

OHSU

extra

Celebrating the Power of Philanthropy



Winter 2014

Q&A with Dr. Louis Picker
Making Room for Big Ideas
Cancer, We're Coming for You

Extra is a publication of the OHSU Foundation for friends and supporters of Oregon Health & Science University.

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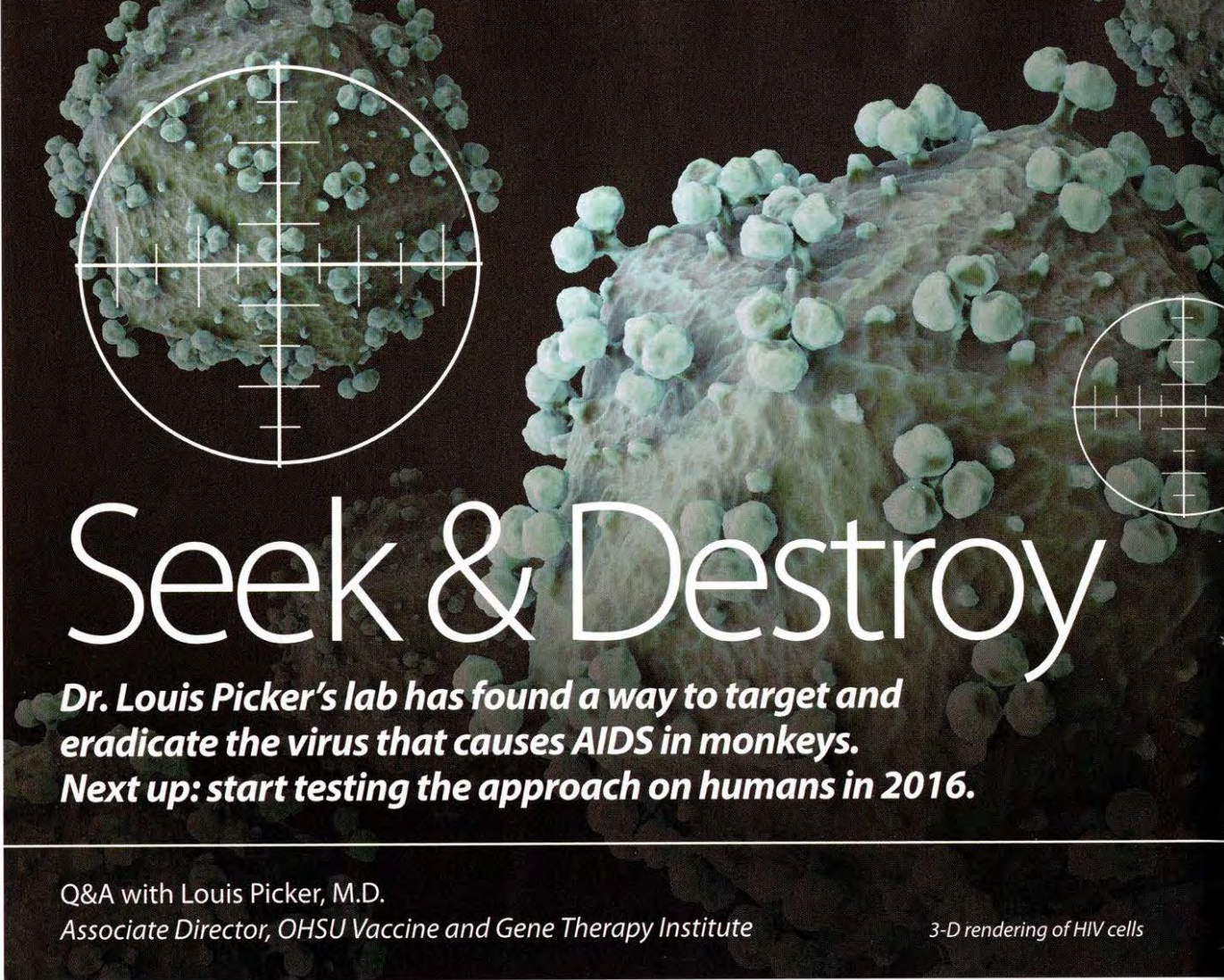
- The passion and skill of OHSU's caregivers
- The stature of its world-class research programs
- The strength of its commitment to train tomorrow's health and science workforce

Extra is also the dedication of OHSU supporters whose investment and advocacy make extraordinary things possible.

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Second-year medical students Ishan Patel and Brianna Muller pause in the atrium of the new OHSU/OUS Collaborative Life Sciences Building.



Seek & Destroy

Dr. Louis Picker's lab has found a way to target and eradicate the virus that causes AIDS in monkeys. Next up: start testing the approach on humans in 2016.

