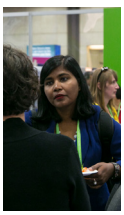
AACR-WICR
20th Anniversary
WOMEN IN CANCER RESEARCH

COMMEMORATING THE PAST. ENVISIONING THE FUTURE.














American Association for Cancer Research®

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AACR-WICR

20th Anniversary CELEBRATING WOMEN IN CANCER RESEARCH

Foreword

Margaret Foti, PhD, MD (hc)
Chief Executive Officer
American Association for Cancer Research

It is very interesting to reflect on the historical development of the Women in Cancer Research group.

The idea of an AACR committee that would support the professional development of women in cancer research was actually suggested to the AACR Board of Directors in the early 1980s. To our surprise, all four women on the Board at that time voted unanimously not to pursue the formation of such a committee, feeling strongly that it was not necessary to have a committee focused on women's professional issues.

Then, in 1988, the organization "Women in Cancer Research" *(or WICR)* was formed outside of the AACR by a few women cancer scientists including a couple of the women on the AACR Board who had voted against the formation of a women's committee.

As an independent, external entity, WICR did accomplish some important initiatives within the AACR. AACR was its primary vehicle of communication with women scientists and acted as a vital facilitator for WICR for the first 10 years of its existence.

When it became obvious to the leadership of WICR that the organization really needed to come into the AACR in order to have a substantive impact, WICR became an official constituency of the AACR in 1998. Thus, we are now celebrating 20 years of its accomplishments in the AACR!

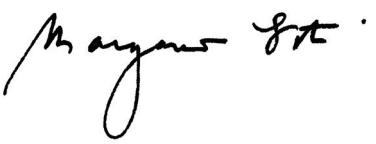
WICR has become a home for women scientists to network, discuss the challenges that continue to exist in the workplace, and learn how to advance in their careers. It plays a critical role in the professional development of women in cancer science and medicine.

The amazing increase in the number of women in our membership is but one example of WICR's success. When I started in this position, women represented only 14% of the membership, and now they represent 40% of the membership or 16,000 members! Since women in medical schools and in other doctoral programs represent 50% of the graduates, it stands to reason that the participation of women in all subdisciplines of the field and at all professional levels of cancer research should be equally strong.

WICR continues to be a key contributor to AACR's recognition around the world as the most important organization in offering participation and leadership opportunities for women. This is evidenced by the fact that 46.7% of the leadership positions in the AACR are held by women, whereas in other organizations the proportion of women in leadership positions ranges from 7% to a maximum of 40%.

The future successes of women in all areas of the cancer field will be ensured by the sustained commitment of WICR members to work to overcome the challenges of gender inequity.

Therefore, for the future of the cancer workforce, it is very important that WICR maintain its robust educational and mentorship roles within the AACR.



Introduction

Elizabeth M. Jaffee, MD, FAACR
President, 2018-2019
American Association for Cancer Research

Women have had a major impact on progress against cancer. Although women have come a long way in achieving leadership roles in the cancer workforce, their professional advancement and career opportunities have moved forward at a slow, inadequate, and inconsistent pace.

By bringing to light the gender inequities in our field, we will be in a better position to examine and work to overcome the root causes of these inequities: lack of work-life balance; favoritism and subjectivity in hiring; lack of access to mentors, sponsors, or role models; and lack of leadership training opportunities, just to name a few.

The AACR and WICR have provided many opportunities for the discussion of these obstacles and will continue to make productive efforts to change these issues in the workplace.

Women represent a major proportion of the trainees in doctoral and medical programs. Because of their sheer numbers and their enormous potential in conquering cancer, their role in cancer research must be elevated at all levels. This is a matter of great urgency for cancer patients.

Heterogeneous research teams that include individuals of diverse backgrounds, nationalities, and genders have been proven to be more innovative, produce higher quality science, and result in better outcomes.

Also, the integration of women at all levels of oncology will ensure that the cancer workforce reflects the gender diversity of the populations it serves.

Mentors play a pivotal role in an individual's professional development at every career stage.

They provide guidance in developmental functions such as subject matter recommendations, career advice, and even psychosocial counseling.

Sponsorship goes beyond just mentorship of an individual. Sponsors are influential people who have the power to promote and contribute to the advancement of individuals within whom they see untapped or unappreciated talent or potential.

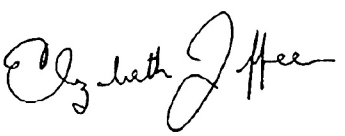
Sponsors act as advocates at key career junctures, and they differ from mentors, who may or may not be in positions of power or be fully vested in an individual's career. Thus, sponsors are especially needed to help support the career advancement of women.

Because there are not enough women in the senior ranks who could or wish to serve as mentors or sponsors, many women needing help go underserved. When women support each other, incredible things happen!

