

# Message from the Director



*Image courtesy of GW School of Medicine and Health Sciences*

As the Director of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), I am pleased to present this annual report highlighting the research efforts and programs supported by the Institute. The NIDDK has a broad research responsibility that includes some of the most common, debilitating, and costly conditions affecting Americans. These conditions include diabetes and other endocrine and metabolic diseases; liver disease and other digestive diseases and conditions, such as inflammatory bowel disease and irritable bowel syndrome; nutritional disorders; obesity; kidney diseases, such as polycystic kidney disease and glomerular disease; urologic diseases and conditions, such as interstitial cystitis/bladder pain syndrome, prostatitis, and urinary tract infection; and blood diseases.

The 19th edition of this report highlights recent NIDDK-supported scientific advances, such as:

- Discovery of a new biomarker to help diagnose biliary atresia, a potentially life-threatening liver disease in children

- Assembly of a dynamic picture of the human body's molecular response to fluctuations in body weight, including how weight gain can affect health
- The finding that existing medications approved for treating pediatric type 2 diabetes do not prevent rapid progression of prediabetes or recent onset diabetes in young people
- Research demonstrating that a primarily home-based therapy for irritable bowel syndrome can be as effective as clinic-based therapy, while also being less expensive and more accessible
- New insight into chronic kidney disease that may help identify people with the disease who are at increased risk of death
- New research on calorie consumption and calorie burning in early pregnancy in women with obesity, which could help reduce racial disparities in pregnancy outcomes
- Multiple insights from studies on the community of bacteria inhabiting the gut, which could inform development of new therapies for gastrointestinal infections and other digestive diseases
- Identification of two different molecules that can limit the growth of microbes that cause urinary tract infections
- New insights into red blood cell development that have allowed an in-depth examination of how blood cells mature
- Development of an innovative way to study a crucial family of proteins in a living animal in real time
- The finding that treatment with an immune system-suppressing medicine preserved insulin production for at least a year in people with newly diagnosed type 1 diabetes

In addition to reporting on recent advances, this publication traces the multi-step path to research

achievements through several “Stories of Discovery” and “Scientific Presentations.” These essays illustrate how major new discoveries that have greatly advanced biomedical science and are benefitting human health often emerge from incremental insights gained from research investments spanning many years and even multiple research disciplines.

This report also includes personal stories of those who have given time and effort to participate in NIDDK-sponsored clinical research or whose lives have been transformed by biomedical research. A mother and daughter talk about how the latter’s diagnosis with celiac disease led them to find ways to thrive with the disease and share that knowledge with others. A woman speaks of participating—for herself, her children, and future generations—in a study testing whether medications can stop or reverse progression of prediabetes or recent-onset diabetes. A man tells of his decades-long involvement with a landmark study investigating the benefits of early, intensive blood glucose control on development of complications in people with type 1 diabetes. A man describes taking part in a study seeking to use a new, collaborative model of health care, enhanced by implementing a novel technology platform, to improve outcomes in people with multiple chronic diseases.

The NIDDK is continuing its efforts to ensure that knowledge gained from its research is disseminated to health care providers, patients, and the public. We develop science-based information on diseases and disorders within the NIDDK mission and distribute it through our information and education

The efforts featured in this publication reflect the core mission of the NIDDK, including the Director’s guiding principles:

- Maintain a vigorous investigator-initiated research portfolio
- Support pivotal clinical studies and trials
- Preserve a stable pool of talented new investigators
- Foster exceptional research training and mentoring opportunities
- Ensure knowledge dissemination through outreach and communications

More information on how the NIDDK’s activities support these core values can be found in the “NIDDK Funding Trends and Support of Core Values” section at the end of this report and on our website at [www.niddk.nih.gov](http://www.niddk.nih.gov)

programs and our website. I invite you to visit us at [www.niddk.nih.gov](http://www.niddk.nih.gov) Health information, news, and scientific advances related to NIDDK research are also available on our Twitter feed: [@NIDDKgov](https://twitter.com/NIDDKgov)

This report reflects only a fraction of the immense body of NIDDK-funded research across the country, performed by basic scientists, clinical investigators, and patient volunteers. Moving forward, we remain committed to supporting these important areas of research and translating scientific discoveries into improvements in the health and quality of life of all people.

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