his cellular research, a pursuit he recently summarized as "understanding how life works."

In accepting [the Kyoto Prize](#), Dr. Pawson said he had been unaware of the larger implications of his work when he first recognized the SH2 domain. (SH2 is short for the protein subunit known as the Src homology 2 domain.) "Had I known how important it was to be," he said, "I would have tried to think of a more memorable name."

Anthony James Pawson — who was known as Tony to his friends and often published papers under the name Tony Pawson — was born on Oct. 18, 1952, in Maidstone, England, the eldest of three children in a well-off family. His father, also known as Tony, a world-class cricketer, champion fly fisherman, and member of the British national soccer team at the 1948 Olympics, wrote about cricket for The London Observer. His mother, Hilarie, was a botanist and high school biology teacher who inspired his interest in science.

Dr. Pawson told friends that he had left Britain in part to escape the shadow of his father's enduring popularity with sports fans. Receiving an award in England recently, he told Dr. Hunter that a fellow scientist had approached him to shake his hand, saying, "I've always wanted to meet Tony Pawson."

"He meant Tony's father," Dr. Hunter said.

Dr. Pawson attended Winchester College for boys, graduated from Cambridge University with a bachelor's degree in biochemistry and earned his Ph.D. in molecular biology from King's College at London University in 1976. He was a postdoctoral research fellow at the University of California at Berkeley in the late 1970s before moving to Canada in 1981 to become an assistant professor of

microbiology at the University of British Columbia.

His wife, Margaret, died of lung cancer two years ago. His father died last year at 91.

Dr. Pawson is survived by his sons, Nick and Jeremy; a daughter, Catherine Westcott Pawson; a brother, John; a sister, Sarah Mantle Pawson; and a granddaughter.

At the time he won the Kyoto Prize, Dr. Pawson praised the scientists who had developed drug treatments based on his findings, and he went on to make a larger point. He had spent decades studying a virus related to cancer in chickens, he said, before he happened upon a tiny bit of information that led him to his work on cell communication. That, in turn, led to breakthroughs in cancer treatments for humans.

“Governments increasingly want to see immediate returns on the research that they support,” he said. “But it is worth viewing basic science as a long-term investment that will yield completely unexpected dividends for humanity in the future. I believe that this progress underscores the importance of giving free rein to human inventiveness.”

Video Clip Receiving Kyoto Prize:

<http://www.youtube.com/watch?v=2WMhNIUXQ1E>

Pawson’s talk in accepting Kyoto Prize

Keys for creativity...

- 1) Have passion for what you are doing
- 2) Hold a strong desire to contribute to the wellbeing and evolution of humankind
- 3) Don’t be afraid of being “new” to an established field – you see the forest with fresh eyes and in a new way that long-standing “experts” may have missed by having been so deeply involved and entrenched in the trees for so long.
- 4) Cross pollinate with people from other fields entirely.

How does science contribute?

- 5) Recognize the importance of understanding evolution of the human species – where did we come from?
- 6) Understand what drives human behavior – we are altruistic AND we are aggressive, etc..

Also:

<http://www.theglobeandmail.com/life/health-and-fitness/health/anthony-pawson-helped-discover-how-cells-communicate-with-each-other/article13778193/>

http://www.amazon.com/Protein-Modules-Transduction-Microbiology-Immunology/dp/3642804837/ref=sr_1_1?ie=UTF8&qid=1378115114&sr=8-1&keywords=Anthony+Pawson

<http://research.lunenfeld.ca/rss/?page=2019>

The scientific community has joined Mount Sinai in expressing its profound sadness at the passing of **Dr. Tony Pawson**, a giant in the world of medical research and a beloved colleague and friend to so many.

Dr. Pawson was one of this country's most respected and accomplished scientists, a truly brilliant researcher and leader at Mount Sinai's Lunenfeld-Tanenbaum Research Institute. His research revolutionized our understanding of the way our cells communicate and impacted the treatment of a range of diseases. In the many years he dedicated his studies into deciphering the basic machinery of cellular organization, he became one of the world's top 25 cited scientists in his field.

