

## FACULTY SPOTLIGHT

# Professor's work focuses on molecules that are key to curing diseases

By Jenna Barlage  
The University Record

**G**rowing up in Germany, Nils G. Walter formed a positive, but secondhand, impression of the United States.

His father had been a prisoner of war in Texas who often told Walter about the kindness of Americans and T-bone steaks the size of dinner plates.

"There were a lot of positive feelings in my family, and in Germany in general, about America," said Walter, the Francis S. Collins Collegiate Professor of Chemistry, Biophysics and Biological Chemistry.

Still, it was Walter's love of chemistry that ultimately led him to move to the United States.

After he received his Bachelor of Science and Master of Science degrees from the Technical University of Darmstadt in Germany, he flew around the United States, where he was enthralled by American landscape and culture. After his receiving his Ph.D. in Germany at one of the venerated Max-Planck-Institutes, he decided to complete his postdoctoral fellowship at the University of Vermont.

Walter's original plan was to return to Germany after his postdoctoral work. However, his affinity for the United States, and the country's support for young academics by granting tenure-track positions made him decide to apply mostly to American universities.

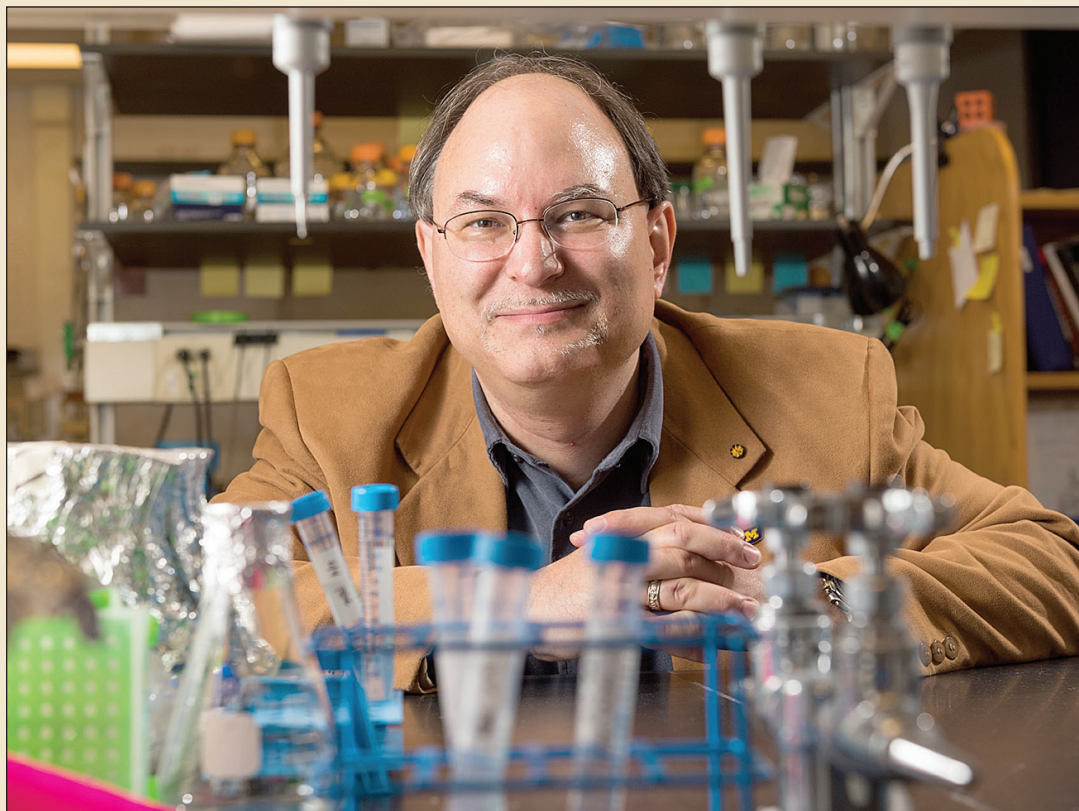
Walter was hired for a professorship at U-M in 1999, and has been rising through the ranks since. He is the founding director of the Single Molecule Analysis in Real-Time Center, a university-funded, open-access facility that allows researchers, inside or outside of the university, to use tools that allow them to see single, microscopic molecules, one at a time.

