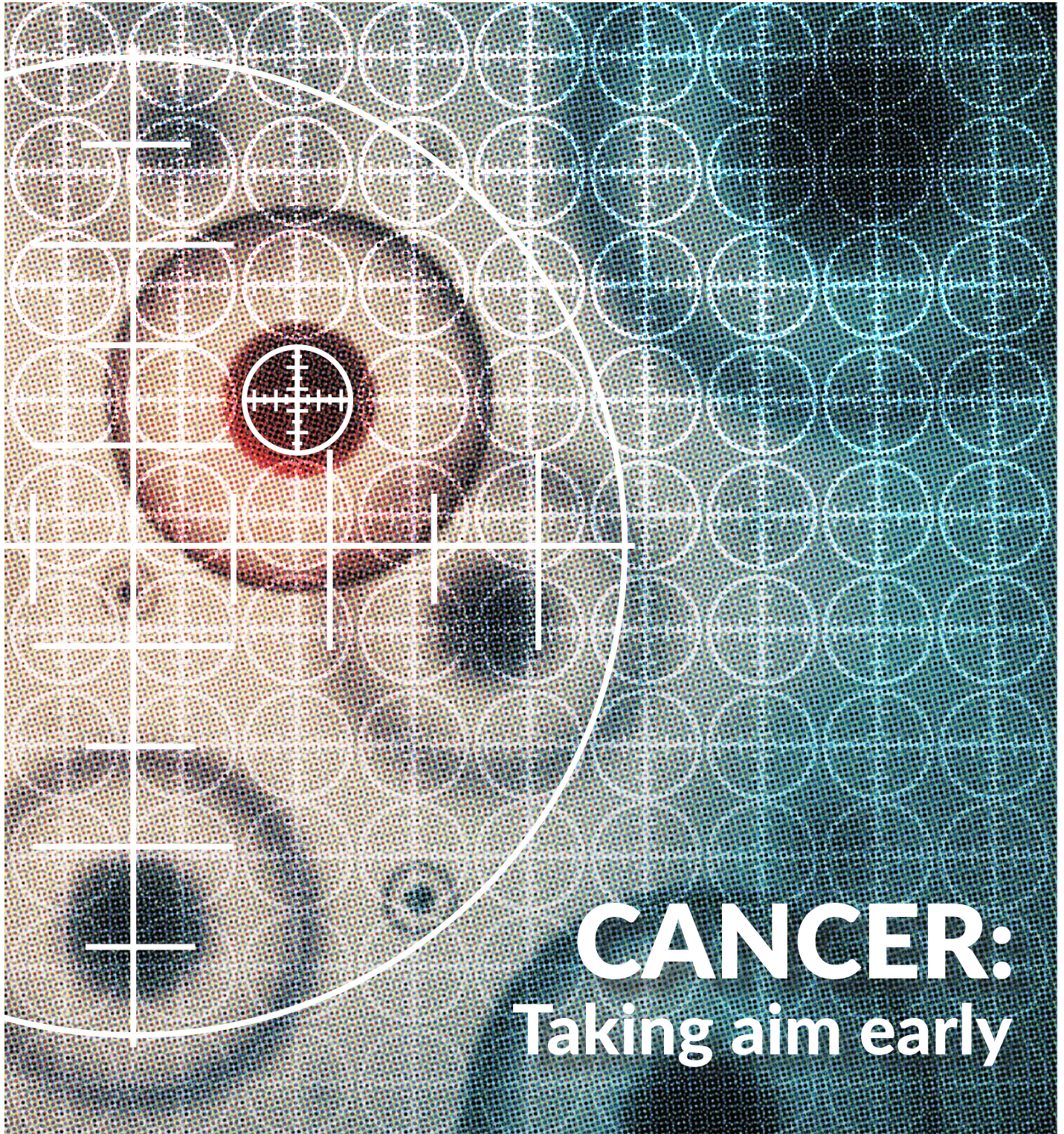


ONWARD



MAY 2016

A publication for friends and supporters of Oregon Health & Science University



CANCER:
Taking aim early

A photograph of two men, Brian Druker and Keith Todd, sitting side-by-side at an event. Brian Druker, on the left, is wearing a dark suit and a patterned tie, smiling. Keith Todd, on the right, is wearing a light blue shirt, a blue and white checkered bow tie, and a grey suit jacket, also smiling. They are both looking towards the right. The background is slightly blurred, showing what appears to be a bookshelf or a wall with architectural details.

