

Department of Health and Human Services

Part 1. Overview Information

Participating Organization(s)

National Institutes of Health ([NIH \(http://www.nih.gov\)](http://www.nih.gov))

Components of Participating Organizations

Office of Strategic Coordination ([Common Fund \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=82461\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=82461))

This Notice of Funding (NOFO) is developed as a Common Fund initiative (<https://commonfund.nih.gov/> (<https://commonfund.nih.gov/>)) through the Office of the NIH Director, Office of Strategic Coordination (<https://commonfund.nih.gov/> (<https://commonfund.nih.gov/>)). All NIH Institutes and Centers participate in Common Fund initiatives. The NOFO will be administered by the [National Cancer Institute \(https://www.cancer.gov/\)](https://www.cancer.gov/) (NCI) on behalf of the NIH.

Note: Not all NIH Institutes, Centers, and Offices (ICOs) participate in Announcements. Applicants should carefully note which ICOs participate in this announcement and view their respective areas of research interest at the [ICO-Specific Scientific Interests website \(https://grants.nih.gov/funding/find-a-fit-for-your-research/nih-institutes-centers-offices\)](https://grants.nih.gov/funding/find-a-fit-for-your-research/nih-institutes-centers-offices). ICOs that do not participate in this announcement will not consider applications for funding.

Funding Opportunity Title

Cellular Senescence Network (SenNet): SenNet Technology Projects (SenTecs) (UG3/UH3 Clinical Trial Not Allowed)

Activity Code

[UG3 \(http://grants.nih.gov/grants/funding/ac_search_results.htm?text_curr=ug3&Search.x=0&Search.y=0&Search_Type=Activity\)](http://grants.nih.gov/grants/funding/ac_search_results.htm?text_curr=ug3&Search.x=0&Search.y=0&Search_Type=Activity)/[UH3 \(http://grants.nih.gov/grants/funding/ac_search_results.htm?text_curr=uh3&Search.x=0&Search.y=0&Search_Type=Activity\)](http://grants.nih.gov/grants/funding/ac_search_results.htm?text_curr=uh3&Search.x=0&Search.y=0&Search_Type=Activity) Exploratory/Developmental Phased Award Cooperative Agreement

Announcement Type

New

Related Notices

- Check for any recent [Notices of NIH Policy Changes \(https://grants.nih.gov/grants/guide/url_redirect.php?id=11163\)](https://grants.nih.gov/grants/guide/url_redirect.php?id=11163) that may impact application requirements.

Funding Opportunity Number (FON)

RFA-RM-27-007

Companion Funding Opportunity

[RFA-RM-27-016 \(https://www.grants.gov/search-results-detail/359169\)](https://www.grants.gov/search-results-detail/359169), [UM1 \(https://grants.nih.gov/grants/funding/ac_search_results.htm?text_curr=UM1&Search.x=0&Search.y=0&Search_Type=Activity\)](https://grants.nih.gov/grants/funding/ac_search_results.htm?text_curr=UM1&Search.x=0&Search.y=0&Search_Type=Activity) Research Project with Complex Structure Cooperative Agreement [RFA-RM-27-025 \(https://www.grants.gov/search-results-detail/361817\)](https://www.grants.gov/search-results-detail/361817), [UM1 \(https://grants.nih.gov/grants/funding/ac_search_results.htm?text_curr=UM1&Search.x=0&Search.y=0&Search_Type=Activity\)](https://grants.nih.gov/grants/funding/ac_search_results.htm?text_curr=UM1&Search.x=0&Search.y=0&Search_Type=Activity) Research Project with Complex Structure Cooperative Agreement

Number of Applications

See Part 2, Section III. 3. Additional Information on Eligibility.

Assistance Listing Number(s)

93.310

Funding Opportunity Purpose

The purpose of this Notice of Funding Opportunity (NOFO) is to solicit the development of innovative senescence technologies (SenTecs), or the adaptation of existing technologies focused on identification, characterization and understanding the biological consequences of senescent cell (SnC) heterogeneity in the context of the tissue environments and secretomes to facilitate novel strategies for modulating SnCs *in vivo* and for predicting the outcomes of targeting SnCs in human aging and in disease conditions. These are five-year, milestone-driven awards consisting of two phases. The first two years constitute the UG3 phase and are focused on SenTec development and demonstration of technology feasibility. The following 3-years is the SenTec application UH3 phase where SenTecs continue to be optimized, refined and validated. In the final year of the UH3 award, SenTecs will undertake a demonstration project conducted in a collaborative effort within SenNet to provide further validation of the proposed SenTec. Applicants are required to submit both UG3 and UH3 projects together when responding to this NOFO. Transition from the UG3 to UH3 phases is not automatic and will occur only after administrative review of each SenTec at the close of Year 2 of the award.