Q&A with Louis Picker, M.D.
 Associate Director, OHSU Vaccine and Gene Therapy Institute

3-D rendering of HIV cells



Louis Picker, M.D., made international headlines with his 2013 vaccine breakthrough. This year, an infusion of \$25 million from the Bill and Melinda Gates Foundation has boosted Dr. Picker's team and facilitated plans to start human clinical trials of a vaccine that may cure HIV/AIDS. So far Dr. Picker has spent more than 12 years working on his candidate vaccine, which uses one virus, cytomegalovirus or CMV, to counter another, HIV, or its monkey counterpart, SIV. The monkey form of the

vaccine not only protects animals from infection with SIV, but when they do become infected, the immune response generated by the vaccine totally clears SIV from the animals' bodies – they are cured of the infection.

The HIV/AIDS pandemic has raged for more than 30 years around the world, killing tens of millions of people, and destroying families and communities. Now, thanks to Dr. Picker's work, there is finally reason to believe that a cure for HIV/AIDS is in sight.

“Our vaccine is different because it persists and therefore keeps the immune system on constant alert. So, whenever the virus enters the body or starts to emerge from a dormant state the immune system can confront it immediately.”

– Louis Picker, M.D.



The following is from a September 2014 interview with Dr. Picker.

Q. What inspired you to become an HIV/AIDS researcher?

A. I was a medical student at UCSF and then a resident at Beth Israel Hospital, Boston, in the early 1980s, during the initial wave of AIDS. I wanted to do something about it. And now it's become my life. My wife, Belinda Beresford, covered the spread of AIDS as a journalist in South Africa. In fact that's how we met. Our blended family includes six children, one of whom lost his biological parents to AIDS.

Q. You just received \$25 million from the Bill and Melinda Gates Foundation. What will that funding enable?

A. The Gates Foundation funding allows my team to move faster through the many scientific and regulatory steps we need to take in order to test a vaccine in humans, and to prepare a final version of the vaccine suitable for widespread use. For now, we can spend less time on grant proposals and more time in the lab.

Q. What's the status of the preventive vaccine?

A. We now have candidate vaccines that have been engineered to be safe for humans. Next, we will manufacture these vaccines, and test them in formal clinical trials, initially for safety and then for efficacy. We should begin manufacturing next year and hope to initiate a first-in-human phase I safety trial in 2016.

Q. How is your vaccine different from traditional vaccines?

A. Conventional vaccines educate the immune system to recognize pathogens like HIV more quickly than it would otherwise, but these educated immune responses revert to a resting state shortly after the vaccine is given. When someone encounters the pathogen they have been vaccinated against, their prepared immune system moves faster to prevent or reduce disease. But for HIV and SIV, which replicate very fast and have a unique ability to overwhelm or evade the immune system, even these faster responses are not quick enough. Our vaccine is different because it persists and therefore keeps the immune system on

constant alert. So, whenever the virus enters the body or starts to emerge from a dormant state, the immune system can confront it immediately.

Q. You say your vaccine could lead to a cure for HIV/AIDS – not just prevent it. How would that work?

A. For many years, no one thought it would be possible to get rid of HIV or SIV because they were considered to be permanent infections – the kind that can be suppressed by anti-viral drugs, but never eliminated. We discovered that our vaccine not only controls the spread of SIV infection in monkeys, but also is capable of clearing all traces of the virus – even the most sensitive tests could not detect any hint of SIV. This remarkable finding prompted us to start thinking in terms of a cure for patients who are living with an established HIV infection. If they are lucky enough to have access to appropriate medical care, these patients can take anti-viral drugs to suppress the infection – but it will emerge if they fail to take their drugs. The virus is never completely gone. We believe that we have developed a vaccine that will stay in the body for life, continually preventing the virus from emerging and ultimately eliminating it from the body. At some point during this process, the patient will be able to stop taking the anti-viral drugs, because the virus will either be completely gone or reduced to the level where the vaccine ensures the immune system can completely control it.

Q. How does your HIV/AIDS breakthrough accelerate other areas of vaccine research?

A. Everything our team has learned with HIV over the last 12 years can also be used against tuberculosis and malaria – two other diseases that have resisted effective vaccine development and still kill millions around the globe. Our lab has developed a TB vaccine that is already more effective at protecting rhesus monkeys from infection than the most successful vaccine currently in use in humans. The lab's work on a malaria vaccine is still preliminary, but shows promise. ■