Having male sponsors is also very important and can be career-changing for women. I cannot overemphasize the importance of having both men and women as mentors and sponsors in one's career.

It is the AACR's responsibility to ensure gender equity through its various mechanisms, and facilitating the work of WICR is one of the most effective ways to bring about change.

It is essential that we ensure the productivity and the future successes of women in cancer research so that we will meet AACR's mission of markedly reducing cancer incidence and mortality.



Cancer Research

OFFICIAL JOURNAL OF THE AMERICAN ASSOCIATION FOR CANCER RESEARCH

February 1, 1993
Volume 53 • Number 3
PP. 447–710
ISSN 0008-5472 • CNREA 8

The Formation of the WICR

Article reprinted from *Cancer Research*

Volume 53, Number 3, February 1, 1993

Women in Cancer Research *(WICR)* was founded in 1988 for the purpose of providing support and recognition for the achievements of professional women in cancer research. Its 350 members cooperate primarily through networking, "mentoring," and mutual education. With the collaboration of the American Association for Cancer Research *(AACR)*, WICR has compiled a Directory of Members that it is hoped will be useful for a variety of important purposes, including recommendations as well as the facilitation of communication among scientists in the field. During AACR meetings, WICR sponsors seminars and lectures, designed to enhance the research skills of its members, and it also hosts a reception to foster informal networking. In the past year, three WICR members *(Lois Epstein, Ariel Hollinshead, and Margaret Kripke, the incoming President of the AACR)* developed a report, "Features of a Successful Mentoring Program," for application on individual university campuses by senior faculty for the benefit of junior faculty.

Leila Diamond *(left)* was the moving spirit and first President of WICR and continues to serve WICR by maintaining the organizational archives. After many years at the Wistar Institute, she is now writing a biography of her friend and colleague, Charlotte Friend. Dr. Diamond has been an active member of the AACR since 1967 and served on its Board of Directors from 1980 to 1983. Her extensive AACR committee service includes terms as Chairperson of the Membership and Rhoads Award Committees and as a member of the Clowes Award, Nominating, Program, Public Issues, and Tellers Committees.

Brigid G. Leventhal *(center)* is the immediate Past President of WICR. She was responsible for initiating the formal incorporation of the organization and for drafting its By-Laws. Dr. Leventhal is Professor of Oncology/Pediatrics at Johns Hopkins University School of Medicine. She has been an active member of the AACR since 1970 and served on its Board of Directors from 1986 to 1989. Moreover, she has served as a member of the AACR Nominating, Program, Public Education, and Special Memberships Committees.

Sandra R. Wolman *(right)* is President of WICR from 1992 to 1993. She is in close contact with the AACR with the intention of establishing a formal working relationship between the two organizations. In 1993, WICR will give its first Student Travel Awards and will host several workshops and a lecture at the AACR Annual Meeting. Dr. Wolman is Professor of Pathology at Wayne State University School of Medicine. She has been an active member of the AACR since 1972 and served on its Board of Directors from 1988 to 1991. In addition, she has served on the AACR Exhibits, Program, and Publications Committees.

Margaret Foti
Chief Executive Officer
American Association for Cancer Research

Historical Perspective on Women AACR Member Pioneers

Martha Tracy, MD

First female AACR member, 1908

Martha Tracy, MD, DrPH, was born in Plainfield, New Jersey, on April 10th, 1876, the youngest of nine children. After a preliminary education in the Plainfield Seminary for Young Ladies and Children, Tracy entered Bryn Mawr College just outside of Philadelphia.

From the beginning of her undergraduate career, Tracy studied with the express purpose of entering medical school after achieving her bachelor's degree. In 1898, Tracy graduated from Bryn Mawr with a Bachelor of Arts degree and entered the Woman's Medical College of Pennsylvania *(WMC)*. Tracy graduated with her degree of Doctor of Medicine from WMC in 1904.

Upon graduation, Tracy enrolled as a graduate student at Cornell Medical College in New York, spending the next nine years in the laboratory research environment. For some of this time, she was under the tutelage of William B. Coley, MD, helping him to develop "Coley's Toxins," which were recognized as the first immunotherapeutic treatment for cancer.

In 1907, Tracy decided to return to WMC, giving up what looked to be a career in laboratory research. WMC was struggling at the time, and Tracy joined the ranks of the imperiled, but beloved institution. In 1908, under the sponsorship of Coley, Tracy was elected as the first female member of the American Association for Cancer Research, in its second year of existence. For the next 10 years, Tracy served WMC in a number of capacities, beginning with an appointment as associate professor in the department of chemistry.

In 1911, Tracy took a leave of absence to study physiological chemistry at Yale. When she returned in 1913, WMC's chemistry department had been converted into a department of physiological chemistry, and Tracy was granted full professorship. Still teaching, Tracy studied public health and preventive medicine at the University of Pennsylvania, graduating with a PhD in public hygiene in 1917.

