

Message from the Director



As the 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/painful bladder syndrome; and hematologic diseases, such as Cooley's anemia.

The 11th edition of this report illustrates recent NIDDK-supported scientific advances, such as:

- Discovery that glucagon-producing alpha cells in the mouse pancreas can convert to insulin-producing beta cells
- Finding that a generic anti-inflammatory drug improves blood glucose control in people with type 2 diabetes
- Revelation of a molecular mechanism that regulates fat cell development and insulin sensitivity
- Demonstration that potential treatments improve nonalcoholic steatohepatitis—a severe form of nonalcoholic fatty liver disease—in adults
- Discovery of genetic variants that increase risk for developing inflammatory bowel diseases in children
- Identification of a drug that may be useful for treating liver disease associated with alpha-1 antitrypsin deficiency
- Demonstration that two operations for treating stress urinary incontinence have similar benefits in helping women achieve improved bladder control
- Discovery that induced pluripotent stem cells retain a molecular memory of the types of cells they were in their pre-pluripotent state
- Identification of a genetic variant that significantly increases the risk of developing kidney disease in African Americans

We also include personal stories of patients. A family dedicated to advancing research on type 1 diabetes describes their participation in a clinical study to determine the environmental factors that trigger the development of type 1 diabetes in children. A nurse shares her story about why she participated in an observational study evaluating maternal blood glucose levels and pregnancy outcomes. A man describes his experience participating in a clinical trial testing new treatments for a form of nonalcoholic fatty liver disease. Parents describe their daughter's battle with nephrotic syndrome and their experience in a clinical study testing a potential treatment for this kidney disease.

The NIDDK is continuing efforts to ensure that knowledge gained from its research advances is disseminated to health care providers, patients, and the general public. Such efforts include the Institute's major education programs, the National Diabetes Education Program and the National Kidney Disease Education Program. Additionally, 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 develop and distribute science-based information on diseases and disorders within the NIDDK mission. Several hundred brochures, fact sheets, and publications are available in printed copy and on the NIDDK Web site so that they are readily accessible to patients, health care providers, and the public. I invite you to visit the Web site at: www.niddk.nih.gov

We can only reflect a fraction of the immense body of research performed by basic scientists, clinical investigators, and patient volunteers here. We remain committed to translating their efforts into improvements in the health and quality of life of all people.



Griffin P. Rodgers, M.D., M.A.C.P.

Director

National Institute of Diabetes and Digestive and Kidney Diseases

National Institutes of Health

U.S. Department of Health and Human Services

The core mission of NIDDK reflects 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
- Ensure knowledge dissemination through outreach and communications