



## **Donor-Led Lung Cancer Research Makes Living With Lung Cancer A Reality Transcript**

Diane Mulligan:

Do you ever wonder if your donation to LCFA really makes a difference? Well, today on our Hope with Answers podcast, we are going to hear from a researcher whose very early studies in immunotherapy led not only to changes for lung cancer but also for all cancers. And that's all because of you. I'm Diane Mulligan.

Jordan Sherman:

And I'm Jordan Sherman. Also today we'll hear from a lung cancer patient directly benefiting from donor-led research. As a result, she's been living with lung cancer for more than 12 years.

Dr. Kellie Smith:

Research is a huge part of moving the ball forward in clinical discovery, and a lot of the amazing immunotherapy work that's been ongoing for the last 10 years is the result of basic science. So funding early-stage investigators allows us to really mark our spot in the field, really establish ourselves as independent investigators, and allows us to generate that preliminary data that can get us the bigger grants in the future.

Diane Mulligan:

Lung cancer is a tough topic. It's a disease that affects patients, families, friends, coworkers, but first, it's a disease that affects people. The Hope with Answers Living with Lung Cancer Podcast brings you stories about people living truly living with lung cancer, the researchers dedicated to finding new breakthrough treatments, and others who are working to bring hope into the lung cancer experience.

Jordan Sherman:

We are joined today by Dr. Kellie Smith, associate professor of oncology at the Bloomberg Kimmel Institute for Cancer Immunotherapy at Johns Hopkins.

Diane Mulligan:

Dr. Smith is the recipient of two Lung Cancer Foundation of America Young Investigator Grants, and her lab in Baltimore focuses on immunotherapies to help those living with lung cancer. Dr. Smith, thank you so much for joining us. Your current work thanks to donors and research grants could have a major impact on patients in early stage disease. Tell us more about what you're working on right now.

Dr. Kellie Smith:

It's actually a very exciting time for research in the early-stage lung cancer setting. Traditionally new therapies were only available for patients with advanced or metastatic disease, but now what we're

seeing is that newer treatments like immunotherapy are as of a year ago now approved as standard of care for the treatment of early-stage lung cancer as well. And what we're seeing is not only does this therapy make the tumor smaller to enable a higher likelihood of surgery and surgical resection of the tumor, but it's also allowing these patients to live longer without disease after their surgery as well.

Jordan Sherman:

Dr. Smith, your first research grant from LCFA focused on immunotherapy for patients with advanced non-small cell lung cancer, but it's a great example of how donors and research grants can have a really powerful impact on medicine as a whole. What you learned from that research really blew the doors wide open for all cancer research. Can you tell us a little bit more about that?

Dr. Kellie Smith:

Research is a huge part of moving the ball forward in clinical discovery and a lot of the amazing immunotherapy work that's been ongoing for the last 10 years is the result of basic science. And one of the examples of this is after the initial successes of PD one blockade and lung cancer and melanoma in the early clinical trials, correlative science into colorectal cancer found that a subset of those that have mismatch repair deficiency respond very well to immunotherapy. Whereas tumors that colorectal tumors that don't have this genetic marker don't respond very well. So this was a strictly lab-based study that identified this mismatch repair deficiency as a biomarker for response. And now as of I think three or four years ago, the F D A approved PD one blockade for the treatment of mismatch repair deficient cancers. So this is just a nice example of how the initial clinical studies led to correlative science and basic science, which then led to additional F D A approvals.

Diane Mulligan:

That is fantastic, and it's wonderful to see how what you are doing and the grant research that you started with has really impacted probably tens if not hundreds of thousands of people. That's just amazing. Of course, we're talking about immunotherapy, immunotherapy where the body basically recognizes the cancer and then goes to fight it. Another word we used a little while ago was metastatic, and that's where the cancer actually goes to different parts of the body from where it originally started. Is that right? Am I putting that right?

Dr. Kellie Smith:

That's correct. Okay.

Diane Mulligan:

So is it fair to say that research really led to the immunotherapy and then led to better management of the other cancers? Do you think that's a fair statement?

Dr. Kellie Smith:

I think that is a fair statement. Obviously it's not linear, so there's a lot of things that happened on this road. There's a lot of side roads, there's a lot of dead end roads, there's a lot of bypasses. But basically that's what happened is initial laboratory-based studies led to the first clinical trials in humans. We saw a



positive signal in the clinic, and then by doing additional lab-based studies on the biospecimens from those trials we're able to then extend the findings to other patients and other cancer types.

Jordan Sherman:

Dr. Smith, it is crazy to think that it really wasn't that long ago that the community looked at lung cancer as one disease. And we know now that with all of the different research that's been ongoing over the years, we understand that there are a number of different types of lung cancer. So research has continued to lead to a better understanding of these different subsets of lung cancer and more focused treatments, hasn't it?

