

## Featured News

# Why is Philadelphia called the Cellicon Valley?

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Bruce Levine, PhD. Photo credit: Ed Cunicelli Photographer Inc.

You've probably heard of "Silicon Valley" in California. But did you know that the Philadelphia region is the home of "Cellicon Valley"?

[Bruce Levine, PhD](#), a scientist in Penn's [Center for Cellular Immunotherapies](#), is credited with coining the term, which refers to cell therapy, a type of medicine that treats patients by engineering their own immune cells to fight cancer. In 2010, a team that included Levine, [Carl June, MD](#), [David Porter, MD](#), and Children's Hospital of Philadelphia (CHOP)'s [Stephan Grupp, MD, PhD](#), brought the [first CAR T cell therapy](#) to clinical trials. Fifteen years later, tens of thousands of patients around the globe have benefitted from the cell therapy research that started here, and researchers worldwide are now working to expand the impact even further.

We sat down with Levine to learn more about what "Cellicon Valley" represents and why it's such a fitting name for Philly.

## Why has cell and gene therapy flourished at Penn?

I was part of the research team that came with Carl June to Philadelphia when he was recruited to Penn in 1999. We arrived and found the physicians here—including David Porter, MD, Steve Schuster, MD, Ed Stadtmauer, MD, and Steve Grupp, MD, PhD—were highly receptive to cell therapy.

Everyone has to buy in for this type of work to succeed. We had the ability to translate the research from bench to the bedside because we had across-the-board support and enthusiasm from the clinicians, the department leaders, the Abramson Cancer Center, and the University of Pennsylvania Health System for developing these technologies and bringing them to patients.

You need the research labs to work with the translational manufacturing labs. You need those to be able to work with the correlative studies and biomarker labs. You need those to be able to work with the clinical program. Everyone needs to work together. Having a fully integrated medical system embedded within the University of Pennsylvania, with all 12 schools geographically co-located, there's an underlying spirit of collegiality here. I'm not surprised that so many people—including the key team who brought those first CAR T cell therapy clinical trials to life—are still here 25 years later, still moving cell therapy forward.

## How did you come up with the term “Cellicon Valley”?



Levine with Emily Whitehead at CHOP in 2012.

Back in 2012, when we started our second CAR T cell therapy clinical trial—the first in kids—I asked Steve Grupp, our pediatric oncology partner at CHOP, if it would be OK for me to come over during an infusion and meet the family. As a scientist, I work in the lab and don't normally interact with patients, but I knew this clinical trial was a special moment.

When I walked into the hospital room, Emily Whitehead was sitting on the bed. (*Editor's note: Emily was famously the first pediatric patient to receive CAR T cell therapy, which cured her leukemia.*) I remember she had a green popsicle, because that was her condition for getting the infusion. I introduced myself to her parents, Kari and Tom, and offered to give them a tour of the lab where we make the CAR T cells.

After Emily was discharged from the ICU, but still in the hospital, Kari and Tom visited the lab. We were sitting in my office chatting before the tour, and I was trying to describe what we were building at Penn. We knew we were expanding our CAR T program and there would be a lot more research and clinical trials going on. It just popped into my head: It's like a Cellicon Valley.



The Whitehead family in 2022 with Emily's care team. Pictured left to right: Levine, Grupp, Tom Whitehead, Emily Whitehead, Kari Whitehead, June, and Porter.

The clinical trial that Emily participated in became the foundation for the first CAR T cell therapy approval in 2017. By that time, CAR T research was really taking off, with academic researchers, biopharma companies, and non-profit healthcare groups all realizing the potential of cell therapy. Then in 2018, Carl June was at the J.P.

Morgan Healthcare Conference, and he texted me a photo of an ad playing in the back of his taxicab: it was a “Cellicon Valley” marketing campaign for a life sciences group in Pennsylvania. That’s when we realized we should take more ownership of Cellicon Valley and began planning for our first Cellicon Valley Symposium.

