

fresh air

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LUNGEVITY'S MISSION

LUNGEvity Foundation is firmly committed to making an immediate impact on increasing quality of life and survivorship of people with lung cancer by accelerating research into early detection and more effective treatments, as well as by providing community, support, and education for all those affected by the disease.

Accelerating Research into Finding Lung Cancer Earlier and Treating It More Effectively

LUNGEvity Foundation is pleased to announce the winners of our 2015 Research Awards. At this time of unprecedented progress in lung cancer research, these projects have been chosen as this year's award recipients for their potential to accelerate impact in our areas of focus—early detection and personalized treatments.

These exciting projects focus on four unmet needs in lung cancer:

1. Detecting lung cancer early by using new non-invasive technologies
2. Developing more effective therapies for lung cancer driven by a KRAS mutation, which had long been considered "undruggable"
3. Making the exciting new treatment immunotherapy an effective option for more patients
4. Being better able to predict whether a lung cancer patient will benefit from specific treatments

Read more about these exciting new projects and the brilliant scientists across the country focused on finding solutions to these key lung cancer challenges on page 5.

Can't Attend a Breathe Deep Event? Participate in Our New Virtual Walk

November is Lung Cancer Awareness Month, and this year LUNGEvity is extending its reach to new communities by hosting the first Breathe Deep Virtual Walk. The Virtual Walk offers a chance to raise funds and awareness for lung cancer and LUNGEvity.

Now, everyone who wants to can participate in a Breathe Deep event. "We have volunteers from around the country who are interested in supporting LUNGEvity but don't yet have walks in their neighborhoods or the resources to start one themselves. The Breathe Deep Virtual Walk gives them an opportunity to participate and make a difference," explains Diana Aldecoa, Vice President of Breathe Deep Events.

The Breathe Deep Virtual Walk is scheduled for November 21, 2015. You can walk in your community at any time, location, or distance. If you choose not to walk you can still participate by raising funds and awareness. Raise funds between now and November 21 and you'll be eligible for exciting incentive prizes!

Through this event, LUNGEvity hopes to connect with and engage new participants across the country to raise awareness about lung cancer and LUNGEvity's research, education, and support programs. The second Breathe Deep Virtual Walk will be held in May during Lung Cancer Hope Month.



Fall is a special time for LUNGevity as we engage the lung cancer community through special events and activities. It's also a time for us to celebrate the exciting progress in research and treatment as we announce our research awardees.

LUNGevity is continuing to fund impactful research through our Translational and Career Development Awards programs. Our grant recipients are working to find lung cancer at its earliest, most treatable stage, and to identify new treatment options for patients.

We're kicking off our biggest event season to date. The first ever Breathe Deep Virtual Walk will allow new communities to raise research funds and awareness. Our galas bring business leaders and philanthropists together to celebrate new hope for lung cancer patients, made possible by investments in life-saving science.

We hope you will join us this November to commemorate Lung Cancer Awareness Month by showing your support and raising awareness of lung cancer.

Thank you to all of our donors and volunteers who make it possible for LUNGevity to carry out its mission of creating a world where no one dies of lung cancer. As always, we are grateful for your continued support and wish you happiness and good health.

Andrea Ferris



Be an Advocate This Lung Cancer Awareness Month

Although we act as advocates on behalf of those living with lung cancer throughout the year, November's Lung Cancer Awareness Month offers an opportunity for us to raise awareness about lung cancer through special activities all month long. It's a time for members of the lung cancer community to come together to deliver a message to America about the needs of those facing this disease.

LUNGevity has a month full of activities and great opportunities for members of the community to join us:

- **Attend or volunteer at an event near you.** LUNGevity is hosting Breathe Deep and special events in cities across the country throughout November. If you can't attend an event, sign up for our Breathe Deep Virtual Walk and support this important cause! See the back cover for a complete listing of our events.
- **Share information** from our fact sheets, press releases, and blogs.
- **Be a lung cancer advocate.** Visit the LUNGevity website (www.LUNGevity.org) to download our Advocacy Toolkit, and order our free materials to distribute in your community.
- **Raise awareness by sharing our social media postings,** videos, and links with your network. You can follow us on Facebook, Twitter, Pinterest, or Instagram. Every time you repost, you help grow the lung cancer community.
- **Create your own event!** Visit the Events page on the LUNGevity website for more information, or email Beth Ida Stern, VP of Volunteer Community Engagement, at bstern@LUNGevity.org.

