Sources Sought ARPA-H-SS-26-157

Advanced Research Projects Agency for Health (ARPA-H)
Health Science Futures Mission Office

Sources Sought: ARPA-H-SS-26-157
Novel and Enhanced Modalities for Optic Nerve Imaging

The intent of this Sources Sought is to gauge academia and industry interest, capabilities, and relevant experience to support Advanced Research Projects Agency for Health (ARPA-H) Mission Office (MO) Health Science Futures.

PURPOSE OF THE SOURCES SOUGHT: ARPA-H is seeking information, interest and capabilities on novel and enhanced modalities for optic nerve imaging.

The Transplantation of Human Eye Allografts Program (THEA) program seeks to enable whole eye transplantation to restore vision for the blind and visually impaired. Today, we can transplant kidneys, hearts, livers, skin and even lungs, but we cannot transplant eyes due to major technical challenges in

1. keeping the donor eye viable
2. reattaching the optic nerve and regrowing the nerves to the brain to restore vision and
3. micro-reattachment of cranial nerves III-VI, blood vessels and muscles and immune modulation

Among these, **repair and regrowth of the optic nerve** remain the largest technical challenge. New technologies have shown success in regrowing retinal ganglion cells past the optic nerve transection site and towards the visual centers of the brain in rats. To visualize the growth of nerves down the optic nerve, to the chiasm, optic tract and into the lateral geniculate nucleus (LGN), current methodologies require either toxic tracers for MRI imaging or the sacrifice of the animal to extract the eye, brain and its connections for *ex vivo* confocal fluorescence microscopy. Today, it is not possible to track nerve growth *in vivo* along the optic nerve and into the LGN without euthanasia and the use of multiple imaging modalities together to produce a full image from eye to brain.

For clinical translation to large animal (pig) and human, serial optic nerve imaging *in vivo* with single axon resolution is necessary to track nerve growth progress following optic nerve transection (pig) or whole eye transplantation (pig and human), long before there is any clinical evidence of vision recovery.

INFORMATION SOUGHT: We are requesting information on the following topics in optic nerve imaging. Respondents may answer some or all the questions below. Please label your answer according to the numbered questions below:

1. What are current or emerging technologies in single axon resolution imaging that can be applied to track nerve growth down the optic nerve and to the brain (including but not limited to photoacoustic imaging, quantum diamond magnetic imaging, etc.)
    - Can these novel imaging modalities be developed to travel to the research site or hospital where large animal testing or a patient clinical trial is taking place?
2. Can current MRI/PET technologies be enhanced to enable single axon resolution imaging?
    - Are there novel tracers for MRI/PET imaging that have potentially strong clinical translation capabilities with minimal toxicity to the patient that allow for higher resolution?

    - Can novel MRI/PET imaging technologies be readily transported to hospitals where an eye transplant is performed?
3. Can any of the above detailed novel or enhanced imaging modalities be designed to capture the optic nerve, chiasm, optic tract and early targets of the visual system (lateral geniculate nucleus, superior colliculus, etc.) entirely in a single image?
4. Can the detailed imaging modalities be ready for use in human clinical trials of whole eye transplantation within 2 years?
5. Are there any novel optic nerve imaging technologies that have the capability of differentiating retinal ganglion cells native to the donor optic nerve against iPSCs-derived RGCs transplanted at the transection site (immunohistochemistry, tracers, or comparable)?

DATES:
Interested persons and organizations are invited to submit responses on or before 5:00 PM ET on June 10, 2026. Submission to this Sources Sought **should not exceed 6 pages**, single-spaced, 12-point font and 1-inch margins inclusive of charts, graphs, or other illustrations.

SUBMISSION REQUIREMENTS AND INSTRUCTIONS:
Interested individuals and organizations should submit comments electronically to THEA@arpa-h.gov and include "Sources Sought Response: Novel and Enhanced Modalities for Optic Nerve Imaging and the name of their institution in the subject line of the email. Due to time constraints, electronic submissions received after the deadline may not be taken into consideration.

Responses should address both the state of the art, including the gaps in current research and development, and near future directions for any topic chosen. Where possible, provide quantitative metrics to describe current and novel imaging modalities and substantiate them with references to published literature. Respondents may address multiple topics in their response. Each group is requested to submit only one (1) response.

SOURCES SOUGHT RESPONSE FORMAT:
Responses will be evaluated solely for market research purposes. Consequently, the Government is primarily interested in Qualified Sources providing specific technical details indicating how that source can meet the Government's needs. Interested parties, at a minimum, should provide the following information:

a) Name of Entity and Point(s) of Contact
b) Address, Telephone Number and Email Addresses(s) of POC
c) Vendor Cage Code, Unique Entity ID and DUNS Number, if any.
d) The anticipated NAICS Code for this effort is 541715 – Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)
e) Concise technical description of the offeror's capabilities in providing the above requirement or if additional research and development would be required (and if so, please provide the anticipated timeline).
f) Indicate if your entity would respond to a Request for Proposal. Include if your entity would propose as the prime or subcontractor.
g) Indicate if subcontracting possibilities exist and/or if all or some of the efforts may be performed by a single vendor.
h) Provide, in this response, with at least 2 relevant (within the last 36 months) contracts/orders, or other entities with a brief description of services/supplies provided for the same or similar type of work. If no

such formal agreements exist, please provide a summary of prior performance for the same or similar type of work.
i) Provide in this response any active contracts/orders or agreements with the U.S. Government (e.g. GWAC, GSA schedule, BPA, etc.) that may be utilized for this requirement. Include the Government point of contact.
j) Provide a rough estimate or cost range of the annual cost to obtain the requirement. If you have a pricelist, please provide it with your submittal.
k) Indicate how quickly your company would be able to provide the requirement (e.g. within XX days of contract award).

THIS IS A REQUEST FOR INFORMATION ONLY:
Response to this Sources Sought is voluntary. Responses to this Sources Sought may be viewed by Government and support contractors. The Government will review responses information and planning purposes. The Government will not provide reimbursement for any costs incurred in responding to this Sources Sought. ARPA-H is not seeking proposals or applications for financial assistance in response to this Sources Sought, and submissions cannot be accepted to form binding legal agreements of any type. Any information obtained from this Sources Sought is intended to be used by the Government on a non-attribution basis for planning and strategy development. ARPA-H will not respond to individual submissions. A response to this Sources Sought will not be viewed as a binding commitment to develop or pursue the project or ideas discussed. Comments submitted in response to this notice are subject to the Freedom of Information Act (FOIA). Any proprietary information shall be clearly marked in the document.