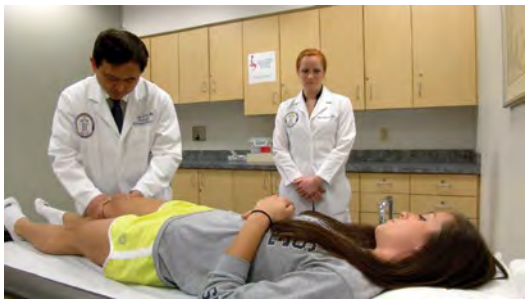
32 HOURS

Every day, members of the Geisel community engage locally, nationally, and internationally to improve lives in ways big and small. Here's a glimpse of a few examples from one typically atypical stretch of time.

Freddie Fu (D'74, Med'75) is renowned both for his pioneering surgical innovations and his work to keep athletes healthy and performing, from ballerinas to cyclists to NFL receivers. Here he tends to a Pittsburgh Ballet Theatre dancer's injury and examines a patient's knee at the University of Pittsburgh Medical Center's Sports Performance Complex while sharing his knowledge with a medical student. Fu has been chair of Pittsburgh's Department of Orthopaedics for 15 years and serves on the Geisel Board of Overseers.



David Malli

LOVE OF TEACHING

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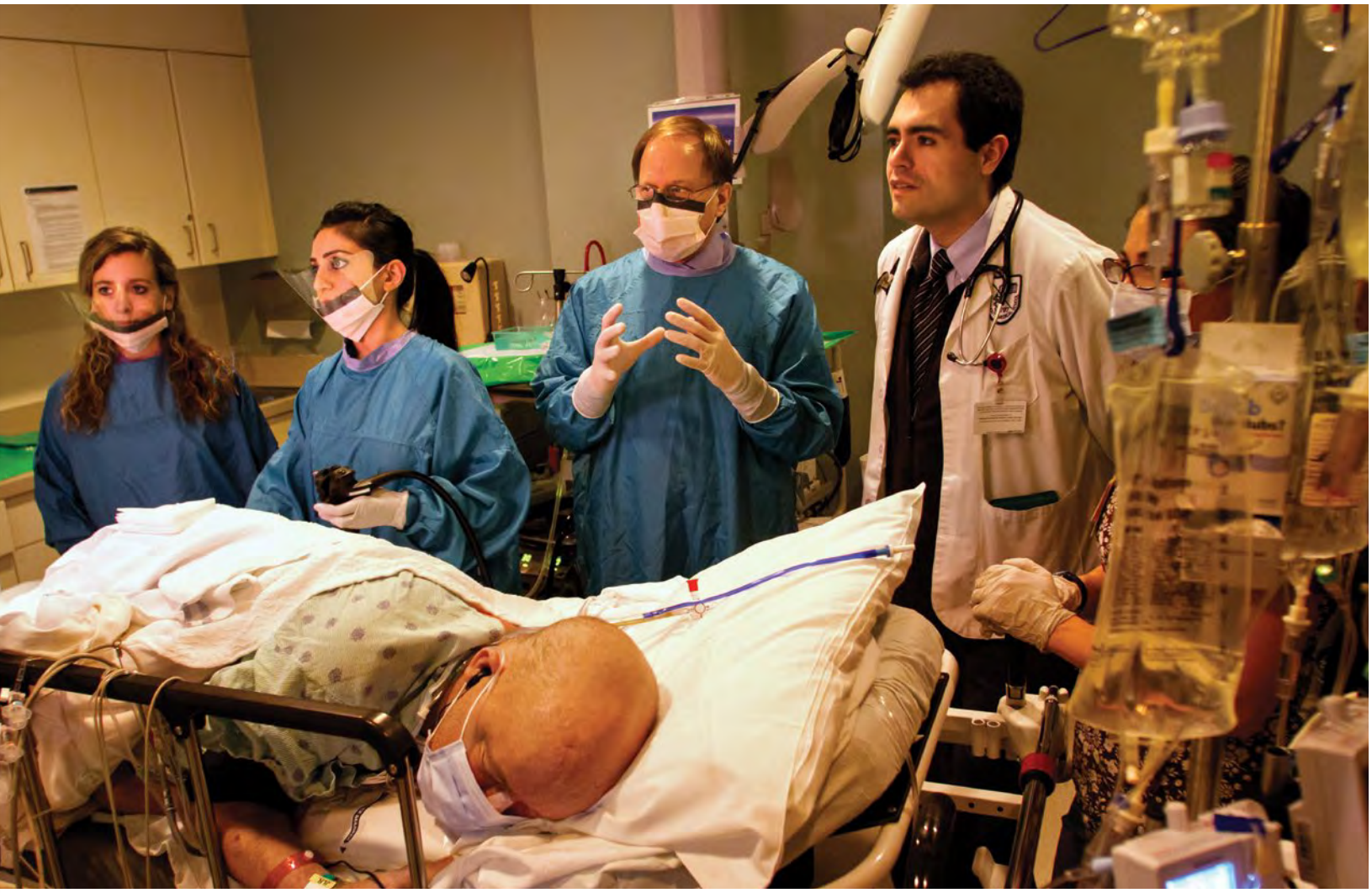

Lars Blackmore

Left to right: Kristen Sprenger, an endoscopy technician; Zilla Hussain, a GI fellow; Rothstein; and Raphael Lizcano, a fourth-year medical student.

RICHARD ROTHSTEIN WEARS MANY HATS AT GEISEL: administrator, researcher, clinician, teacher. A majority of his time is spent overseeing programs as chair of Geisel's Department of Medicine. He is also a pioneer in natural orifice endoscopic surgery and studies the role of robotics in endoscopy. A gastroenterologist, he sees GI patients in the clinic. Yet the one activity that gets him especially excited is clinical teaching.

