

NCATS

Improving Health Through Smarter Science

Cures Acceleration Network

NCATS' Cures Acceleration Network (CAN) was created by Congress to advance the development of high-need cures and to address significant barriers between research discovery and clinical trials. To achieve these objectives, the Public Health Service Act provides NCATS with the authority to make grant awards through CAN of up to \$15 million per fiscal year, partnership awards (requiring 1:3 matching funds) and flexible research awards using the special authorization called other transaction authority (OTA).

OTA is a unique funding mechanism that may be used when traditional funding approaches — such as grants, contracts, and cooperative agreements — may not adequately address scientific needs. NCATS supports high-risk/high-reward research by using OTA to attract non-traditional government partners. OTA flexibilities enable NCATS to easily expand, modify and, if needed, discontinue activities to meet programmatic needs. NCATS is authorized to use up to 20 percent of the funds appropriated to CAN for OTA.

Cures Acceleration Network Review Board

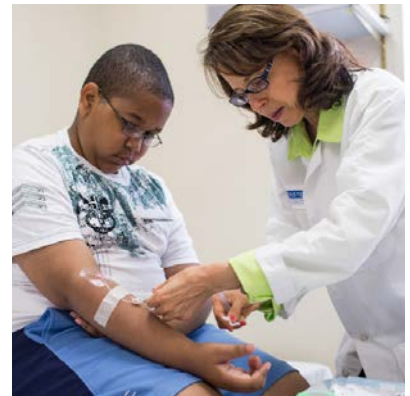
NCATS' investments through the CAN funding mechanism are guided by a **review board**. The board consists of 24 members representing the fields of basic research, medicine, biopharmaceuticals, medical products, bioinformatics, gene therapy, medical instrumentation and related regulatory review. It also includes members from venture capital and private equity organizations, as well as representatives from disease advocacy organizations.

Board members advise and provide recommendations to the NCATS director on the policies, programs and procedures for implementing CAN goals. They also help identify significant barriers to successful translation of basic science into clinical application.

CAN-Supported Programs

- **Tissue Chip for Drug Screening:** Originally part of the NIH Common Fund's Regulatory Science program, NCATS' **Tissue Chip** program supports the development of 3-D human tissue on microchip platforms that model the structure and function of human organs — such as the lung, liver and heart — with the aim of developing an integrated system that can mimic complex functions of the human body for safety assessment of candidate therapeutics. NCATS partnered with the Defense Advanced Research Projects Agency and the Food and Drug Administration at the inception of this program in 2012 and through 2017.

ncats.nih.gov/funding/review/can



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New initiatives include the **Tissue Chip Testing Centers**, which provide a means for scientists to independently validate the tissue chips from the Drug Screening program and promote adoption of this technology by the broad research community; **Tissue Chips for Disease Modeling and Efficacy Testing** to support the development of tissue chips that mimic disease to identify biomarkers, develop standardized methods for pre-clinical efficacy testing, and test candidate therapeutics; and **Tissue Chips in Space**, a collaboration on refining tissue chip technology for biomedical research use at the International Space Station U.S. National Laboratory to better inform translational science on earth.

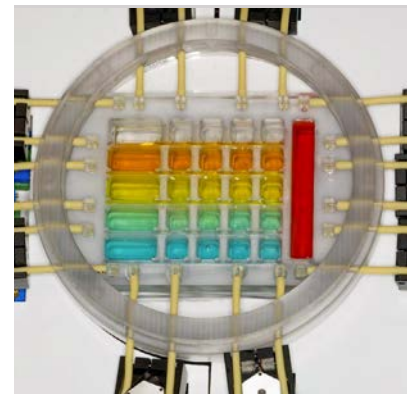
- **Biomedical Data Translator:** Through the **Translator** program, scientists are integrating multiple biomedical data sources and using computational methods to reveal new insights about diseases and treatments and to identify novel opportunities for research. The scientific community has a wealth of biological data from the molecular and microscopic level to the clinical and population level. While individual pieces of data are valuable, their impact and utility for science and medicine is limited. In addition, different approaches and various scientific languages used by physicians and biomedical researchers can present roadblocks to understanding the relationships between different types of data. By linking molecular, cellular, pharmaceutical, patient and other data, NCATS aims to enable a shift from the current symptom-based disease diagnosis to disease classification that is based on a set of molecular and cellular abnormalities that can be targeted by various preventive and therapeutic interventions.

Through this multiyear, computational effort, NCATS is supporting science to assess the feasibility of developing a comprehensive tool that integrates multiple types of existing data sources, including objective signs and symptoms of disease, drug effects and intervening types of biological data relevant to understanding pathophysiology. Another focus is on conducting a feasibility assessment to evaluate the translational gap between the scientific molecular and cellular biology and the clinical signs and symptoms produced in diseases.

NCATS established **Translator** using the flexibilities of OTA for the review of applications, the creation of unique partnerships and the management of the program.

- **3-D Bioprinting:** The newly established NCATS 3-D Bioprinting laboratory is designed to generate live human tissue that can be reliably reproduced in a format for drug screening. The ability to produce biological models of human tissue will provide clinically relevant data to make the drug discovery process more predictable and efficient. 3-D bioprinting of human tissue has the potential to accelerate the drug discovery process, enabling treatments to be developed faster and at a lower cost by bridging the gap between lab tests and animal tests for positive clinical outcomes.

ncats.nih.gov/funding/review/can



For More Information

About CAN

ncats.nih.gov/funding/review/can

CAN Review Board

ncats.nih.gov/advisory

Contact

Pamela M. McInnes, D.D.S.,
M.Sc. (Dent.)
pamela.mcinnnes@nih.gov

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