

V E R M O N T

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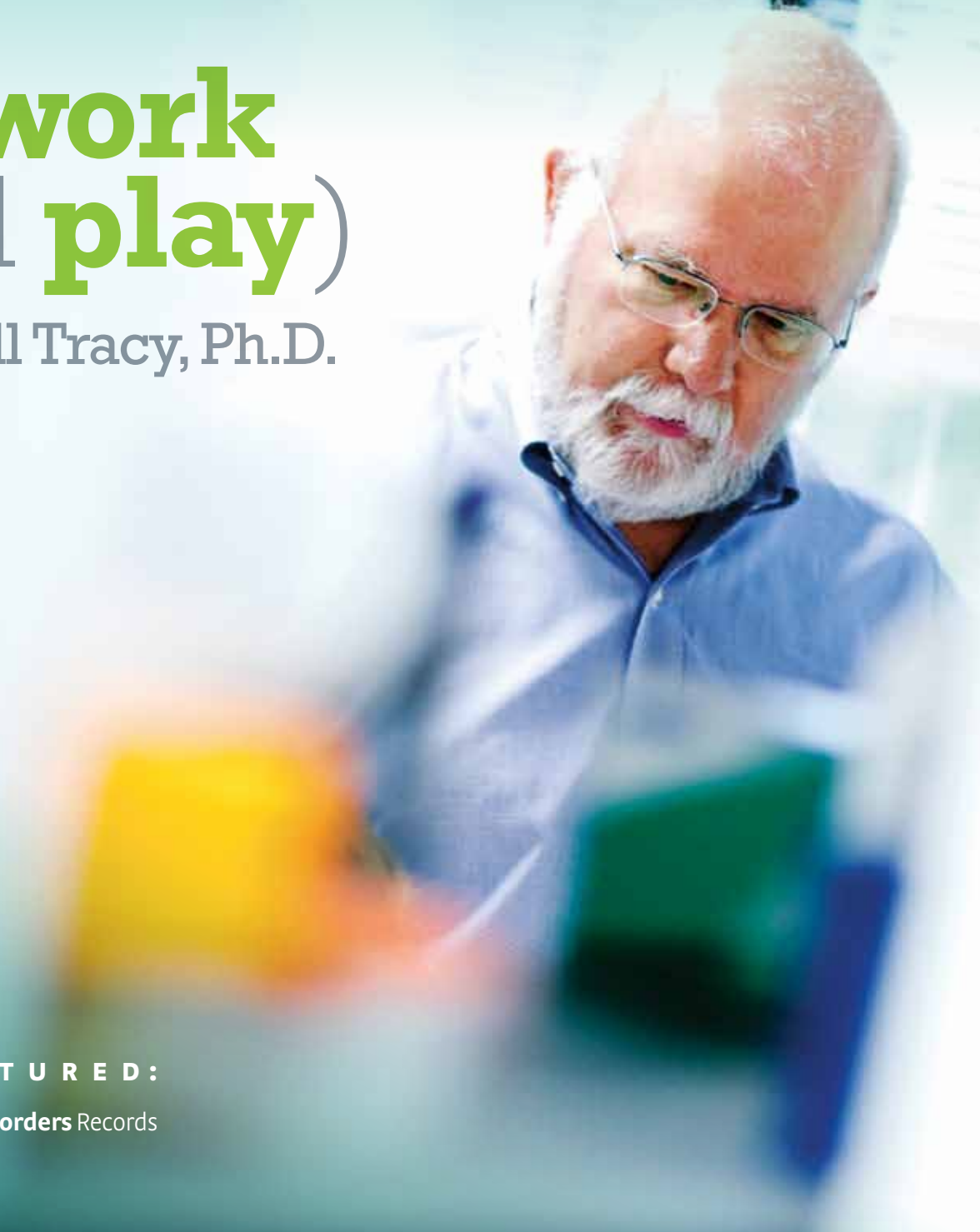
UNIVERSITY OF VERMONT COLLEGE OF MEDICINE

the **work** (and **play**)

of Russell Tracy, Ph.D.