BACK STAGE AT THE KNIGHT CANCER CHALLENGE

This page: Brian Druker, M.D., and Keith Todd enjoy an event at the Oregon Historical Society. Opposite page: Keith Todd admires an ad featuring Dr. Druker and his fake tattoo that appeared on the TriMet MAX train as part of the Knight Cancer Challenge.

ONWARD recently sat down with Brian Druker, M.D., director of the OHSU Knight Cancer Institute, and Keith Todd, president of the OHSU Foundation, for a behind-the-scenes glimpse at the most successful fundraising challenge in history.

Q: It's been more than two years since Phil and Penny Knight made their historic challenge at our gala event. Looking back, what's a favorite or particularly vivid memory of that night?

Brian: We had already given the Knights a big proposal, but we assumed they were still thinking about it. No one expected them to make an announcement the night of our gala. But when Phil got up to make his remarks, they took an unexpected turn. I looked at my wife and said, "Where is he going with this?" After he came out with the \$500 million in two years challenge, I turned to her in shock and asked, "What do I do now?" I was supposed to give a speech, and obviously my prepared remarks were now useless. My wife laughed and said, "Good luck! And don't forget to thank them."

Keith: That night was the first time I had ever seen [OHSU President] Joe Robertson run. And let me tell you, that was the fastest sprint from audience to the stage to say "We accept" I had ever seen. I had just moved to Portland from Chicago nine weeks before and was still using GPS to find my office. How the heck was I going to lead a \$500 million campaign?

Q: Be honest: did you have any doubts you could do it?

Brian: I always had doubts. This was significantly more than what we had ever raised before. But we quickly focused the conversations on *how* will we raise the funds instead of asking *can* we do it. Keith was always confident, and that brought everyone else along. I don't know whether or not it was false bravado, but it worked!

Keith: I remember that Saturday morning after the announcement, we gathered at our offices downtown. Someone asked, Gosh, how do we do this? There was silence. And then I realized that everyone was looking at me. I remember thinking, *Oh, whoa, I have to lead this.* Later I heard that Phil Knight gave us a 40 percent chance of success. I'm glad I didn't know that at the time! I should add that the whole thing became less daunting for me after Joe Robertson and Brian Druker started working with the Oregon Legislature to provide \$200 million.

Q: Tell us about how you worked together.

Brian: I have never been good at asking people for money. Even as a kid delivering papers, I hated collecting money, even though my customers knew why I was at their doorstep. So Keith was a great partner for me. I got to talk about the science, and he made the ask. We played off of each other extremely well.



Keith: I would say Brian got over his reluctance to ask for money! We went on hundreds of fundraising calls. The coolest thing for me was to be Brian Druker's sidekick. He would lay out the scientific vision and then I would talk about next steps. We got so comfortable with our roles, we barely needed to prep before a visit. It worked because we obviously liked and respected each other.

Q: The challenge was completed last summer, but a lot has happened in the past year. What is the progress you are most excited about?

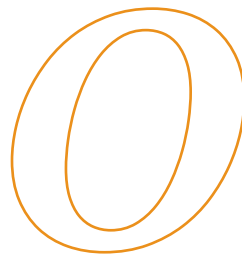
Brian: There are so many achievements. I'll limit myself to two. The biggest news is that we were able to recruit Sadik Esener, Ph.D, to lead the Knight Cancer Institute's new Center for Early Detection Research. And he's going to be fabulous. (Read more about Dr. Esener on page five.) The second thing is the new cancer research building that's under construction on the South Waterfront. This is the direct result of the state of Oregon contributing \$200 million to the challenge. We want this building to be the place where cancer is cured. (See story on page eight.)

Keith: I would add that one of the biggest achievements is that we demonstrated what can happen when you pair an audacious vision with a smart, focused fundraising strategy. Phil and Penny Knight knew exactly what they were doing. I think people will look back and say, that campaign changed the way Oregon did things. ■

A close-up portrait of a middle-aged man with a grey beard and glasses, wearing a brown jacket over a white shirt. He is looking slightly to the right with a gentle smile. The background is a blurred outdoor scene with buildings and trees.