Dr. Kellie Smith:

That's absolutely right. And one would think that the initial appreciation of that fact would actually be kind of scary because instead of lung cancer, you now have a cancer for every single individual who comes into your clinic. So instead of one type of cancer, you have potentially millions of types of cancer essentially. But what that has allowed us to do is start to bucket these tumor types according to different genetic and immunologic features that allow us to develop more targeted therapies that are specific for the patient's own tumor. So instead of giving a patient chemotherapy where we know they have a tumor type that is not going to respond very well to that, we can now develop better and less toxic treatments that are going to be specifically tailored for that patient's tumor.

Diane Mulligan:

So we're very excited about this personalized medicine approach, which really can make the quality of life for patients so much better. You first started studying immunotherapy and people who had non-small cell lung cancer who were smokers, and now you're studying it in never smokers. And a lot of people, it's surprising to them that people who have never smoked can get lung cancer. But what I want you to do, if you would explain how funding for research has helped create these more targeted and effective treatments for patients.

Dr. Kellie Smith:

This is a great point, and it goes back to the previous question about every patient's lung cancer is unique and not every lung cancer is going to be the result of smoking. And this is just a simple fact that we as a community and as humans living in the world, we need to better appreciate and better understand. And specifically funding for basic science research has allowed us to make this distinction. So not only is within patients with a history of smoking are all of their tumors different, but tumors from patients without a history of smoking are very, very distinct in terms of their genetics, their immunology, everything is completely different. So allowing us to make this distinction is helping us to better tailor the therapies to tumors that might not respond as well to immunotherapy like in the case of the patients who have never smoked or tailor them to patients with a history of smoking where they have a better chance of responding to immunotherapy.

Jordan Sherman:



Now, when you think of somebody being diagnosed with cancer, the first thing that I'm sure they think of is, oh my gosh, I need to get chemotherapy. Those two are kind of synonymous with one another and it does have its place with lung cancer treatment, but what I hear you saying is immunotherapy is kind of the smarter treatment, and we have research to thank for that.

Dr. Kellie Smith:

That's absolutely right. But I don't want to poo poo chemotherapy. Immunotherapy as a T-cell immunologist, I do want to say is smarter, but the approvals now, especially for lung cancer are for immunotherapy and chemotherapy combined. And when the pharma companies first started doing these clinical trials about 10 years ago, me, and if you would've asked 10 immunologists, 10 out of 10 would've said, this is a crazy idea. Why would you give someone a cytotoxic chemotherapy when you're trying to boost their immune system to kill tumor cells? I thought it was crazy, but I was wrong pleasantly, I'm happy to be wrong. There actually is a synergistic effect of chemotherapy and immunotherapy right now. We have no understanding of why that is. So that's also one of the goals of my research is to understand why there is this synergy when you wouldn't expect there to be.

Diane Mulligan:

No, I can tell how enthusiastic you are about all of this, and I think for the people that are listening, it's though the donor dollars, which really made the difference in getting everything started because lung cancer just doesn't get the same funding as most of the major cancers, even though lung cancer is the most deadly cancer out there. So we have a lot to be excited about. There've been so many breakthroughs in the past 10 years. What do you think is coming? What are you excited about when you think about what's next in research for lung cancer?

Dr. Kellie Smith:

Yeah, one thing I want to reiterate to your point is lung cancer kills more people than breast, colorectal and prostate cancers combined, yet it only receives 6% of federal research dollars dedicated to cancer research, 6%. So it is a significant public health problem and it's a significantly underfunded problem. But the positive here is that through my grant with L C F A, which was \$200,000, I've received two grants. So each one was \$200,000, but for the first one I received, I've been able to leverage that into over \$5 million of funding. So funding early stage investigators allows us to really mark our spot in the field, really establish ourselves as independent investigators and allows us to generate that preliminary data that can get us the bigger grants in the future. So I think that's really an important thing that L C F A does, and I think moving forward, the future really is the early stage investigators and really investing in them to make these big clinically relevant discoveries.

Diane Mulligan:

Well, we can't wait to see what you do next. Thank you so much.

Dr. Kellie Smith:

Thank you so much for having me.



Diane Mulligan:

We can easily see how research grants attract the top investigators to help us in the battle against lung cancer, and the result is tremendous advances in lung cancer care.

Jordan Sherman:

It's incredible to see that the research has a very direct impact on people living with lung cancer. Just like our next guest, she's a tireless advocate for lung cancer research and a true inspiration for others. Lung Cancer Foundation of America's Speaker Bureau member Lysa Buonanno.

Diane Mulligan:

Lysa, thank you so much for joining us. You've celebrated 11 years of living with lung cancer, but we've often heard you say that you celebrate the researchers. So tell us what you mean by that.

Lysa Buonanno:

Absolutely. I mean, research is why I'm still here. I have a very rare form of lung cancer. It's driven by the ROS1 mutation, and when I was diagnosed, there weren't any drugs that were F D A approved for it at the time, and now there's two and there's several more in trials, and that's all because of these amazing researchers, and I'm so thankful for them that dedicate their life to this work.