Rothstein teaches internal medicine residents and medical students at morning report, on rounds, and in endoscopy. Morning report is a forum for young trainees to dissect a case and make a diagnosis. "It's really bidirectional learning," Rothstein says. "I try to bring something to the table, mostly experiential having been here now nearly 30 years. But I also come away from it invigorated, learning new things from the young trainees and from the young doctors who will ask you issues."

One such doctor, Zilla Hussain, a fellow in gastroenterology, was struck by Rothstein's great bedside manner when she first worked with him on rounds. "He's an amazing teacher," she says. "When he was with the patient, at the bedside, he puts everybody at ease and he's just a great mentor. Students all had such a great time because he knows how to bring in humor and that's always nice. Just a very relaxed guy who has a lot of knowledge but very humble."

The heart of clinical teaching, says Rothstein, is a combination of teaching and learning. "I really chose to be in an academic medical center because it offered that interplay with students, residents, and my colleagues from whom I learn many things each day and to whom I hope I can impart some ways of practice," he says.

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ANIMIKIIG OMBENDAMOWAAD

(Little thunders of hope)

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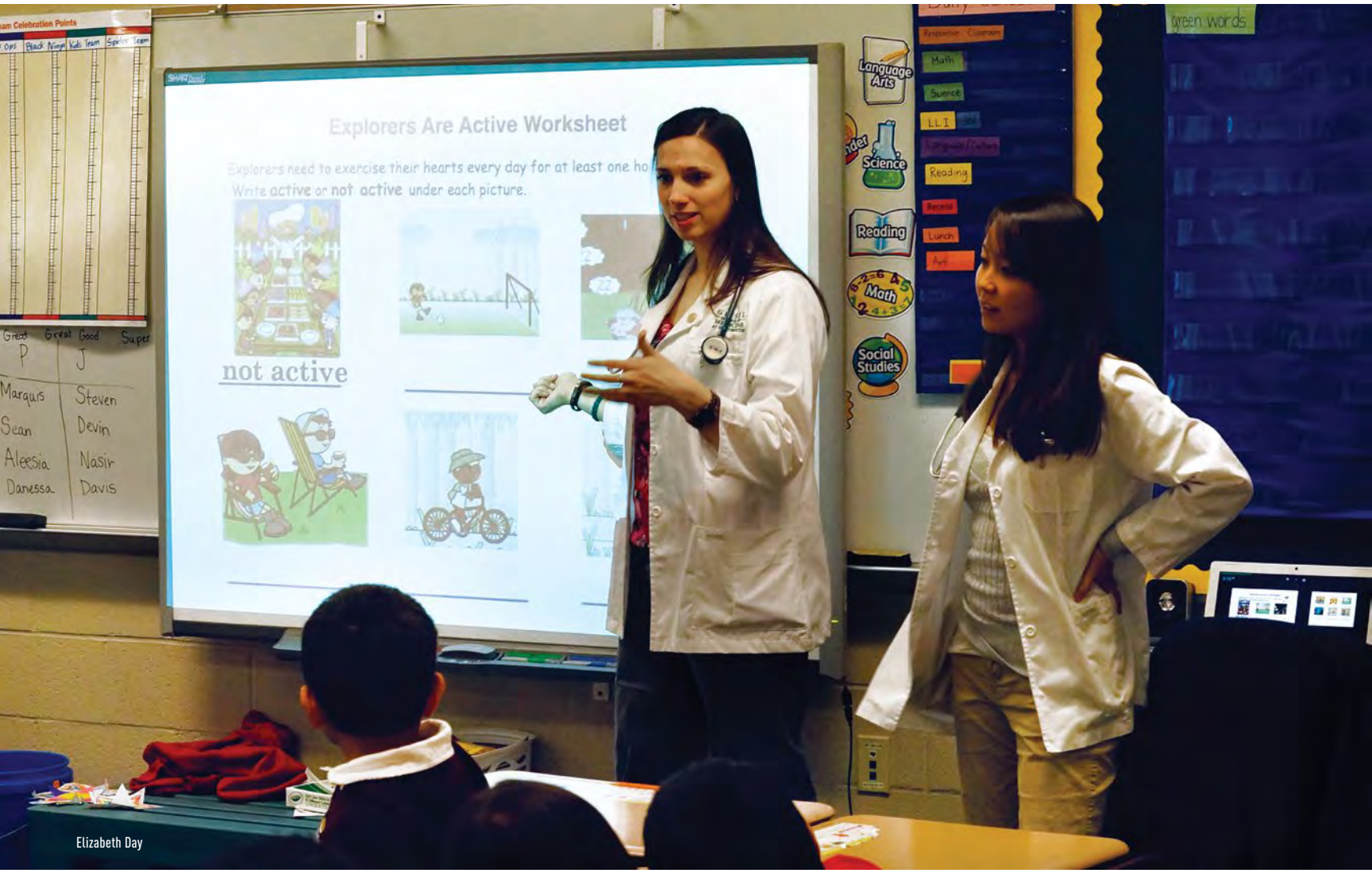


Elizabeth Day

Geisel medical students engage elementary students in health education during a visit to Nett Lake Reservation.

RAIN THAT DOESN'T HIT THE GROUND. That's how American Indian community leaders in Minneapolis describe programs that never benefit—or even reach—the people.

Through service, education, and cultural convergence, Geisel hopes to ensure that the rain not only reaches the earth but also helps sprout a sustainable energy that improves lives.