ENGINEERING

A NEW FUTURE IN CANCER CARE



HSU Knight Cancer Institute Director Brian Druker, M.D., is famous for ignoring the conventional wisdom. He disregarded

those who called his research “voodoo science” and his work resulted in Gleevec™ – a landmark drug proven effective in 10 types of cancer.

In selecting Sadik Esener, Ph.D., to lead the institute's newly established Center for Early Detection Research, Druker and his team demonstrate they are still finding new ways to solve longstanding problems. Although other institutions might have called on a physician or biologist for this critical role, OHSU believes that reinventing the field of early cancer detection is a job for an engineer.

“Our goal requires that we completely reimagine early detection,” said Druker. “Sadik has the relentless energy and creative thinking that is a hallmark of the OHSU culture.”

Esener is an electrical and computer engineer, physicist and trailblazer in the fields of nanotechnology and nanomedicine. A divergent thinker with a successful record of transforming his ideas into products that benefit patients, Esener is a natural choice to lead the team that will re-engineer cancer detection from the ground up.

His arrival is an important milestone in the institute's effort to develop tools that catch cancer earlier and with more precision than today's tests. Accordingly, OHSU has granted him a prestigious faculty post — the Wendt Family Endowed Chair in Early Cancer Detection. Forming and leading high-level scientific teams is not new to him. At the University of California, San Diego, Esener directed the Center for Cancer Nanotechnology Excellence and has been involved in a host of interdisciplinary collaborations involving universities, private corporations and government agencies.

“He would be the world's greatest recruit standing on his scientific accomplishments alone,” said OHSU President Joe

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Sadik Esener, Ph.D., the new director of the Center for Early Detection Research at the OHSU Knight Cancer Institute.

Robertson, M.D., M.B.A., “But that’s not all he brings to the table. He’s also an entrepreneur who has been able to bring those scientific discoveries to patient care. That’s what we want.”

New ammo for fighting cancer

Esener’s laboratory at UCSD is world renowned for the creative way it uses nanotechnology and optical engineering methods to develop cancer diagnostic and drug delivery systems. One recent example is what he refers to as a “micro-cannon,” a miniaturized structure that aims and fires cancer drugs at specific sites in the body with pinpoint accuracy. The entire assembly is non-toxic and small enough to be injected into tissues or blood vessels without risk to the patient. The cannon barrel is a hollow tube formed from a special type of polymer material packed full of miniscule gel capsules that contain cancer drugs. Researchers use ultrasound waves to fire these “nano-bullets” at the tumor. The goal is to achieve more benefit with lower drug doses by getting the right medicine to the right spot. The approach requires fluency in cancer biology, electrical engineering, nanomaterials science, advanced imaging and physics — exactly the multidisciplinary approach required to advance early detection. “Some of the most exciting technologies in cancer detection and treatment today arise at the convergence of nanotechnology, optical engineering, immunology and advanced computing,” said Esener. “All of these things are developing at once. OHSU will be the place where it all comes together.”

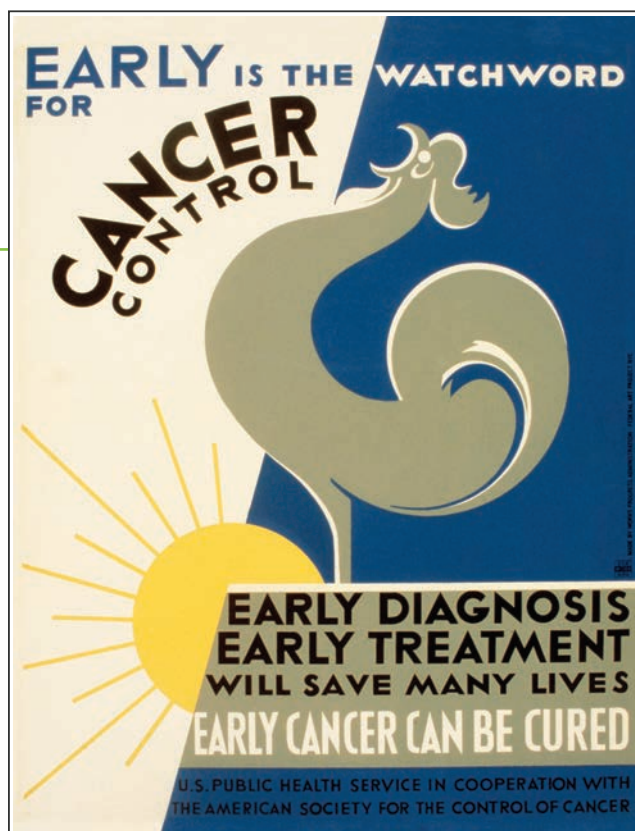
A convergence of new technology and old-fashioned grit

