

NIDDK Recent Advances & Emerging Opportunities: 2024

Here is a snapshot of recent NIDDK-funded research activities, including scientific advances and personal perspectives of those who have given time and effort in support of clinical research.



NIDDK's research mission includes some of the most common, chronic, and costly diseases and conditions affecting the health and quality of life of Americans. Many of these disproportionately affect certain groups or communities, including those who have been historically marginalized by structural and systemic racism and other forms of discrimination, and those who experience injustice today. NIDDK recognizes that to improve the health of all we must accelerate efforts to eliminate disparities and promote health equity. This report discusses a new NIDDK Health Disparities/Health Equity

Implementation Plan that will guide this research. Descriptions of recent and ongoing initiatives, workshops, research, and activities also highlight NIDDK's commitment to these efforts and to cultivating a diverse workforce.

To access the full report, visit niddk.nih.gov and search for "Recent Advances and Emerging Opportunities"

| Diabetes, Endocrinology, and Metabolic Diseases

- ▶ Two clinical trials testing artificial pancreas technologies for managing type 1 diabetes have shown positive results, with one leading to the FDA approval of a new commercial device.
- ▶ Experiments in mice and human cells shed light on how insulin-producing β (beta) cells adapt insulin secretion to the body's needs, and how type 2 diabetes may disrupt this process.
- ▶ A new study demonstrated that treating the rare genetic disorder Pompe disease *in utero* may halt prenatal organ damage and improve health after birth.

“To prevent what happened to [my sister] from happening to other people.”

-Mikayla, speaking about why she decided to enroll in a Type 1 Diabetes TrialNet clinical trial testing teplizumab's ability to prevent or delay clinical type 1 diabetes after her sister was diagnosed with the disease.

“I can help the future of science and hopefully be able to learn something about myself.”

-Mike, speaking about his participation in RADIANT, which is identifying and characterizing unusual types of diabetes toward developing more personalized approaches for treating the disease.



NIDDK Director Dr. Griffin P. Rodgers' Guiding Principles

Maintain a vigorous investigator-initiated research portfolio

Support pivotal clinical studies and trials

Promote a steady and diverse pool of talented new investigators

Foster exceptional research training and mentoring opportunities

Ensure knowledge dissemination through outreach and communications

| Obesity

- ▶ Researchers found that time-restricted eating was feasible for firefighters on 24-hour shift work and led to health benefits for those with cardiometabolic risks.
- ▶ Experiments in mice identified a substance produced by the gut that links surgical and dietary weight-loss therapies to improvements in metabolic and digestive health.

| Digestive Diseases and Nutrition

- ▶ Researchers have uncovered biological pathways that link stress to worsening inflammatory bowel disease (IBD) symptoms.
- ▶ New risk factors for IBD have been identified in individuals from countries in East Asia, which helps to understand and predict the disease across diverse populations.
- ▶ A study found that an FDA mandate limiting the amount of acetaminophen in combination opioid-acetaminophen pain relievers was associated with lower rates of liver failure from these combination medicines, although rates of liver failure from acetaminophen alone increased.

“ I feel like it’s a two-way thing. If something can be learned from me, maybe it’ll turn around and benefit me as well.”

-Dianna, speaking about the benefits of participating in the PROCEED study that aims to better understand how pancreatitis develops and progresses over time.

| Kidney, Urologic, and Hematologic Diseases

- ▶ Researchers have created the most comprehensive atlas of the human kidney to date, which can be used to help identify kidney disease subgroups and discover new, personalized treatments.
- ▶ A new study has identified a previously unknown role of glucose uptake in polycystic kidney disease through development of a novel model system from two innovative techniques.
- ▶ Recent discoveries have revealed that two manifestations of overactive bladder may reflect a spectrum of symptom severity rather than two distinct subtypes of urinary urgency with or without incontinence.

The APOLLO study is determining the effect of variations in a specific gene, *APOL1*, on kidney transplant outcomes of the recipients and the living African American donors.

“ I’m hoping that studies like this will give people some more agency.”

-Tanya, a kidney donor in APOLLO, sharing her thoughts on the impact the study could have on outcomes for African Americans with kidney disease.

“ Maybe I can help someone else. Maybe someone else with kidney disease.”

-Deryl, on his decision to enroll in APOLLO as a kidney transplant recipient.

Full Report:

www.niddk.nih.gov/about-niddk/strategic-plans-reports/niddk-recent-advances-emerging-opportunities

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