Martha Tracy's professional career was marked by numerous high points and unique accomplishments. In 1917, she assumed two major roles at WMC, first as faculty member and professor of hygiene, and second as dean of the college. While her appointment as professor of hygiene meant that she gave up her primary passion for chemistry, her assuming the role of seventh dean of WMC brought with it a great deal of prestige and power. She held the role of dean from 1917 to 1940.

Adapted from Drexel University College of Medicine Archives & Special Collections and AACR Archives.

Maud Slye, DSc

First female presenter at the Annual Meeting, 1913

Maud Slye, DSc, was a pathologist from Minneapolis, Minnesota, who was credited with the first utilization of genetically uniform mice as a research tool. Her work focused on the inheritability of cancer in mice.

In 1913, Slye became the first woman to present research findings at the AACR Annual Meeting, delivering her seminal findings in a presentation titled, "The Incidence and Inheritability of Cancer in Mice."

She was also an advocate for the comprehensive archiving of human medical records, believing that this knowledge would help eradicate cancer. During her career, she received multiple awards and honors, including the gold medal of the American Medical Association in 1914, the Ricketts Prize in 1915, and the gold medal of the American Radiological Society in 1922.

In 1923, Albert Soiland, pioneer radiologist, nominated Slye for the Nobel Prize in Physiology or Medicine. The nomination came as a result of her work as one of the first scientists to suggest that cancer can be an inherited disease, and for the development of new procedures for the care and breeding of lab mice.

Adapted from Wikipedia and AACR Archives.

Elizabeth C. Miller, PhD

First woman elected to AACR Board of Directors, 1957

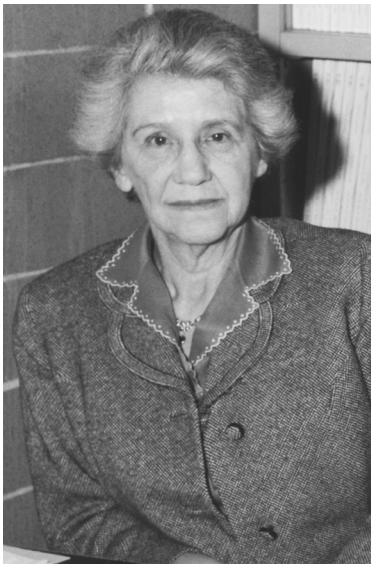
Elizabeth C. Miller, PhD, was a biochemist known for fundamental research into the chemical mechanism of cancer carcinogenesis.

Miller studied biochemistry at the University of Minnesota. As a postgraduate, she worked at the McArdle Laboratory for Cancer Research at the University of Wisconsin-Madison, where she and her husband, James A. Miller, PhD, studied chemical carcinogenesis. From 1973 to 1987, she was deputy director *(associate director)* of the McArdle Laboratory. She was also a professor of oncology at the University of Wisconsin-Madison.

Miller was an editor of the Cancer Research journal of the American Association for Cancer Research *(AACR)* from 1954 to 1964. In 1957, she became the first woman elected to the AACR Board of Directors. From 1976 to 1977 she served as president of the AACR.

From 1978 to 1980 Miller was on the Cancer Panel of the National Cancer Institute. In 1978 she was named a member of the National Academy of Sciences and in 1981 she was admitted to the American Academy of Arts and Sciences.

Adapted from Wikipedia and AACR Archives.



Thelma B. Dunn, MD

First female AACR President, 1961-1962

Thelma Flournoy Brumfield Dunn enrolled at Cornell University, transferred to Westhampton College in Richmond for the 1919–1920 academic year, and then returned to Cornell, where in 1922 she won the Guilford Prize for excellence in English prose composition with an essay titled, "Virginia Tobacco."

In the autumn of 1922 Brumfield enrolled in the department of medicine at the University of Virginia, where she later recalled that her male colleagues treated her with respect despite the scarcity of female students on campus. She received an MD in June 1926 and the next month began an internship at Bellevue Hospital in New York City. The following July she returned to the University of Virginia's department of medicine as an instructor in bacteriology and pathology. Promoted to assistant professor in 1928, she served as acting chair of the department of pathology during the 1929–1930 academic year. In 1929, Brumfield married William LeRoy Dunn, a physician who had been her classmate in medical school.

After a six-year hiatus from professional medicine to start their family, Dunn volunteered in 1936 as a laboratory assistant in the department of pathology at the George Washington University School of Medicine in Washington, D.C. She was appointed clinical instructor of pathology in 1939 and associate in pathology in 1941, positions that allowed her to work part-time while raising young children. Dunn resigned in 1942 to accept a fellowship at the National Cancer Institute, where she worked for the next twenty-eight years. In 1947 she became a staff pathologist, and she later took charge of the cancer induction and pathogenesis section of the laboratory of pathology.

