Testimony of Dr. Hermann Haller
President, MDI Biological Laboratory
Senate Appropriations Committee Hearing: Biomedical Research – Keeping America's Edge in Innovation

Senator Collins, Senator Murray, and esteemed members of the Committee,

Thank you for the opportunity to appear before you today. It is an honor to be here. My name is Dr. Hermann Haller, and I am a nephrologist – a physician scientist specializing in advancing treatments for kidney and vascular disease.

For nearly a century, the United States has led the world in biomedical innovation. From mass-producing penicillin to pioneering cutting-edge cancer immunotherapies, American science has shaped the modern world.

These breakthroughs were no accident. They were driven by far-sighted federal investments — in gifted thinkers, bold ideas, and the infrastructure that allows science to thrive.

That commitment has made the U.S. an irresistible magnet for researchers like me, who seek out the best resources, colleagues, and students.

I first came to the U.S. in 1987 as a German post-doctoral researcher at Yale University, attracted by American dedication to high quality science, the freedom to explore new ideas, and most importantly, the opportunity to work with Dr. Howard Rasmussen, a world leader in cell biology and endocrinology at Yale.

In 1998 I became a part time faculty member at the MDI Biological Laboratory, in Bar Harbor, Maine -- a place that has nurtured my scientific curiosity and ambitions for almost 30 years. In 2018 I was proud to be appointed President.

Founded in 1898, MDI Bio Lab is a small but highly accomplished nonprofit biomedical research institute. We ask fundamental questions about biological health. How do cells repair themselves? How can we regenerate damaged organs or make new ones? How can we slow or even reverse aging?

These questions often don't have immediate, marketable answers, but they lay the foundation for tomorrow's therapies. And even as we pursue these insights, we are innovating new methods to make the transition from basic discovery to therapeutic application more efficient and cost-effective.

Science as a National Investment

I come before you today with a clear message: support for biomedical research is not simply a *cost*. It is a national *investment* that delivers transformative returns for the nation's health, security, and economic prosperity.

Scientific breakthroughs rarely happen by chance; they're made possible by sustained federal support for creative thinkers, bold ideas, and robust scientific infrastructure.

At its best, public investment in science doesn't just fund research; it builds ecosystems of professional growth and opportunity to support long-term innovation—from early-stage research to real-world application.

The U.S. track record in this area is unmatched.

Federal Support Drives Discovery, Training, and Growth

MDI Bio Lab sits at the front end of the innovation pipeline, conducting the kind of foundational research that private industry rarely pursues.

Strategic federal investments in this curiosity-driven approach accelerate discovery while expanding economic opportunity. One program of the National Institutes of Health, in particular, that has made it possible for the highest levels of biomedical innovation to flourish in every corner of the nation.

It’s called the Institutional Development Award program, or IDeA.

The IDeA program is designed to significantly expanded biomedical research and training capacity in 23 rural states that historically receive fewer research dollars because they simply do not have the research capacity and infrastructure seen in major hubs such as Boston or Berkeley.

Thanks to IDeA funding, the MDI Bio Lab has grown from a seasonal marine research station into an internationally recognized center for biomedical research and training.

Today we employ more than 100 scientists and support staff.

We also lead a statewide training network that now connects 17 Maine colleges, universities, and research institutions that collaborate to provide research experience for the next generation of biomedical leaders.

The program has provided real-world research training to more than 3,000 undergraduate students in Maine, giving them direct exposure the thrill of discovery and ensuring they have the skills required to compete in today’s job market.

More than 90% of these students have gone on to pursue careers in science, medicine, or biotech.

These NIH investments also help early-career scientists in rural states compete for other grants—fueling economic development. In 2024 alone, NIH awarded over $124 million to Maine; economic analysis shows that every $1 NIH awards for biomedical research more than doubles that amount in additional economic activity.

Programs like this provide a powerful down payment on creating the skilled workforce needed to maintain the nation’s lead position in biomedical research and innovation.

This is not just good science—it’s smart policy, with strong bipartisan support.

Backing Bold Science: Agility, Risk, and Discovery

Major scientific advances often begin with unconventional questions. But today's funding climate can push researchers to play it safe, to chase short-term wins over long-term discovery.

We must embrace risk and keep our systems flexible by supporting research and institutions that can innovate and adapt quickly to emerging health challenges.

At MDI Bio Lab for example, we take an unusual approach to comparative biology and biomedical research, focusing on a unique array of models for human health such as zebrafish, salamanders, and worms. These models may seem far from human biology, but they hold keys to regenerating tissue, repairing organs, and even reversing aging.

