

ONWARD



SPRING 2019 /// A publication for friends and supporters of Oregon Health & Science University



A NEW HOME FOR HEALING

Families move into the
Rood Family Pavilion

On the cover: Allison Aho, Walter Lathe, Jr., and their daughter Melody moved into the Rood Family Pavilion on the day it opened. Allison holds a photo of their baby Walter, who is being cared for in Doernbecher's neonatal intensive care unit.

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ONWARD

THE OHSU FOUNDATION MAGAZINE
SPRING 2019

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Welcome to **ONWARD**



OHSU is a place of vision and discovery. Every week, it seems, I read and hear stories about OHSU success. “Only at OHSU” is a common refrain.

Our institution is leading nationally, and even internationally, on multiple fronts. A few areas that are top of mind for me: A unique program called SMMART that brings the concept of personalized cancer medicine to a new level, tailoring drug treatments to individual tumors and monitoring effectiveness in real time; new gene therapy research and treatments giving unprecedented hope to patients with blinding eye diseases or debilitating inherited conditions they don’t want to pass on to their children; promising breakthrough vaccines that could protect against malaria, tuberculosis and HIV — three of the world’s deadliest threats.

You’ll read about yet another innovation in this issue: cryogenic electron microscopy, a technology that gives scientists the ability to see biological materials at the atomic level. We have long been able to see inorganic materials such as metals down to the atom, but the ability to see biomolecules at this level is revolutionary. OHSU is one of the few places in the country using this cutting-edge tool to accelerate what we know about human life and what causes a range of conditions, from high blood pressure to Alzheimer’s disease, and how we can better combat them.

The common denominator in all of these achievements is unbridled curiosity, the insistence on asking, “What if?” OHSU is attracting more federal and private research support than ever before, because of a willingness to be both bold and methodical, to ask the big questions and work doggedly to get results.

Our innovation isn’t restricted to research. We’re taking the lead in preparing next-generation health care providers to better deal with major challenges like the opioid epidemic. And our nationally ranked adult and children’s hospitals demonstrate daily how the advantages of being a top academic medical center extend to the clinical experience. This month we celebrate the opening of the Gary & Christine Rood Family Pavilion, a patient guest house like no other in the country, thanks to nearly 2,000 donors who made this dream their own. We’re pleased to share more about this meaningful “only at OHSU” triumph in the following pages.

It’s an exciting time to be at OHSU. Thank you for all you are doing to keep us moving toward a future of better health for all.

A handwritten signature in black ink that reads "Matt McNair". The signature is fluid and cursive, written in a professional style.

Matt McNair
President, OHSU & Doernbecher Foundations



OHSU



A NEW HOME FOR HEALING

FAMILIES MOVE INTO THE ROOD FAMILY PAVILION

/// A generous donation from the Silver family funded the construction of the Silver Family Children's Park. This rooftop playground features sweeping views and provides a safe, beautiful outdoor space for kids of all ages to play. In the background is the George & Janet Boldt Healing Garden, a tranquil retreat where adults can relax, de-stress, and enjoy fresh air.

/// Above right: Allison Aho and her fiancé Walter Lathe, Jr. came to OHSU from Salem, Oregon. Their baby Walter (named after his father) is being cared for in the Doernbecher Children's Hospital neonatal intensive care unit. Their stay in Portland is expected to last five months.

Each year, thousands of families arrive at OHSU and Doernbecher Children's Hospital from every corner of the region to receive long-term, specialty care unavailable in their home communities. Families leave their homes, friends and jobs behind — for weeks or months — during the most stressful times of their lives. But relief is at hand with the opening of a new guest house on Portland's South Waterfront. The newly-opened Gary & Christine Rood Family Pavilion provides affordable, convenient housing — and an oasis of comfort and calm for families when they need it most.

“It means a lot to us to be able to stay here. It’s beautiful, it’s peaceful, and it helps to be around others who have some idea what we’re going through.”

WALTER LATHE, JR.

Among the first to check into the Rood Pavilion were Allison Aho, her fiancé Walter Lathe, Jr. and their two-year-old daughter Melody. They had left their home in Salem, Oregon, so Allison could give birth to their second child at a hospital fully equipped to handle a *very* complicated delivery.