To bring those pieces together faster at OHSU, Esener will build a scientific team whose collective impact will far exceed that of any one superstar scientist. Esener cites Einstein and Edison as his scientific role models, along with his grandfather — who worked as a research assistant in Marie Curie’s Paris laboratory.

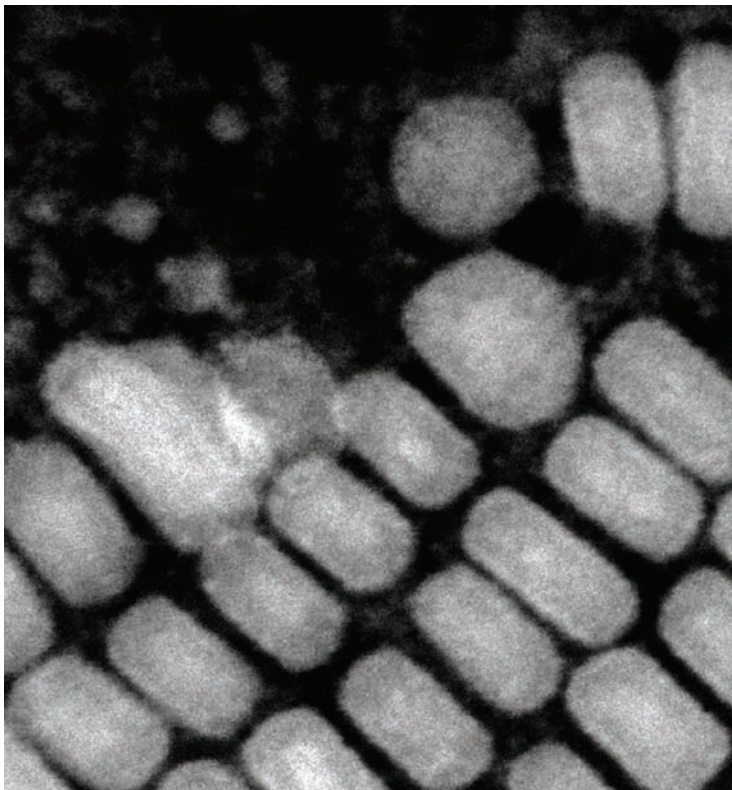
“I have a strong respect for history,” said Esener. “I was inspired by the tenacity of the Curies — of working hard for something you believe in. I also believe Brian Druker falls into that same category, which for me is one of the most exciting things about joining OHSU.” Those perspectives will guide his hiring strategy as he identifies the 25 to 30 leading scientists who will form the nucleus of the Center for Early Detection Research.

Time and space

OHSU will invest a significant portion of the more than \$1 billion raised through the Knight Cancer Challenge in what all scientists need more of: time and space. The early detection center will occupy a new seven-story laboratory facility designed by researchers for researchers. (See page eight for more detail). Members of the Knight Cancer Institute faculty worked intensively with architects to create a collaborative workspace in which ideas and expertise could flow seamlessly from lab to lab. And, thanks to donor support of their research, they will be largely freed from the all-consuming task of applying for federal research grants. Even today’s best scientists must compete fiercely for a portion of the shrinking federal biomedical research budget, diverting as much as half of their time away from their laboratories. Knight Cancer Challenge donor dollars will cover the salaries and basic operating costs of the early detection team so their progress will not be strictly dependent on other sources of outside funding.