Making Room for Big Ideas



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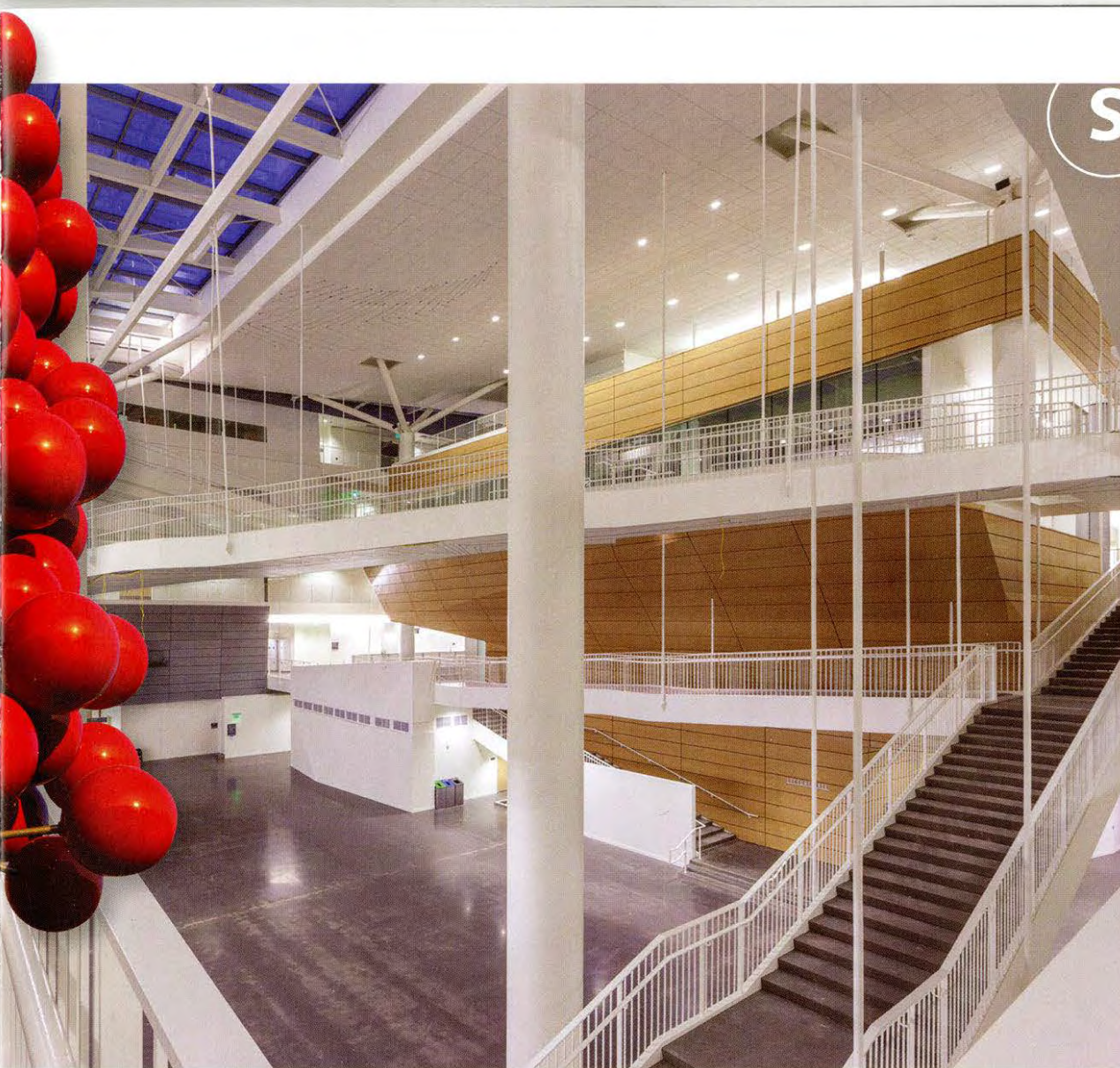
SOUTH WATERFRONT

A pill that stops leukemia. A vaccine that could cure HIV/AIDS. The first to convert human skin cells into embryonic stem cells. A \$1 billion vision to stop cancer before it starts. Big ideas like these have put OHSU in the national spotlight.

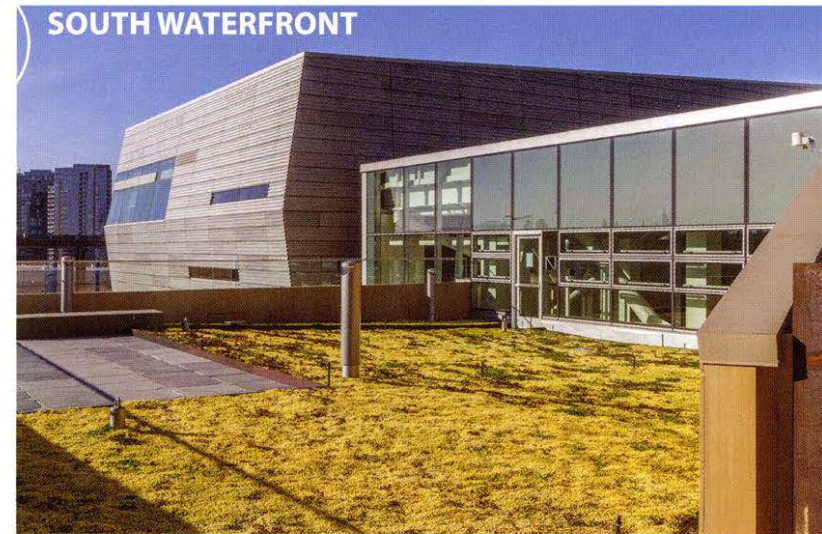
Ambitious programs call for a cutting-edge setting, and OHSU is making a significant investment in new facilities on Portland's South Waterfront. The OHSU/OUS Collaborative Life Sciences Building (CLSB) is the latest building

to rise there – and the first to emerge on the OHSU Schnitzer Campus. What began in 2004 with a gift of 20 acres of waterfront land from MMGL Corp. (formerly Schnitzer Investment Corp.) has evolved into a world-class center of health care education, research and care.