Funding Opportunity Goal(s)

The Office of Strategic Coordination ([Common Fund \(https://commonfund.nih.gov/\)](https://commonfund.nih.gov/)) supports research and other projects that will accelerate fundamental biomedical discovery and translation of that knowledge into effective prevention strategies and new treatments.

Key Dates

Posted Date
October 09, 2026
Open Date (Earliest Submission Date)
October 23, 2026

Application Due Dates			Review and Award Cycles		
New	Renewal / Resubmission / Revision (as allowed)	AIDS - New/Renewal/Resubmission/Revision, as allowed	Scientific Merit Review	Advisory Council Review	Earliest Start Date
November 23, 2026	Not Applicable	Not Applicable	March 2027	May 2027	July 2027

All applications are due by 5:00 PM local time of applicant organization.

Applicants are encouraged to apply early to allow adequate time to make any corrections to errors found in the application during the submission process by the due date.

No late applications will be accepted for this Notice of Funding Opportunity (NOFO).

Due Dates for E.O. 12372
Not Applicable

Expiration Date
November 24, 2026

Required Application Instructions

It is critical that applicants follow the instructions in the Research (R) Instructions in the [How to Apply - Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400), except where instructed to do otherwise (in this NOFO or in a Notice from [NIH Guide for Grants and Contracts \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=11164\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=11164)).

Conformance to all requirements (both in the Application Guide and the NOFO) is required and strictly enforced. Applicants must read and follow all application instructions in the Application Guide as well as any program-specific instructions noted in Section IV. When the program-specific instructions deviate from those in the Application Guide, follow the program-specific instructions.

Applications that do not comply with these instructions may be delayed or not accepted for review.

There are several options available to submit your application through Grants.gov to NIH and Department of Health and Human Services partners. You **must** use one of these submission options to access the application forms for this opportunity.

1. Use the [NIH ASSIST system \(https://public.era.nih.gov/assist/public/login.era\)](https://public.era.nih.gov/assist/public/login.era) to prepare, submit and track your application online.
2. Use an institutional system-to-system (S2S) solution to prepare and submit your application to Grants.gov and [eRA Commons \(https://public.era.nih.gov/commons/\)](https://public.era.nih.gov/commons/) to track your application. Check with your institutional officials regarding availability.
3. Use [Grants.gov \(https://grants.gov/search-grants?oppStatuses=closed|archived|posted|forecasted&fon=PA-25-301\)](https://grants.gov/search-grants?oppStatuses=closed|archived|posted|forecasted&fon=PA-25-301) Workspace to prepare and submit your application and [eRA Commons \(http://public.era.nih.gov/commons/\)](http://public.era.nih.gov/commons/) to track your application.

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Part 2. Full Text of Announcement

Section I. Notice of Funding Opportunity Description

The Cellular Senescence Network (SenNet)

Cellular senescence is a complex biological process where cells enter a state of growth arrest without dying. This state is characterized by specific changes in the senescent cell (SnC), including an increase in cell size and the production of specific molecules by the cell that constitute the heterogeneous senescence-associated secretory phenotype (SASP) used by senescent cells to influence their microenvironment. Senescent cells are known to have both a beneficial and detrimental impact on their environment and accumulate with age where they contribute to the development and progression of many age-related diseases including cancer, diabetes, osteoarthritis and neurogenerative diseases such as Alzheimer's Disease. Here, the targeted removal of senescent cells in preclinical disease models using a class of drugs called senolytics has resulted in reduced SnCs and alleviated the burden of age-related diseases suggesting a role for these drugs in the treatment of many age-associated diseases in a variety of patients. To further explore these discoveries, the [NIH Common](#)

[Fund \(CF\)](https://commonfund.nih.gov/) (<https://commonfund.nih.gov/>) launched the [Cellular Senescence Network \(SenNet\)](https://sennetconsortium.org/) (<https://sennetconsortium.org/>) in 2021 to identify, characterize and map SnCs at the single cell level in several normal human and mouse tissues.

During this initial SenNet funding period, over 1,000 datasets have been generated that reflect the vast heterogeneity of senescent cells (SnCs) across human and mouse tissues and lifespan and from which tissue-specific biomarkers for senescent cells covering 18 organs have been discovered. In addition to many published scientific articles, SenNet has produced several novel tools and technologies that facilitated the identification and characterization of these rare and heterogeneous SnCs *in vivo*.