Jordan Sherman:

Now, this is an incredible stat here, but Lisa, statistically, you had a 2% chance of living five years when you were first diagnosed, so it's not too far fetched to say that advancements in research have helped save your life.

Lysa Buonanno:

Oh, they absolutely have. And like I said, with the new treatments that are around now, I have options now that weren't available even five years ago. They weren't available. So research is most definitely the reason that I'm still alive today.

Diane Mulligan:

It's so interesting because as you know better than anybody, cancer is just smart and unfortunately, so many cancer treatments don't stay effective forever, and these cancers, they come back, they find a new way to attack your body. And so you are essentially waiting for the next advancement in research to really help you in this battle that you're waging against lung cancer. What does it mean to you when you hear that someone was willing to donate to lung cancer research?

Lysa Buonanno:

I think really, we all know that federal dollars for lung cancer research are pretty low. So we really depend on these private dollars. It doesn't matter how much money people are able to donate, the fact that they're willing to donate and care about this cause because lung cancer will affect somebody in your lifetime. So I think it inspires me and gives me hope that because people care and because people are



investing that the research can continue. And like you said, our disease, I mean, cancer becomes so smart and works its way around these diseases. So at this time, we will always need another drug and another new treatment. And that's where I'm at right now actually as looking into my next treatment. And we need those dollars to be able to keep having that research.

Jordan Sherman:

Yeah, I mean research, it's the common phrase here. We've heard on this podcast. It's just so important. Do you see a possibility that lung cancers maybe converted into a chronic disease or maybe even cured in the near future thanks to research?

Lysa Buonanno:

Well, I think we already are seeing it as a more chronic illness. Excuse me. In 11 and a half years I've been living with this disease, and I was diagnosed at stage four and at advanced stage. So when I was diagnosed, you said those statistics, it was a very slim chance. Unfortunately, the majority of people weren't living past their first year of diagnosis, so I'm proof and so many thousands of others like me because of these new treatments, we are living longer and more for fulfilling lives too. I mean, I'm still very active and able to enjoy my life. I'm not just kind of sick with cancer, and it's really been amazing the treatments that they've come up with the last few years.

Diane Mulligan:

If anybody watches your Instagram or your TikTok, they see how full of life you are. It is so much fun. I'm wondering though, you put your cancer journey on TikTok when you first started and you had an amazing response. Did that surprise you?

Lysa Buonanno:

It did. Actually. I didn't know a lot about TikTok. My seven-year-old niece was on it, so I thought it was a kid thing, but it's actually, there's a lot of great info on there and so many amazing creative content creators, and I really just thought maybe this is one more way to get my story out there. One more way to give somebody else hope or inspiration that's going through the same thing that I am. And I have followers that are from the lung cancer community, but also I connect with survivors of all different types of cancer on there, and we share our experiences and support each other, and it's really been another great outlet for me to be able to hopefully let other people know that you're not alone

Jordan Sherman:

And you do such a great job at telling your story. We always talk about this concept of living with lung cancer, and you do such an incredible job doing that, Lisa, and these are stories that even five years ago would've been a little bit more few and far between. Is that why you're working so hard as an advocate for lung cancer research?

Lysa Buonanno:

Absolutely. I really want to, like I said, I want to give others hope. It's such a horrible, devastating thing to hear that you have cancer, right? Any type of cancer, and especially if you have lung cancer, which is the



most deadly, you feel alone. You feel isolated. I really just want to give other people hope that we can still live a full life. And that's really what I do post the sadder sides, the harder days. I do have hard days. I have been on chemo for five years now, and not every day is easy, so I share that as well. But I try to really show living and what I get to do and enjoy my life because of what research has given me.

Diane Mulligan:

You are the personification of hope. It's absolutely true. And I know you speak at conferences, you meet with congressional leaders and you're interviewed by the media all the time. What is the one thing that you want to tell anyone who is considering donating to lung cancer research?

Lysa Buonanno:

I guess please don't ever think any donation is too small. I don't care if it's a thousand dollars or \$20. As a collective and as a community, those dollars matter and they all add up, and they are just helping to fuel future research, and that is helping to extend lives like mine and so many others.

Diane Mulligan:

I don't think we could have put it better. Thank you so much for chatting with us today. It's always such a joy every time we get to talk to you.

Lysa Buonanno:

Well, thank you. It's always my pleasure.

Diane Mulligan:

I love visiting with Lisa Bonano. She is such an inspiration and an example of someone who is thriving while living with lung cancer. Thanks to donor-generated research,

Jordan Sherman:

Lisa has provided so much hope for others living with lung cancer, Diane, in the research hurdles that Dr. Kellie Smith has overcome. Thanks to those research grants, it's truly remarkable.

Diane Mulligan:

And if you're enjoying the Hope with Answers Living with Lung Cancer Podcast, consider donating to help LCFA produce this resource for patients or anyone seeking answers, hope and access to updated treatment information, scientific investigation and clinical trials. Just text LCFA to 4 1 4 4 4 to join in this critical fight.

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