For the past four springs, first-year medical students have brought their talents, passion, and openness to Minneapolis—home to the largest urban Indian population in the U.S.—and to the White Earth, Red Lake, Leech Lake, and Bois Forte Indian communities of northern Minnesota.

Spurred in 2009 by a burgeoning student desire for more experiences in diverse communities facing health disparities, Shawn O'Leary, director of the Geisel Office for Diversity and Community Engagement, created the blueprint for what a successful student program in Indian country would look like. He then set off to establish and re-establish relationships on the ground in Minnesota with the Indian Health Service, Dartmouth and medical school alumni, community development groups, education leaders, universities, and tribal governments, health personnel, and elders.

It had been a few years since O'Leary—a member of the Bois Forte band of Ojibwe—traveled Minnesota's rural and city roads as part of his work forging allies

to help improve Indian students' readiness and success in college, or to modestly close the chasm separating Native communities from decent health access and outcomes.

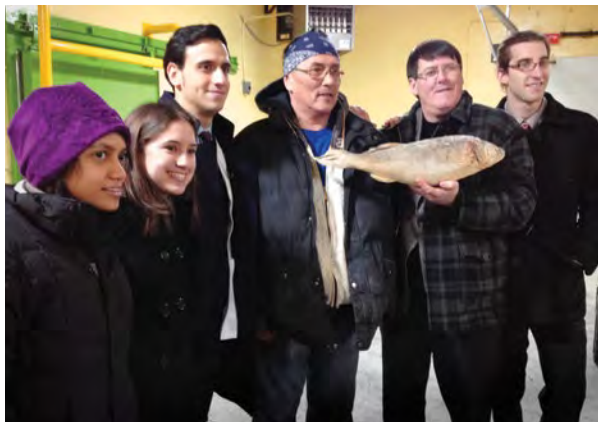
Four years later, O'Leary reflects on the success of the program and on what the experience continues to mean to students—and to the communities. "Anytime you bring in a bright young person who has so much potential and you have a chance to engage and talk with them, you're hopeful. You're hopeful for a new tomorrow," he says. "Hope is always good. Hope brings about a sense of empowerment. . . . I guess that's the one word I hope we're leaving behind. We're empowering people to move forward and change their lives and become what they want to become. Our students leave a piece of themselves here in so many ways."

According to first-year medical student Rebecca Wang, "the trip is really important in promoting awareness of different cultures. As doctors, we will be working with people from a variety of different cultures." Her favorite part of the trip was talking with elementary school students at Bois Forte. "We want to make an impact on the community and also learn from them," she says. "We're with the kids to spark in them an interest in being a doctor or an interest in science, as well as encourage them to live healthy and make healthy decisions."

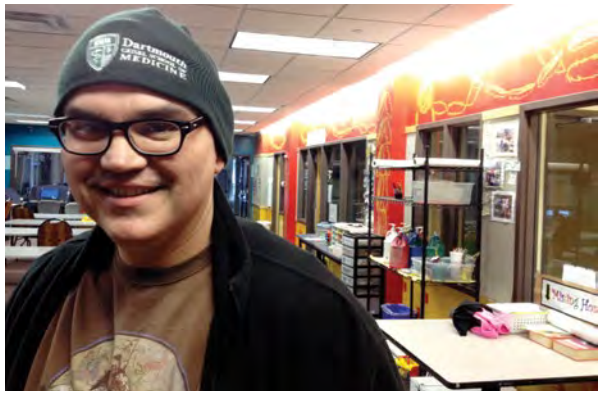
Geisel Dean Chip Souba made the trek to Minnesota with the group this year. He says Dartmouth's long-standing commitment to Native American education naturally fuels Geisel's passion to help reduce health disparities in Indian communities: "We have an obligation to develop strong health and educational partnerships with our Indian brothers and sisters."

Souba says it's inspiring that nearly 20 percent of first-year students chose to spend their spring break within the Native American communities of Minnesota and that several other Geisel Urban Health Scholars spent their break working in health-care settings in inner-city Chicago.

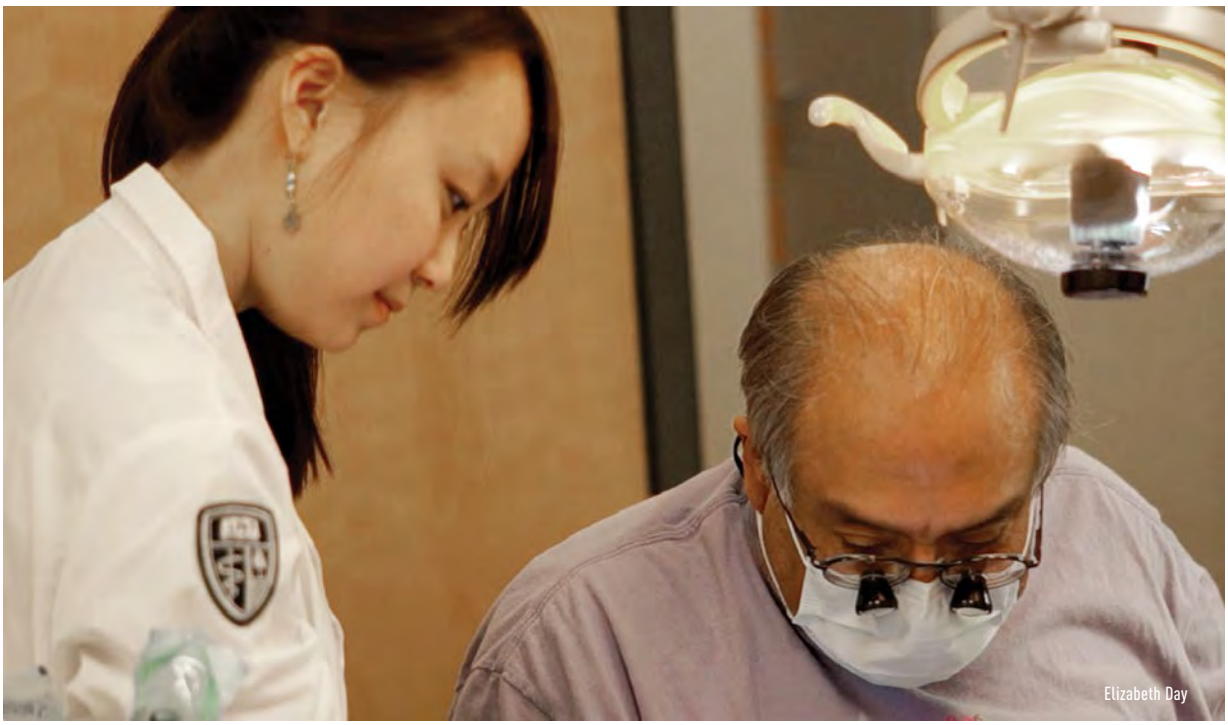
"This is spring break at Geisel," says Souba. "We have 15 students here . . . volunteering and wanting to be here. Why? Because they can make a difference and improve people's lives."