Continuation of SenNet will leverage all insights and advances in cellular senescence, in addition to those generated in SenNet. To date, SenNet has documented the extensive heterogeneity of SnCs and established the concept of 'senotypes' to capture the true biological diversity of SnCs as a classification system for senescent cell identities based on a collection of biomarkers that reflect molecular, functional, and other SnC phenotypic descriptors. SenNet will currently be funded through three NOFOs, RFA-RM-27-016 (UM1), RFA-RM-27-025 (UM1), and this NOFO, RFA-RM-27-007 (UG3/UH3) which supports the development of innovative senescence-related technologies or Senescence Technology Projects (SenTecs). All applicants successfully funded in response to these three NOFOs will become members of SenNet consortium. All projects in SenNet will be funded as Cooperative Agreements and the NIH Staff will have a substantive and significant role in shaping the scientific aspects of these projects. The governing body of SenNet will be the SenNet Steering Committee led by Steering Committee co-chairs selected by NIH Staff, and who serve as PIs on SenNet projects that constitute the SenNet Consortium.

Background and Objectives of the Cellular Senescence Network (SenNet):

Senescence is a cell state characterized by durable cell-cycle arrest in response to various stressors, often associated by a pro-inflammatory phenotype, known as senescence-associated secretory phenotype (SASP). Senescent cells (SnCs) have diverse biological roles in tumor suppression, embryonic development, tissue repair, and wound healing. However, SnCs also accumulate during normal aging and contribute to the pathology of multiple age-associated diseases including cardiovascular disease, cancer, osteoarthritis, pulmonary diseases and neurodegenerative disorders. Hence, selective elimination of SnCs holds significant promise in precision medicine.

The Cellular Senescence Network (SenNet) program was established in 2021 to comprehensively identify and characterize the differences in senescent cells across the body, in various states of human health, throughout the lifespan. During the first stage of the program, the SenNet consortium made significant progress, generating and publishing many datasets characterizing senescence signatures in human and murine tissues across lifespan. These consortium-wide, synergistic efforts have further validated and extended the landscape of senescence heterogeneity across all tissues examined. More information on the resources generated by the program can be found on the consortium website, <https://sennetconsortium.org/>. This funding opportunity is designed to build upon the successes of SenNet to gain further biological and mechanistic insights into role of heterogeneous senescent cells in pathophysiological conditions.

SenTec Objectives and Scope

This NOFO solicits applications proposing the development and application of innovative senescence technologies, or the adaptation of existing technologies, to facilitate the overall goal of SenNet, which is to understand the biological consequences of the extensive heterogeneity of cellular senescence across human tissues and lifespan with the ultimate goal of using this information to improve targeting strategies for SnCs *in vivo*, the healthspan of aging individuals and those with age-related illnesses in humans. The extensive heterogeneity of SnCs documented across both murine and human tissues in earlier stage of SenNet has led to a new method of SnC classification among SenNet members where SnCs are no longer classified by single biomarkers but instead by a collection of markers of phenotypic identifiers that come together to define a SnC-specific signature or 'senotype'. Therefore, SenTecs developed in SenNet should consider the complex nature of cellular senescence in the SenTec design and execution of their SenTec. SenTecs developed in response to this NOFO must be developed for use in human systems and models: tools and technologies and are expected to contribute to the core translation goal of SenNet.

A wide variety of innovative tools/technology that consider the unique complexity of human cellular senescence *in vivo* and are designed to facilitate the advancement of SenNet's goals will be considered responsive to this NOFO. These tools/technologies could include, but are not limited to, proposals to develop novel and innovative tools/technologies that:

- Extend SenNet's earlier mapping goals, where the emphasis was on spatially resolved single cell transcriptomics, to include technologies that inform the lipidomic, proteomic and metabolomic characterization of SnCs *in vivo*.
- Generate novel multiscale models and/or tools to analyze SnCs and the SASP composition to inform the role of the SASP interaction with the SnC tissue-specific niche *in vivo* in both human health and disease.
- Leverage ML/AI for tool development and other technologies to identify and characterize SnC to define senotypes, predict the occurrence of senescence, and uncover clinically relevant vulnerabilities in cellular senescence that are translationally relevant.
- Develop and examine the genomics/epigenomics and chromosome architecture of SnCs *in vivo* to refine and inform the translational goals of SenNet in both human aging and disease systems
- Predict and examine cell lineage trajectories for tissue-specific SnCs in human aging and age-associated illnesses.
- Develop and optimize methodologies to identify tissue specific targeted vulnerabilities for SnCs and predict outcomes associated with senotherapies.
- Optimize techniques that can identify and model differential allelic expression, niche environments, viral infection or other microenvironment-defining biomolecular patterns in healthy aging tissues or those from patients with age-associated illnesses.
- Develop tools and technologies integrating approaches such as MRI, micro-CT, photoacoustic, Raman spectroscopy, histology, morphology and mechanical imaging or analysis of mitochondria, exogenous chemicals, extracellular space or viral signatures.