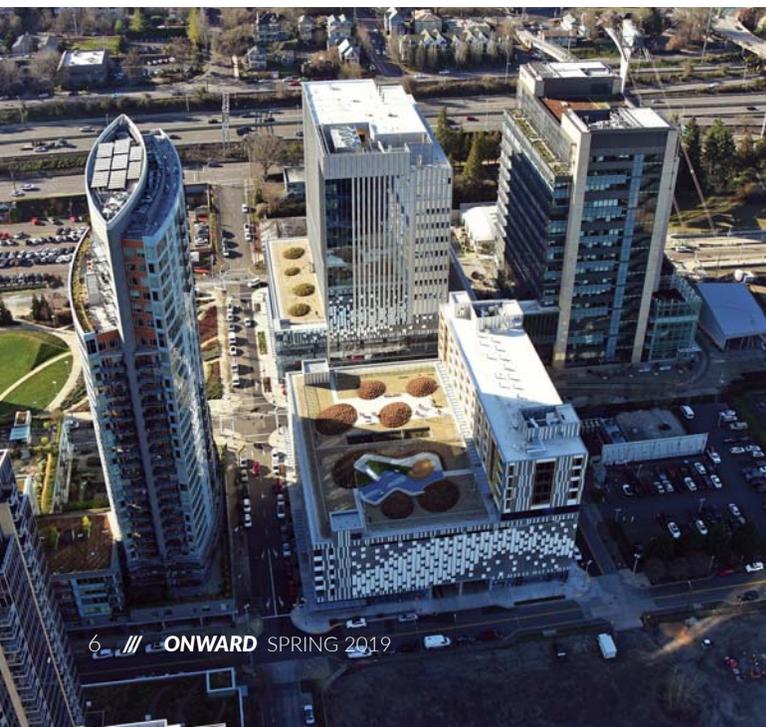
The couple knew in advance that their baby would be born with 22Q deletion syndrome, a genetic disorder that causes congenital heart defects and other complications. His condition meant he would require immediate, specialized help after birth. But what they couldn’t have anticipated was that Allison would also come down with appendicitis during pregnancy, threatening her health and the baby’s. Her

appendix had to be removed, and baby Walter was delivered at OHSU by emergency C-section at 31 weeks. He weighed 3 pounds, 14 ounces. He was immediately transferred to Doernbecher’s neonatal intensive care unit. And now, in the first three months of his life, he has already undergone the first of several surgeries he will need to repair six holes in his heart.

Every day, Allison and Walter spend as much time as possible with baby Walter in the NICU, while also caring for his big sister. Walter requires a feeding tube and a ventilator, and his parents are learning to provide the in-home care that their child will need.

“We do pretty much all Walter’s ‘cares’ now,” said his dad, referring to daily routines such as cleaning a feeding tube, bathing a fragile infant, or maintaining his airway. “We’re very comfortable with it.” And they are eagerly awaiting the day they can bring him home. By that time, the family will have spent approximately five months in Portland.

During that time, they need to be laser focused on caring for their children. Everything else must be put on hold. Allison, who had been working toward a degree in early childhood education, paused her studies during her pregnancy



A home away from home

In January, the five-story building welcomed 38 families of Doernbecher patients. The remaining rooms opened in April, serving adult patients who travel to OHSU for treatment or clinical trials. In total, 76 guest rooms will serve well over 1,000 families each year. Doernbecher families stay at no cost, thanks to the support of Ronald McDonald House Charities of Oregon and Southwest Washington, which operates the facility and provides additional support for families. OHSU offers rooms for adult patients and families at rates well below the cost of an average hotel stay, with opportunities for financial assistance for those who qualify.

/// The 76 guest rooms in the Rood Family Pavilion will provide a home-away-from-home for over 1,000 patients and families each year. From bedtime routines to family meals, families can maintain a degree of normalcy in challenging times. OHSU has covered all the basics, including laundry, a fitness room, lounges for relaxing and socializing, and play areas for toddlers to teens.



because she was unable to be on her feet all day as a student teacher. After Walter had used up his FMLA leave, he had to quit his job in Salem.

Many families find themselves in a similar position, and the Rood Pavilion relieves a tremendous financial strain. “If we couldn’t stay here, we’d have to commute back and forth to Salem,” said Walter. “On a daily basis, think how expensive that would be. The cost of gas would be a pretty big blow.”