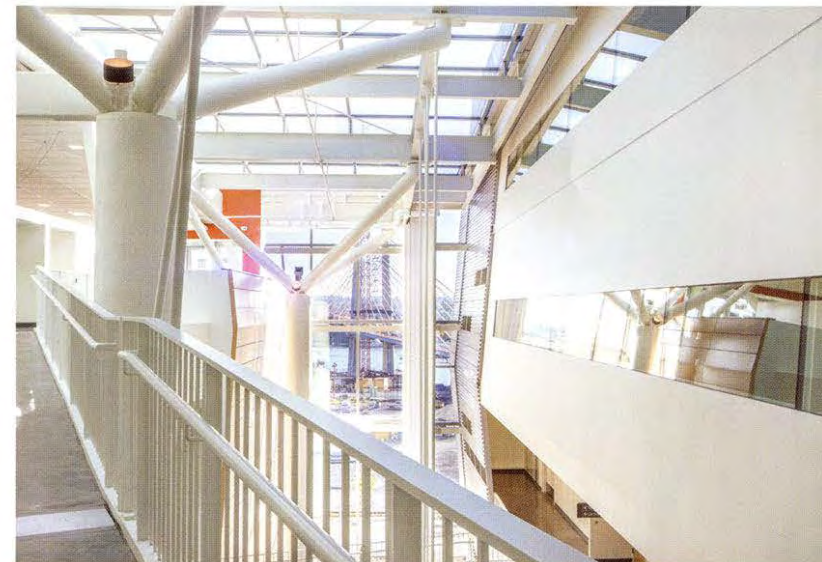
“When I look at the CLSB, my first thought is ‘Beam me up, Scotty!’” said OHSU President Joe Robertson, M.D., M.B.A., at the June opening celebration. “The scale, the majesty and the forward-looking quality that you experience



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SOUTH WATERFRONT



standing here are tremendous. Everything points to the future.”

The result of a partnership between OHSU, Portland State University and Oregon State University, the CLSB enables a new kind of interprofessional learning that will make team-based, patient-centered care the new standard. The building also houses the Skourtes Tower, home to the OHSU School of Dentistry, dental clinics and research labs. This state-of-the art facility was made possible by an outpouring of support from the dental community, including Bonnie and Eugene Skourtes, D.M.D., Moda Health and A-dec. *(continued on page 9)*

One of the most distinctive aspects of the CLSB is its large atrium filled with criss-crossing walkways and abundant natural light.

The building is on track to meet ambitious LEED Platinum sustainability goals with fixtures that reuse rainwater, sedum-covered rooftops that help insulate and many more innovative design features.

In June, the OHSU/OUS Collaborative Life Sciences Building opened its doors to OHSU, OSU and PSU students from multiple disciplines.

Classrooms feature tables instead of individual seats to accommodate small-group activities as well as traditional lectures.



Big Ideas



Above: Dental students now learn to care for patients in a modern, full-spectrum dental clinic, using the most sophisticated equipment available.

Right: The Skourtes Tower anchors the north side of the CLSB.





The CLSB houses a multi-disciplinary, 20,000-square-foot simulation facility, designed to help students practice a variety of essential skills.

Above, second-year medical students practice intubation on a realistic, computerized mannequin in a simulated emergency room.

On the right, physician assistant students practice basic medical check-ups in a simulated examining room.