ALSO FEATURED:

- › Doctors Without Borders Records
- › The Pulse at 50





idea man

Russell Tracy, Ph.D., followed his own special path to build a distinguished research and administrative career, and in the process has helped foster the work of many others.

by **Sarah Zobel** | photographs by **Mario Morgado**

Russell Tracy, Ph.D., directs the UVM Laboratory for Clinical Biochemistry Research; lectures in pathology and biochemistry; travels regularly to meet with collaborators on the countless multicenter, multidisciplinary studies in which his lab has a role; and routinely writes and reviews grants and articles for publication. Yet he describes his days as nothing more than play.

“Humans don’t want to work,” Tracy explains. “*Play* is being able to spend your day doing something you think of as productive, and being very comfortable in how your day goes. If you can do that, then you’re playing, not working, and the output is almost always much better than if you’re cutting against the grain and working all day.” When speaking with graduate students today, he tells them to focus not so much on the content — whether it’s cancer,

cell biology, or heart disease matters less than that each person finds work that lets his or her brain function the way it’s most able to, which he says is one definition of *play*.

According to Tracy, however, most people have no idea how their own brains work. So he suggests to the graduates that they ask themselves, “What would ten people who know me say about why I’m smart?” He’s not looking for a list of accomplishments; rather, he wants them to consider what they’ve done as a process to demonstrate intelligence. Using himself as an example, he often shares with others a binder filled with his elaborate doodles, dated and titled with the meetings at which he drew them.

“I keep [the binder],” Tracy says, “because I find it illustrative to say to people, ‘There’s lots of ways to be productive and smart.’” The doodles, he explains, don’t mean he’s not paying attention — on the contrary, he

Russell Tracy, Ph.D., stands in the “freezer farm” of the Laboratory for Clinical Biochemistry Research, where millions of blood samples are safely stored.



listens intently, and creating the drawings helps him stay focused on the discussions. But like most people with a mild to moderate attention deficit hyperactivity phenotype, it took a while for Tracy to figure himself out.

As an undergraduate at LeMoyne College, a Jesuit school in Syracuse, New York, Tracy was “the smart guy in class who never did well on tests.” He majored in biology, thinking he should go to medical school, and minored in philosophy and theology. But it was in the latter classes that he earned his best grades, while barely passing biology and chemistry. His senior year, he dropped his genetics course to focus on Teilhard de Chardin, a Christian philosopher, much to the dismay of the chair of the biology department, who called to point out what he deemed to be Tracy’s mistake. Tracy didn’t care that he wouldn’t be accepted by a medical school. At that point, he wanted to engage in pure thought.

“I remember taking a week off from classes to work on decision making,” he says. “Who does that?”

After graduating with his degree in biology in 1971, Tracy considered joining the Navy, until he realized that he’d have to undergo three years of schooling before even being allowed on a submarine. Feeling a sense of aimlessness, he took jobs selling Oriental rugs and tending bar. It was only by chance that he saw a poster announcing graduate biochemistry work at Syracuse University.

Because his grades wouldn’t have allowed him to matriculate, Tracy decided — “a little bit impulsively” — to buy a few credit hours’ worth of biochemistry courses. It was 1972, and though his ponytailed fellow students were walking around campus in combat boots, Tracy cut

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—**Lew Kuller, M.D., Dr. P.H.,**
Distinguished University Professor of Public Health
Department of Epidemiology
University of Pittsburgh

Russell Tracy, Ph.D., in his Colchester lab with research technician Cheryl Powden.



the tracy file

Russell Tracy, Ph.D.

Professor, Departments of Pathology and Medicine
1997–present

Member of the University of Vermont faculty since 1984.

Senior Associate Dean for Research & Academic Affairs,
UVM College of Medicine, 2001–2009

Interim Associate Dean for Research,
UVM College of Medicine, 2000–2001

Associate Director of Clinical Chemistry,
Fletcher Allen Health Care, 1995–1997

Core Laboratory Director, General Clinical Research Center
and Sims Obesity and Nutrition Research Center,
UVM College of Medicine, 1993–1995

Assistant Professor of Pathology, University of Rochester (N.Y.)
1983–1984

Postdoctoral Research, Mayo Clinic, Rochester, Minn.,
1978–1983

Consultant, Molecular Anatomy Program,
Argonne National Laboratory, Argonne, Il.