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5th Annual National HOPE Summit Celebrates Research Progress

A Record-Breaking Number of Survivors and Caregivers Attend Conference in Washington, DC



LUNGeVity's 2015 National HOPE Summit drew over 250 survivors, caregivers, and medical professionals who celebrated the progress of lung cancer research and survivorship and learned about the latest research and clinical trials as well as living with the disease. This conference marked the largest gathering of lung cancer survivors to date (1).

In 2011, LUNGeVity hosted the first National HOPE Summit in Washington, DC, for 12 survivors. This year, more than 150 survivors attended to network with each other (2) and participate in educational sessions. The conference featured medical expert panels and inspirational speakers, all of whom were highly optimistic about the hope and promise of science.

Ambassador Nancy Brinker, the founder of Susan G. Komen (4), gave the keynote address, declaring that with so many tremendous strides in research, now is one of the most exciting times for organizations like LUNGeVity. Brinker added that progress in one area of cancer research can translate to others and spark new ideas.

Subjects for educational sessions were focused on addressing unmet needs identified by patients and

caregivers. Topics included research, clinical trials, thoracic surgery, caregiving, nutrition, palliative care, and becoming an empowered advocate through story sharing (3). Presenters included John Poirier, PhD, and Patrick Forde, MD, who have each received LUNGeVity research awards, and Raja Flores, MD, of Mt. Sinai Hospital.

Chris Draft, former NFL linebacker and co-founder of Team Draft (4), gave energetic closing remarks, sharing stories of advocacy and building awareness for lung cancer.

Now in its fifth year, the HOPE Summit program has expanded to include both the national summit and regional summits across the country.

advances

Highlights of the 2015 World Conference on Lung Cancer

The 16th Annual World Conference on Lung Cancer (WCLC) was held in Denver in September. The largest international meeting on lung cancer—more than 7,000 attendees from 100 countries presented their work at this year’s meeting—WCLC showcases scientific progress being made.

Highlights of the conference included progress in finding lung cancer sooner and the surge in studying different treatment approaches. LUNGevity was strongly represented: 12 members of the Foundation’s Scientific Advisory Board and 37 awardees presented their research at this meeting. Many of these awardees presented findings informed by grants funded by LUNGevity.

Select Highlights include:

Early detection and screening continue to advance. The National Lung Screening Trial results published in 2010 showed that low-dose spiral CT can help reduce deaths from lung cancer when used as part of a screening program in a high-risk population. To complement CT—which is great at showing that there is something in the lungs, but not at telling what it is—scientists are developing technologies to detect biomarkers of lung cancer in sputum and blood. Such technologies will help doctors tell the difference between cancerous and benign nodules that are detected by CT. One such technology is the CA-FISH test being developed by **LUNGevity Early Detection awardee Dr. York Miller** and his colleagues. The CA-FISH test detects changes in the chromosomes of early-stage cancer cells found in sputum. It can complement CT-assisted detection of lung cancer in people who have lung nodules. Other biomarkers under investigation for early detection and diagnosis of lung cancer are microRNAs and antibodies in the blood of lung cancer patients.

Chemotherapy continues to be the first line of treatment in many advanced-stage lung cancers. Doctors are now studying

how to make it more effective—by combining it with targeted therapy or immunotherapy in order to attack lung cancer cells in multiple ways.

Targeted Therapies continue to evolve as researchers develop treatments for new targets and improve the effectiveness of ALK and EGFR inhibitors. At this meeting, **LUNGevity awardees Drs. Paul Paik and Matthew Meyerson** were among those who presented data on new druggable targets, an area in which they had been funded by LUNGevity. Targets discussed included MET, RET, FGFR, ROS1, and NRTK1, genes that may be mutated in NSCLC.

Results were also presented on the third-generation EGFR and ALK inhibitors. These new drugs seem to work well for patients whose ALK- or EGFR-positive lung cancer has become resistant to their previous targeted therapies. Assessing how a patient is responding to these drugs is equally important. **Dr. Lecia Sequist, LUNGevity awardee and Scientific Advisory Board member**, discussed developments in testing blood or urine to determine whether patients are responding to EGFR inhibitors or if they are developing resistance to the drugs. The “liquid biopsy” technology is also useful in monitoring patients on ALK inhibitors. These new tools could help determine whether new treatment is necessary without resorting to an additional surgical biopsy.