This approach can also streamline the drug discovery process. Leveraging our expertise with these models, we are developing new methods to discover and screen potentially therapeutic compounds faster and more affordably, while involving students in every step—from discovery to startup launch.

Improving Health Outcomes: Meeting Americans' Chronic Health Needs

Biomedical research is one of the most powerful tools we have to improve Americans' health. It drives the development of new treatments and therapies, yes—but more importantly, it helps us understand how to prevent disease in the first place and intervene before conditions become chronic, costly, and debilitating.

This is especially crucial in populations where health outcomes can lag behind national averages. These communities face higher rates of preventable illness, shorter life expectancy, and fewer opportunities to participate in research or clinical trials.

To truly improve health outcomes, we must ensure that scientific discovery is reaching every corner of the country**.** We must take on the chronic, persistent health conditions that now account for the majority of U.S. healthcare spending. One example that I know well is chronic kidney disease (CKD)**.**

CKD it affects over 37 million Americans and cost Medicare nearly $130 billion in 2022. It's often detected too late, requiring dialysis or transplants.

We cannot solve these challenges through treatment alone. We need research. Research that identifies the early molecular signs of disease, that explores how to regenerate damaged tissue**,** and that finds new, more effective ways to slow or even reverse the course of chronic illness.

That's exactly what we aim to do at MDI Bio Lab.

Drug Repurposing: A Common-Sense Strategy

As many of you know, Mainers are known for being resourceful. They truly understand the concept of doing more with what they already have. Perhaps that is partly why I believe one of the most promising and underutilized strategies for improving health outcomes is repurposing existing medications. These are drugs that have already been tested for safety, already approved, and are already available. The only thing needed is more research to understand how else they might be used.

Scientists have shown that a drug like metformin, long used to treat type 2 diabetes, could be used to slow the aging process and reduce the risk of cancer and neurodegenerative disease. The data are compelling. But because the drug is off-patent and inexpensive, there is little incentive to invest further in this research.

This is a perfect example of where public funding can fill the gap -- pursuing ideas with broad public benefit, though they lack immediate commercial payoff. Drug repurposing allows us to bring new therapies to patients faster, cheaper, and with lower risk. It's not just cost-effective, it's common sense.

Call to Action: Safeguarding America's Scientific Future

Today, America's biomedical ecosystem faces significant threats. Proposed cuts to NIH and other science agencies could dismantle decades of progress—cutting off promising research and undermining our global leadership.

We must act now to secure that leadership – and to ensure the next generation of discoveries. To do so, I urge this Committee to support a forward-looking strategy that includes:

1. **Expanded Investment in Research Capacity, Training and Mentorship**
   Initiatives like the IDeA program have proven how effective infrastructure investment and mentorship-based training can be – particularly in geographic areas outside of long-established academic research centers. We must grow these models and ensure every aspiring scientist has access to state-of-the-art technology, training and research opportunities.

2. **Support for High-Risk, High-Reward Science**
   Many of our most important breakthroughs begin as a scientist's early musings. We need to encourage – not discourage – this type of science. That means funding early-stage research, use of non-traditional model organisms, and approaches that industry is unlikely to pursue.

3. **Focus on Chronic Disease**
   Biomedical research should serve the health needs of all Americans. That includes research that recognizes regional and other population differences, specifically aimed at tackling persistent, high-cost diseases like chronic kidney disease, cancer and neurodegenerative disorders, as well as infectious diseases.

4. **Sustained, Flexible, and Coordinated Funding**
   Stable federal support is the bedrock of U.S. biomedical innovation. Researchers must be able to take risks, pursue novel ideas, and respond nimbly to emerging health threats without fearing sudden loss of support. Flexibility is just as critical as scale – because the next big breakthrough rarely follows a predictable path.

5. **Expanded Investment in Drug Repurposing and Translational Research**
   We must seize low-cost, high-impact opportunities like drug repurposing and bridge the gap between academic discovery and real-world application. Public funding, regulatory clarity, and better commercialization pathways can unlock this enormous potential.

These are not speculative ideas. They are proven, cost-effective, and deeply aligned with American values: discovery, opportunity, and service to the public good.

The lives we save tomorrow depend on the investments we make today. Let us reaffirm our commitment to scientific leadership—and to a healthier, more innovative future.

Thank you for your leadership and your unwavering support for American science. I’m happy to answer any questions you may have.
