

Lung cancer is a priority

The Janssen Pharmaceutical Companies of Johnson & Johnson and the Lung Cancer Initiative at Johnson & Johnson are taking on **THE WORLD'S MOST DEADLY CANCER.**

Once diagnosed, the five-year survival rate of those with lung cancer is small, less than 20% according to the World Health Organization (WHO).

In 2018, Johnson & Johnson committed to fighting the disease, launching the Lung Cancer Initiative (LCI), tasked with finding better ways to screen, prevent and intercept lung cancer, in partnership with collaborators around the world.

Early identification is vital, but lung cancer is particularly difficult to self-detect, says Mark Wildgust, PhD, vice president of Global Medical Affairs, Janssen Research & Development, LLC. Lung cancer's symptoms, such as a cough, chest pain, and reduced lung function, present late and can be overlooked. "Every year you might have a cold, flu, maybe asthma, so these are not symptoms that stand out," he explains. Currently, according to the National Cancer Institute, 57% of lung cancer patients in the US are diagnosed at a late stage, when the 5-year prognosis for survival is just over 5%.

The LCI is spearheaded by pulmonologist Avrum Spira, MD, MSc, who works with experts

from Johnson & Johnson's pharmaceutical, medical device and consumer health sectors, and alongside outside teams of cancer researchers globally.

One of the LCI's first projects studied a cohort of more than one thousand military personnel, veterans and civilians at high risk of lung cancer to investigate how different biomarkers can improve screening and early detection, and also to help develop therapeutics to arrest or eradicate the disease.

LUNG CANCER CONTINUES TO CAUSE MORE DEATHS THAN COLON, BREAST AND PROSTATE CANCERS COMBINED

Now, the LCI is establishing a pre-cancer genome atlas — a map of molecular and cellular changes that characterize the progression of pre-neoplastic lesions to invasive lung cancer. "The goal is find a way to identify patients early in the pre-malignant stage so that we can intervene," says Wildgust.



Unique lung cancer genes in Japan and China

Genomic research into lung cancer will have to take a global view, adds Wildgust. In Japan and China patients non-small-cell lung cancer, a common form, are significantly more likely to carry an associated mutation in the EGFR gene compared to patients in the United States and Europe, for example. The EGFR gene instructs the making of the epidermal growth factor receptor protein, which is involved in cell signalling pathways that control cell division and survival.

Japan is entering a new era in precision cancer

research after the government announced it would open the Center for Cancer Genomics and Advanced Therapeutics in December 2019. The centre will be a hub for whole genome sequencing, including 64,000 cancer cases, and aims to help illuminate why some ethnic groups have differing susceptibilities to lung cancer. Meanwhile, Janssen is already sponsoring clinical trials on targeted therapies for lung cancer patients with an EGFR mutation in Japan. "There is a huge unmet need in Japan," says Wildgust. "We are focused on new and novel approaches."

In addition, the reasons for increases in lung cancer

rates in some countries and not others, and particularly among women, whether genetic or environmental, need to be elucidated to better target treatments, says Wildgust. Roughly one third of lung cancer diagnoses occur in China, as well as 38% of global lung cancer deaths according to the WHO. "China is ground zero for the lung cancer epidemic," Wildgust points

out. As a result, Janssen has formed a broad collaboration network with key hospitals and academic centres in China, to obtain new insights and create new drug discovery programmes. The company hopes to set up similar networks in other countries.

Janssen is also looking for collaborators to harness Japanese diagnostic pathology and radiology databases to better understand the genomic

and molecular bases of early-stage lung lesions.

"We recognize that the best ideas don't come from one person, or one group, but from different types of companies and organizations," says Wildgust. "It will take collaboration to change the trajectory of this disease and make a fundamental difference in the lives of so many people."

It's also important to keep moving forward, he advises.

Figures from the WHO show there are more than 2 million people diagnosed with lung cancer each year and that the disease continues to cause more deaths than colon, breast and prostate cancers combined. "It is a huge burden on people around the globe.

We feel that with our expertise, and our commitment, we can make a fundamental difference working together," Wildgust says. ■



Mark Wildgust, vice president of Global Medical Affairs, Janssen Research & Development, LLC.



Reiko Akizuki, director of the Oncology Department at Janssen Japan, is seeking collaborators to use Japan's rich diagnostic pathology and radiology databases to better understand the genomic and molecular foundations of early stage lung lesions.

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