In 1958, Dunn and five other American medical scientists, all female, embarked on a one-month tour of medical facilities in the Soviet Union as part of an exchange program the State Department organized. The following November, the American Medical Women's Association named her one of its eleven Women of the Year.

In 1959, she was elected to the Board of Directors of the American Association for Cancer Research, and in 1960 she was elected vice president and president-elect. She assumed the presidency in April 1961.

Adapted from the Library of Virginia, Dictionary of Virginia Biography, and AACR Archives.

Jane Cooke Wright, MD, FAACR

First African-American woman to serve on the AACR Board of Directors, 1971

Jane Cooke Wright, MD, FAACR, was a pioneer in clinical cancer chemotherapy and an AACR member for 59 years. Wright became the highest ranking black woman at a nationally recognized medical institution in 1967. During this time, there were only a few hundred black, female physicians in the United States.

Born on Nov. 30, 1919, Wright grew up in Harlem in New York, N.Y. Her father, Louis T. Wright, MD, FACS, one of the first black graduates of Harvard University Medical School, established the Cancer Research Center at Harlem Hospital. Wright would eventually do some of her most important research at the center. She began to study art at Smith College in Northampton, Mass., before changing her major to premed. She received a full academic scholarship from New York Medical College, where she was one of few black students. There, Wright was elected vice-president of her class and president of the Honor Society; she graduated with honors in 1945.

Wright eventually joined her father at the Cancer Research Center at Harlem Hospital, where they began experimenting together with chemical agents on leukemia in mice. They eventually began treating patients with anticancer drugs and saw them experience some form of remission. Wright continued her research in anticancer agents throughout her career by exploring the relationship between patient and tissue culture response and developing new techniques for chemotherapy administration.

Wright became director of the Cancer Research Center following her father's death in 1952. In 1955, she became an associate professor of surgical research at New York University Medical Center and was appointed to the President's Commission on Heart Disease, Cancer and Stroke by President Lyndon B. Johnson in 1964.

The commission's report led to the establishment of a national network of treatment centers for the three diseases. Wright became the highest ranking black woman at an American medical institution when she was named professor of surgery, head of the cancer chemotherapy department, and associate dean at New York Medical College in 1967. She became the first woman elected president of the New York Cancer Society.

In 1971, Wright became the first black woman elected to the Board of Directors of the American Association for Cancer Research. She had been an AACR member since 1954.

The AACR-Minorities in Cancer Research Jane Cooke Wright Lectureship was established in her honor in 2006 to recognize an outstanding scientist who has made meritorious contributions to the field of cancer research and who has, through leadership or by example, furthered the advancement of minority investigators in cancer research.

Adapted from AACR Archives.

Gertrude B. Elion, DSc

First female AACR member to win the Nobel Prize, 1988

Gertrude B. Elion, DSc, was a biochemist and pharmacologist who shared the 1988 Nobel Prize in Physiology or Medicine with George H. Hitchings, PhD, and Sir James Black, OM, FRS, FRSE, FRCP. Working alone as well as with Hitchings and Black, Elion developed a multitude of new drugs, using innovative research methods that would later lead to the development of the AIDS drug AZT. She developed the first immunosuppressive drug, azathioprine, used for organ transplants. She also developed the first successful antiviral drug, acyclovir, for the treatment of herpes infection.

Rather than relying on trial and error, Elion and Hitchings used the differences in biochemistry between normal human cells and pathogens *(disease-causing agents such as cancer cells, protozoa, bacteria, and viruses)* to design drugs that could kill or inhibit the reproduction of particular pathogens without harming the host cells. The drugs they developed are used to treat a variety of maladies, such as leukemia, malaria, organ transplant rejection *(azathioprine)*, and herpes *(acyclovir, which was the first selective and effective drug of its kind)*.

Elion had a long history of service to the American Association for Cancer Research. From publishing papers in the journal, Cancer Research, to serving on numerous committees and programs throughout her career, her dedication to the AACR was steadfast. This culminated with her election to the Board of Directors in 1981 and she assumed the presidency of the AACR in 1983. In 1993, the AACR honored Elion by naming their first-ever research grant in her honor, the AACR-Gertrude B. Elion Cancer Research Award.

Elion had also worked for the National Cancer Institute and the World Health Organization, among other organizations. From 1967 to 1983, she was the head of the department of experimental therapy for Burroughs Wellcome. She was affiliated with Duke University as adjunct professor of pharmacology and of experimental medicine from 1971 to 1983 and research professor from 1983 to 1999.

She was elected a member of the National Academy of Sciences in 1990, a member of the Institute of Medicine in 1991, and a Fellow of the American Academy of Arts and Sciences, also in 1991.

Adapted from Wikipedia, Dr. Elion's Nobel Prize Autobiography, and AACR Archives.