Medical students with workers at the Red Lake Nation Fishery on Red Lake Reservation.



Bill Ziegler, CEO of Little Earth of United Tribes, a large public housing project in Minneapolis, met with Dean Chip Souba and other Geisel leadership about ways to partner on education and health care. Ziegler has helped lead efforts to break the cycle of poverty at Little Earth. Over the past few years, crime has decreased by 60 percent and high school graduation rates have risen.



Elizabeth Day

First-year medical student Rebecca Wang works alongside a dentist on Bois Forte Reservation.

TRANSLATING IMMUNITY

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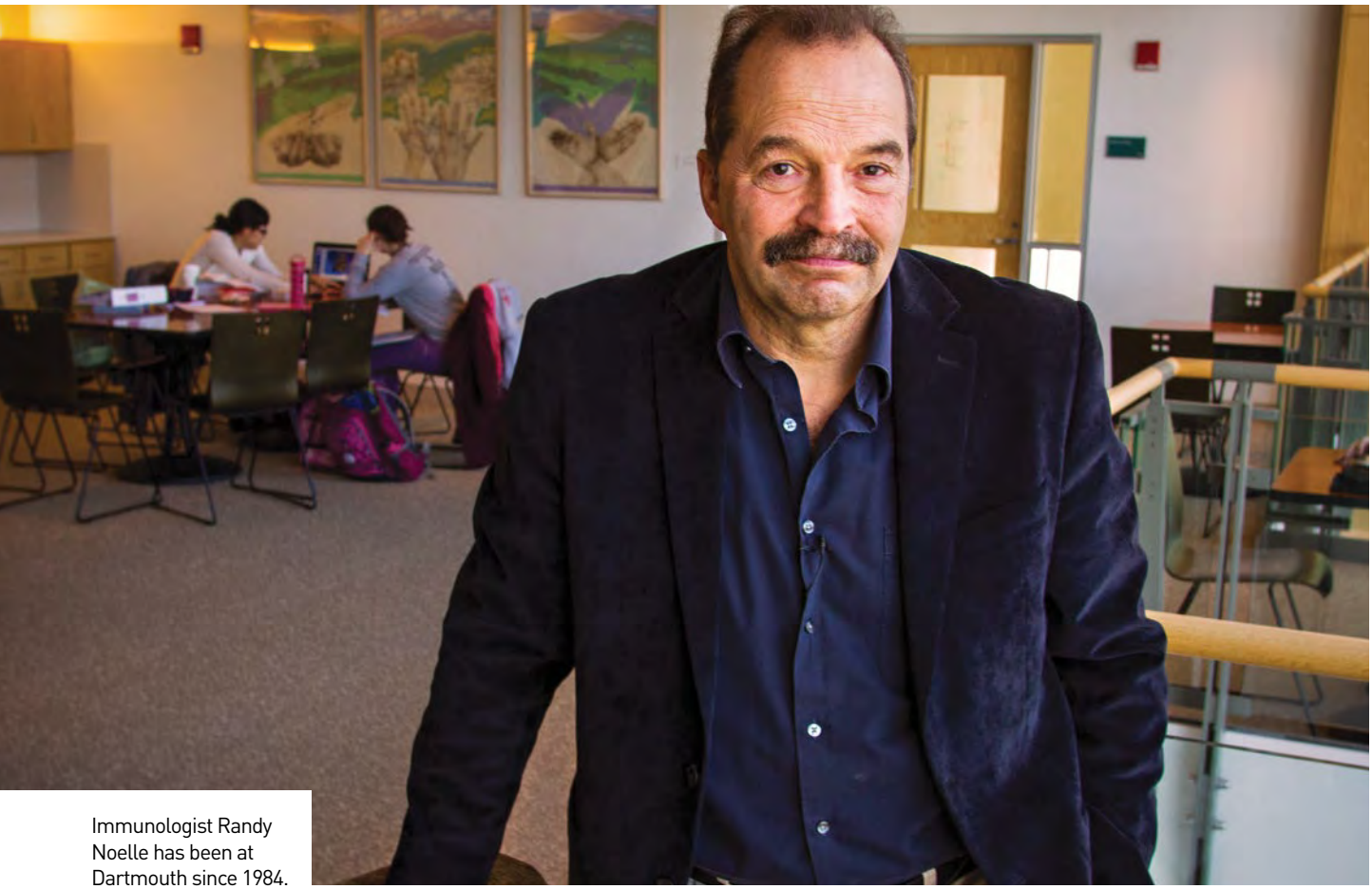


Immunologist Randy Noelle has been at Dartmouth since 1984.