Immunotherapy continues to be the newest promising treatment for lung cancer. At the meeting, **LUNGevity awardees Drs. Patrick Forde and Scott Antonia** discussed how recent long-term studies

with immune checkpoint inhibitors show that they are extremely effective in squamous cell lung cancer patients. New data from adenocarcinoma patients suggests that immunotherapy is beneficial to adenocarcinoma patients as well. Scientists also presented research to determine which patients benefit the most from immunotherapy. Patients whose lung cancers make a protein called PD-L1 are good candidates for immune checkpoint inhibitors. However, some PD-L1 negative patients seem to benefit from these drugs, too. Immune checkpoint inhibitors are currently the most advanced type of immunotherapy, with one drug already approved. **LUNGevity awardee Dr. Prasad Adusumilli** presented innovative research on other types of immunotherapy such as CAR-T cell-based approaches, in which a patient’s own immune cells are removed, “taught” to recognize the cancer, and put back inside the body.

Therapies for small cell lung cancer (SCLC), which affects 15% of lung cancer patients, have lagged behind those for the more common non-small cell lung cancer. Chemotherapy is still the first and only line of treatment for this aggressive disease. Yet, recent research has identified new targets such as the PARP protein, which is produced by SCLC cells in large amounts. **LUNGevity awardee Dr. Lauren Byers** presented exciting findings showing that new PARP inhibitors such as veliparib and talazoparib work well in combination with chemotherapy for SCLC patients. Immunotherapy using checkpoint inhibitors such as pembrolizumab and nivolumab is also being considered for SCLC.

Accelerating Research: 2015 LUNGeVity Research Awards continued from page 1

LUNGeVity's Career Development Awards recognize outstanding early-career researchers and encourage their continued pursuit of innovative work in the field of lung cancer research. These awardees receive \$100,000 per year for three years, renewable in the second and third years based on progress made. They also serve as non-voting members of LUNGeVity's prestigious Scientific Advisory Board for the term of their award.

The promising early-career scientists who were given **2015 LUNGeVity Career Development Awards** are focusing on finding lung cancer at its earliest stages and developing more effective treatment approaches.



Detecting Early Stage Lung Cancer with Circulating Tumor Cells

Rajan Kulkarni, MD, PhD
UCLA Medical Center

Dr. Kulkarni is studying how circulating tumor cells (cancer cells that are released into the bloodstream) can be used to develop a blood test for lung cancer early detection and treatment. Funding from LUNGeVity will help him use a novel technology called the Vortex Chip to test whether 1) lung cancer can be detected early by identifying circulating tumor cells in the blood, and 2) there are biomarkers in circulating tumor cells that can differentiate patients who will respond to immunotherapy or chemotherapy.

Exploring the Therapeutic Potential of Novel KRAS Inhibitors in Lung Cancer

Piro Lito, MD, PhD
Memorial Sloan Kettering Cancer Center

Dr. Lito is working with a new drug that works efficiently to stop the growth of lung cancer cells with a mutation in the KRAS gene. Funding from LUNGeVity will provide resources to test the drug in mice that have KRAS-positive lung cancer. Dr. Lito's ultimate aim is to develop a clinical trial for the drug for use in patients who test positive for a KRAS mutation.



Dissecting Novel Mechanisms of Lung Cancer Pathogenesis

Kathryn O'Donnell, PhD
UT Southwestern Medical Center

Dr. O'Donnell has discovered that lung cancer cells make a protein called PCDH7 that is present on the surface of cancer cells, where it may be accessible to therapies. In cooperation with the KRAS protein, the PCDH7 protein relays signals from outside the cell to make cancer cells grow faster. She is studying the function of the PCDH7 protein and developing strategies to reduce its effect on the KRAS pathway.

The **2015 Translational Awards program**, which includes Early Detection and Targeted Therapeutics grants, also funds impactful research that finds lung cancer earlier and treats it more effectively, thereby improving patient outcomes in the near term. Each of this year's grants is in the amount of \$600,000 over the three-year award term, renewable in the second and third years based on progress made.

LUNGeVity's 2015 Early Detection awardees are using a novel technology to develop a low-cost, two-tiered screening approach. Such a two-step approach has already proven highly successful in cervical cancer, reducing mortality there by 90%.