Janet D. Rowley, MD, FAACR

First female winner of the AACR-G.H.A. Clowes Award, 1989

Janet D. Rowley, MD, FAACR, was the Blum-Riese distinguished service professor of medicine, molecular genetics and cell biology, and human genetics at the University of Chicago in Illinois. She was elected to the Inaugural Class of Fellows of the American Association for Cancer Research Academy in 2013.

Rowley's discoveries—that chromosomal changes cause certain types of leukemia—changed the way cancer is understood.

Rowley worked at various sites throughout Chicago, including a clinic for children with Down syndrome. She gained an interest in cancer and chromosomes in 1962 after learning a new technique for chromosome analysis during a year at Oxford University in the United Kingdom. She used those techniques to study the chromosomes from patients with leukemia when she returned to the United States and worked as an assistant professor at the University of Chicago.

Rowley's leadership in revolutionizing the understanding of the role of genetics in causing disease has been recognized worldwide by numerous accolades, including being the first woman to be awarded the prestigious AACR-G.H.A. Clowes Memorial Award in 1989.

She was also recipient of the Albert Lasker Clinical Research Award, the Presidential Medal of Freedom, the AACR Lifetime Achievement Award, the Dorothy P. Landon-AACR Foundation Prize for Translational Cancer Research, the AACR-Women in Cancer Research Charlotte Friend Memorial Lectureship, the National Medal of Science, the Albany Medical Center Prize, and the Japan Prize for Healthcare and Medical Technology.

Rowley had been an honorary AACR member since 1981. She served as associate editor of *Cancer Research* and was a member of the Council of Scientific Advisors and the Women in Cancer Research Constituency.

Adapted from AACR Archives.

Frances M. Visco

First recipient of the AACR-Women in Cancer Research Charlotte Friend Memorial Lectureship, 1998

Frances M. Visco is the president of the National Breast Cancer Coalition *(NBCC)* and a member of its Board of Directors. NBCC is a grassroots advocacy coalition of more than 600 organizations and tens of thousands of individual members. Visco is an honors graduate of St. Joseph's University and of Villanova Law School.

Visco was a partner in a large Philadelphia law firm where her practice concentrated on commercial and multidistrict litigation. She resigned her practice to focus on NBCC activities and continue her full-time role as NBCC president.

President Clinton appointed Visco as one of three members of the President's Cancer Panel; she was reappointed to successive terms. She served as a member of the President's Cancer Panel Special Commission on Breast Cancer until its dissolution, and was the first consumer to chair the Integration Panel of the Department of Defense Peer-Reviewed Breast Cancer Research Program.

Visco lectures throughout the country and internationally on the politics of breast cancer and women's health advocacy issues, as well as offering scientific and governmental policy presentations to research, governmental, and scientific entities. She appears frequently on national television and in the press discussing women's health issues and has testified before various congressional committees and panels.

In 1998, the American Association for Cancer Research recognized Visco's contributions to cancer research advocacy and the advancement of women in the cancer research field by naming her the recipient of the Inaugural AACR-WICR Charlotte Friend Memorial Lectureship. The title of Visco's presentation was "Women Scientists and Advocacy" and highlighted the contributions of women in the cancer field, the important voice of patients and survivors, and what needs to be done to ensure future successes.

Visco is a 30+ year breast cancer survivor.

Adapted from the NBCC website and AACR Archives.

AACR Women Presidents

Thelma B. Dunn, MD

1961-1962

Thelma B. Dunn, MD, after a six-year hiatus in her medical career to start a family, volunteered in 1936 as a laboratory assistant in the department of pathology at the George Washington University School of Medicine in Washington, D.C. She was appointed clinical instructor of pathology in 1939 and associate in pathology in 1941, positions that allowed her to work part-time while raising young children.

Dunn resigned in 1942 to accept a fellowship at the National Cancer Institute, where she worked for the next twenty-eight years. In 1947 she became a staff pathologist, and she later took charge of the cancer induction and pathogenesis section of the laboratory of pathology.

In 1959, she was elected to the Board of Directors of the American Association for Cancer Research, and in 1960 she was elected vice president and president-elect. She became the first female AACR president in April 1961.

Charlotte Friend, PhD

1975-1976

Charlotte Friend, PhD, was a renowned virologist. She is best known for the discovery of the Friend Leukemia Virus *(FLV)*. She helped establish the concept of the oncovirus, studied the role of the host immune response in disease development, and helped define modern retrovirology.

In 1956 at the AACR Annual Meeting, Friend reported on the isolation of a virus that produced a fatal leukemia when inoculated into adult mice. This was at a time when the concept of viruses causing cancer was still viewed with extreme skepticism and the presentation of such data was met with disbelief and derision. The audience's arguments against her findings were essentially the same as those Peyton Rous had heard in the early 1900s when he described a chicken tumor that was inducible by a transmissible agent.

Critics argued, on the one hand, that the agent isolated was not a virus because it induced a malignant disease and, on the other, that the disease could not be a malignancy because it was virus-induced. However, the rapid confirmation of Friend's findings led to a change in attitudes, and the scientific community soon realized that a virus that rapidly induces a malignant disease in adult mice provides an excellent model in which to study both viral oncology and the pathogenesis of neoplasia.