## How big of an impact do you think cell and gene therapy could eventually have on the average person?

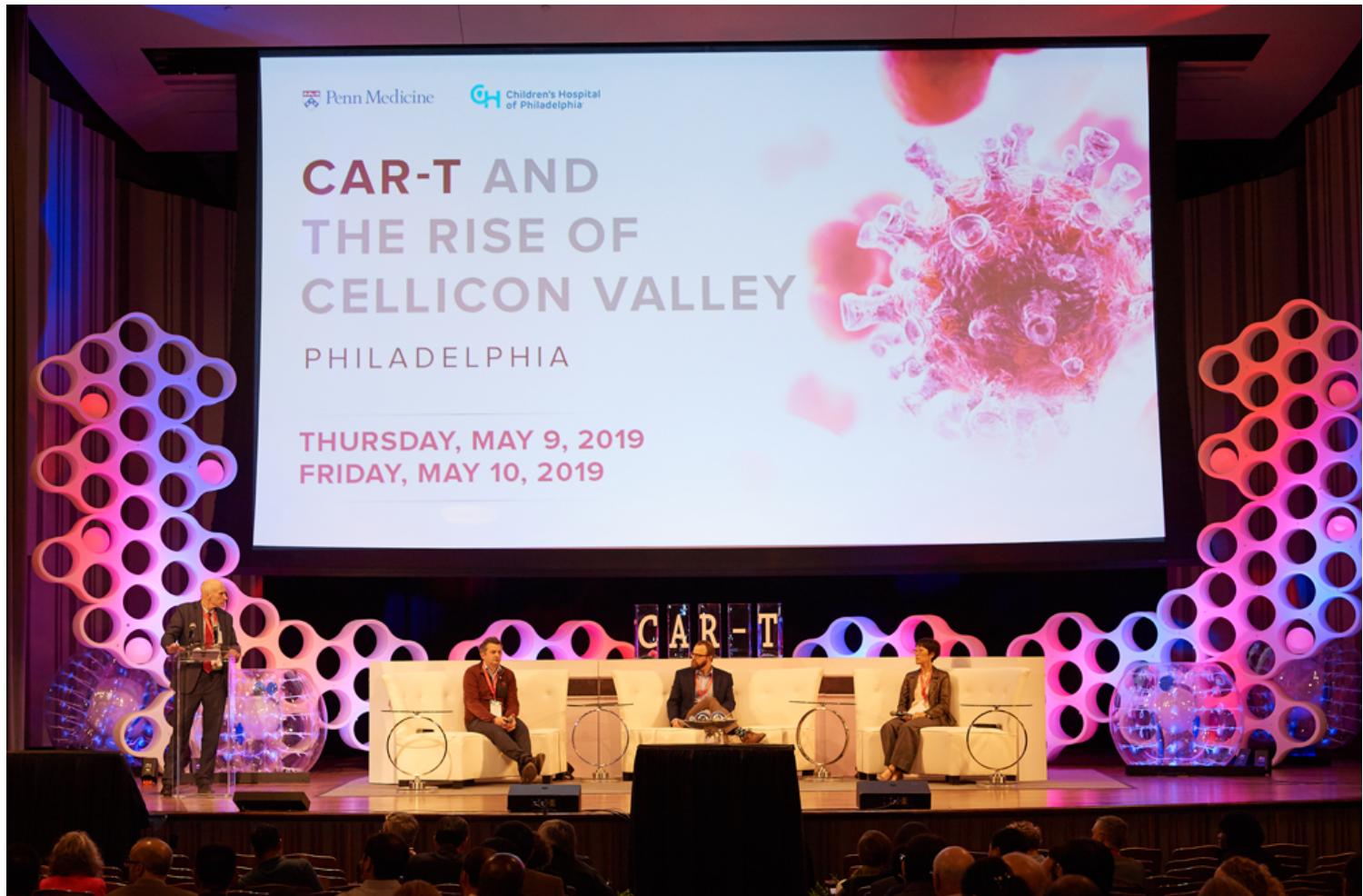
If we look broadly at cell therapy, gene therapy and RNA therapy, I think we’re in the midst of a rollout of a new pillar of medicine that could potentially benefit millions of patients.

Thinking about how cancer medicine has evolved, we've had surgery, chemotherapy, and radiation. CAR T cell therapy is a highly targeted immunotherapy, and is now being used worldwide to treat blood cancers. It's also being studied in other diseases—autoimmune disease is one big example—and in solid tumor cancers, like the brain cancer glioblastoma.

Looking beyond cancer, gene therapies are already approved to treat life-threatening conditions, including sickle cell disease, beta-thalassemia, cerebral adrenoleukodystrophy, and more. And for the last 25 years, we've had a program using cell therapy and gene therapy for HIV, to make patients' T cells resistant to HIV infection and to rebuild their immunity.

There's a lot of exciting work going on, and that's not even to mention all the innovative applications of RNA therapy, being led by Drew Weissman, MD, PhD, and his team.

## Is Cellicon Valley just a Penn thing, or does the rest of the city play a role too?



June leads a panel discussion at the first Cellicon Valley meeting at Penn. Photo credit: Ed Cunicelli  
Photographer Inc.

Both the city of Philadelphia and the Commonwealth of Pennsylvania play a part. I think it's safe to say that Philadelphia is the hub in academia for cell and gene therapy. We have patients coming from all over the world for treatment. We have students and post-doctoral fellows coming from all over the world because they want to be—and I'm quoting one of our early-career scientists here—"at the Mecca of cell and gene therapy."

Right next door to Penn Medicine are our longtime collaborators at CHOP. The Wistar Institute, Drexel University, and the University City Science Center are a few blocks away. Other universities in the wider region—Jefferson, Temple, Villanova—are also developing cell and gene therapies. And because of all that research, we have biotech companies wanting to locate here. Last I heard there are around 50 cell and gene therapy companies in the Philadelphia area. Not just here in West Philadelphia, but down in the Navy Yard, out in King of Prussia, and elsewhere.

Philadelphia is an easy sell. Not just because we're easy to get to and have affordable living, but because of what we've built: An academic-to-industry highway, and the ability to recruit people and companies to the area. Many of the early-career scientists that we recruit and train end up leaving to establish their own cell therapy programs at other centers around the U.S. and the world, so there's a ripple effect.

# Looking ahead, what excites you most about the future of Cellicon Valley?

I'm really excited about—and inspired by—the people who are passionate about continuing to grow cell therapy research. For example, Kristen Hege, one of our longtime collaborators, recently retired from her biopharma role and embarked on a fundraising hike across the 2,658-mile Pacific Crest Trail to support early-career women physicians and scientists here in the Center for Cellular Immunotherapies.

We're fortunate to have a special relationship with many of the earliest patients we treated. So many of them could have gone home and lived happily ever after, but they continue to use their voices to raise money for research. It's incredible, because without them investing their faith and hope in us, we would not be able to make progress in the development of new medicines. When those patients turn around and set the example by their advocacy efforts and their philanthropy, how can you not be inspired for the future?

*Editor's note: Cellicon Valley '25: The Future of Cell and Gene Therapies will take place at the University of Pennsylvania from Wednesday, April 30 to Friday, May 2, 2025. See the agenda and register for the symposium.*

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