



VICTORS FOR MICHIGAN

MEDICINE NEEDS VICTORS

## The U-M Center for RNA Biomedicine

A pioneering approach to tackling disease



### The NEED

Cancer, Alzheimer's disease and infections devastate people and families, sometimes with little regard for previous good health, age or will. They barrel into our lives, leaving behind sadness and questions.

But, there is hope. Although vastly different, the diseases above have two commonalities: they are all life-impairing or life-threatening, and they are all grounded in ribonucleic acid (RNA) biology. And, they are all being challenged by some of the world's top scientists, physicians and engineers at the University of Michigan Center for RNA Biomedicine.

### The VISION

U-M is a powerhouse community of RNA researchers who investigate a wide range of RNA-related topics across multiple disciplines. Our highly-regarded faculty include basic and clinical scientists who study RNA chemistry, structure, biological functions, genomics, cell biology, physiology and pathology, to better understand the role of RNA in human health. By bringing together a team to examine RNA from different perspectives at its origin, we have positioned ourselves to take the lead in this growing arena.

Our passion in the RNA Center is exploring the fundamental biology of information passing from DNA, to RNA, to protein and how RNA is the key to understanding how this process becomes imbalanced when illness occurs. Our greater understanding of the human genome in the past 15 years has opened a trove of opportunities to bring diseased cells back into balance.

“As scientists, we have been looking in the wrong places,” says Nils G. Walter, Ph.D., the Francis S. Collins Collegiate Professor of Chemistry, Biophysics and Biological Chemistry and co-director of the center. “Thanks to revolutionary discoveries over the past two decades, we now know that the purpose of 98 percent of the human genome is to make RNA, not protein, rendering RNA biomedicine an eye-opening path to looking at disease and therapy.”

Most drug therapies available today target proteins; we are instead going for the root cause by targeting specific RNAs for the treatment of human diseases. This promises to work not only for those afflictions we know and fear, but also for a plethora of rare genetic diseases that can be just as destructive. U-M scientists are poised to work together, ready to explore all angles and harness the power of RNA to rescue malfunctioning cells that lead to disease. Being able to enroll our patients in clinical trials on-site dramatically increases the potential for curing disease as we can quickly move from bedside to research lab back to bedside.

What’s more, our infrastructure encourages the training and development of future leaders in RNA biomedicine. Not only do we have experts in myriad fields fully committed to mentoring early-career scientists and helping them develop new research projects, but we also have the advantage of unique programs like MCubed. This grassroots funding opportunity allows us to rapidly stimulate innovative research and scholarship, enabling Michigan faculty from two or more units to form a collaborative trio, or cube, and advance their endeavors with seed funding. These programs allow us to keep pace with the rapid discoveries of research today.

## **The OPPORTUNITY**

Diseases are complex. At U-M, we have the facilities, we have the people and we have the poise — all on one campus, with direct access to one another. We are using cutting-edge technology and taking a pioneering pipeline approach to discovering the answers to some of medicine’s most troubling challenges. But we can do so much more.

The principle of RNA as the foundation for human disease may be new, but its implications on the trajectory of health care are monumental. That is why we must act now.

With traditional funding mechanisms waning, we rely on individuals to help us move science forward, with high-risk, high-reward ventures that push us beyond the precipice of breakthrough. Your investment will allow us to recruit and nurture faculty who are at the top of their fields; attract the best and brightest of the next generation of scientists, engineers and clinicians; and expand the robust programming that is a catalyst for discovery.

## **YOU CAN BE A VICTOR**

Our dynamic team works tirelessly to unlock the doors to the medicine’s most complex mysteries. With your support, we will make significant scientific and technical progress that will impact the lives of patients at the University of Michigan and around the world. Together, we can make a difference.

### **TO PARTNER WITH US, CONTACT:**

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