When a family member is seriously ill, it’s essential to be nearby. “It’s comforting to be so close,” said Walter. “What if we had to go back to Salem every night, and some emergency happened while we were gone? It would be devastating. We would be an hour drive away from our baby.”

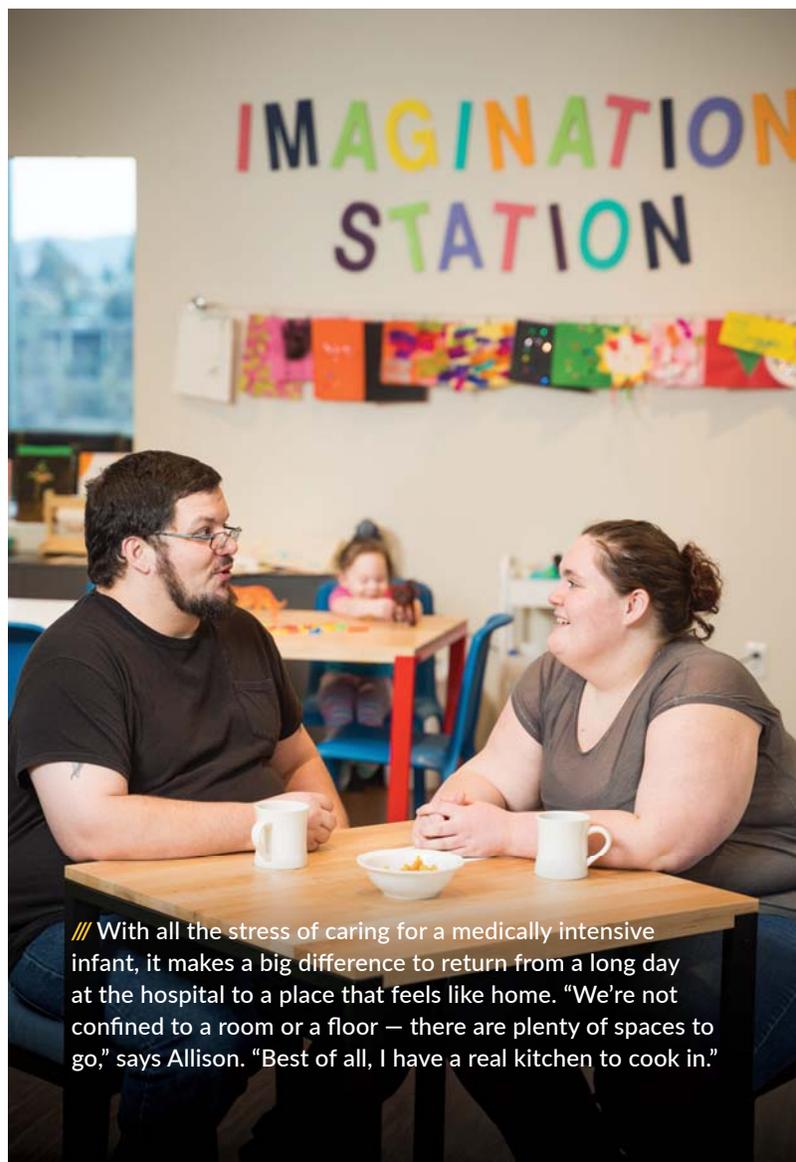
Added Allison, “It’s easier to spend time at Doernbecher because we’re so close. And we’re not spending that time commuting between Salem and Portland. We want to be with our baby as much as possible.” Their commute from OHSU to the Rood Pavilion is four minutes by tram.

The family-friendly building also makes it easier to attend to the needs of big sister Melody. She zooms through the halls in her fire truck and calmly plays dolls with other children in the playroom, making friends easily. “There are a lot of things for kids to do,” said Walter. “Melody loves the arts and crafts. She likes to paint. When it snowed for the first time, she played in the outdoor play area and she loved it!”

On their last night in Portland, Walter plans to cook a big batch of his famous jerk chicken in appreciation for all the other families who have quickly formed a supportive community in this new place. “It means a lot to us to be able to stay here,” he said. “It’s beautiful, it’s peaceful, and it helps to be around others who have some idea what we’re going through.” ///

Funded by philanthropy

The Rood Family Pavilion was funded entirely by philanthropy. More than 1,900 donors contributed to the construction of the guest house, representing 32 of Oregon’s 36 counties, 18 Washington counties, and 38 other states. The pavilion is named for Gary and Christine Rood of Vancouver, Washington, whose leadership gift of \$12 million made the project possible. In addition to the Roods, major donors to the project included George and Janet Boldt of Wilsonville, Oregon; Credit Unions for Kids, a consortium of Oregon and southwest Washington credit unions; the Lematta family of Vancouver, Washington; the Silver family of Portland, Oregon; and The Ford Family Foundation of Roseburg, Oregon.