Lung Screening via Biophotonic Analysis of Nanoarchitecture of Buccal Cells

Vadim Backman, PhD
Northwestern University
Ankit Bharat, MBBS
Northwestern University



Cells in the respiratory tract are usually stacked in an orderly fashion. As lung cancer develops, the cells get "un-stacked" and their shapes change, giving them the ability to grow and spread to other parts of the body. Drs. Backman and Bharat are using a new technology called Partial Wave Spectroscopy for seeing those cells. With the LUNGeVity Early Detection Award, they will check how cells taken from the cheeks of Stage I lung cancer patients reflect these early changes, with the ultimate goal of using Partial Wave Spectroscopy technology for early detection of lung cancer.

LUNGeVity's 2015 Targeted Therapeutics awardees are studying how to make immunotherapy more effective for non-small cell lung cancer patients

Axl as a Target to Reverse EMT, Treatment Resistance and Immunosuppression

Lauren Averett Byers, MD
University of Texas MD Anderson Cancer Center
Don Gibbons, Jr., MD, PhD
University of Texas MD Anderson Cancer Center



Drs. Byers and Gibbons have discovered that lung cancer cells acquire the ability to hide from the immune system during epithelial-to-mesenchymal transition—a process through which cancer cells develop the ability to spread to other parts of the body (metastasis). The LUNGeVity award will help Drs. Byers and Gibbons study the effect of a new drug that can reverse the EMT process and make lung cancer cells more visible to the immune system.

Congratulations to our 2015 awardees! Our deepest thanks to all the donors who have made these vital investments in a better future possible, and to our distinguished scientific advisors for their guidance in selecting from a very competitive group of applicants.

LUNGeVity's Scientific Research Program is supported by the American Lung Association, Bristol-Myers Squibb, Genentech, a Janssen Research & Development Program Award, Upstage Lung Cancer, and individual donors.

New Online Resources for Lung Cancer Caregivers

LUNgevity and Celgene Team Up to Address Unmet Need

Caregivers too often neglect their own needs and well-being. To support this underserved group, LUNgevity and global biopharmaceutical company Celgene Corporation collaborated to develop “Your Journey Together,” an online resource focused on the specific needs of lung cancer caregivers.

A series of videos, tip sheets, and other resources provide ways caregivers can best transition into their new roles, take care of themselves, and connect with others on the same challenging journey. In addition, a monthly live tweet conversation at #LCCaregiver will be open to caregivers across the nation for a Q&A.

“At LUNgevity, we are focused on supporting anyone affected by lung cancer, both survivors and the friends and family members who are active participants in their loved one’s diagnosis and treatment,” said Andrea Ferris, president of LUNgevity Foundation. “We’re grateful to work with Celgene on addressing this unmet need in the lung cancer community.”

The Caregiver Resource Center and new “Your Journey Together” materials can be found at www.LUNgevity.org/caregiver.

#GivingTuesday

First, there was Black Friday. Then came Cyber Monday. And now, #GivingTuesday! Please mark your calendars for Tuesday, December 1, when LUNgevity Foundation joins this global day of giving that kicks off the charitable season. #GivingTuesday celebrates and supports giving and philanthropy during the season when many of our generous donors focus on their holiday and end-of-year giving.

Visit www.LUNgevity.org on Tuesday, December 1, to make your donation!

CAREGIVER PROFILE:

Paula Ashton

Mother and Caregiver of Lysa Buonanno

Reflecting on when Lysa was first diagnosed, what was your initial reaction?

It was just utter shock and fear of the unknown. Lysa was diagnosed with Stage IV adenocarcinoma that had spread to her bones and throughout her body. When I heard those words, I thought it was a death sentence. Now that we’ve learned so much through LUNgevity, it gives you hope because there have been great strides in treatment.

How did you become involved with LUNgevity?

Lysa attended HOPE Summit in 2013 and came home very excited to have met so many survivors. It was awesome for her to see so many survivors in one room. I attended with her in 2014 and 2015.

What has being a caregiver taught you about yourself?

You realize how strong you are and that you do what you have to do to get through each day. It puts your life into perspective and you realize what’s important.



Paula (right) with her daughter Lysa at the 2015 National HOPE Summit.

What has being a caregiver taught you about Lysa?

Lysa has always been very focused and determined. When she does something, she’s all in. I see that she really has the heart to serve and to help other people. I’m so proud of how she’s out speaking at events and raising awareness. She even started a lung cancer support group in Las Vegas.

What does it mean to you to “live well” with lung cancer?

