

SPARC VNS Endpoints from Standardized Parameters (VESPA)

Informational webinar

RFA-RM-22-002

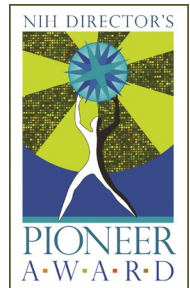
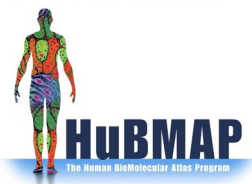
To submit questions during the webinar, please use the chat. We will address questions at the end of the presentation. Following the webinar, questions can be sent to SPARC-V@od.nih.gov



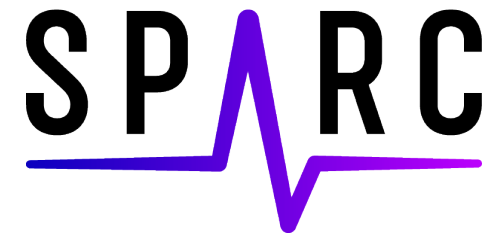
National Institutes of Health
Office of Strategic Coordination–The Common Fund

NIH Common Fund Programs

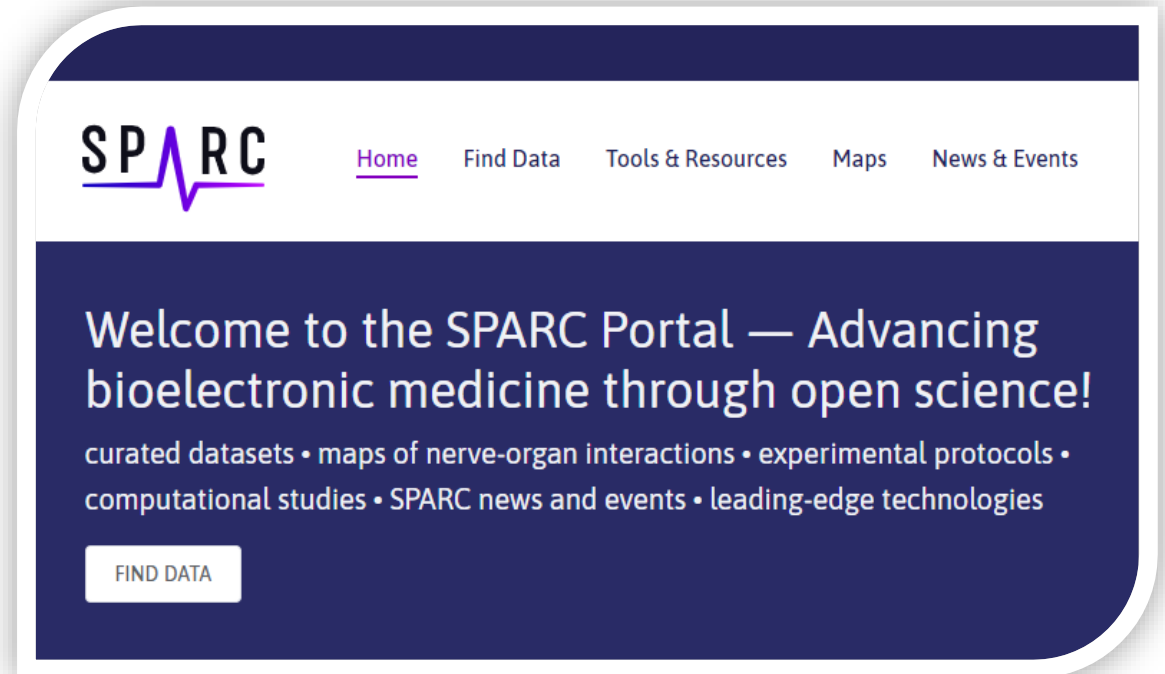
- Transformative** Must have the potential to dramatically benefit biomedical and/or behavioral research
- Catalytic** Must achieve a defined set of goals within 5-10 years
- Synergistic** Outcomes must synergistically advance individual missions of Institutes and Centers
- Cross-cutting** Program areas cut across missions of multiple Institutes and Centers, requiring a coordinated approach
- Unique** No other entity is likely or able to do



Stimulating Peripheral Activity to Relieve Conditions



The Common Fund's SPARC program seeks to accelerate development of therapeutic devices that precisely modulate electrical activity in nerves to improve organ function



Visit the **SPARC Portal** at sparc.science for curated data sets, maps of nerve-organ interactions, computational studies, and more!