"Being able to see a single molecule is to see the smallest entity that we encounter in daily life," Walter said. "Our everyday experience is made up of the small single molecules that make up all matter around us."

Walter first learned about RNA molecules when enzymes built from RNA were a new concept.

Years later, while attending a symposium in Switzerland, Walter met Tom Cech — one of two chemists awarded the 1989 Nobel Prize in chemistry for discovering catalytic properties of RNA, suggesting that RNA could have sparked life on earth. This notion is the center of Walter's work today.

At U-M, he recently became a founding co-director at the Center for RNA Biomedicine,



DARYL MARSHKE, MICHIGAN PHOTOGRAPHY

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which is a grassroots assembly of more than 150 faculty members. The center aims to interrogate the functions of RNA and to uncover the potential implications of RNA for medical science in a collaborative way.

To both inform his organizational work at the center and to prepare for submitting a funding proposal to U-M's Biosciences Initiative, Walter spent six weeks at the Chan Zuckerberg Biohub in San Francisco. The Biohub aims to unite pillars of excellence across disciplines to cure all diseases within the next 100 years.

The Center for RNA Biomedicine's proposal recently was chosen by the Biosciences Initiative for tier-one funding. With this funding, the center will hire five people to evaluate RNA functions in diseases and help all center faculty discover ways to combat these diseases with drugs, or to use RNA molecules themselves as therapeutic drugs.

"Every disease, every physiological state, every developmental aspect of a cell has a relationship to RNA," Walter said. "Since RNA enzymes sparked life on earth, there's a gut feeling that they can do a lot more today. We've surely only seen the tip of the iceberg so far."

## Q+A

### What memorable moment in the workplace stands out?

The moments when you get a real discussion going, and you have real discussion between students and faculty.

### What can't you live without?

Intellectual challenge and inspiration.

### Name your favorite spot on campus.

The Diag.

### What inspires you?

Diversity. The best ideas come about from a diverse group of people.

### What are you currently reading?

"Troublemakers" by Leslie Berlin.

### Who had the greatest influence on your career path?

My Ph.D. mentor.

## More than one-third of American kids have lived in extended family households

By Mandira Banerjee  
Michigan News

About 35 percent of children in the United States have lived with a relative other than their parent or sibling at some point by age 18, says a University of Michigan researcher.

Overall, about 17 percent of kids, or about 12 million, currently live in an extended family household, according to the most recent data from 2014.

"It's important to understand it because research shows strong associations between children's living arrangements and their psychological, behavioral and educational outcomes," said Christina Cross, a doctoral candidate at the Gerald R. Ford School of Public Policy and the Department of Sociology. "The results allow us to better understand the potential breadth of influence of the extended family

households on child well-being."

An extended family household is formed when a child is living with any relative beyond the child's parent or sibling. It could be a grandparent, aunt or uncle, or other relatives.

In her research, Cross sought to understand if extended family households have become more common over time. She also looked at various factors contributing to extended family households. She found that:

- Socioeconomic differences make a big difference: 47 percent of children whose parents did not finish high school spend time in an extended family, compared to 17 percent of children whose parents earned a bachelor's degree or higher.

- The differences are substantial when broken down by race: about 57 percent of black and 35

percent of Hispanic children have lived in an extended family, compared to 20 percent of white children.

- Of the extended family households, about 24 percent lived with a grandparent, 18 percent with an aunt or uncle, and 24 percent with another relative.

"These findings are important given that nuclear family households have long been considered the standard and normative household in the U.S.," Cross said. "A narrow focus on the nuclear family overlooks the diverse ways in which families, particularly those from minority and/or low-income backgrounds arrange family life."

The study is published in the journal *Population Studies*. It used data from the 1988-2013 waves of Panel Study of Income Dynamics to examine extended family households at the U-M Institute for Social Research.