/// With all the stress of caring for a medically intensive infant, it makes a big difference to return from a long day at the hospital to a place that feels like home. “We’re not confined to a room or a floor — there are plenty of spaces to go,” says Allison. “Best of all, I have a real kitchen to cook in.”



/// The Lematta Family Commons is a kitchen, dining and play area for families of pediatric patients. Here, families can prepare a home-cooked meal and dine together. This spacious, beautifully designed facility accommodates multiple families at the same time. It provides all the necessities of home, including dishes, cookware, refrigerators, dishwashers, and a pantry stocked with staples. A large cooking station is dedicated to Ronald McDonald House volunteers who prepare meals. A separate kitchen area provides the same amenities for adult patients. In addition, some guest rooms include kitchenettes to accommodate the needs of immune-compromised patients.



/// Gary and Christine Rood

On a recent Saturday evening, Gary and Christine Rood stood in a cozy lounge near a crackling fireplace inside the new OHSU guest house that they helped build. Near the window is a bronze sculpture, called *The Healer*, that has provided inspiration to Gary. Beyond it is a view of the hospital where he worked as an administrator some 40 years ago. Their visit to the newly-opened Gary & Christine Rood Family Pavilion is a kind of homecoming for the couple, as it is for the many families who now have a convenient and supportive place to stay while a child or spouse is undergoing treatment at OHSU or Doernbecher Children's Hospital.

"When I worked at OHSU, I saw the need for patient family housing on a daily basis," said Gary. "When I came in to work early in the

morning, there were still people in the lobby who had been sleeping there all night."

Christine feels a kinship with the families who must travel far from home for specialized care. "I grew up in eastern Oregon," she said. "I know what it's like to have to come a long way to a big city, and how overwhelming that can be if you're dealing with an illness."

Now, 76 guest rooms in this beautiful new facility on Portland's South Waterfront will enable families to sleep in peace and privacy. Kitchens, laundry rooms, playrooms, and an outdoor garden and playground provide comfort and practical necessities. The facility is operated by Ronald McDonald House Charities of Oregon and Southwest Washington, which also provides programming for the families of children in treatment at Doernbecher. Everything about the pavilion is designed to lift a burden from families, so that they can focus on what matters most: healing.

"It's beyond our wildest dreams," says Gary. "I'm thrilled that we had the opportunity to give. It was very emotional, driving up for the first time and seeing our name on the building. It is truly magical."

The Roods' \$12 million philanthropic investment made it possible for the ambitious building project to move forward to completion. But Gary is quick to acknowledge that the guest house is the result of a collective effort, with support from 1,900 donors. "Ours is one gift out of thousands," he pointed out. "One little girl raised \$800 with a lemonade stand, and that gift is just as important."

The Roods appreciate the power of philanthropy to transform communities. "This has been a magical journey that started over five years ago when Phil Knight issued his cancer challenge

and we got involved in giving to that,” said Gary. He and Christine were inspired by the Knights’ challenge and the way it galvanized thousands to support the cause. “Phil and Penny Knight could have simply written a check to the Knight Cancer Institute,” said Gary, “but then nobody else would have been able to participate. The way they did it — inviting everyone and anyone to give to this issue — just hit me between the eyes.”

The couple gave \$1 million to the OHSU Knight Cancer Challenge to establish an endowed professorship for cancer research. “I lost my first son to cancer at age 23,” said Gary. “Having been through that, like every other victim of cancer, you want to do everything you can to help.”

The couple’s interest in health care runs deep. Christine was an HR director at a hospital before going into business with her husband. While attending college, Gary landed an internship at UCLA Medical Center during his senior year. He rotated through all the various departments, from the morgue to the operating room. “At the end of it all,” Gary says, “I loved it. I loved what we were accomplishing. I loved the people.”

That same sentiment led Gary to graduate business school at the University of Iowa and then back to Portland, Oregon, as a hospital administrator at OHSU. “I loved the environment of a teaching hospital,” Gary says of OHSU. “It intrigued me. The more complicated, the better. I loved the challenge of it. It’s truly a city by itself.”