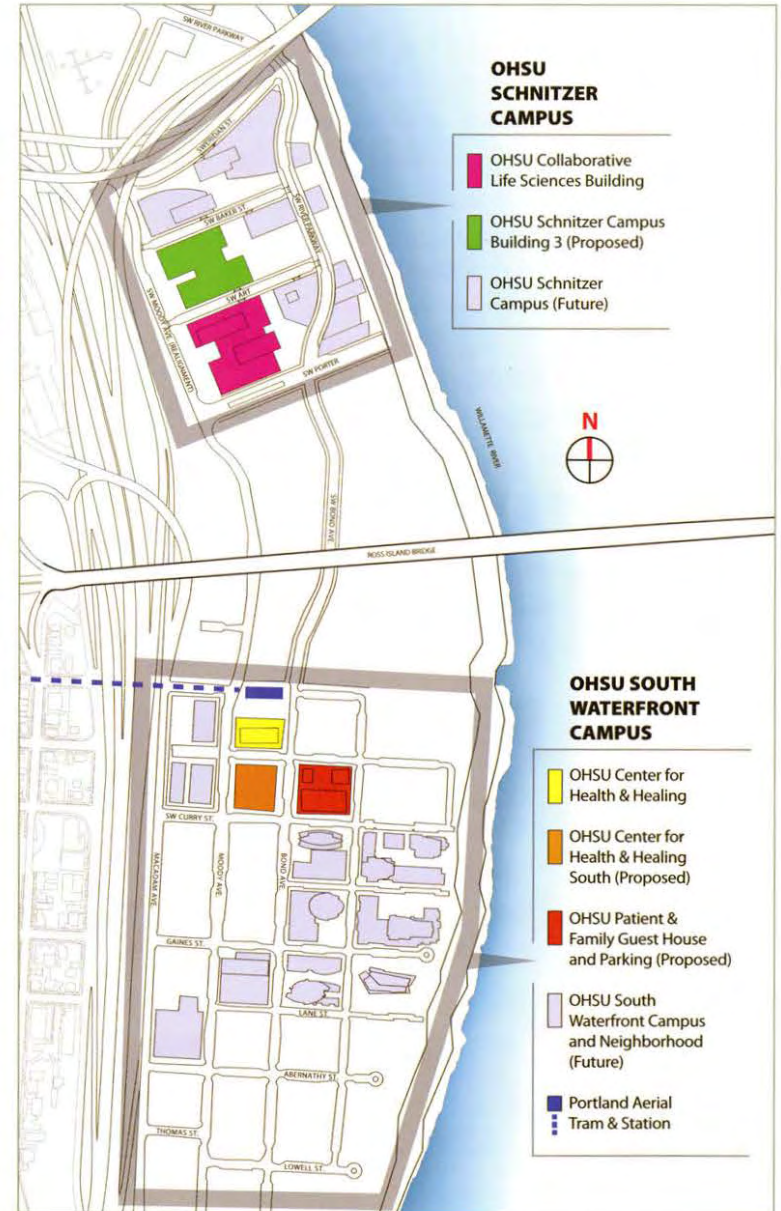
S SOUTH WATERFRONT



The CLSB basement houses a 20,000-square-foot, vibration-proof lab built for the OHSU Center for Spatial Systems Biomedicine. Center Director Joe Gray, Ph.D., and his team, including Claudia Lopez, Ph.D., above, are using powerful, one-of-a-kind electron microscopes to study how cancer cells change over time and location in the body.

What's next?

OHSU is planning several more exciting facilities for the South Waterfront. Three new facilities are in the early stages of development, slated to open in 2018 pending OHSU's completion of the Knight Cancer Challenge (see page 10). **Schnitzer Campus Building III** will house the Knight Cancer Institute, including research labs, a bio-computing facility, conference center and research support. The **Center for Health and Healing South** is slated to include space for ambulatory surgery and clinical trials for new cancer drugs, short-stay patient rooms and clinics for both the Knight Cancer Institute and the Knight Cardiovascular Institute. The **Patient and Family Guest House** will provide a home away from home for OHSU patients and their families. ■



Cancer, we're coming for you.

7,000 donors step up to our \$1 billion cancer take-down

When Penny and Phil Knight told OHSU in September 2013 they would donate \$500 million to cancer research – if OHSU could raise an additional \$500 million in two years – the deadline was daunting. But the opportunity was irresistible. “We were all thinking, this is great – and it’s going to change everything,” said OHSU Foundation President L. Keith Todd.

Now, a little more than one year into the effort dubbed the Knight Cancer Challenge, OHSU is unquestionably pulling it off. Nearly 7,000 donors from 50 states have contributed to the challenge, and the state of Oregon pledged \$200 million in bonds to support new cancer facilities. By late October, OHSU had raised \$440 million – nearly 88 percent of the goal in roughly half the time allotted. “The Knights’ challenge put a national spotlight on OHSU and Dr. Brian Druker’s vision for early cancer detection,” Todd said. “It’s no wonder people are lending

their support.”

Armed with a \$1 billion budget, Brian Druker, M.D., and his OHSU Knight Cancer Institute team plan to take on the biggest unmet need in cancer treatment: finding smarter, foolproof ways to detect cancer early, before it becomes lethal.

In addition to attracting national and international donor attention, this bold vision has inspired thousands of local fundraising efforts and prompted longtime advocates like Columbia Sportswear Chairman Gert Boyle to make the biggest charitable donation of their lives. Boyle had met Dr. Druker several times and contributed previously to OHSU. Impressed by Dr. Druker’s vision to end cancer as we know it, Boyle donated \$100 million. She made the gift anonymously, but media speculation about her identity led to her going public in late summer (see sidebar on page 11).