New SPARC Initiatives



SPARC-V: Human vagus nerve mapping and physiology

- *Reconstructing human vagal anatomy*
 - Pre-solicitation notice ID: "[705N98022-SPARC-PreSol-11Jan2022](#)" on sam.gov
 - **Solicitation to be published on or about January 26, 2022**
- *VNS Endpoints from Standardized Parameters (VESPA) Center (U54) will implement a large multisite clinical study of the multi-organ effects of vagus nerve stimulation*
 - **RFA-RM-22-002** ➡ **Applications due April 1, 2022**

SPARC-O: Open-source neuromodulation technologies

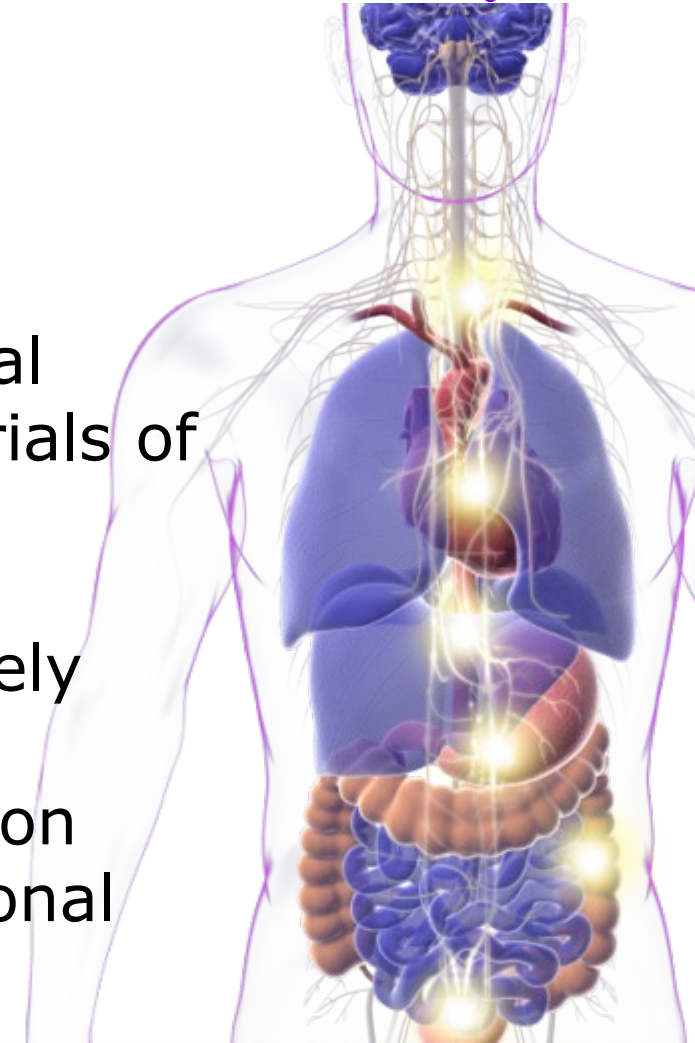
- *Human Open Research Neural Engineering Technologies (HORNET) Centers (U41) will create interoperable open-source modules that can be combined into custom profiles for neuromodulation studies*
 - **RFA-RM-22-002** - Applications due January 12, 2022

SPARC-X: Neuromod Prize

- *Competition to incentivize selective neuromodulation of multiple outcomes without off-target effects*
 - **Neuromodprize.com** ➡ **Submissions due April 28, 2022**

VNS Endpoints from Standardized Parameters (VESPA)

- The vagus nerve connects to many organs
- Vagal activation causes multi-organ physiological effects, which are often studied in isolation in trials of vagal nerve stimulation (VNS)
- Off-target effects of one strategy might be “on-target” in other contexts, but remain incompletely characterized
- Variation in approaches (device specs, stimulation parameters, etc.) limits generalization of functional connectivity across studies