Gary’s career in hospital administration continued in The Dalles, where he served as president of Mid-Columbia Medical Center, until he and Christine decided to “strike out on their own” and start their own business. They started leasing nursing homes, assisted living residences and memory care facilities for seniors.

It was also in The Dalles where Gary and Christine began investing in philanthropy. They started a scholarship in memory of Gary’s son. To

this day, the Roods maintain an active role with the scholarship program.

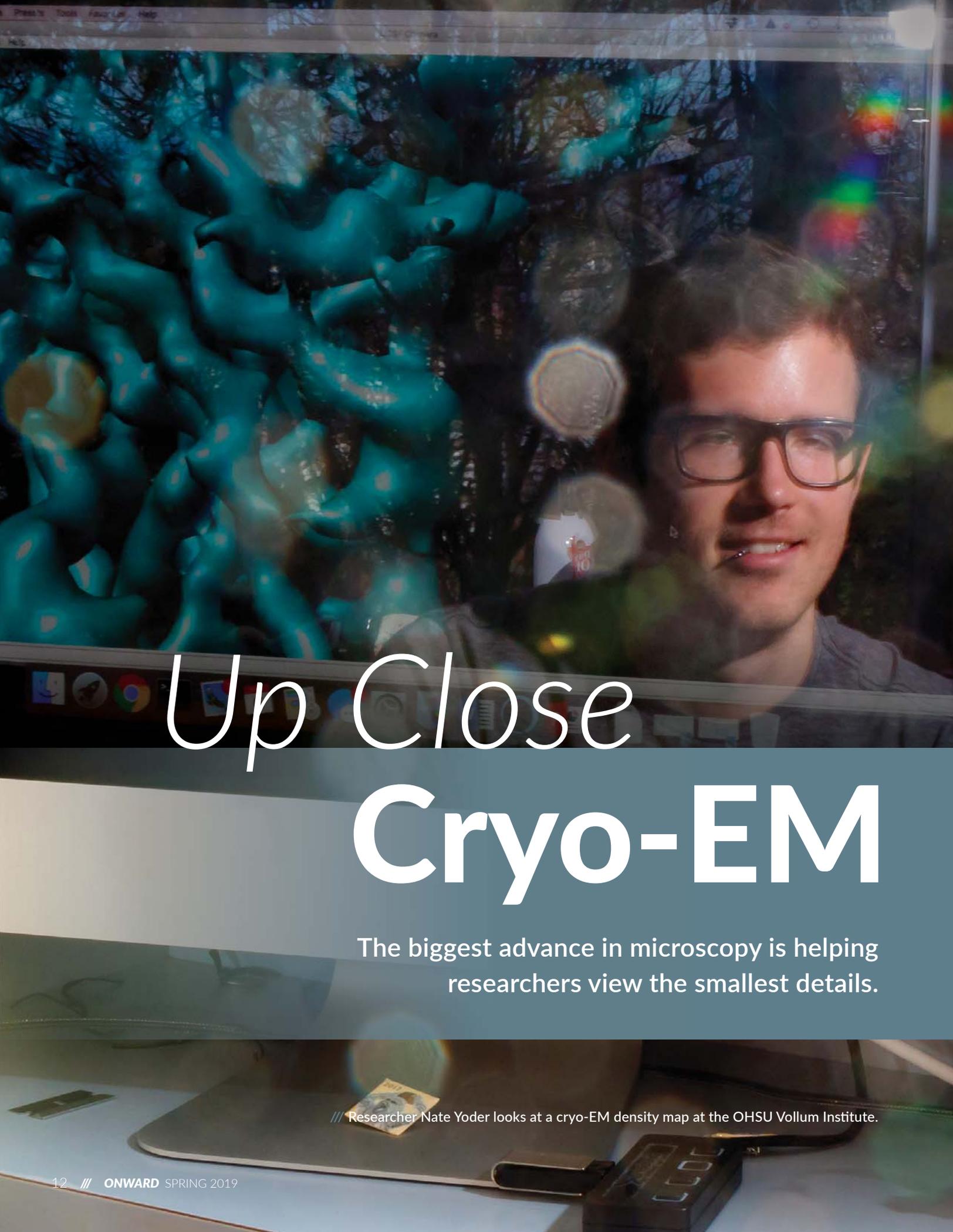
The Roods now live in Vancouver, Washington, and manage Rood Investments. They support the Boys and Girls Club in Vancouver and the Unity Center for Behavioral Health.