OHSU will use the \$1 billion it is raising to assemble an extraordinary, multidisciplinary team of cancer researchers to focus on detecting cancer at its earliest stages. They will create better imaging technologies capable of finding subtle changes in tissue that are cancerous. And they will develop simple non-invasive tests that uncover early signs of the disease. Their work will result in tools that find cancers at their most curable stages and save millions of lives.

OHSU’s vision and the accompanying fundraising campaign are tailor-made for achieving rapid results. “This is Oregon’s chance to put a stake in cancer’s heart. We’re the place where cancer is going to meet its match,” said Dr. Druker.

With your help, we’re taking cancer down. To donate go to www.onedown.org ■



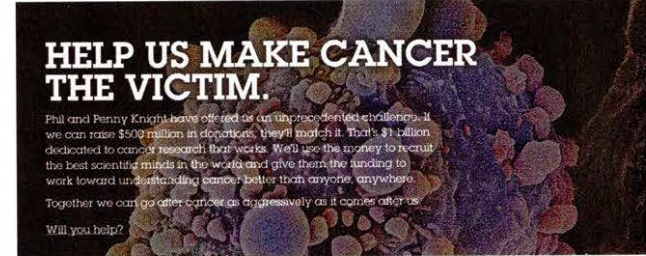
LETHAL BECOMES NONLETHAL.

OHSU revolutionized the treatment of chronic myeloid leukemia with Gleevec®, the world’s first targeted cancer treatment. For hundreds of thousands of people, CML is no longer a death sentence. That’s one cancer down.



WE FIGHT CANCER DIFFERENTLY. WE WIN.

At the OHSU Knight Cancer Institute we attack cancer on a molecular level. We look for ways to detect cancers earlier, before they become deadly, giving more patients the chance to survive more cancers. It’s a better approach, and it works.



HELP US MAKE CANCER THE VICTIM.

Phil and Penny Knight have offered us an unprecedented challenge. If we can raise \$500 million in donations, they’ll match it. That’s \$1 billion dedicated to cancer research that works. We’ll use the money to recruit the best scientific minds in the world and give them the funding to work toward understanding cancer better than anyone, anywhere.

Together we can go after cancer as aggressively as it comes after us.

Will you help?



TV commercials featuring animated replicas of cancer cells aired in cities from Los Angeles to New York in October.

OHSU gratefully acknowledges the generous donors who make our work possible. The gifts listed below reflect the range of contributions made since June 2014.

Several recent gifts to the Knight Cancer Challenge have brought OHSU closer to its goal of stopping cancer in its tracks:

- **Columbia Sportswear Chairman Gert Boyle** donated \$100 million to the Knight Cancer Challenge. (See story on page 11.)
- **Barbara and Phil Silver** contributed \$5 million to the challenge. Barbara is a member of the OHSU Foundation Board of Trustees.
- **Ken and Mary Lou Guenther** made a \$500,000 commitment through their estate to benefit the OHSU Center for Spatial Systems Biomedicine (OCSSB), which is directed by Joe Gray, Ph.D. The OCSSB is dedicated to understanding the structural and mechanical properties of cells and tissues and how aberrations can lead to disease.
- **The Sherie Hildreth Ovarian Cancer (SHOC) Foundation** donated \$100,000 to support the work of ovarian cancer researcher Tanja Pejovic, M.D., Ph.D. The SHOC Foundation has given \$650,000 to the OHSU Knight Cancer Institute to advance ovarian cancer research over the last 10 years.
- **J.E. Dunn Construction Company**, based in Kansas City, Mo., donated \$100,000 to cancer research through the **Dunn Family Foundation**. The company helped build the OHSU/OUS Collaborative Life Sciences Building.



Above: Supporters of the SHOC Foundation gather at the foundation's annual Teal Ribbon luncheon in September. Right: Brody Borlaug.



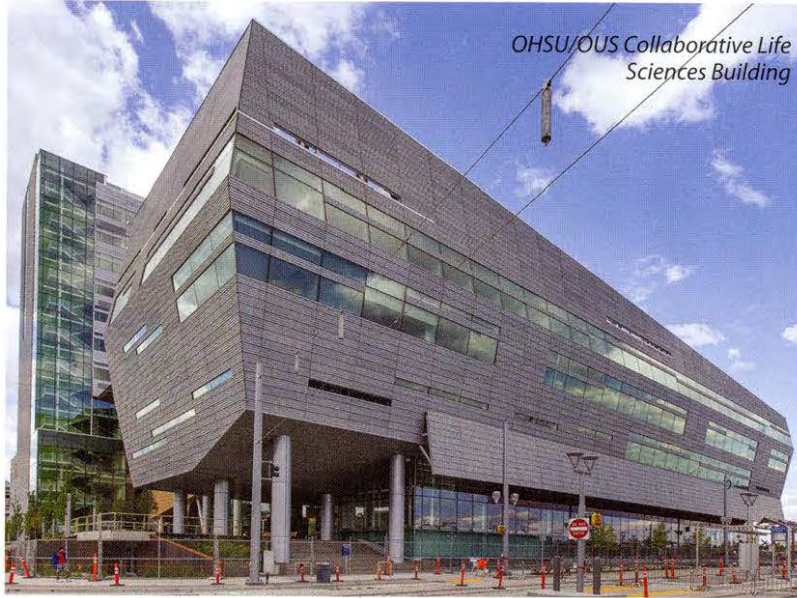
- Australian-American author **Jill Ker Conway, Ph.D.**, made a gift of \$40,000. Conway, who lives in Boston, served on Nike's board of directors from 1987 to 2011.
- **Dick and Francine Hall** made a gift of \$100,000 to OHSU's Head and Neck Cancer Program.