In 1998, the AACR-Women in Cancer Research group honored her legacy and service to the AACR by naming their sponsored lectureship in her memory, the AACR-WICR Charlotte Friend Memorial Lectureship.

Elizabeth C. Miller, PhD

1976-1977

Elizabeth C. Miller, PhD, was a biochemist known for fundamental research into the chemical mechanism of cancer carcinogenesis.

Miller studied biochemistry at the University of Minnesota. As a postgraduate, she worked at the McArdle Laboratory for Cancer Research at the University of Wisconsin-Madison, where she and her husband, James A. Miller, PhD, studied chemical carcinogenesis. From 1973 to 1987, she was deputy director *(associate director)* of the McArdle Laboratory. She was also a professor of oncology at the University of Wisconsin-Madison.

Gertrude B. Elion, DSc

1983-1984

Gertrude B. Elion, DSc, was a biochemist and pharmacologist who shared the 1988 Nobel Prize in Physiology or Medicine with George H. Hitchings, PhD, and Sir James Black, OM, FRS, FRSE, FRCP. Working alone as well as with Hitchings and Black, Elion developed a multitude of new drugs, using innovative research methods that would later lead to the development of the AIDS drug AZT. She developed the first immunosuppressive drug, azathioprine, used for organ transplants. She also developed the first successful antiviral drug, acyclovir, for the treatment of herpes infection.

Margaret L. Kripke, PhD, FAACR

1993-1994

Best known for her work in immunology of skin cancer, Margaret L. Kripke, PhD, FAACR, showed that chronic exposure to UV radiation produces cancers that are highly antigenic and that immune alterations induced by UV are responsible for tumor survival and spread. She discovered that mice exposed to UV radiation develop a selective, systemic immune suppression, and her work led to a new field of photoimmunology. Kripke's research has provided insight into how an immune system compromised by UV radiation contributes to the development of melanoma and increased vulnerability to infectious diseases.

Kripke established a new basic research department at the University of Texas MD Anderson Cancer Center and later served as vice president for academic programs and executive vice president and chief academic officer. She has been a leader in many organizations dedicated to research and collaboration and has contributed substantially to the field of environmental science.

Louise C. Strong, MD, FAACR

1996-1997

Well known for investigating genetics in childhood cancers, Louise C. Strong, MD, FAACR, is also an expert in Li-Fraumeni Syndrome, the rare autosomal dominant hereditary disorder that greatly increases susceptibility to cancer. Her laboratory has investigated the role of radiation, chemotherapy, and host-predisposing factors in the risk for subsequent tumors in childhood cancer survivors. Strong is a frequent speaker on the genetics of breast cancer and assessment of individual risk.

For much of her career, Strong has been involved in training future researchers and clinicians, as well as in continuing education, and has held numerous administrative positions at the University of Texas MD Anderson Cancer Center, including interim codirector for the human cancer genetics program, deputy department chair of the department of experimental pediatrics, director for basic research in the division of pediatrics, and section chief of clinical cancer genetics.

Susan Band Horwitz, PhD, FAACR

2002-2003

Susan Band Horwitz, PhD, FAACR, has had a continuing interest in natural products as a source of new drugs for the treatment of cancer. Her contributions span several decades of research and encompass agents that have served as prototypes for some of our most important drugs that are currently in clinical use. She made major contributions to our understanding of the mechanisms of action of camptothecin, the epipodophyllotoxins, and bleomycin. However, Horwitz's most seminal research contribution has been in the development of Taxol®, a drug isolated from the yew plant, Taxus brevifolia.

Horwitz and her coworkers demonstrated that Taxol®'s antimitotic effects were due to a novel interaction between the drug and microtubules that resulted in stabilized polymers. Horwitz's pioneering investigations and perceptive analysis identified Taxol® as a prototype for a new class of antitumor drugs. Although no one was interested in Taxol® when she began her studies, today it is an important antitumor drug approved by the FDA for the treatment of ovarian, breast, and lung carcinomas. Horwitz's research played an important role in encouraging the development of Taxol® by the National Cancer Institute. The drug has since been given to over a million patients.

Karen H. Antman, MD, FAACR

2003-2004

An internationally recognized expert in breast cancer and other malignancies, Karen H. Antman, MD, FAACR, is best known for developing a standardized treatment regimen for sarcoma and mesothelioma. She has conducted groundbreaking clinical research in bone marrow transplantation using mobilization of peripheral blood-derived stem cells and effective supportive care.

Antman's extensive clinical research experience has led her to become a strong advocate for public funding for research, facilitating entry into clinical trials, and approval of new therapies. Now an administrator at a major medical school, she continues to foster and collaborate on research, consult on patient care, and teach.