I really believe that lung cancer will become a managed disease in the future. For those who are on targeted therapy drugs, like Lysa, it almost is.

What advice do you have for other caregivers?

Patients and caregivers have to be their own advocates. You have to do your own research. And you learn so much about treatment from meeting other survivors at HOPE Summit. It’s a tough journey. It’s an emotional roller coaster. But there is hope.

LUNgevity’s website provides comprehensive, medically-vetted information on lung cancer for anyone impacted by the disease.

Why I Give

An interview with
Earl W. Stafford, CEO,
The Wentworth Group, LLC



Q: You're co-chairing the 2015 Musical Celebration of Hope Gala in DC. How did you first get involved with LUNGeVity?

Earl Stafford: I became more aware of how devastating lung cancer was after a friend passed. Speaking with the family, I found out how widespread lung cancer is—many people aren't aware. I thought it was a worthy cause.

Q: If you were asking for a friend's support, what would you tell them about the organization?

Earl Stafford: I would say that LUNGeVity is focused on funding meaningful research that can one day lead to a cure for lung cancer and on improving the quality of life of those affected by it.

Q: What do you believe would most transform the lung cancer community?

Earl Stafford: Other than finding a cure, making people aware of how widespread and underfunded lung cancer is. Advances have been made, but more funding would rapidly move us towards a cure.

Q: What is your philosophy of philanthropic giving?

Earl Stafford: "To whom much is given, much will be required." We must help those who are helpless, who are sick and are crying out for help. It's not just a responsibility, it's an obligation.

Q: How has being a longtime supporter of charitable causes affected your life?

Earl Stafford: At the Stafford Foundation, we have a saying: "Doing good feels good." The more you give, the more you receive. It has enriched my life, and made me aware of those around me who need help, who heretofore had been overlooked by me.

Q: Any closing thoughts?

Earl Stafford: The more I learn about lung cancer, the more inspired I am to help. We intend to be long-term friends of LUNGeVity.



LUNGeVity Kicks Off Biggest Event Season Yet

This fall, LUNGeVity kicked off the largest event season in the Foundation's history. Runners, walkers, and gala attendees nationwide will suit up in active or black tie attire and join in the wide array of exciting, awareness-raising activities that support LUNGeVity's lung cancer community and critical lung cancer research.

"LUNGeVity is grateful for all the volunteers and participants who support our efforts in changing outcomes for people diagnosed with lung cancer," said Andrea Ferris, president of LUNGeVity Foundation. "Adding new events across the country will further increase awareness of the disease and engage more people in fundraising efforts that directly affect the research progress our survivors depend on."

To find a LUNGeVity event in your area, see the event listing on the back cover.



We're proud to be good stewards of your donations, and to be recognized by Charity Navigator with a 4-star rating.



Walk, run, golf, and celebrate with us this year as we build awareness about lung cancer across the country. LUNgevity's 2015 events are under way from coast to coast!



JOIN US AT THESE LUNGEVITY FALL EVENTS

September 27	Breathe Deep Lake Arlington	Lake Arlington, IL
October 4	Breathe Deep Springfield	Springfield, IL
October 4	Pauline Moracco-Arredondo Lung Cancer Walk	Chicago, IL
October 11	BOA Chicago Marathon	Chicago, IL
October 18	Breathe Deep Baltimore	Baltimore, MD
October 25	Breathe Deep Phoenix	Phoenix, AZ
October 31	Breathe Deep Boston	Boston, MA
October 31	Breathe Deep South Jersey	Pennsauken, NJ
October 31	Breathe Deep St. Louis	Michigan Falls, MO
October 31	Breathe Deep Fayetteville	Fayetteville, AR
November 1	Breathe Deep DC	Washington, DC
November 1	Breathe Deep Kansas City	Kansas City, MO
November 1	Breathe Deep DFW	Dallas, TX
November 7	Breathe Deep San Diego	San Diego, CA
November 7	Breathe Deep Atlanta	Atlanta, GA
November 7	Breathe Deep NYC	New York, NY
November 14	Breathe Deep Busse Woods	Busse Woods, IL
November 14	Breathe Deep Tucson	Tucson, AZ
November 14	Breathe Deep Seattle Awareness Event	Seattle, WA
November 21	Breathe Deep Nashville	Nashville, TN
November 21	Breathe Deep Virtual Walk	Location of your choice

For additional information about events near you, visit www.LUNgevity.org/events



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