Coordination

A significant feature of SenNet is the strong collaborative interactions occurring among SenNet members that have provided momentum for the discoveries made in SenNet thus far. SenTecs will therefore be strongly encouraged to work closely with the other currently supported components of SenNet, including the Discovery and Validation Centers (DVCs) and/or the Data Coordination and Integration Center (DCIC) early in the program to assure that the tools/technologies under development will be integrated and scaled appropriately for use in SenNet and beyond. SenTecs will also be expected to participate in developing consortium-wide best practices for emerging approaches to data generation and compatibility, manage quality control, cleaning and harmonization of data received, conduct cross-site comparisons and test and validate technologies on multiple tissues. SenTec projects will be required to set aside approximately 10% of their UH3 year-5 budget for a collaborative demonstration project to showcase their technology to be conducted in collaboration with another SenNet group within or outside of SenNet.

The NIH Common Fund (CF) supported programs are intended to provide resources that accelerate discovery across many different biomedical research fields. These resources include large data sets and associated digital tools needed to mine and analyze the data. To maximize their impact, data sets and tools generated by the CF programs must be usable together. Towards achieving this goal, the CF created the Common Fund Data Ecosystem (CFDE), a data management infrastructure where the interconnected ecosystem facilitates scientific advances by making CF data and digital objects usable and useful both within a program and in combination with data from other programs.

NIH intends that the SenTec tools/technologies be broadly available to provide the foundations for discoveries that the community could build upon, including methods, tools, reagents, biospecimens, datasets, analysis algorithms and software. Approved projects are expected to agree to Consortium policies to rapidly share their products within the Consortium and with the external research community through the program Portal when established. The robustness, reproducibility and rapid dissemination of experimental results are critical to the success of the SenNet. It is anticipated that in some cases, conducting additional critical experiments will be important for assessing progress. Therefore, NIH Program staff, in consultation with the PD/PI, may suggest the modification or addition of experiments to be conducted during the award.

Award(s) made through this NOFO will work collaboratively with all SenNet components, including the DVCs and/or the DCIC to ensure continuous improvement of the program by developing, collecting, and sharing quantitative performance metrics to be attained to demonstrate the progress of the project. In carrying out stewardship of this NOFO, the NIH or its Institutes and Centers may use these metrics to assess effectiveness and communicate the impact of the program.

Responsiveness

This NOFO may solicit proposals for a range of SenTecs, but to be responsive, SenTec applications should propose the development of novel tools/technologies or propose optimizing an existing tool/technology that will help advance the goals of SenNet. Here, SenTecs with potential to advance our current understanding of the biological consequences of the extensive SnC heterogeneity revealed earlier in SenNet is a priority for the SenTec program as are those SenTecs that help advance the translational aspect of the data generated in SenNet. SenTec applications should discuss the novelty and innovation of the proposed SenTec, the rationale and purpose for its development and discuss the unmet area of senescence research it will address. Responsive applications will also inform human systems and outcomes in the human lifespan and age-related illnesses even though initial proof-of-principle experiments are initially conducted in non-human models. Importantly, applications should propose an organ or tissue to serve as the proof-of-principle organ for development of the proposed SenTec, but tools/technologies developed in response to the NOFO should ideally have applicability to more than one human tissue or organ and allow for flexibility in organ selection so as to facilitate integration of the SenTec into a final group of organ systems that will serve as the focus for SenNet. Applications focused on the development of technologies with no clear consideration of senescence biology will be deemed non-responsive as will applications solely proposing single-cell transcriptomic technologies.

UG3/UH3 Funding Mechanism

This NOFO uses the UG3/UH3 cooperative agreement mechanism to support the phased development of innovative senescence technologies, or SenTecs, to advance what is currently known about cellular senescence in humans. These SenTec awards will be 5-year awards with an initial 2-year UG3 cooperative agreement award that is highly milestone driven. This UG3 phase will serve as the proof-of-principle phase where SenTecs are expected to demonstrate feasibility for the development of the proposed tool/technology. The UG3 phase will be guided by 6-month milestone covering the first two years of the award and detailed in the application. The subsequent UH3 phase will fund awards for 3 years where the focus will be on scaling, optimizing, refining and validating the SenTec in multiple human tissues. Importantly, in the final year of the UH3 award, SenTecs will be required to conduct a demonstration project in collaboration with SenNet members or others outside of the consortium, using funds set aside in the SenTec budget of approximately 10%. To fulfill the demonstration project requirement, successful applicants will be encouraged to actively participate in consortium-wide meetings and activities early in the SenNet to familiarize themselves with ongoing senescence research conducted by other members in SenNet so that by the middle of year four of the award, a proposal for a SenTec demonstration project can be formulated and finalized for administrative review and approval by NIH Staff. Pls responding to this NOFO must include detailed plans for both UG3 and UH3 phases in their application and will be asked to update the description and scope of the UH3 administrative review prior to the UG3 to UH3 transition process at the end of UG3 phase in Year 2 of the SenTec award.