Lynn M. Matrisian, PhD, FAACR

2004-2005

Known for having cloned the first full-length cDNA for a member of the matrix-degrading metalloproteinase *(MMP)* family of enzymes, Lynn M. Matrisian, PhD, FAACR, has extensively studied the MMPs, elucidating their role at the molecular level in various stages of cancer. This research included investigations into how growth factors and oncogenes induce the expression of the metalloproteinase genes and the generation of genetically engineered mouse models to study MMP function.

In the course of studying why MMP inhibitors were ineffective in human therapy, Matrisian helped define the types of information basic scientists need to provide to facilitate translation of research findings into the clinic and she led translational research initiatives at the National Cancer Institute. As the founding chair of the cancer biology department at Vanderbilt-Ingram Cancer Center, she mentored countless students and emphasized an interdisciplinary approach to research.

Elizabeth H. Blackburn, PhD, FAACR

2010-2011

Elizabeth H. Blackburn, PhD, FAACR, a 2009 Nobel Laureate in Physiology or Medicine, is widely recognized for her discovery of how chromosomes are protected by telomeres and for her discovery of the enzyme telomerase, which plays a key role in cell replication, cell aging, and human cancers. Her research has revolutionized the understanding of how cells function and has been called one of the most important discoveries in the field of molecular genetics.

Blackburn's collaborative research showing how telomerase maintenance varies in humans, especially as a result of stress, has also led to current explorations of whether telomerase can be modulated to prolong cell life to treat age-related diseases, or deactivated to interrupt cancer. She has served on numerous national and international bodies, including the President's Council on Bioethics, and has accepted eleven honorary doctorates from institutions worldwide.

Judy E. Garber, MD, MPH, FAACR

2011-2012

An internationally recognized leader in clinical and translational research on breast cancer, Judy E. Garber, MD, MPH, FAACR, developed one of the first cancer risk and prevention clinics where programs are now being expanded to several types of cancer. She has led studies of epidemiology, cancer surveillance, cancer genetics service delivery, and chemoprevention in hereditary cancers.

Garber's recent research has evaluated novel agents targeting DNA repair defects in treatment and prevention of triple-negative or basal-like breast cancer, the most common form of cancer in women with germline BRCA1 mutations. She has also studied pediatric cancers and sarcomas in Li-Fraumeni Syndrome and hereditary gastrointestinal and stromal tumors.

Nancy E. Davidson, MD, FAACR

2016-2017

A distinguished leader in cancer research, Nancy E. Davidson, MD, FAACR, has built an international reputation as an expert in the biology and treatment of breast cancer. Her special focus has been on the roles of hormones and the estrogen receptor in breast carcinogenesis as key molecular mechanisms responsible for driving breast cancer initiation and progression. Davidson's team was the first to describe how the expression of estrogen receptor genes is regulated by epigenetic factors that affect how the DNA code is read and eventually translated into proteins. She has also contributed foundational research to our understanding of how estrogen deprivation and other therapies trigger breast cancer cells to kill themselves through apoptosis, or programmed cell death.

Her laboratory studies have paved the way for the establishment of new clinical trials involving drugs that exploit molecular signaling pathways to combat breast cancer, including polyamine analogues, histone deacetylase inhibitors, and DNA methyltransferase inhibitors. She has also helped lead several critical clinical trials that have advanced the care of breast cancer patients, for example, establishing the role of ovarian suppression for premenopausal women with hormone-responsive breast cancer, the importance of aromatase inhibitors in postmenopausal women, and the utility of trastuzumab for the treatment of early stage HER2-positive breast cancer.

Davidson's role as an oncologist and researcher has led her to become known as a top opinion leader in the field of breast cancer biology and treatment. She has authored editorials, commentaries, and reviews to provide perspective for key research papers as well as critical areas in the field, and is revered as an early leader in the area of value in cancer care.

Elizabeth M. Jaffee, MD, FAACR

2018-2019

An internationally heralded expert in cancer immunology, Elizabeth M. Jaffee, MD, FAACR, is well regarded for her clinical studies that have fueled the development of immunotherapies, specifically allogeneic cancer vaccines. She has led numerous efforts and clinical trials dedicated to establishing effective vaccines for the treatment of not only unresectable breast and pancreatic cancers, but also cancers that are eligible for surgical resection, but present with a high likelihood of recurrence. These vaccines have been designed to bypass immunotolerance exhibited by tumors and have proven effective in improving disease-free survival in patients.

Specifically, Jaffee has contributed to the testing and development of the GVAX cancer vaccine for pancreatic cancer, which is designed to include allogeneic pancreatic cancer cells capable of secreting the immunostimulatory cytokine, granulocyte-macrophage colony-stimulating factor *(GM-CSF)*, normally produced by immune cells including T cells and natural killer cells. Jaffee has explored combinations involving GVAX and the CRS-207 vaccine, composed of recombinant live-attenuated, double-deleted Listeria monocytogenes that are genetically modified to secrete the tumor-associated antigen, mesothelin. These studies have demonstrated that GVAX administration in combination with CRS-207 effectively combats pancreatic cancer progression and increases overall survival with low toxicity.