EDUCATION

LeMoyne College, Syracuse, N.Y.,
B.S., Biology, 1971

Syracuse University, Syracuse, N.Y.,
Ph.D., Biochemistry, 1978

Mayo Clinic, Rochester, Minn.,
Postdoctoral training, 1978–1980

- **University Scholar,**
University of Vermont, 2009

- Author of more than **400 published peer-reviewed articles.**

SELECTED HONORS

2006–2010 AHA Council on Epidemiology & Disease
Prevention Leadership Committee

Authored article listed in the “most overall cited articles
since 1993” in New England Journal of Medicine; two
articles in “Top 50 Cited Articles” in Circulation.

The Bernie Zak Award for Research — Lipoproteins and
Vascular Diseases Division, American Association for
Clinical Chemistry, 2005

The Kelly West Lecture —
University of Oklahoma Medical Center, 2005

Advisory Board member: Journal of Thrombosis and
Haemostasis, 2004–present

Fellow, American Heart Association Council on
Arteriosclerosis, Thrombosis and Vascular Biology, 2001

Editorial Board Member: Arteriosclerosis, Thrombosis and
Vascular Biology, 2000–present

off his long hair and bought a jacket and tie — even an attaché case. Recognizing that he was “a lousy student in the traditional sense,” he made a commitment that for one semester he’d show up every day on campus at 8:00 a.m. and stay until 5:00 p.m., to focus on classwork. At the same time, he took a job as the “sign-in guy” in the emergency room at Upstate Medical Center. That was an eye-opener.

“I was always very philosophically engaged in all of sorts of things,” says Tracy, “and suddenly I realized there was this world where people were getting knifed and shot.” Telling himself to focus a little less on his angst and uncertainty, and realizing that he wasn’t any different from the grad students around him, he eventually matriculated into the doctoral program. After he’d completed it, as a tryout to becoming a clinical chemist, Tracy volunteered in the pathology lab at Upstate Medical Center, where he set up instruments and generally made himself useful. Realizing he might finally have found something he could stick with, Tracy decided to apply for a postdoctorate program.

Before this, though, he’d already made the biggest collaboration of his life, when he met and married his wife, Paula, who was a fellow graduate student in biochemistry. (Professor of Biochemistry Paula Tracy, Ph.D., recently completed her tenure as interim chair of the UVM Department of Biochemistry and is Foundations director in the College’s Office of Student Medical Education.) The Tracys ended up at the Mayo Clinic in 1978 — Russ as a training fellow in clinical chemistry and Paula in hematology. In 1984 they came to UVM. Because he had worked on some coagulation and thrombosis studies, he was drawn to a group conducting research in those areas that included Kenneth Mann, Ph.D., Paula Tracy’s boss at the Mayo Clinic, work that evolved into the Laboratory for Clinical Biochemistry Research (LCBR).

In yet another bit of serendipity, after a short while Tracy read a request for applications to the National Institutes of Health to be the core lab for an epidemiology study. Although his group’s work had focused on trials of people who had already suffered heart attacks, the study would allow them to look at why people were having heart attacks, perhaps even determining how to intervene and avoid them. That grant became the landmark Cardiovascular Health Study, which started in 1987 and is ongoing today. It’s also meant that the once-quiet laboratory has evolved into one of the largest university-based core laboratory and biosample repositories in the country, with some 3 million samples from around the world stored in 150-plus ultracold freezers in a satellite facility known to those at the LCBR as the “freezer farm.” Today, the LCBR is a major repository for NIH studies; the samples stored there are from studies that represent a total commitment by the NIH of approximately \$1 to \$2 billion.

The LCBR’s eight faculty and numerous staff work in multiple disciplines, including, most recently, genetics. In particular, Tracy has done extensive work studying cardiovascular disease and death in patients with HIV, and with his colleagues at other centers has published some of the seminal papers on HIV and mortality.

Bruce Psaty, M.D., Ph.D., M.P.H., professor of medicine and epidemiology at the University of Washington, has worked with Tracy on the Cardiovascular Health Study since its inception. They’ve also collaborated on countless other studies and publications in the intervening years.