As a cooperative agreement and as part of the larger SenNet consortium, all SenTec applicants are expected to describe in their application how their proposed project meets the goals of the overall consortium program, how it significantly improves upon the status quo in senescence research, how it can be integrated with other technologies, and how it is ultimately capable of being scaled for multiple human tissues in a high-throughput fashion. Applicants are also expected to discuss performance, dynamic range, sensitivity and specificity of their technologies, calibration and control processes; testing, evaluation and improvement, and interoperability and usability.

SenTec applications are expected to have ambitious goals and must provide 6-month milestones for the first two years of the UG3 phase and yearly milestones thereafter. Milestones are goals that are quantifiable for measuring SenTec success in a timely manner and are key features of the SenTec program since they will serve as guides for progress made for the development of the SenTec in real time. These milestones will also be used during the UG3 to UH3 transition process and should have quantitative criteria associated with them. Prior to funding an application, NIH Program staff will contact the applicant to discuss the proposed milestones and changes may be requested by the reviewers or NIH Program staff. A final set of milestones will be specified each year in the Notice of Award. Progress towards achievement of the annual milestones and the overall goals will be regularly evaluated by NIH Program staff and they may consult as necessary with independent consultants with relevant expertise. If justified, future year milestones may be revised based on data and information obtained during the previous project period.

SenTec UG3 Phase

In the SenTec UG3 phase, the NIH is interested in developing and demonstrating technologies capable of identifying and functionally characterizing individual senescent cells and their context in tissue. Expected outcomes include but are not limited to:

- A proof-of-principle demonstration of the SenTec in models or tissues, including non-human tissues.
- Achievement of the proposed milestones detailed in the Notice of Award which will serve as leading indicators of SenTec progress.
- Demonstration that the SenTec Pls can address unexpected roadblocks that may delay or slow the development of the technology.
- Consideration of a reasonable strategy to protect the intellectual property (IP) of the SenTec going forward, if applicable. Development and sharing within the Consortium of Standard Operating Procedures, quality control metrics, software, reagents or metadata elements associated with the SenTec.
- Regular attendance and participation at consortium-wide meetings and SenNet working groups and updating of presentations on progress made on the SenTec development.
- Demonstration of the feasibility for scale-up of the proposed technology if applicable and the application of the SenTec to more than one tissue.
- Coordination with the SenNet Data Coordination and Integration Center (DCIC) data management team to deposit and storage of proof-of-principle/ validation data generated using the proposed technology.

Milestones and Transition from UG3 to UH3

The transformative technologies being developed in the SenTecs will innately be high-risk; it is anticipated that not all SenTecs will transition from the UG3 to UH3 phase at the end of the second year of awards. Transition from the UG3 to UH3 phase will depend on the availability of funds and require SenTec Pls to apply for UH3 transition by submitting a transition application for administrative review and approval by NIH Staff. Detailed guidance for this UH3 SenTec transition exercise will be provided to successful SenTec applicants shortly after initial UG3 funding. Briefly, SenTecs applying for UH3 transition are expected to detail achievements made in the UG3 phase including a demonstration of the technology showing achievement of milestones during the UG3 phase, feasibility and proof that the technology will be applicable to human systems and the evidence of active participation of SenTec groups in the consortium.

SenTec UH3 Phase

During the UH3 phase, SenTecs will continue to be optimized, scaled-up, refined, and validated. Expected outcomes include, but are not limited to the:

- Development of collaborative projects between SenTec team and other SenNet members where the SenTec will be applied and further validated in multiple tissues. This project should be validated by the end of Year 4 and must be administratively reviewed for approval by NIH Staff.
- Development of a regulatory or intellectual property (IP) strategy, either through the applicant's organization or through appropriate arrangement with external regulatory consultants.
- Scaling, optimization and characterization of the SenTec in additional human tissues.
- Generation of production level data from human tissues and submission of that data to the data coordinating center.

This initiative is funded through the NIH Common Fund, which supports cross-cutting programs that are expected to have an exceptionally high impact. All Common Fund initiatives invite investigators to develop bold, innovative, and often risky approaches to address problems that may seem intractable or to seize new opportunities that offer the potential for rapid progress.

Pre-Application Webinar

A webinar is planned to provide prospective applicants with the opportunity to receive information and ask questions about the scientific scope of this NOFO and technical details for applying. The webinar will be open to all prospective applicants. Participation in the webinar is not a prerequisite to applying to this NOFO. Prospective applicants are also encouraged to submit their questions regarding the NOFO in advance of the webinar; further details on where to submit the questions will be provided once the webinar has been scheduled. For further details on the pre-application webinar, including the time, date, and other information, please email CS2@nih.gov (<mailto:CS2@nih.gov>).