Early detection is the latest thing in cancer research — but it’s an old idea. A century ago, a cancer diagnosis was a virtual death sentence — many patients avoided medical help rather than risk hearing the ultimate bad news. Cancer advocacy groups countered that hopelessness with a more empowering message: “Early Cancer Can Be Cured.” That message is still the same today, but the definition of “early” needs to change dramatically. In the 1930s, early detection meant examining a suspicious lump. Today we know the best time to stop cancer is much earlier — long before that lump has a chance to form — and that technology doesn’t exist yet. The Knight Cancer Institute’s Center for Early Detection Research is filling that void.



Nanotechnology: What's the big deal?

Sadik Esener's specialty — nanotechnology — is the science of very small things with the potential to make a huge impact. One nanometer is a billionth of a meter. The ability to study and manipulate objects on that scale allows scientists to fight cancer on its home turf — the sub-molecular level. Scientists use electron microscopes to pinpoint nanoscale abnormalities in the structure of a cancer cell that indicate which treatments would be most effective. Nanotechnology methods also give rise to a range of miniscule devices that safely perform tasks in the body such as collecting images, analyzing chemicals or carrying drugs — as is the case with Esener's nanobullet technology discussed in the accompanying article.

Reason to hope

Like so many of us, Esener has experienced personal loss due to cancer. He lost his wife and his mother to the disease.

"I got involved with cancer before it hit my family," he said.

"But when my wife was diagnosed with colorectal cancer, and a few weeks later my mother was diagnosed with pancreatic cancer — it affects you tremendously."

Those experiences firm his resolve and fuel his personal hope that this really is our moment to turn the tables on cancer. "We can be cautiously optimistic nowadays," he said. "Collectively, we are at a pivotal scientific moment because many new approaches such as fluid biopsies for detection and immunotherapies for treatment are presently emerging from research laboratories."

What's next? We need to understand which forms of cancer are likely to become lethal, and which are not. This will better enable doctors to stop deadly cancers in their tracks and spare patients from unnecessary treatment for non-lethal abnormalities. We need to develop next-generation cancer detection methods and technologies, such as body fluid tests and improved imaging. These are top priorities for the early detection program.

According to OHSU President Joe Robertson, one of OHSU's biggest strategic advantages against cancer is Esener himself. "He's just the greatest guy — the guy that you want to live next door to. If you're going to collaborate, and do so in an innovative way, you need to have those skills to bring people together. You ultimately need to be a nice guy." ■

Building a better biopsy

It's too soon to predict exactly what the future of early cancer detection technology will look like, but the emerging field of fluid biopsy illustrates how the technology is evolving in exciting ways. Several groups are exploring sophisticated genetic tests of blood, saliva, urine and other biological samples that bear early hallmarks of hard-to-detect cancers. Once perfected, quick and painless lab tests could replace surgical biopsy for cancer diagnosis. One promising method works by measuring DNA fragments shed into the bloodstream by a malignant tumor. Those fragments appear long before the tumor is large enough to detect with today's tests. That means fluid biopsies could allow patients to start treatment much sooner — when it's most likely to cure them.



A) The Gary & Christine Rood Family Pavilion. B) The Knight Cancer research building. C) The Center for Health and Healing South building project.



NEWS ROUND UP

Less than a year after completing the \$1 billion Knight Cancer Challenge, OHSU is already launching global partnerships, creating cutting-edge programs and building spaces designed to help fulfill its bold vision. Here is a rundown of key developments.

New partnership with Cancer Research UK

The OHSU Knight Cancer Institute has formed an important new collaboration with Cancer Research UK, the world's largest independent funder of cancer research. The alliance is part of a long-term goal to advance research that sheds light on the biology of early-stage cancers and to develop new, more accurate screening methods. The first step in the partnership will be to launch an annual international conference aimed at developing a global network of experts. The inaugural Sondland-Durant Early Detection of Cancer Conference will take place in Portland from June 22-24.

Scientific leaders from all over the world will come to Portland to share their expertise in this diverse field.

The conference is made possible by the generous support of the Gordon D. Sondland and Katherine J. Durant Foundation.

New spaces for discovery and healing

OHSU is building three new facilities on its South Waterfront campus that will significantly enhance cancer research and patient care: The Knight Cancer research building, the Center for Health and Healing South building project and the Gary & Christine Rood Family Pavilion.