The **Brody Borlaug Foundation** donated \$66,000 to establish an on-site pediatric immunology program at OHSU Doernbecher Children's Hospital. The foundation was established by Jeff and Tracy Borlaug in memory of their son, Brody, who died at the age of 3 from complications of primary immunodeficiency while preparing for a bone marrow transplant. Since 2011, the Borlaug family and friends have raised \$260,000 in Brody's honor toward the Brody Borlaug Pediatric Immunology Fund. Once the endowment reaches its goal of \$1 million, the fund will support an on-site pediatric

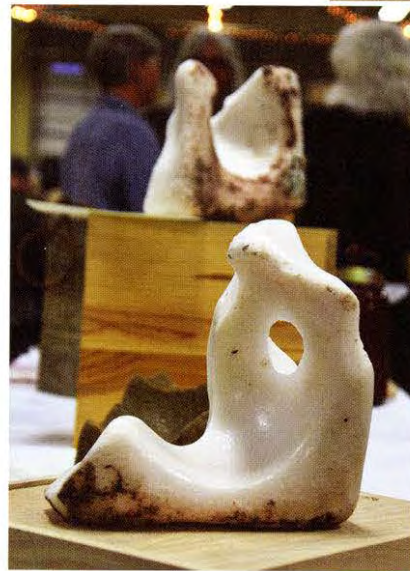
immunology program for patients with life-threatening diseases such as leukemia, metabolic disorders and pediatric immunodeficiency disorders. Jeff Borlaug is the executive vice president of the Doernbecher Children's Hospital Foundation Board of Directors.

A number of gifts during this period benefited the OHSU School of Dentistry:

- **O'Brien Dental Lab, Inc.**, of Corvallis, Ore., pledged to donate \$250,000 over five years to the School of Dentistry's simulation lab. The lab is located on the 10th floor of the Skourtes Tower, the school's new home in the OHSU/OUS Collaborative Life Sciences Building.
- A commitment of \$100,000 from **Bill Brodie, D.M.D., '70** and **Linda Brodie, R.D.H., '68** will name two pre-doctoral operatories in the Skourtes Tower.



OHSU/OUS Collaborative Life Sciences Building



• **Darlene and Jim Cain, D.M.D., '70**, made a \$200,000 gift that will support three areas of OHSU: the Department of Surgery, the Harold Schnitzer Diabetes Health Center and the OHSU School of Dentistry's building campaign.

In one of the more whimsical and creative OHSU fundraising efforts, **The Great Salt Lick** contest, created by Whit Deschner of Baker City, Ore., has contributed more than \$50,000 to Parkinson's disease research over the last eight years. For the annual art auction, livestock-licked salt block "sculptures" are auctioned off as art. Past entries have come from as far as Germany.

Joseph Scafidi made three planned gifts totaling \$600,000 to benefit OHSU Doernbecher Children's Hospital and Casey Eye Institute.



A planned gift from **Lisa Andrus-Rivera, Ph.D.**, will benefit the OHSU Center for Ethics in Health Care, which recently celebrated its 25th anniversary. Dr. Andrus-Rivera serves as vice chair of the center's steering committee. ■



Above, left: Lisa Andrus-Rivera, Ph.D. at the OHSU Center for Ethics in Health Care's 25th anniversary celebration with keynote speaker Mark Siegler, M.D., director of the Maclean Center for Clinical Medical Ethics at the University of Chicago. Above: Masterpieces from The Great Salt Lick auction.



U.S. News ranks OHSU Hospital No. 1 in Oregon; five specialties are nationally ranked

OHSU is the No. 1 hospital in Oregon, according to *U.S. News & World Report's* Best Hospitals 2014-15, and ranks among the best in the nation in five specialties: cancer; diabetes and endocrinology; ear, nose and throat; geriatrics; and urology. *U.S. News* also rated seven OHSU Hospital specialties as “high-performing:” cardiology and heart surgery; gastroenterology and GI surgery; gynecology; nephrology; neurology and neurosurgery; ophthalmology; and pulmonology.

Research gives unprecedented 3-D view of important brain receptor



Eric Gouaux, Ph.D.