See Section VIII. Other Information for award authorities and regulations.

Section II. Award Information

Funding Instrument

Cooperative Agreement: A financial assistance mechanism used when there will be substantial Federal scientific or programmatic involvement. Substantial involvement means that, after award, NIH scientific or program staff will assist, guide, coordinate, or participate in project activities. See Section VI.2 for additional information about the substantial involvement for this NOFO.

Application Types Allowed

New

The [OER Glossary \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=11116\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=11116) and the How to Apply Application Guide provide details on these application types. Only those application types listed here are allowed for this NOFO.

Clinical Trial?

Not Allowed: This NOFO only accepts applications that do not propose clinical trials. Note: Applications may propose activities involving human subjects that are not deemed clinical trials.

[Need help determining whether you are doing a clinical trial? \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82370\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82370)

Funds Available and Anticipated Number of Awards

The NIH Common Fund (Office of Strategic Coordination) intends to commit \$5.4M Total Costs in FY2027 to fund up to 9 awards. Number of awards is contingent upon NIH appropriations and the submission of a sufficient number of meritorious applications.

Award Budget

Applications must not exceed \$400,000 in direct costs per year during the UG3 phase and \$550,000 in direct costs per year during the UH3 phase.

Award Project Period

The scope of the proposed project should determine the project period. The maximum project period is 5 years.

NIH grants policies as described in the [NIH Grants Policy Statement \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=11120\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=11120) will apply to the applications submitted and awards made from this NOFO.

Section III. Eligibility Information

1. Eligible Applicants

Eligible Organizations

Higher Education Institutions - Includes all types

- Public/State Controlled Institutions of Higher Education
- Private Institutions of Higher Education

Nonprofits Other Than Institutions of Higher Education

- Nonprofits with 501(c)(3) IRS Status (Other than Institutions of Higher Education)
- Nonprofits without 501(c)(3) IRS Status (Other than Institutions of Higher Education)

For-Profit Organizations

- Small Businesses
- For-Profit Organizations (Other than Small Businesses)

Local Governments

- State Governments
- County Governments
- City or Township Governments
- Special District Governments
- Indian/Native American Tribal Governments (Federally Recognized)
- Indian/Native American Tribal Governments (Other than Federally Recognized).

Federal Governments

- Eligible Agencies of the Federal Government
- U.S. Territory or Possession

Other

- Independent School Districts
- Public Housing Authorities/Indian Housing Authorities
- Native American Tribal Organizations (other than Federally recognized tribal governments)
- Faith-based or Community-based Organizations
- Regional Organizations

Foreign Organizations/International Collaborations

Non-domestic (non-U.S.) Entities (Foreign Organizations) **are not** eligible to apply.

Non-domestic (non-U.S.) components of U.S. Organizations **are not** eligible to apply.

Foreign components, as [defined in the NIH Grants Policy Statement \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=11118\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=11118), **are not** allowed.

NIH will no longer issue awards (i.e., new, renewal, or non-competing continuation) to domestic or foreign entities that involve foreign subawards/subcontracts. All NIH-funded research involving foreign subawards/subcontracts must be submitted in response to a NOFO that is specifically designated for funded international collaborations. See [NIH Grants Policy Statement 16.8 Collaborative International Research Awards \(https://grants.nih.gov/grants/policy/nihgps/HTML5/section_16/16.8_collab_int_res_awards.htm\)](https://grants.nih.gov/grants/policy/nihgps/HTML5/section_16/16.8_collab_int_res_awards.htm).

Applications involving foreign subawards/subcontracts submitted in response to this NOFO will be deemed noncompliant and will not be considered for funding. This policy applies to all monetary international collaborations resulting in foreign subawards/subcontracts, however, it does not preclude unfunded international collaborations or [foreign components \(https://grants.nih.gov/grants/policy/nihgps/HTML5/section_1/1.2_definition_of_terms.htm\)](https://grants.nih.gov/grants/policy/nihgps/HTML5/section_1/1.2_definition_of_terms.htm), funding for foreign consultants, or procurement of unique equipment or supplies from foreign vendors.

Required Registrations

Applicant Organizations

Applicant organizations must complete and maintain the following registrations as described in the How to Apply- Application Guide to be eligible to apply for or receive an award. All registrations must be completed prior to the application being submitted. Registration can take 6 weeks or more, so applicants should begin the registration process as soon as possible. Failure to complete registrations in advance of a due date is not a valid reason for a late submission, please reference the [NIH Grants Policy Statement Section 2.3.9.2 Electronically Submitted Applications \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=82423\)](#) for additional information.