Tracy interacts with many members of the Laboratory for Clinical Biochemistry Research staff in the course of his day. Here he chats with lab coordinator Elaine Cornell (left) and research technician April Perry (right).

“Russ has helped revolutionize thinking about coronary disease,” Psaty says, adding that Tracy is a “prince” who sometimes “has trouble saying no to people who need his help.”

Elaine Cornell, LCBR lab coordinator since 1986, agrees.

“He has all these brilliant ideas, and I just look at him and say, ‘Really?’ and then try to rein in some of his brilliance, because we can’t possibly do everything he asks,” says Cornell, laughing. She notes that Tracy comes at things — for example, HIV studies — with a different perspective.

Says Psaty of Tracy, “He’s always worked to the advantage of the group.”

That’s an opinion that’s shared by Tracy’s colleagues around the country.

“I think a lot of modern cardiovascular research, inflammation, HIV, and diabetes, would not have evolved without Russ playing such a big role in stimulating investigators to work together,” says Lew Kuller, M.D., Dr.P.H., distinguished university professor of public health, and chair of epidemiology at the University of Pittsburgh

Graduate School of Public Health, who was another early participant in the Cardiovascular Health Study (CHS). Kuller was conducting a separate study and had found that low levels of a common protein, albumin, can lead to an increased risk of heart attack. At one of the first CHS meetings, he mentioned his finding to Tracy, who gave him insights into the workings of acute phase proteins, and suggested they take a look at inflammation and cardiovascular disease using better markers. Tracy then developed a technique to measure C-reactive protein, and applied it to both the CHS and some of Kuller’s other studies, while showing that it was a predictor of heart attack risk.

“It was in many ways just a passing observation,” says Kuller, “but Russ was so intuitive and so smart that he said, ‘We’ve got to move with this and understand it.’ A lot of people might have blown me off as just an investigator who doesn’t know much about biochemistry.” In fact, he notes, C-reactive protein subsequently became an essential part of cardiovascular research.

From 2001 until 2009, Tracy served as senior associate dean for research and academic affairs for the College of

stewarding a billion dollars worth of blood

At any given time, the Laboratory for Clinical Biochemistry Research (LCBR) has a role in hundreds of projects, serving as gatekeeper for multicenter cohort studies around the world. The grandfather of these is the National Heart, Lung and Blood Institute's Cardiovascular Health Study, an ongoing study of risk factors for the development of cardiovascular heart disease in people age 65 and older.

The LCBR staff is also currently extensively involved in the U.S. government's \$70 million exome sequencing program, including organizing the study, writing papers, and directing the work. They're also collaborating on NHLBI's Multi-Ethnic Study of Atherosclerosis, the National Institute on Aging's Health-ABC Study, and the

Most of the 150 freezers in the Laboratory for Clinical Biochemistry Research maintain their blood samples at a constant -80° C temperature. Within the freezers the sample vials are kept in color-coded boxes (above).

National Center for Complementary and Alternative Medicine's clinical trial, the Ginkgo Evaluation of Memory Study. Faculty members also consult on viral repositories with federal government institutes, including the NHLBI, the National Institute of Diabetes and Digestive and Kidney Diseases, and the National Cancer Institute. In 2011, the LCBR was awarded close to \$10 million from the U.S. government.

Staff is responsible for all aspects of studies, from design through manuscript production. They participate in clinical studies, clinical trials, and epidemiology studies. Information about the lab and its studies, as well as links to faculty publications, can be found at www.med.uvm.edu/lcbr.

Medicine, while continuing to head the LCBR. During his tenure, he helped obtain federal funding to establish the MRI Center for Biomedical Imaging at UVM. He also played an integral role in developing the summer research program for first-year medical students. He left the dean's office only when time constraints forced him to choose between what he found to be two equally satisfying jobs; on reflection, he realized that he saw himself as more scientist than administrator.