OVER THE COURSE OF HIS CAREER, RANDY NOELLE has made many contributions to the growing understanding of how the immune system functions. But at the same time, he has taken on an aspect of biomedical research that can be hard for scientists to master: turning basic discoveries into treatments for a disease.

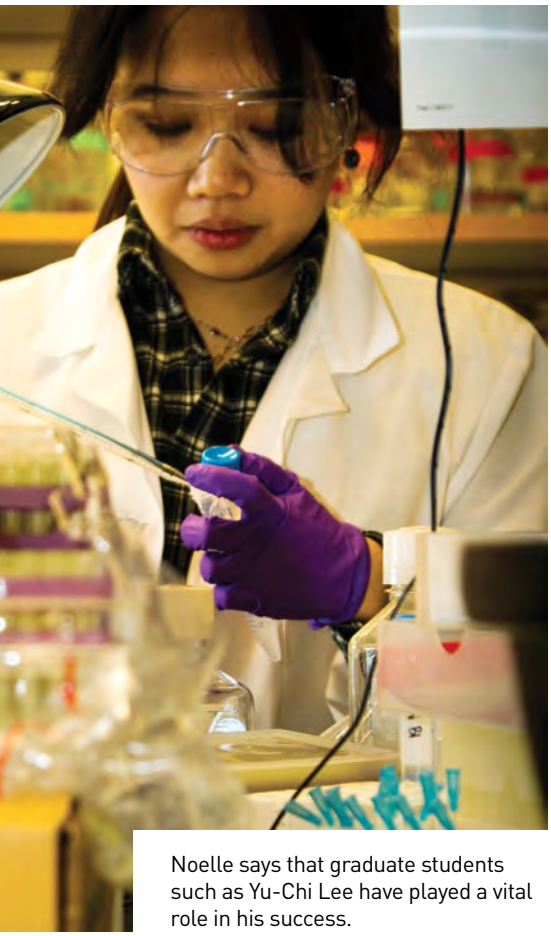
Manipulating the immune system has shown great potential for the development of new drugs. "So many of the chronic diseases that we face as we age are immune-related," says Noelle, a Geisel professor of microbiology and immunology. "In the last decade, revolutionary new drugs have appeared. The drugs that have really made a difference, both in cancer and in autoimmunity, are drugs that target particular components of the immune system."

Recently, Noelle and researchers in his lab discovered a protein, called VISTA, that he thinks offers a good target for a new cancer treatment. VISTA is one of a number of checkpoint regulators, which prevent the immune system from overreacting to a threat. "If we didn't have these negative checkpoint regulators, the next time you got the flu, you would have massive inflammatory responses systemically that would kill you," Noelle says.

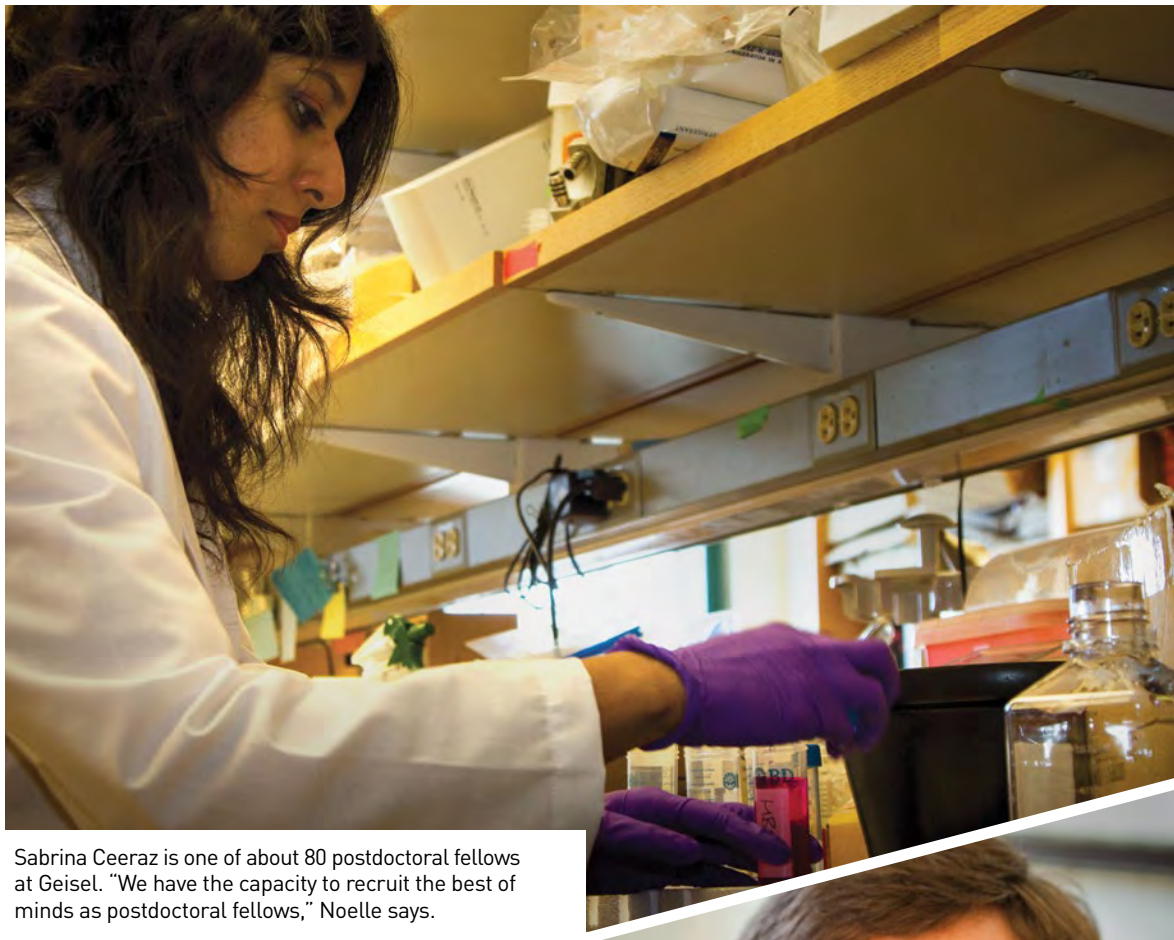
But when facing cancer, these checkpoint regulators can shut down the immune system's response, preventing it from mounting a full defense. By targeting VISTA, Noelle hopes to unleash the immune system to attack tumors. Doing so would create long-lived immunity, just as childhood vaccines offer long-term protection against diseases such as measles and mumps.