- [System for Award Management \(SAM\) \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82390\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82390) – Applicants must complete and maintain an active registration, **which requires renewal at least annually**. The renewal process may require as much time as the initial registration. SAM registration includes the assignment of a Commercial and Government Entity (CAGE) Code for domestic organizations which have not already been assigned a CAGE Code. Foreign organizations must obtain a [NATO Commercial and Government Entity \(NCAGE\) Code \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=11176\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=11176) (in lieu of a CAGE code) in order to register in SAM.
 - Unique Entity Identifier (UEI)– A UEI is issued as part of the SAM.gov registration process. The same UEI must be used for all registrations, as well as on the grant application.
- [eRA Commons \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=11123\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=11123) - Once the unique organization identifier is established, organizations can register with eRA Commons in tandem with completing their Grants.gov registrations; all registrations must be in place by time of submission. eRA Commons requires organizations to identify at least one Signing Official (SO) and at least one Program Director/Principal Investigator (PD/PI) account in order to submit an application.
- [Grants.gov \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=82300\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=82300) – Applicants must have an active SAM registration in order to complete the Grants.gov registration.

Program Directors/Principal Investigators (PD(s)/PI(s))

All PD(s)/PI(s) must have an eRA Commons account. PD(s)/PI(s) should work with their organizational officials to either create a new account or to affiliate their existing account with the applicant organization in eRA Commons. Obtaining an eRA Commons account can take up to 2 weeks.

All PD(s)/PI(s) must be registered with [ORCID \(https://orcid.org/\)](https://orcid.org/). The personal profile associated with the PD(s)/PI(s) eRA Commons account must be linked to a valid ORCID ID. For more information on linking an ORCID ID to an eRA Commons personal profile see the [ORCID topic in our eRA Commons online help \(https://era.nih.gov/erahelp/Commons/default.htm#orcid.htm%3FTocPath%3D____29\)](https://era.nih.gov/erahelp/Commons/default.htm#orcid.htm%3FTocPath%3D____29).

Eligible Individuals (Program Director/Principal Investigator)

Any individual(s) with the skills, knowledge, and resources necessary to carry out the proposed research as the Program Director(s)/Principal Investigator(s) (PD(s)/PI(s)) is invited to work with their organization to develop an application for support.

For institutions/organizations proposing multiple PDs/PIs, visit the Multiple Program Director/Principal Investigator Policy and submission details in the Senior/Key Person Profile (Expanded) Component of the How to Apply-Application Guide.

2. Cost Sharing

This NOFO does not require cost sharing as defined in the [NIH Grants Policy Statement Section 1.2 Definition of Terms \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=11126\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=11126).

3. Additional Information on Eligibility

Number of Applications

Applicant organizations may submit more than one application, provided that each application is scientifically distinct.

The NIH will not accept duplicate or highly overlapping applications under review at the same time, per [NIH Grants Policy Statement Section 2.3.7.4 Submission of Resubmission Application \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=82415\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=82415). This means that the NIH will not accept:

- A new (A0) application that is submitted before issuance of the summary statement from the review of an overlapping new (A0) or resubmission (A1) application.
- A resubmission (A1) application that is submitted before issuance of the summary statement from the review of the previous new (A0) application.
- An application that has substantial overlap with another application pending appeal of initial peer review (see [NIH Grants Policy Statement 2.3.9.4 Similar, Essentially Identical, or Identical Applications \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=82423\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=82423)).

Section IV. Application and Submission Information

1. Requesting an Application Package

The application forms package specific to this opportunity must be accessed through ASSIST, Grants.gov Workspace or an institutional system-to-system solution. Links to apply using ASSIST or Grants.gov Workspace are available in Part 1 of this NOFO. See your administrative office for instructions if you plan to use an institutional system-to-system solution.

2. Content and Form of Application Submission

It is critical that applicants follow the instructions in the Research (R) Instructions in the [How to Apply - Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400) except where instructed in this notice of funding opportunity to do otherwise (in this NOFO, in a [policy notice \(https://grants.nih.gov/grants/guide/url_redirect.php?id=11163\)](https://grants.nih.gov/grants/guide/url_redirect.php?id=11163), or other notice from [NIH Guide for Grants and Contracts \(https://grants.nih.gov/grants/guide/url_redirect.php?id=11164\)](https://grants.nih.gov/grants/guide/url_redirect.php?id=11164)). Conformance to the requirements in the Application Guide is required and strictly enforced. Applications that are out of compliance with these instructions may be delayed or not accepted for review.

Page Limitations

All page limitations described in the [How to Apply- Application Guide \(https://grants.nih.gov/grants/how-to-apply-application-guide.html\)](https://grants.nih.gov/grants/how-to-apply-application-guide.html) and the [Table of Page Limits \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=61134\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=61134) must be followed.

