AGING AND CANCER
One of America’s precious resources, its senior population, is not getting its fair share of attention in the war against cancer and the Samuel Waxman Cancer Research Foundation (SWCRF) is determined to do something about it.

While new cancer cases around the world grew to 14.1 million in 2012 from 12.7 million in 2008 as reported in December by the World Health Organization, relatively little has been discussed in the public arena about the challenges faced by cancer patients over the age of 65 … until now.

In December 2013, The National Cancer Institute (NCI) addressed the growing prevalence and impact of comorbidity – the condition of having two or more diseases at the same time -- among people 66 years of age and older with lung, colorectal, breast or prostate cancer from 2001 to 2010.

The NCI’s report was the basis of a feature story in the January 4, 2014 issue of The New York Times that identified 72 as the median age of cancer death and stated that strides in the treatment of heart illnesses have increased the probability of more people between 55 and 84 dying of cancer than heart disease.

Nevertheless, there remains an imbalance in how seniors are represented in clinical trials for potential cancer therapies. Seniors account for two-thirds of patients under treatment for breast, lung, colorectal or prostate cancer yet comprise only one-third of the participants in clinical trials for drugs under development to treat these categories.
Because a number of genomic defects usually must occur for cancer to arise, the chances of developing cancer increase as a person gets older because more time has been available for the defects to accumulate.

Because people are living longer today than they did 50 or 100 years ago, they have a longer exposure time to factors that may promote gene changes linked to cancer.

- Most cancer drugs under development are relatively toxic to the patient.
- Elderly patients are more sensitive to toxic therapies than younger patients.
- Drug developers shy away from enrolling the elderly in clinical trials because their sensitivity to a toxic therapy may interfere with study outcome.
- Underrepresentation of the elderly in trials creates a scarcity of data on how to effectively treat cancer in the elderly, which in turn reinforces this negative trend.

*A worthy solution*: Aim to develop minimally toxic therapies that benefit all cancer patients, and selectively help the elderly gain access to treatment, both in trials and in the clinic.
The SWCRF scientific brain trust -- The Institute Without Walls --- includes over 50 scientists collaborating across the world’s leading research institutions to address the issue of aging and cancer with projects in four areas of scientific investigation:

• Blood Malignancies in the Aging Population
• Cancer Stem Cells in the Aging Population
• Inflammation from the environment, toxic exposure such as smoking and internal damage from diet and metabolism in cancer development
• Combination Epigenetic Therapy

Epigenetics: The Next Frontier in Cancer Research

SWCRF researchers specialize in applying epigenetics to cancer research. **Epigenetics is a regulatory mechanism that controls gene expression without altering genetic sequence.** Epigenetic change in gene expression originates from the modification in transcription mechanism. Key components involved in the process of epigenetic transcriptory regulation include DNA methylation, histone modifications, micro RNA’s and non-coding RNA’s.

Epigenetic drugs make it possible to reverse aberrant gene expression which leads to cancer. With the increase in the aging population, rising incidence of oncology and non-oncology disorders, the demand for epigenetic diagnosis and drugs is growing.
Our Epigenetics Experts

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About the Samuel Waxman Cancer Research Foundation

The Samuel Waxman Cancer Research Foundation is a nonprofit 501(C) (3) organization dedicated to curing and preventing cancer. The Foundation is a pioneer in cancer research and its mission is to eradicate cancer by funding cutting-edge research that identifies and corrects abnormal gene function that causes cancer. This research is the basis for developing minimally toxic treatments for patients, which is crucial for seniors battling cancer.

Through the Foundation’s collaborative group of world-class scientists, the Institute Without Walls, investigators share information and tools to speed the pace of cancer research. Since its founding in 1976 by noted oncologist Samuel Waxman, M.D., the Samuel Waxman Cancer Research Foundation has awarded approximately $90 million to support the work of more than 200 researchers across the globe.

For more information, visit: www.waxmancancer.org.

Founder & CEO

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Distinguished Service Professor, Oncological Sciences
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Nobody does collaboration better than the Samuel Waxman Cancer Research Foundation. More than 30 years ago, we pioneered the concept of genuine and transparent scientific exchange between cancer scientists across not only research institutes but also across cancer types.

To receive funding from the SWCRF, cancer investigators must be willing to share their findings prior to being published – so their SWCRF colleagues can benefit from shared knowledge that speeds the pace of progress in the quest for a cure. This philosophy ensures that the world’s top researchers set aside professional competition to join forces in transformative work that augments their results.