Their giving has increased over the years. “Holy catfish!” was Gary’s initial reaction when he learned how much was needed to build a guest house for families at OHSU. But he and Christine quickly made a plan for how they would support the project. “This is the single biggest thing we’ve ever done,” said Gary. “If I don’t do anything else in my life, I think that will be okay.”

His pride and delight in seeing this project come to fruition stems from his understanding of what the Rood Pavilion means to families. “Medicine changes, but the need to take care of people is the same,” said Gary. “The need has always been there, and it always will be. What’s so meaningful to me is that this building we see today will still be helping families 100 years from now, long after you and I are gone.” ///

/// The Roods commissioned the sculpture *The Healer*, by artist John Coleman, for the pavilion, in appreciation for Dana Braner, MD, physician-in-chief of OHSU Doernbecher Children’s Hospital. The sculpture holds special significance for the Roods, who have a similar piece in their own home.





Up Close Cryo-EM

The biggest advance in microscopy is helping researchers view the smallest details.

/// Researcher Nate Yoder looks at a cryo-EM density map at the OHSU Vollum Institute.

Imagine standing on the moon and looking through a telescope so powerful, you can see what someone on Earth is texting on their cell phone. That's the type of analogy that can be made to describe cryo-EM, a new imaging technology being used at OHSU that allows researchers to zoom in on cells at nearly the atomic level.

Welcome to the next generation of imaging

Cryo-EM stands for cryogenic electron microscopy, and it's changing the game for researchers across OHSU. Scientists can now examine the building blocks that make up our bodies with unprecedented clarity. The technology is so revolutionary that its creators were awarded the Nobel Prize in 2017.

In the past, scientists relied on an imaging technique called X-ray crystallography to view the structure of molecules. That came with some serious drawbacks, according to Peter Barr-Gillespie, PhD, chief research officer at OHSU.

"The problem with X-ray crystallography is that you need billions of molecules in your sample, and you also have to figure out how to organize them into crystals to get an image. That takes lots of playing around, and it can be hard to interpret the results," he explained.

With cryo-EM, all that's required is a tiny sample that's flash-frozen to protect it during observation. Because samples don't need to be crystallized, they can be viewed "as is" in their native state. This allows scientists to see how proteins, nucleic acids and other biomolecules move and interact as they perform their functions. That could lead to groundbreaking treatments for diseases that are still poorly understood.

"In many cases, we don't understand what's going on with certain diseases because we can't visualize it," said Eric Gouaux, PhD, the

Jennifer and Bernard Lacroute Term Chair in Neurosciences at OHSU's Vollum Institute. "It's like blindfolding a mechanic and then asking him to work on your car. Cryo-EM allows you to see what's happening — and when you see it, you can often figure out how to fix it."

Cryo-EM imaging has proven to be instrumental in Gouaux's study of the nervous system. "It's really changed the way that we understand how neurons communicate with each other and what happens when that process goes awry," he explained.

Access for all

Gouaux is one of three principal investigators designated for the Pacific Northwest Center for Cryo-EM, which was established through a \$42 million grant from the National Institutes of Health. It's housed in a low-vibration microscopy suite in the Robertson Life Sciences Building and operated in partnership with the Pacific Northwest National Laboratory.

While the center is one of just three in the nation, OHSU is committed to providing access to as many scientists as possible. "There's a huge push to make this technology available to everyone," said Gouaux. The process is remarkably simple: to access the microscopes, a scientist just needs to fill out a short application, which is reviewed by a panel of scientific peers. "If the request is reasonable, you'll get time and training. In some ways, it's almost easier than getting a driver's license," he smiled.

While getting approval is relatively easy, there are only so many cryo-EM microscopes to go around. (There are only 50 in the nation; five at OHSU.) They're also wildly expensive to maintain.

"Purchasing the equipment is very costly. So is upkeep and staffing. The NIH is willing to devote some resources, but unfortunately they

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CRYO-EM IN ACTION

Here's where cryo-EM is making an impact at OHSU.

