

Message from the Director



As the new Director of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), I am pleased to present this annual compendium highlighting the research efforts and programs supported by the Institute. The NIDDK has a broad research responsibility, which includes some of the most common, debilitating, and costly conditions affecting Americans. These conditions include diabetes and other endocrine and metabolic diseases, such as cystic fibrosis; liver disease and other digestive diseases, such as inflammatory bowel diseases; nutritional disorders and obesity; kidney diseases, such as polycystic kidney disease; urologic diseases, such as interstitial cystitis and prostate disease; and hematologic diseases, such as Cooley's anemia.

Now in its eighth year, this annual compendium illustrates recent NIDDK-supported scientific advances, such as the:

- Discovery of several new genes and chromosomal regions associated with Crohn's disease using genome-wide association studies.
- Identification of new genetic variants associated with type 1 and type 2 diabetes, also discovered through such studies.
- Demonstration that long-term cognitive function in people with type 1 diabetes is not impacted by recurrent episodes of low blood sugar.
- Finding that overweight or obese adults with type 2 diabetes who received an intensive lifestyle intervention for 1 year could lose a significant amount of weight, reduce their risk factors for heart disease, and reduce their medicine use.
- Revelation that bone plays a role in metabolism from studies in mice showing that bone secretes a hormone (osteocalcin) that contributes to obesity and diabetes.
- Discovery that some of the trillions of microbes living within the human gut may contribute to obesity.
- Demonstration of the ways in which *E. coli* and other bacterial strains interact with intestinal cells, which may contribute to human health or disease.
- Revelation that cilia—hair-like structures found on the surface of cells—play a role in the development of cystic kidney diseases and obesity.
- Finding that one surgical procedure is superior to another for treating urinary incontinence in women, based on the largest and most rigorous U.S. clinical trial undertaken on this topic.

This compendium also includes stories of patients who are directly benefiting from NIDDK-supported research. A new technology for monitoring blood sugar levels improved the lives of a teenager with type 1 diabetes and her family. A woman who participated in a gestational diabetes study learned of her increased risk for developing type 2 diabetes and has taken steps to remain diabetes-free. A man's quality of life has improved because of his participation in a clinical trial for benign prostatic hyperplasia. A participant in another clinical trial has received combination drug therapy that has kept his hepatitis B infection under control.

The NIDDK continues its efforts to ensure that knowledge gained from its major research advances is disseminated to health care providers, patients, and the general public. Such efforts include the Institute's educational programs, such

as the National Diabetes Education Program and National Kidney Disease Education Program, and NIDDK's co-sponsorship of the trans-NIH national education program for the prevention of childhood obesity entitled "We Can!" Significantly, NIDDK supports the following information and outreach programs: the Weight-control Information Network, the National Diabetes Information Clearinghouse, the National Digestive Diseases Information Clearinghouse, and the National Kidney and Urologic Diseases Information Clearinghouse. These programs distribute science-based information on diseases and disorders within the NIDDK mission. To make its informational resources more readily available to patients, healthcare providers, and scientists, the NIDDK also recently redesigned its website. I invite you to visit the new website at: www.niddk.nih.gov

The materials featured in this publication reflect the core mission of the NIDDK, including the Director's following 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; and
- Ensure knowledge dissemination through outreach and communications.

This compendium reflects only a fraction of the immense body of work performed by basic scientists, clinical researchers, and patient volunteers. We remain committed to translating their efforts into improvements in the health and quality of life of all people.



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Director

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