"OVER THE NEXT FEW YEARS, WE WILL HAVE PRODUCED A HUMAN THERAPEUTIC THAT WILL TARGET VISTA."

Photos by Lars Blackmore



Noelle says that graduate students such as Yu-Chi Lee have played a vital role in his success.



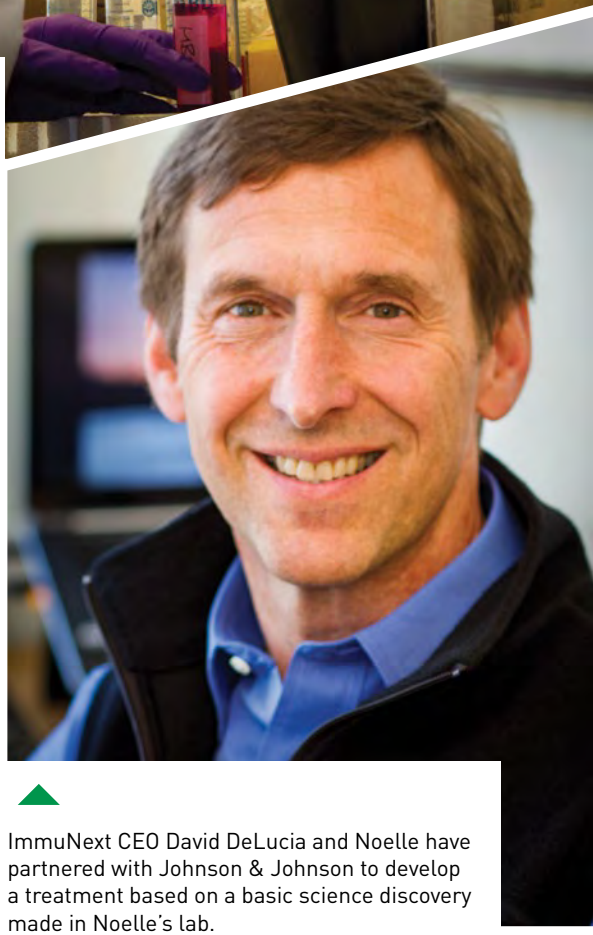
Sabrina Ceeraz is one of about 80 postdoctoral fellows at Geisel. "We have the capacity to recruit the best of minds as postdoctoral fellows," Noelle says.

Noelle cofounded a company to turn his discovery of VISTA into a viable treatment. It's a long and expensive process. So the company he started, ImmuNext, has partnered with Johnson & Johnson, which provides resources to support the work as ImmuNext tries to turn the discovery into a deliverable drug. "We're very excited about the prospects," Noelle says. "Over the next few years, we will have produced a human therapeutic that will target VISTA, and we hope that it will be a therapeutic that will allow your immune system to make protective immune responses to any number of cancers."

He adds that he owes much of his success to the research environment at Dartmouth. "The success rate is not a great one in the industry, but we've been lucky," he says. "I think the reputation of my lab [and] the reputation of Dartmouth have helped create credibility."

David DeLucia, the CEO of ImmuNext, agrees with Noelle. "What makes Dartmouth a good place to develop technology . . . is that you have this close proximity, this integration of cutting-edge scientific research with clinical practice," DeLucia says. "The quality of the pieces and the proximity of the pieces is a very rare and productive situation."

Noelle says it's that combination that has kept him at Dartmouth. "I can't think of another academic medical center in this kind of setting that has such a competitive and comprehensive infrastructure," he says. "I'm here because of that—because of the infrastructure, because of the colleagues that I have, and because of the living environment."



ImmuNext CEO David DeLucia and Noelle have partnered with Johnson & Johnson to develop a treatment based on a basic science discovery made in Noelle's lab.