- The seven-story **Knight Cancer research building** will sit just north of the Collaborative Life Sciences Building on Southwest Moody Avenue. The new building is being designed to foster collaboration and will provide a centralized space for the Knight researchers, including two floors for the early detection team being assembled by Sadik Esener, Ph.D. (see page six). The Oregon Legislature played a large role in making the research building possible by passing a \$200 million state bond measure.
- The **Center for Health and Healing South building project**, which will stand adjacent to the existing Center for Health and Healing, will provide a new space for a range of needs, such as complex surgery and interventional procedures as well as clinical space for the Knight Cancer Institute (including oncology clinics, an infusion area and space for clinical trials).
- The **Gary & Christine Rood Family Pavilion** (formerly referred to as the OHSU Guest House) will provide temporary housing for families who have traveled long distances for care only available at OHSU. Roughly half of patients in treatment at OHSU Hospital and OHSU Doernbecher Children's Hospital come from rural Oregon or other states. The five-story Rood Family Pavilion will accommodate up to 3,000 people a year and include two pediatric and two adult floors, large outdoor spaces and numerous community areas. (See next page for details on the Rood family's generous gift.)

New partnerships for pancreatic cancer

Immunovia AB, a Swedish cancer research center, is teaming up with the OHSU Knight Cancer Institute to develop the first blood-based test for the early diagnosis of pancreatic cancer, called IMMray™ PanCan-d. Pancreatic cancer is a leading cause of cancer-related death in the U.S. Survival can be significantly improved when caught early, but patients rarely show symptoms until the cancer has progressed to a

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later stage. The new test will analyze a patient's immune response to find early signs of the disease. Immunovia sought a collaboration with OHSU because of its commitment to early detection of cancer, the depth of pancreatic cancer patient data our researchers have already collected and our world-class molecular diagnostics laboratories.

New cancer cloud collaborators

Precision medicine — taking into account individual differences in patients' genes, environments and lifestyles to tailor treatments for their specific disease type — is transforming how we treat cancer. To bring the benefits of precision medicine to more cancer patients, doctors will require the ability to share vast amounts of genetic and clinical data to determine how hundreds of genes interact and drive disease in individual patients. OHSU and Intel are

teaming up to make precision medicine a reality for more patients with the Collaborative Cancer Cloud — a computing and analytics platform that can handle high volumes of data while protecting patient privacy and adapting to the data systems of multiple institutions. They have set an ambitious goal: by 2020 the team wants to be able to deliver a precision treatment plan, tailored to an individual's specific genome sequence, within 24 hours.

The platform's unique technical capabilities have attracted two leading cancer centers to join the collaboration: the Ontario Institute for Cancer Research and the Dana-Farber Cancer Institute. Their partnership will allow OHSU and Intel to test the Cloud's ability to foster collaboration among multiple institutions while widening the data pool available for analysis.

A new family legacy

Gary and Christine Rood of Vancouver, Wa., who have strong ties to OHSU and a passion for addressing housing needs, donated \$12 million to help build a guest house for OHSU's out-of-town patients and their families. OHSU named the new guest house the Gary & Christine Rood Family Pavilion in recognition of their generous gift.

The Roods are longtime residents of Clark County and have been involved in administering and managing health and senior care projects for more than 25 years. Today the Roods own 30 senior housing and commercial real estate properties in 10 states. Previously, Gary spent 20 years as a hospital administrator, including lengthy service at OHSU and a decade as president of Mid-Columbia Medical Center in The Dalles.

"During the 1960s and 70s when I was administrator of University Hospital South (now OHSU Hospital), I saw families and patients who needed this type of guest housing facility on a daily basis," said Gary. "So it is extremely meaningful to Christine and me to be able to provide this level of support for a project that will serve thousands of children and adults each year and make hospital stays much less stressful for their families."

