



Lung Cancer Research Highlights

The American Cancer Society's Investment

The American Cancer Society (ACS) helps people with lung cancer in every community.

More men and women die from this type of cancer than any other. Our research program has played a role in many of today's prevention, screening, and treatment advances. And, we continue to fund research to help even more people in the future.

Cancer Facts & Figures

Our Surveillance and Health Services Research program analyzes data on lung cancer each year as part of their *Cancer Facts & Figures* publications. Key findings include:

- About 228,150 people will be diagnosed with lung cancer in 2019.
- People who smoke are about 25 times more likely to develop lung cancer than nonsmokers.
- Decreases in smoking have helped reduce lung cancer death rates in men by 48% and in women by 23% since 2002. Trends in cancer death rates are the best measure of progress against cancer. And the 4 most common types of cancer – lung, colorectal, breast, and prostate – have all had rapid declines.
- About 142,670 people will die from lung cancer in 2019. About 81% of deaths from lung cancer are still caused by smoking.

Evaluating Lung Cancer Screening

ACS staff researcher Robin Yarbrough, PhD, and her team evaluated administrative databases, surveys, and national registries and recently published their recommendations for improving the available sources of data needed to study low-dose helical computed tomography (LDCT) in the US.

They particularly want to boost data collection and its practices so they can study all aspects of LDCT, including:

- Assessment of eligibility for screening: Is it occurring with the right set of patients and is it being done correctly?
- Details about shared-decision making between doctors and patients, including discussions about harms and

benefits of yearly screening, referrals or delivery of smoking cessation counseling, and discussing barriers to screening

- False positives and false negatives
- Additional testing about abnormal LDCT screening results and adverse events
- Costs of screening
- Outcomes of screenings, including stage of disease at diagnosis and survival

Supporting Research for Non-tobacco Related Cancers

Smoking is by far the leading cause of lung cancer, but about 20% of people who die from lung cancer have never smoked or used other forms of tobacco, and some lung cancers occur in people without any known risk factors. Since the early 1990s, ACS has invested over \$134 million in lung cancer research, including over \$29 million for research specific to lung cancer not associated with smoking.

Lung Cancer Dream Team

ACS supported a \$20 million lung cancer research initiative with Stand Up to Cancer. This joint initiative supported the development of targeted and immunotherapy approaches that could improve the effectiveness of treatments for patients with mutations in the KRAS gene. This mutation is found in 20% to 25% of lung cancers. The studies were led by the Lung Cancer Dream Team – a group of some of the best lung cancer researchers and clinicians, including ACS Clinical Research Professor Pasi A. Jänne, MD, PhD, immunologists, and experts in KRAS gene mutations.

Research and Training Grants in Lung Cancer

ACS funds scientists who study cancer. We also fund professional training grants for nurses, social workers, and doctors to advance their education and experience in cancer research. We provide millions of dollars to multiple grants each year. Here are some examples of the research we fund.

Developing More Effective Targeted Therapies for EGFR Mutant Lung Cancers



Grantee: Pasi A. Jänne, MD, PhD

Institution: Dana-Farber Cancer Institute

Area of Focus: Drug Discovery

Term: 7/1/2017 to 6/30/2022

The Challenge: Epidermal growth factor receptor (EGFR) is a protein on the surface of cells. Normally, it helps cells grow and divide. Some non-small cell lung cancer (NSCLC) cells have a hyperactive EGFR, which makes the cancer cells grow faster. These gene mutations are more common in women, people who haven't smoked (or light smokers), and in Asians, especially people from China.

This type of cancer is hard to treat, but targeted therapies, also called precision therapies, work better than traditional chemotherapy. Drugs called EGFR inhibitors can block the signal from EGFR that tells the cells to grow. But within 1 to 2 years, the drugs stop working in almost all people with EGFR mutant lung cancer, meaning patients have developed drug resistance.

The Research: ACS Clinical Research Professor Jänne was one of the researchers who discovered EGFR mutations and has led the development of treatment strategies for patients with EGFR mutant lung cancers. Jänne and his team are developing and evaluating combination therapies to prevent or treat resistance to precision therapies. With his ACS grant, he is conducting preclinical studies in mice and clinical trials with lung cancer patients.

The Goal and Long-term Possibilities: Jänne hopes this research will help extend the lives of people with an EGFR mutant lung cancer and help scientists develop new targeted therapies for other types of lung cancer. He believes this work could improve the outcome for many people with lung cancer.

Yoga Programs May Improve Quality of Life for Couples Coping with Lung Cancer



Grantee: Kathrin Milbury, PhD

Institution: University of Texas MD Anderson Cancer Center in Houston

Area of Focus: Cancer Control and Prevention Research

Term: 1/1/2019 to 12/31/2022

The Challenge: People living with lung cancer may have symptoms like fatigue and depression. Their partners, who are often their caregivers, also report high rates of fatigue, disturbed sleep, depression, and anxiety. Support groups that recognize both partners are affected by lung cancer can help them improve their quality of life.

The Research: Previous studies by Milbury showed promising results for using yoga as a way to improve couples' symptoms and quality of life during the weeks of radiation treatment. Now she is doing a larger study with the support of an ACS grant.

Couples are randomly assigned to 1 of 3 groups: couples' yoga, patient-only yoga, or standard treatment. During 6 weeks of radiation treatment, those in the yoga groups receive 15, 1-hour sessions. All couples fill out reports on their symptoms and quality of life before being assigned to a group and will answer the questions again during the last week of radiation, and 1, 3, and 6 months after radiation is done.

The Goal and Long-term Possibilities: Milbury's team wants to see if taking yoga improves physical function and quality of life in lung cancer patients receiving radiation therapy. They also want to learn whether taking yoga with a partner helps more than doing yoga alone. The results have the potential to give lung cancer patients and their partners another way to boost their quality of life.

Thanks to the generous support of our donors, as of August 1, 2019, the American Cancer Society is funding:

83

GRANTS

Total Lung Cancer Grants

\$28

MILLION

Total Lung Cancer Grant Funding