

Special Notice:

ARPA-H RESILIENT EXTENDED AUTOMATIC CELL THERAPIES (REACT)

Hybrid Proposers' Day

ARPA-H-SN-23-05



ADVANCED RESEARCH PROJECTS AGENCY FOR HEALTH

RESILIENT SYSTEMS OFFICE

Special Notice (SN): ARPA-H-SN-23-05	
OPPORTUNITY	ARPA-H RESILIENT EXTENDED AUTOMATIC CELL THERAPIES (REACT)
EVENT	HYBRID PROPOSERS' DAY
EVENT DATE	November 16, 2023
REGISTRATION DEADLINE	November 6, 2023, 5PM ET
REGISTRATION WEBSITE	https://arpa-h-react.powerappsportals.us/
REGISTRATION POC	REACT@arpa-h.gov
TECHNICAL POC	Dr. Paul Sheehan, Program Manager, Resilient Systems Office

PROPOSERS' DAY

The Advanced Research Projects Agency for Health (ARPA-H) is hosting a hybrid Proposers' Day in support of a planned solicitation for the Resilient Extended Automatic Cell Therapies (REACT) program. The Proposers' Day will be held virtually and in-person on November 16, 2023, from 8:30 AM to 5:30 PM Mountain Time (MT) in Denver, Colorado. Advance registration is required ([registration link](#)).

PROPOSERS' DAY GOALS

1. Introduce the ARPA-H REACT program goals and vision to the research community;
2. Clarify the logistics of an ARPA-H program generally as well as REACT-specific objectives and milestones;
3. Collect relevant questions which will be maintained on a frequently asked questions (FAQ) document at (<https://arpa-h.gov/engage/programs/react/>); and
4. Encourage and promote teaming arrangements among organizations that have relevant expertise, research facilities, and capabilities for executing research and development responsive to the ARPA-H REACT program goals.

PROJECT OBJECTIVES

The REACT Program vision is to improve the lives of individuals affected by lifelong or chronic disease through reducing barriers of limited healthcare access and affordability. Therapies associated with these diseases are often prohibitively expensive, place complex care navigation demands on patients, and drive health disparities. These challenges lead to individual and cumulative population health concerns, especially medication nonadherence, often increasing morbidity and mortality. The rate at which patients can fully complete a course of treatment is low, with up to 50% of US patients failing to adhere to treatment after one year. Resulting medical costs and hospitalizations are estimated at \$100 to \$300 billion each year. REACT aims to develop technologies to lower the treatment burden of lifelong or chronic diseases by changing the paradigm in therapeutic development, affordability, and empowering patients to more effectively manage their own health.

In the first track of the REACT program, solutions are sought that leverage recent advances in synthetic biology, materials, and bioelectronics to form an implantable "Living Pharmacy". The Living Pharmacy will consist of a bioelectronic carrier that maintains cells engineered to produce and secrete a hormone,

cytokine, or other therapeutic molecules *in vivo*. The carrier will be controlled externally by the individual, who will “subscribe” to a treatment regimen as prescribed by their doctor.

In the second track of the REACT program, successful proposers will work to create a complementary implantable device known as a Living Sentinel. The Living Sentinel will consist of a similar carrier-and-cell combination to the Living Pharmacy but will use the cells to detect a key biomarker of disease, which patients or their care team can track through a secure connection between the sentinel and a secure, handheld device, such as a smartphone.

TECHNICAL APPROACH

The REACT program comprises five technical areas (TAs):

- **TA1:** Long-Term Maintenance of Cells *In Vivo*. Enable long-term stability and maintenance of engineered cells inside the implantable device for one year following implantation.
- **TA2:** Improve the Manufacture of Standardized Cell Lines. Develop manufacturing and standardization processes for cell lines, enabling rapid cellular engineering for producing therapies or detecting biomarkers of disease.
- **TA3:** Implantable Device that Communicates with Patients. Create a low-power bioelectronic carrier that communicates with engineered cells and with an external device.
- **TA4:** Therapy Generation with Stimulated Release (Living Pharmacy). Develop low-cost cell lines that accurately deliver a therapeutically relevant dose for selected disease.
- **TA5:** Accurate Biomarker Detection (Living Sentinel). Develop cell lines that accurately and continuously measure biomarkers at physiologically relevant levels for disease tracking.

The REACT program will be accomplished over 3 sequential program Steps. Step 1 will develop key technologies. Step 2 will integrate those technologies into functional devices for *in vivo* testing. Step 3 consists of Phase I clinical trials to test the safety of the device and any side effects. The clinical trials will also inform the strategy for the dosing profile and timing of the therapy.

REGISTRATION INFORMATION

Participants must register in advance through the registration website ([registration link](#)). The deadline to register for the Proposers’ Day is November 6th at 5:00PM Eastern Time (ET). Attendance will be in person or virtually. In-person registration must be confirmed by ARPA-H. Virtual Proposers’ Day attendees will receive an email with the webinar link after registering. The event is only open to registered potential proposers and is closed to the general public and media.

EVENT FORMAT

The ARPA-H REACT Proposers’ Day will be hybrid and held on November 16, 2023, in person in Denver, Colorado or virtually via Zoom for Government.

The REACT Proposers’ Day will include presentations by ARPA-H, including technical presentations covering the REACT program as well as informational sessions during which the solicitation coordinator and Contracting Officer will respond to questions from participants. Potential performers will have the ability to highlight their technical capabilities for teaming relationships during “lightning talks”. Poster sessions will highlight current research efforts from potential proposers and foster potential teaming arrangements.

One-on-one meetings (sidebar discussions) with the ARPA-H REACT Program Manager and team will be available on November 16, 2023, from 2:15 PM to 5:30PM Mountain Time (MT). Only one (1) sidebar will be allowed per team and will be allowed on a first-come basis. Sidebar discussions will be limited to five (5) minutes. Prospective teams will identify if they would like to be considered for a sidebar during registration. Due to limited slots, registration does not guarantee a sidebar. Confirmation of sidebar slots will be sent by the REACT team.

ADMINISTRATIVE

All administrative and technical questions regarding the ARPA-H REACT Proposers' Day event should be directed to REACT@arpa-h.gov. Please refer to the Proposers' Day Special Notice number (ARPA-H-SN-23-05) in all correspondence.

This special notice is issued solely for information and potential new project planning purposes; the notice does not constitute a formal solicitation for proposals nor proposal abstracts. Any proposals or abstracts received in response to this notice will be **discarded**.

Attendance is voluntary and is not required to submit a proposal to subsequent ARPA-H REACT Announcement (if any) or research solicitation (if any) on this topic. ARPA-H will not reimburse costs incurred in responding to this Special Notice. Respondents are advised that ARPA-H is under no obligation to acknowledge receipt of any information received or provide feedback to respondents with respect to any information submitted under this Special Notice.