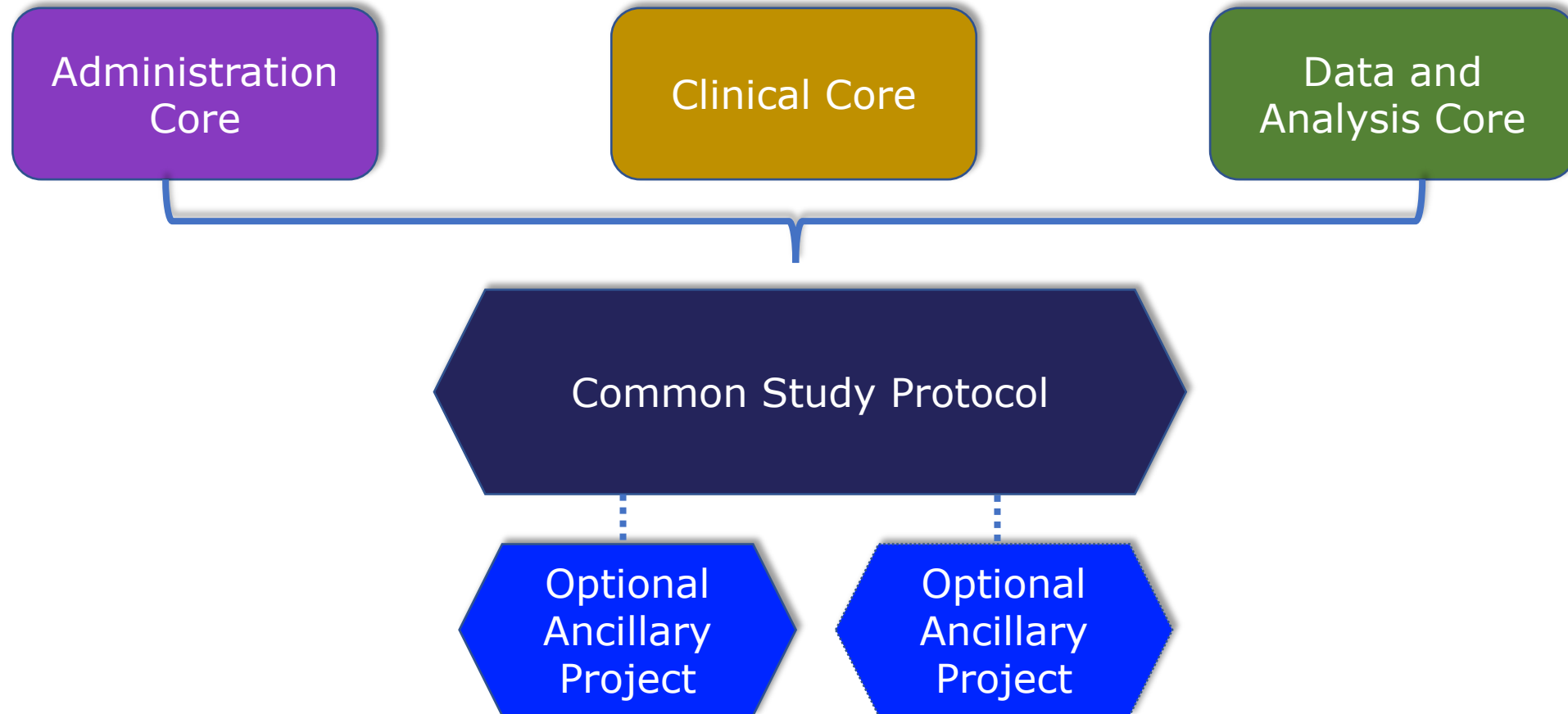


VESPA Goals and Objectives

Support optimization of VNS treatment by providing a real-world view of the broad impact on systems physiology of human VNS

- Examine the effect of VNS on multiple organ-system readouts of a standardized range of stimulation parameters in a clinical trial of approximately 200 participants receiving VNS
- Assess variability in functional connectivity of the human vagus nerve
- Produce a first-of-its-kind data set that will be shared rapidly and broadly

VESPA Center Structure



VESPA Common Study Protocol

Common Study Protocol

- A large-scale (e.g., 200 participants) study of **cervical vagal nerve stimulation via an implanted device** with a standardized set of parameters and outcome measures from **at least three different organ systems**.
- The study may include acute, chronic and/or remote assessments, pre-implantation baseline measurements, ongoing measurements from existing implanted VNS users, sub-studies requiring new investigational device exemptions (IDEs), or new basic physiological research studies in humans.

VESPA Common Study Protocol

Common Study Protocol

- Number of participants proposed must be scientifically and statistically justified to determine the intra- and inter-subject variability of the physiological responses.
- Applicants are encouraged to consider novel approaches such as adaptive study design.
- All VESPA Center Cores will collaboratively develop the protocol and interim data analysis plans to facilitate adaptive adjustments.