A STUDENT'S LIFE

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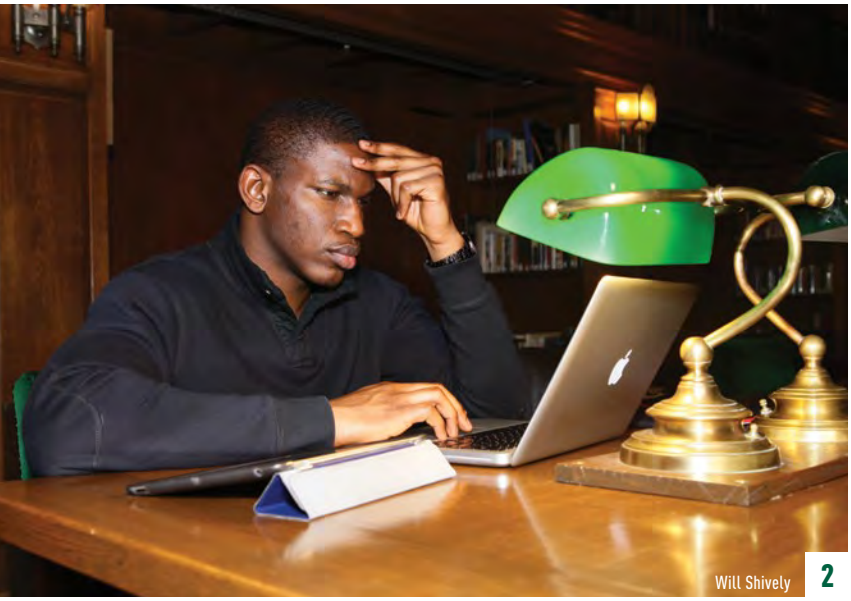

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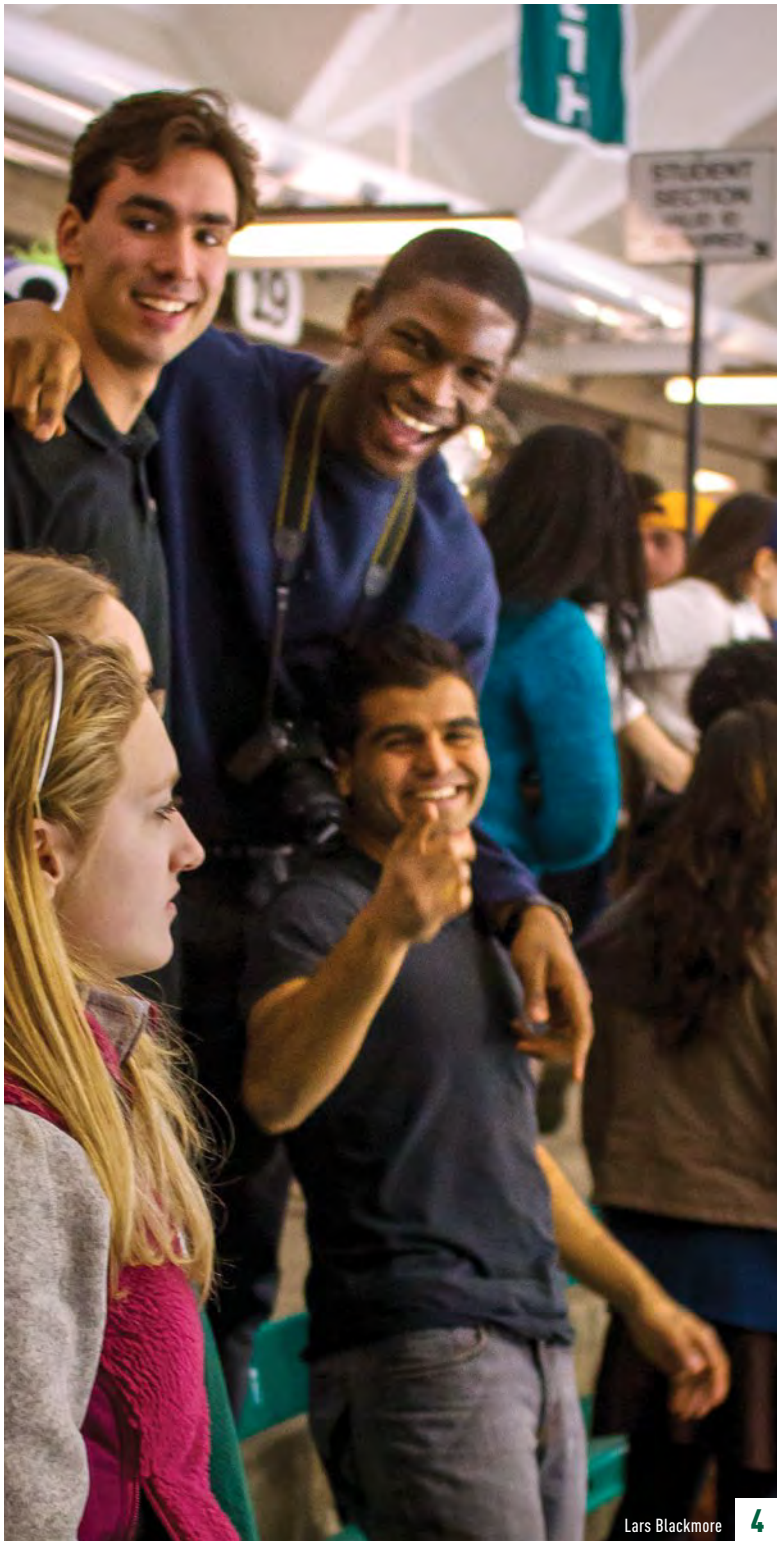

Lars Blackmore 4

1) Jeanie Ringelberg (*right*), a third-year Geisel medical student, during her clerkship in medicine this spring at the California Pacific Medical Center (CPMC) in San Francisco. CPMC is a popular location for Geisel students and offers a diverse patient population and urban experience for these doctors-to-be. 2) Second-year student Ayobami Olufadeji studies in Baker Library. 3) VA Medical Center patient Erik Esselstyn (*left*) talks with Geisel medical students Nick Barnes and Adina Fischer about his health and experiences. 4) Geisel students cheer on Dartmouth's hockey team.