Researchers with OHSU’s Vollum Institute have given science a new and unprecedented 3-D view of one of the most important receptors in the brain – a receptor that allows us to learn and remember, and whose dysfunction is involved in a wide range of neurological diseases and conditions, including Alzheimer’s, Parkinson’s, schizophrenia and depression.

The view, published online in the journal *Nature*, gives scientists new insight into how the receptor –



called the NMDA receptor – is structured and gives vital clues to developing drugs to combat neurological diseases and conditions.

“This is the most exciting moment of my career,” said **Eric Gouaux, Ph.D.**, a senior scientist at the Vollum Institute and a Howard Hughes Medical Institute investigator. “The NMDA receptor is one of the most essential, and still sometimes mysterious, receptors in our brain. Now, with this work, we can see it in fascinating detail.”

Scientists around the world study the NMDA receptor; some of the most notable discoveries about the receptor during the past three decades have been made by OHSU Vollum scientists.

New energy-efficient data center will propel OHSU into “big data” research

OHSU’s new \$22 million data center is housed in an energy-efficient geodesic dome. The center, which opened in July in Beaverton, Ore., is designed to provide the “big data” computing heft that will give medical researchers new ways to study – and



The Keith Thomson Data Center

hopefully cure – disease. As researchers use computer technologies to analyze genetic profiles, do advanced medical imaging and conduct other research – all of which generate tremendous amounts of data – the demand for storing and analyzing data has increased.

In October, the OHSU Board of Directors voted to name the new facility in honor of **Keith Thomson**, one of Intel Oregon's first employees and a longtime OHSU supporter. Thomson currently serves on the OHSU Foundation Board of Trustees and has acted as board chair for both OHSU and the OHSU Foundation.



Jeffrey Tyner, Ph.D.

OHSU Knight Cancer Institute researcher wins prestigious early-career award

Jeffrey Tyner, Ph.D., assistant professor of cell and developmental biology and a researcher with OHSU's Knight Cancer Institute, has won an award from the American Association for the Advancement of Science for

creating a research program that more rapidly identifies cancer-causing mutations and accelerates development of gene-targeted treatments.

Tyner's method analyzes data on genetic mutations in patients' cancer cells and simultaneously assesses how tumor cells with those mutations respond to a variety of gene-targeted drugs. This approach more accurately determines which aberrations are most lethal and how

they can be targeted with a precision treatment.

It also increases understanding of the biology of each patient's disease and, in some cases, identifies new subtypes of the disease.

Sequencing and analysis of gibbon genome sheds light on its complex evolution

A team led by OHSU researcher **Lucia Carbone, Ph.D.**, has sequenced and annotated the genome of the only ape whose DNA had yet to be sequenced – the gibbon, an endangered small ape that inhabits the tropical forests of Southeast Asia.

The team's work, published in the Sept. 11 edition of *Nature*, gives scientists new insight into the evolution of the gibbon genome and its extraordinary number of chromosomal rearrangements. Chromosomal rearrangements are structural changes in the DNA that are often problematic in other species – including causing cancer in humans – but seem to have happened in gibbons at a very high frequency. The genome sequencing work also provides new details on

the family tree and evolutionary history of the gibbon lineage that has been a longstanding source of debate.

The team's work gives science new insight into the human genome – since apes are so genetically similar to humans. Unraveling primate genomes is vitally important as researchers try to understand the genetic factors in human health and disease.

OHSU now West Coast headquarters for world's leading source on evidence-based medicine



Mark Helfand, M.D., M.S., M.P.H.

The Cochrane Collaboration – the world's leading organization for conducting systematic reviews on what works in health care – announced OHSU will house the new West Coast branch of the U.S. Cochrane Center. The Cochrane Collaboration, an international nonprofit organization, has 14 centers and 22 branches throughout the world.

The West Coast branch will work in concert with the collaboration's primary U.S. center at the Johns Hopkins Bloomberg School of Public Health in Baltimore, Md. The branch will be led by **Mark Helfand, M.D., M.S., M.P.H.** Helfand is a longtime U.S. leader in systematic health care reviews and evidence-based medicine.

Helfand is a professor of medicine, medical informatics and clinical epidemiology in the OHSU School of Medicine, and a staff physician at the Portland VA Medical Center. ■

extra/focus: WHY I SUPPORT OHSU

"We think the world of Phil and Penny Knight and admire their generosity. We know so many people who have been affected by cancer and are grateful to have the opportunity to support Dr. Druker and his outstanding work to find a cure. We have great confidence that OHSU will make a difference."

– Nancy L. Donahue, donor to the Knight Cancer Challenge

Pictured from top left: Nancy L., Nancy C. and Tim Donahue strike a playful pose at a recent OHSU event with cardboard cut-outs of leaders of the Knight Cancer Challenge. From lower left: OHSU Foundation Board Chair Eric Parsons and his wife Janet get tough with cardboard cut-outs of Gert Boyle and Dr. Brian Druker. (See story on page 11.)



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