The fruits of this partnership are on display at the annual SWCRF Scientific Review & Symposium, which gathers our network of funded investigators for two days of progress reports and stimulating exchange that creates new collaborations. The intimate setting and camaraderie has over the years been the launching point of fresh new approaches to cancer investigation and, in many cases, new therapies for patients.
The Samuel Waxman Cancer Research Foundation (SWCRF) awards grants restricted to investigators who are pursuing novel therapies to reverse the abnormal growth and differentiation of the cancer cell. The SWCRF offers Individual Grants renewable for up to three years and Collaborative Grants to groups of multi-site, multi-disciplinary investigators.

The goal of this two-tiered structure is to cultivate Individual Grantees to become members of our Institute Without Walls, an international collaboration of scientists who pool their collective resources to expedite the pace, breadth, and quality of research.

**Invitation-Only**
Each year, the SWCRF sends a Request for Applications to all NCI-designated cancer center directors. The directors are asked to convene an internal committee to nominate one candidate to apply for a new Individual Grant in alignment with the mission of the SWCRF. The SWCRF also maintains long-standing relationships with several international research institutions in China, Canada and Israel and they are invited to join the application process as well.

**Peer-review Process**
The proposals are reviewed and scored by the distinguished members of the SWCRF Scientific Advisory Board (SAB). Priority scores are then sent to a second round of targeted review where each reader is hand-picked based upon their specialization in the applicant's specific topic. Our SAB includes Steven Gore, M.D., Yale University; Lorraine Gudas, Ph.D., Weill Cornell Medical Center; Ramon Parsons, M.D., Ph.D., Icahn School of Medicine; Nancy Speck, Ph.D., University of Pennsylvania; and Hua Yu, Ph.D., City of Hope.

**Annual Scientific Review**
A group of applications is recommended for funding and presented at the SWCRF Annual Scientific Review. This intense two-day, peer review is held in New York City each spring and designed to assess the merits of new Individual applications as well as continuing collaborative SWCRF sponsored-studies. The final recommendations are sent to the SWCRF SAB, which makes the final decision. All applicants are notified in writing. Those who are not recommended for funding are encouraged to speak with SWCRF staff to receive feedback they may then incorporate into future applications.
1. The Samuel Waxman Cancer Research Foundation pioneered collaboration among cancer research institutes.

Founded in 1976 by Dr. Samuel Waxman, the Waxman Foundation introduced the innovative model of collaboration among cancer investigators who previously worked independently.

2. The Waxman Foundation's cure for APL is proof of its principle.

The Waxman Foundation worked with the Shanghai Institute of Hematology to develop a minimally toxic drug that corrected the abnormal gene function in acute promyelocytic leukemia (APL), increasing the disease’s five-year survival rate from 25 percent to 95 percent, saving tens of thousands of lives over the years.

3. Cancer is caused by abnormal gene function, which The Waxman Foundation is dedicated to correcting.

The mission of the Waxman Foundation is to eradicate cancer by funding cutting-edge research that identifies and corrects abnormal gene function that causes cancer.

4. The Waxman Foundation is committed to developing less toxic, cancer-specific therapies for patients.

To qualify for funding, researchers prioritize the development of less toxic therapies that may lessen the debilitating effects of chemotherapy.

5. The Waxman Foundation's philosophy of cross-institutional partnership promotes scientific progress.

The Waxman Foundation’s Institute Without Walls funds scientists who are leaders in their respective areas of cancer research. Their collaboration brings science rapidly to treatment and has resulted in several drugs being approved by the FDA.

6. The Waxman Foundation has invested approximately $90 million in cancer research as government funding has steadily decreased over the years.

Only 8 percent of the National Institute of Health’s (NIH) approved research applications receive funding. However, the Waxman Foundation’s pivotal early investment in our researchers’ cutting-edge projects enables them to eventually secure financing from the NIH and advance the state of cancer research.
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The collaborating cancer researchers of the SWCRF are not content to leave seniors at a disadvantage in science’s quest for a cancer cure.

Inherent to the mission of the SWCRF is the goal of developing minimally toxic therapies for patients, which is particularly beneficial for the treatment of seniors living with cancer.

We invite you to join us in this important endeavor.

For more information about our Aging and Cancer initiative, contact:

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“A Remedy on the Horizon

“Cancer death incidence is increasing in the over-70 population while it’s decreasing in the younger population. This is due to a lifetime of acquisition of mutations and breakdown of epigenetic controls. Conventional cancer treatments are less well tolerated and clinical trials exclude seniors over a certain age. The SWCRF has the brain trust to be impactful in correcting this unmet clinical need.”

-- Samuel Waxman, M.D.
Founder & CEO
Samuel Waxman Cancer Research Foundation