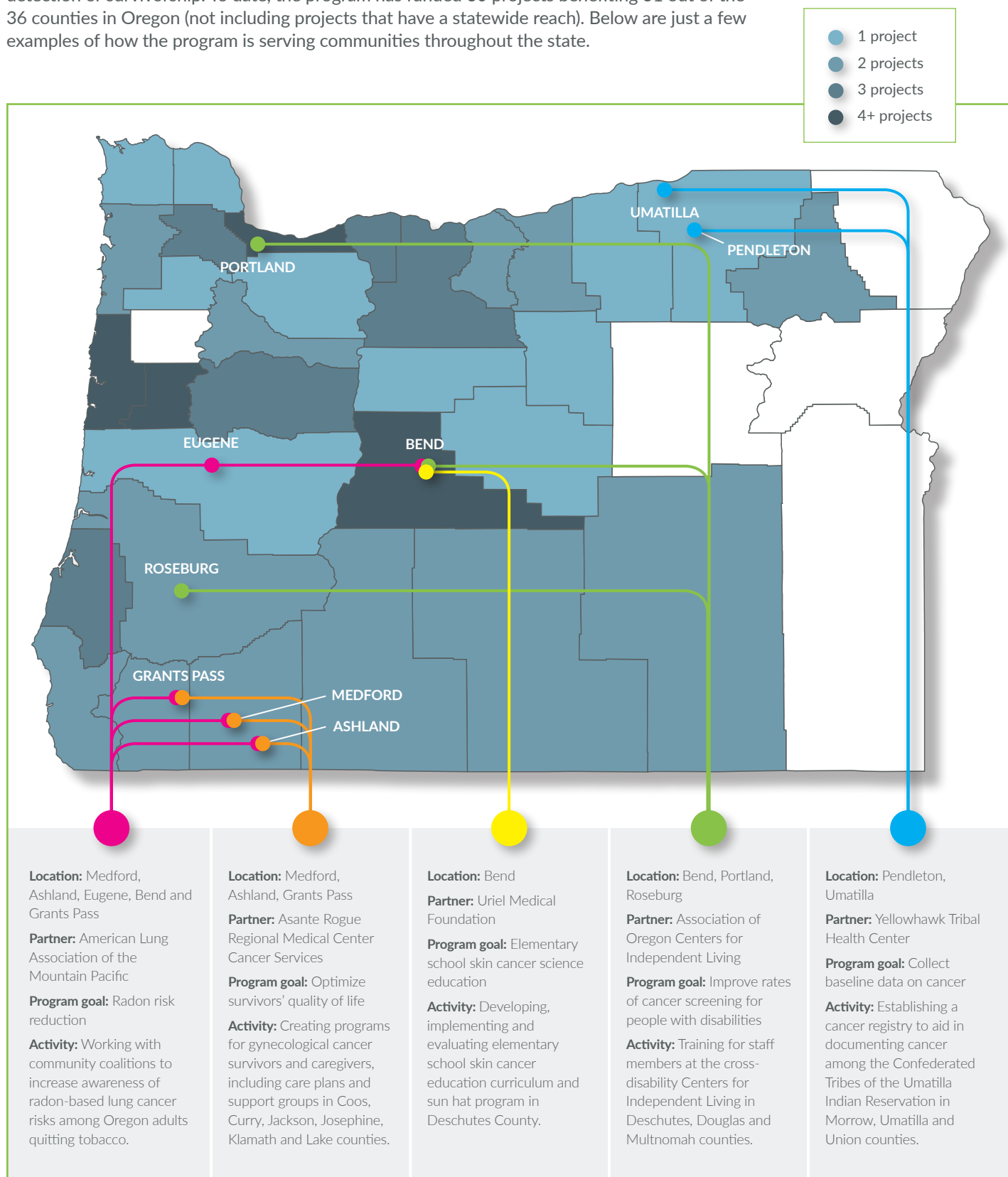
In addition to their most recent gift to OHSU, the Roods donated \$1 million to endow a research professorship at the OHSU Knight Cancer Institute as part of the Knight Cancer Challenge.

Gary and Christine Rood (center) attended the April groundbreaking event with family members Jordan Rood (left) and Tami Davies (right).



Taking on cancer: county by county

Recognizing that local communities have their own unique needs, the OHSU Knight Cancer Institute is collaborating with organizations across Oregon to create locally directed, sustainable cancer programs and services. The Community Partnership Program, launched in 2014, provides grants and resources to address community-identified needs in cancer prevention, early detection or survivorship. To date, the program has funded 30 projects benefiting 31 out of the 36 counties in Oregon (not including projects that have a statewide reach). Below are just a few examples of how the program is serving communities throughout the state.





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