"As we mourn this loss, we know that the memory of Tony's extraordinary contributions will serve as an inspiration as we continue to pursue his lifelong work of discovery and making our world a better and healthier place," said Dr. Jim Woodgett, Director of Research for Mount Sinai's Lunenfeld-Tanenbaum Research Institute.

Dr. Pawson authored well over 400 scholarly publications and was the recipient of many international awards for his research achievements, including the Kyoto Prize in 2008. He was the first Canadian scientist to hold this title. He also held the position of University Professor of Medical Genetics at the University of Toronto.

"All of us here at Mount Sinai felt privileged to work with Tony. The international response from scientific leaders expressing their condolences is a testament to his profound legacy, which continues to impact patient care," said Joseph Mapa, President and CEO of Mount Sinai Hospital.

In honour of Dr. Pawson's passion for discovery and his revolutionary contributions to cancer research, the Dr. Tony Pawson Memorial Fund for the Lunenfeld-Tanenbaum Research Institute has been created. To make a contribution in honour of Dr. Pawson, please call 416-586-8203

<http://www.lunenfeld.ca/researchers/pawson>

Dr. Anthony (Tony) Pawson DISTINGUISHED INVESTIGATOR

Dr. Tony Pawson has revolutionized our understanding of the way our cells work in disease. His discoveries contribute to every aspect of medical research and have rele

understanding and treatment of a host of diseases including cancer, diabetes, and the immune system. In the 25 years he has spent studying how cells grow and communicate with each other, he has become a world leader and one of the top 25 cited scientists in his field.

In particular, Dr. Pawson studies signal transduction, in other words, the way in which cells and their own and each other's behaviour through chemical signals. Many disease processes such as diabetes, heart disease, autoimmunity and cancer arise from defects in signaling. Molecular biology and development therefore, is based on understanding and intervening in this process. In other words, an aberrant signal causes cells to grow in an uncontrolled fashion. Dr. Pawson's groundbreaking discoveries related to signal transduction allowed for the development of a new generation of drugs that halt the proliferation of some kinds of cancer cells.

Dr. Pawson is a Distinguished Scientist and Apotex Chair in Molecular Oncology at the Mount Sinai Hospital and a Senior Fellow, Massey College, University of Toronto. In June 2008, he was the first Canadian scientist to be named a Gairdner Laureate. In 2006, he was inducted into the Canadian Medical Hall of Fame, and that same year he was named to the Order of the Companions of Honour by Her Majesty Queen Elizabeth II. He is one of nine Canadians to have received such an honour. He has received international recognition for his research achievements and his list of prestigious awards and honours includes the 2007 Premier's Summit Award for Medical Research, the Gairdner Foundation International Award, the H.P. Heineken Prize for Biochemistry and Biophysics (Netherlands), the Louisa Gross Hellegren Prize (Columbia University) and the Wolf Prize in Medicine (Israel). He has been elected to the Royal Society of Canada, Ontario, and is a fellow of the Royal Society of London and the Royal Society of Canada. He is the author of more than 370 scholarly publications.

History of Gleevec:

<http://www.nature.com/scitable/topicpage/gleevec-the-breakthrough-in-cancer-treatment-565>

Other videos --

http://www.youtube.com/watch?v=w_QVFT19KC4&feature=endscreen

<http://www.youtube.com/watch?v=nqKcCH4x9SI>

<http://www.youtube.com/watch?v=yDrpOcPgSZA&feature=endscreen>

http://www.youtube.com/watch?v=BCzXsNs_VfQ&feature=endscreen

CML drugs, a history:

http://en.wikipedia.org/wiki/Discovery_and_development_of_Bcr-Abl_tyrosine_kinase_inhibitors#History