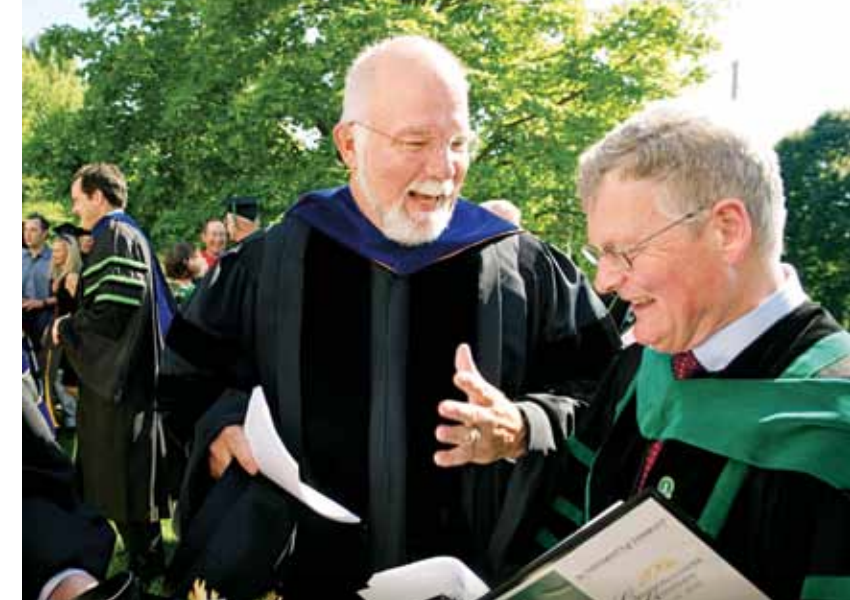
Leaving the administrative world to focus on the lab has hardly meant less work for Tracy. His publication credits number well into the 400s, and he is known for his phenomenally high h-index, the measure of the impact of a scientist's published work. He has received a variety of awards and appointments, including being named a University Scholar in 2009. He travels a great deal — often by train, if possible — mostly to the other locations in the multicenter studies his lab is part of. The ease of Skype notwithstanding, he still prefers face-to-face meetings because he's learned that the key to successful collaboration is trust, something that can only be established through sitting down with others, looking them in the eye, and talking and listening respectfully.

Tracy also conducts many grant reviews, which, like the philosopher he is, he compares to tornadoes in Oklahoma ("they're going to happen, so be aware of them").

Tracy spends what free time he has boating with Paula and hopes someday to write a novel — historical fiction with a medical twist, perhaps featuring John Snow, the father of epidemiology. He says he's enjoying "getting there," though at 62 he admits to feeling the pain of osteoarthritis when he plays handball and racquetball. He continues to find pleasure in mentoring others, encouraging students to teach and take on the "responsibility of making people understand something, which is a good skill to have." "He's very caring, and he has a tremendous amount of integrity," says Paula Tracy. "And I think, for a person in his position, he's incredibly honest — he will never tell you anything you want to hear just because you want to hear it. He will tell you, rather, what he believes you should know, and he never promises anything he can't deliver."

Mary Cushman, M.D., professor of medicine and pathology, was one of Tracy's earliest mentees. Though it's somewhat unusual for an M.D. to have a Ph.D. as a mentor, Cushman said it worked well, and that she now emulates Tracy's mentoring style with her own mentees.

"Russ's ability to be a mentor to me over the span of my career development, and to let me differentiate myself and become my own person as a scientist, without interference, is a really laudable trait," Cushman says. She adds that he promotes an environment in which the



Tracy with Dean Rick Morin at the College of Medicine commencement.

“Russ has helped revolutionize thinking about coronary disease.”

—Bruce Psaty, M.D., Ph.D., M.P.H.,
Professor of Medicine and Epidemiology
University of Washington

philosophy of “what goes around, comes around” is underscored by careful training of colleagues' students.

“Young people, in my experience, are dying to talk to experienced people,” Tracy says. “They want to know how you got there, that their insecurities aren't unique in the world.” He credits his mother with his confidence in his ability to accomplish things, which he, in turn, tried to instill in his own now-adult son and daughter. That confidence was active when he applied for his first epidemiology grant, in 1986. As he sat working at a typewriter, his boss passed by and asked what he was doing, observing that Tracy didn't know anything about epidemiology. Tracy shrugged.

“I figured I'd learn it.”

Although Tracy is the first to admit that he has sometimes stumbled, he says that “not succeeding never really had an impact on the next choice. It's not just hard work,” he adds, “but you can't get much of anything without hard work.”

And a little play. **VM**