VESPA Center Components

Administration Core

- Performs all the administrative and coordinating functions to implement the goals and objectives of the VESPA Center
- Plans and implements an annual VESPA Center meeting of all core and project PIs, and organizes and supports other meetings as needed (e.g., core meetings, external advisory board meetings)
- Facilitates communication and collaboration across cores and projects
- Ensures information about the Center and results are disseminated in a timely manner
- Engages one or more patient advocates to participate in VESPA Center activities

VESPA Center Components

Clinical Core

- Coordinate, implement, and monitor the clinical activities in all clinical sites, including both the common study protocol and any ancillary projects
- Develop and implement the study protocol(s), recruitment plans, and data and safety monitoring plans at all the clinical sites
- Secure and maintain appropriate regulatory (e.g., IRB, FDA) approvals
- Coordinate meeting with the Data and Safety Monitoring Board (DSMB)
- Monitor adherence of all sites to the study protocol(s); reports deviations and/or modifications to the Administration Core and the NIH
- Manage and disperses participant incentive funds to all clinical sites
- Ensure proper transmission of data from clinical sites to the Data and Analysis Core

VESPA Center Components

Data and Analysis Core

- Establish data acquisition, annotation and processing workflows in coordination with other Core investigators, using SPARC [data standards](#)¹ and [format](#)² when available.
- Monitor and assist clinical sites with adherence to data/metadata workflows, Perform QA/QC on collected data.
- Use computational, analytic, and/or data-driven methods to analyze and/or model the effects of stimulation parameters on the measured outcomes.
- Generate models, simulations, visualizations, and/or knowledge that will assist therapeutic developers in designing and optimizing VNS treatment.
- Develop an interactive simulator to predict physiological outcomes based on a set of input variables, or to predict sets of input variables for achieving desired therapeutic outcomes.

VESPA Center Components

Optional Ancillary Project

Optional additional stimulation targets and/or measurement modalities

- For comparison to cervical vagal nerve stimulation (e.g., auricular nerve stimulation, thoracic vagal nerve stimulation, non-invasive or transcutaneous vagal nerve stimulation)
- As additional outcome measures to the common study protocol
- Not implemented at all clinical study sites.

Not Supported by this FOA

- Animal studies of neuromodulation
- Human studies of neuromodulation other than vagus nerve modulation
- Studies for the sole purpose of technology development

Pre-application Consultation

Applicants are strongly encouraged to consult with NIH program staff early in the process of planning an application; this provides a critical opportunity for applicants to confirm that planned activities are responsive to this FOA. Applicants should contact program staff well in advance of the application due date by emailing SPARC-V@od.nih.gov.

Letter of Intent

A letter of intent is not required but would be appreciated.

Letters of intent should be submitted by March 2, 2022:

SPARC-V@od.nih.gov

Please include:

- Descriptive title of proposed activity
- Name(s), address(es), and telephone number(s) of the PD(s)/PI(s)
- Names of other key personnel
- Participating institution(s)
- Number and title of this funding opportunity announcement

Application Instructions

The VESPA Center U54 is a multi-component application consisting of:

Component	Component Type for Submission	Page Limit	Required/Optional	Minimum	Maximum
Overall	Overall	6	Required	1	1
Administration Core	Admin Core	6	Required	1	1
Clinical Core	Clinical Core	12	Required	1	1
Data and Analysis Core	Data and Analysis	12	Required	1	1
Ancillary Projects	Ancillary Project	6	Optional	0	5

The required information for each component is described in [Section IV. Application and Submission Information](#).

Please read carefully and ask questions!

Application Review

- Described in FOA under Section V. Application Review Information.
- A special emphasis panel will be convened by the Center for Scientific Review.
- An overall score will be given to the entire U54. Additionally, each core and project will be reviewed and scored separately.
- Please review the additional items listed by component.

VESPA Governance and Award Terms

VESPA Center may nominate external advisors to attend annual meetings and provide advice to the VESPA Center, but are not required to be named in the application

Cooperative Agreement → greater involvement from NIH Program Staff

- Final milestone plan will be negotiated and agreed to before award
- NIH Program staff will periodically assess progress toward achieving the milestones
- NIH may appoint a VESPA steering committee to review the progress of the VESPA Center and provide individual feedback to the NIH regarding the VESPA Center's objectives and milestone progress

RFA-RM-22-002: Key Info

Letter of intent due: March 2, 2022

Applications due: April 1, 2022

Scientific review: June 2022

Advisory Council review: August 2022

Earliest start date: September 2022

3-year project period

Pre-application informational webinars:

January 21, 2022

February 2, 2022

Team-building webinar:

February 18, 2022

Contact us:
SPARC-V@od.nih.gov

 commonfund.nih.gov

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National Institutes of Health

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