Transcript Details

This is a transcript of an educational program. Details about the program and additional media formats for the program are accessible by visiting: https://reachmd.com/programs/project-oncology/expanding-the-risk-profile-genetic-insights-into-lung-cancer-in-non-smokers/36565/

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Expanding the Risk Profile: Genetic Insights Into Lung Cancer in Non-Smokers

Announcer:
You're listening to *Project Oncology* on ReachMD. On this episode, Dr. Paola Marignani will discuss the future of small-cell RNA sequencing in lung cancer care, which she spoke about at the 2025 World Conference on Lung Cancer. Dr. Marignani is a Professor in the Department of Biochemistry and Molecular Biology at Dalhousie University in Halifax, Nova Scotia. Let's hear from her now.

Dr. Marignani:
When we think about lung cancer, often people believe it's smokers. And we know that there is cause and effect with smokers. Smokers often do develop lung cancer, and it's a specific type of mutation. They usually harbor KRAS mutations.

We now know that up to 25 percent of all the lung cancers—and the statistics for Canada and the U.S. are very similar for this—up to 25 percent are people who have never touched a cigarette in their life. And within this never-smoker lung cancer, only 10 percent of those cases are due to radon, up to eight percent are due to secondhand smoke, and up to 18 percent might be a genetic component. So in the rest of all these people who are getting lung cancer who have never touched a cigarette in their life, there has to be something else that is causing the cancer—some possibly environmental exposure. We don't actually know. This is what we need to find out.

But because of single-cell RNA seq coupled with machine learning, my lab has identified new gene variants in males and females that are very distinct for early-stage diagnostics, and we're able to actually mine all the databases around the world—not only lung cancer databases, but all the different types of cancers—to see if these new gene variants have been identified in any type of cancer out there. And because they're new and they've never been reported, there's also the potential for drug discovery. So are these variants unique to, let's say, early-stage lung cancer in female never-smokers or female smokers that are not found in males? Is there a drug or a small biological molecule that can be created to target those variants?

There's a pipeline to all of this work. We're not there yet, I don't believe. I think we're moving slowly towards it. But I do believe within the next ten years, there will be a partnership with the oncologists and the basic scientists, and in between will be the computational scientists who are facilitating this network of communication that has existed in the past and exists today, but the need for all of us to come together is even more pressing. It takes time, and it takes support to do that, but I think we're almost there.

Announcer:
That was Dr. Paola Marignani discussing what's next for small-cell RNA sequencing in lung cancer management, a topic she presented on at the 2025 World Conference on Lung Cancer. To access this and other episodes in our series, visit *Project Oncology* on ReachMD dot com, where you can Be Part of the Knowledge. Thanks for listening!