NEUROSCIENCE

/// In the Gouaux lab, investigators are using cryo-EM to study the structure and function of chemical synapses in the brain, which can become disrupted in cases of disease or injury. Their insights will be used to develop new therapies for conditions like Alzheimer's and Parkinson's. Eric Gouaux, PhD, is a professor and senior scientist in OHSU's Vollum Institute.



DIABETES

/// In the Shyng Lab, cryo-EM is helping to reveal how gene mutations disrupt the release of insulin. For the first time ever, Show-Ling Shyng's team has been able to obtain high-resolution, 3-D images of the channels that control insulin release. This will lead to better treatments to combat diseases like diabetes. Show-Ling Shyng, PhD, is a professor of biochemistry and molecular biology in OHSU's School of Medicine.

Read more about Show-Ling Shyng and her research in a special feature on our blog: OnwardOHSU.org/Shyng

HEARING

/// Peter Barr-Gillespie's lab uses a variant of cryo-EM called electron cryotomography, which uses the same instruments to look in detail at small parts of cells. Peter Barr-Gillespie, PhD, is OHSU's chief research officer. He uses electron cryotomography to examine the structure of stereocilia, the parts of the ear's sensory cell that respond to sound.



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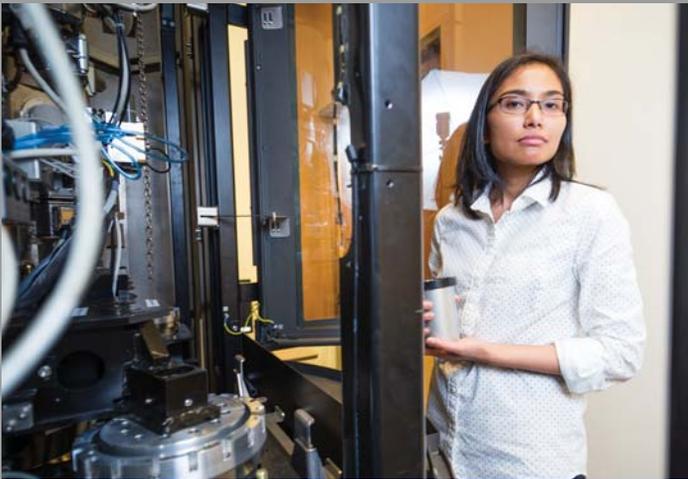
aren't able to shoulder the entire burden," explained Gouaux. "That's why philanthropy is so important — we need donor support to keep the center operating at full capacity and capability."

Gouaux added that it's the generosity of donors that allows researchers to push the boundaries of what's possible with cryo-EM. "The projects that you might propose to do with this technology are really at the cutting edge," he said. "Those kinds of projects don't always receive government funding, because they're viewed as too risky. However, breakthroughs often come from risk."

Attracting the best and brightest

Besides all of the opportunities around research, the cryo-EM center offers another important benefit — it's helping OHSU attract top-caliber scientists from all over the world.

"Having a national center for cryo-EM means that we are a nexus for investigators," said Barr-Gillespie. "While any scientist with an approved project can use the center, having your lab at OHSU means that you'll have easier access to the cryo-EM instruments and can collaborate with other users to take your research to the next level. Without a doubt, it's a powerful recruiting tool." ///



HYPERTENSION

/// In her lab, structural biologist Isabelle Baconguis, PhD, an assistant scientist in OHSU's Vollum Institute, is using cryo-EM to study the sodium channels that control the amount of salt in the human body. Understanding what those channels look like can lead to more targeted drugs for conditions like hypertension. "It's uncharted biomedical science," said Baconguis.

HEART HEALTH

/// Cardiologist Steven Mansoor, MD, PhD, is an assistant professor in the Knight Cardiovascular Institute within the OHSU School of Medicine. He's leading a research effort using cryo-EM to view the structure of receptors whose activation can trigger blood vessel inflammation and platelet aggregation, leading to coronary artery disease. "This will allow us to design treatments that can prevent over-activation of these receptors, decreasing heart attacks and plaque burden," he explained.





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WE'VE SEEN THE FUTURE OF HEALTH CARE. AND THEN WE BUILT IT.



CENTER FOR HEALTH & HEALING BUILDING 2

The new Center for Health & Healing Building 2 is reinventing how we heal. Here, some of the world's newest and most advanced medicine is practiced in an environment built around the people we serve. Research, medicine and healing have finally come together in one place. At OHSU South Waterfront.

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