More recently, her research has been dedicated to exploiting genomic and proteomic technologies to define biomarkers required for pancreatic cancer onset and progression. These studies have resulted in the identification of ANXA2 *(Annexin A2)* as a potential regulator of pancreatic cancer metastasis. Jaffee and her colleagues have demonstrated that ANXA2 is overexpressed in pancreatic cancers and that this overexpression is accompanied by changes in intracellular trafficking of ANXA2. Furthermore, changes in the cellular location of ANXA2 directly correlate with the ability of pancreatic cancer cells to proliferate and migrate into adjacent organs such as the liver. Jaffee's ongoing efforts are dedicated to understanding how to integrate immune modulating agents with vaccines in both patients and animal models.

Elaine R. Mardis, PhD, FAACR

2019-2020

Elaine R. Mardis, PhD, FAACR, is a member of the translational therapeutics program at the OSUCCC – James, where she focuses her research on cancer genomics from a discovery and a translational point of view. Mardis also helped lead the group that sequenced the first whole cancer genome and has since gone on to sequence many other cancer genomes to determine the genetic changes that lead to cancer.

She seeks to identify the best therapeutic approaches to fighting an individual's cancer by determining common driver mutations/genes and pathways that can cause cancer to develop and progress. Her research addresses large-scale cancer genomics *(discovery-based research into the genetic drivers of cancer onset and progression)*; computational analysis of cancer genomics data; immunogenomic applications and analysis of cancer samples; building and populating knowledge-bases of curated cancer genes, their mutations and aspects of prognosis, diagnosis and therapy response; characterization of cancer intratumoral heterogeneity and its implications in therapy resistance prediction; genomic and immunogenomic characterization of mouse models of cancer; and applications of genomics to clinical characterization of individual patients for therapeutic and diagnostic purposes, including germline susceptibility.

She is the coholder of five U.S. patents, including her most recent one for patient-specific, mutation-directed immunotherapy for cancer. One of her recent studies involved a clinical trial of a personalized DNA vaccine plus immune modulation of the tumor microenvironment in patients with resected pancreatic cancer. Mardis has coauthored more than 250 articles in her career.

AACR Women Awardees

AACR Women Nobel Laureates

The Nobel Prize is arguably the most prestigious international award given in recognition of academic, cultural, and scientific advances. Since its inception in 1895, 52 women were recipients of this esteemed honor. The following women AACR members were awarded the Nobel Prize:

Gertrude B. Elion, DSc, 1988
Christiane Nüsslein-Volhard, PhD, FAACR, 1995
Françoise Barré-Sinoussi, PhD, FAACR, 2008
Elizabeth H. Blackburn, PhD, FAACR, 2009
Carol W. Greider, PhD, FAACR, 2009

G.H.A. Clowes Memorial Award

In 1961, the AACR along with Eli Lilly and Company, established its first award to recognize outstanding achievement in basic cancer research. The award and accompanying lectureship are named after founding AACR member George H.A. Clowes, a pioneering research scientist in the field of immunity and the effects of insulin production. The award is presented yearly at the AACR Annual Meeting and is widely accepted as a precursor to several more prestigious awards. The following women were recipients of this award and lectureship:

Janet D. Rowley, MD, FAACR, 1989
June L. Biedler, PhD, 1992
Mary-Claire King, PhD, FAACR, 1994
Mina J. Bissell, PhD, FAACR, 1999
Elizabeth H. Blackburn, PhD, FAACR, 2000
Titia de Lange, PhD, FAACR, 2010

AACR-Women in Cancer Research Charlotte Friend Memorial Lectureship

The AACR-Women in Cancer Research Charlotte Friend Memorial Lectureship was established in 1998 in honor of renowned virologist and discoverer of the Friend Leukemia Virus, AACR past president, Charlotte Friend, for her pioneering research on viruses, cell differentiation, and cancer. The lecture is intended to give recognition to an outstanding female or male scientist who has made meritorious contributions to the field of cancer research and who has, through leadership or by example, furthered the advancement of women in science.

Frances M. Visco, 1998
Lorraine J. Gudas, PhD, 1999
Leona D. Samson, PhD, 2000
Zena Werb, PhD, FAACR, 2001
Ellen S. Vitetta, PhD, 2002
Janet D. Rowley, MD, FAACR, 2003
Titia de Lange, PhD, FAACR, 2004
Joan S. Brugge, PhD, FAACR, 2005
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Janet S. Butel, PhD, 2007
Nancy E. Davidson, MD, FAACR, 2008
Jessica K. Tyler, PhD, 2009
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Charis Eng, MD, PhD, 2014
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