THE ENVELOPE, PLEASE

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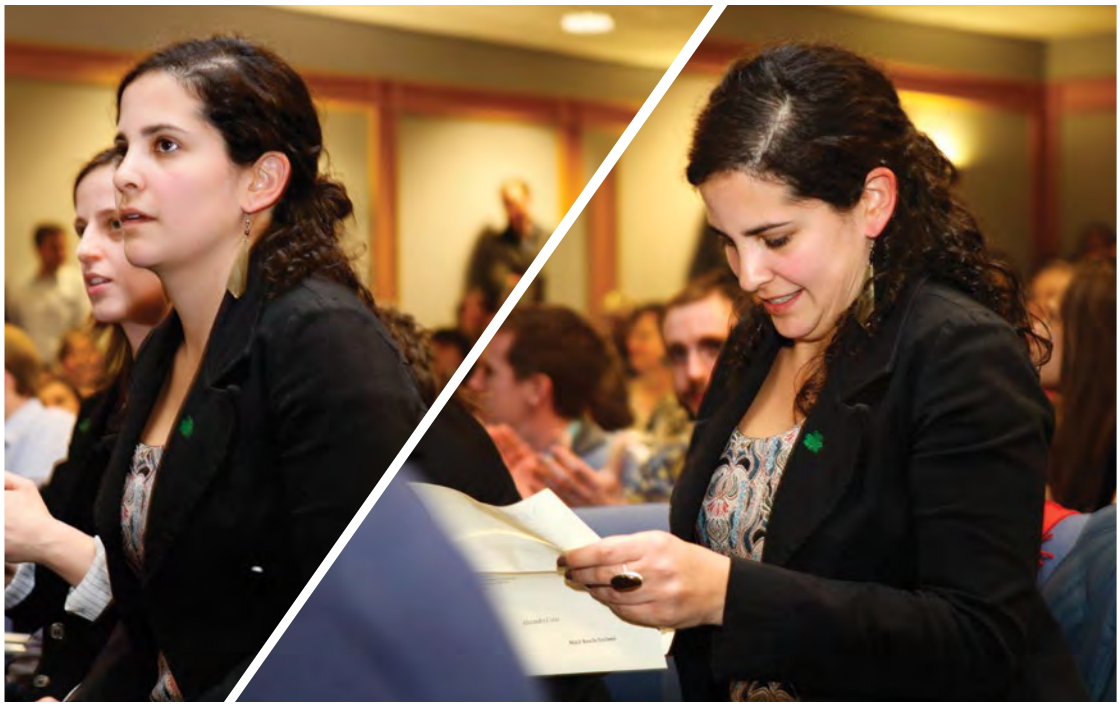

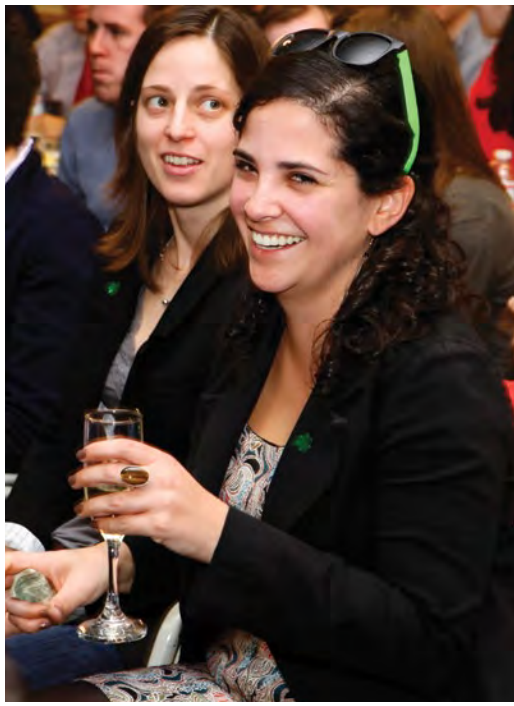

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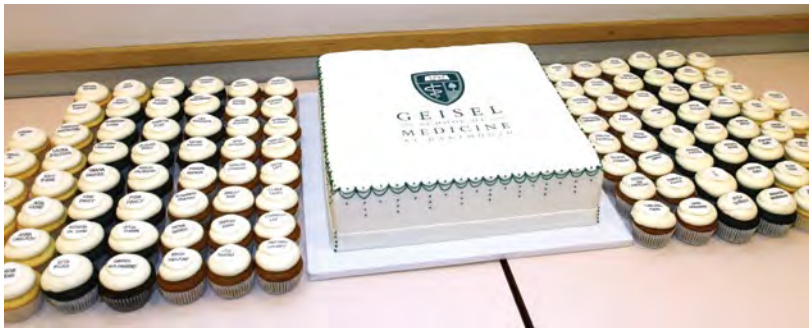

MARCH 15 WAS AN EVENTFUL DAY FOR FOURTH-YEAR MEDICAL STUDENT ALEXANDRA CORIA (pictured above) and her classmates. At noon they gathered in an auditorium to find out where they had matched for residency.

"It really is the day that you are bound to go be a doctor somewhere," Coria said in the hours leading up to the ceremony. "You just feel on the cusp of all kinds of potential for your future, and I'm nervous and excited for all of my friends, who I've seen go through this process as well of becoming a doctor. I think it's going to be just a very emotional but very exciting day."

When it was finally time for Coria to open her envelope, she found the words she was hoping to see. She matched into the combined residency program at Boston Children's Hospital and Boston Medical Center, where she'll practice pediatrics in an urban health and advocacy track. "It's exactly where I want to be and exactly who I want to be with, so it's fantastic," she says.

"At Dartmouth it does get to be like a family. I have made so many wonderful friends and gotten to know so many wonderful people here and I wouldn't have traded that for anything."