Instructions for Application Submission

The following section supplements the instructions found in the [How to Apply- Application Guide \(https://grants.nih.gov/grants/how-to-apply-application-guide.html\)](https://grants.nih.gov/grants/how-to-apply-application-guide.html) and should be used for preparing an application to this NOFO.

SF424(R&R) Cover

All instructions in the [How to Apply - Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400) must be followed.

SF424(R&R) Project/Performance Site Locations

All instructions in the [How to Apply- Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400) must be followed.

SF424(R&R) Other Project Information

All instructions in the [How to Apply- Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400) must be followed.

Other Attachments:

1. Applications must include an Intellectual Property (IP) Strategy. Applicants are encouraged to prepare this attachment section in consultation with their institution's technology transfer officials. The section should be labeled "Intellectual Property Strategy.pdf" and may not exceed 3 pages. Include the Attachment even if IP issues are not a consideration for the project. Indicate: IP issues are not applicable and explain why.

This section should describe a dissemination plan that involves patent protection and commercialization:

Describe the IP landscape surrounding their model system. Applicants should describe any known constraints that could impede sharing of their technology (e.g., certain restrictions under transfer or sharing agreements, applicants' previous or present IP filings and publications, similar model systems that are under patent protection and/or on the market, etc.) and how these issues could be addressed with achieving the goals of this program.

Include a letter from any entity who has ownership of the IP indicating whether they will provide the technology, if there are any limitations on the studies that can be performed with that technology, agreement about public disclosure of results (including negative results), and whether there is an agreement already in place.

If patents pertinent to the technology being developed under this application have been filed, the applicant should indicate the details of filing dates, what type of patents are filed, and application status, and associated US Patent and Trademark Office links, if applicable.

Describe future IP filing plans. For a multiple-PD/PI, multiple-institution application, applicants should describe the infrastructure of each institution for bringing the technologies to practical application and for coordinating these efforts (e.g., licensing, managing IP) among the institutions.

State how IP will be shared or otherwise managed if multiple PD/PIs and institutions are involved, consistent with achieving the goals of the SenNet Research Program.

SF424(R&R) Senior/Key Person Profile

All instructions in the [How to Apply- Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400) must be followed.

Applications must demonstrate strong scientific expertise in the areas that are critical to the success of the application and describe any experience in successfully leading the coordination of multi-component scientific activities such as those to be generated by SenNet.

R&R Budget

All instructions in the [How to Apply- Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400) must be followed.

R&R Subaward Budget

All instructions in the [How to Apply - Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400) must be followed.

PHS 398 Cover Page Supplement

All instructions in the [How to Apply - Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400) must be followed.

PHS 398 Research Plan

All instructions in the [How to Apply - Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400) must be followed, with the following additional instructions:

Specific Aims:

Applicants should consider the complexity of senescence in the development of the SenTec application, address the rationale for developing the proposed SenTec, detail the scientific questions to be answered, provide the overall goal for the entire application and show how the technology will enhance translational capabilities in senescence research.

Importantly, applicants must include separately in the application Specific Aims for the UG3 phase and for the UH3 Phase and the Specific aims for both phases should be scientifically appropriate for the distinct research phases and the amount of time allotted for each phase of the project.

Research Strategy:

Within the single Research Strategy attachment, separate the information into the sections identified below. Applications will be assigned a single impact score. Organize the Research Strategy as described below.

1. Background and Significance

Define the specific knowledge gap(s) and urgent needs in cellular senescence research to be addressed by the SenTec and provide a rationale for the decision to develop the SenTec.

Outline the main characteristics and applicability of the proposed tools, technologies, analytics and methods. Projects should be justified by their strong potential to inform the biological consequences of the extensive SnC heterogeneity in multiple tissues across human health and lifespan so that mechanistic discoveries made using the SenTec could be used to inform efforts to modulate SnCs *in vivo* in human aging and disease. Explain whether the proposed SenTec will significantly enhance work in the DVCs and/or other research communities.

If proposing a project involving a currently available technology that was originally approved for uses outside of senescence research, provide an explanation for how adoption of the technology would substantially inform SnC heterogeneity in normal and disease tissues *in vivo*.

2. Innovation

SenTecs development in response to this NOFO are expected to be highly innovative and novel and must consider the extensive heterogeneity associated with SnCs in human aging and disease to facilitate translating discoveries made in senescence to the clinic. Proposed SenTecs should advance current knowledge of human cellular senescence *in vivo* in new and creative ways and applicants should describe why the SenTec offers clear and significant advantages over similar available technologies. If the proposed SenTec is optimized or adopted from an established technology, describe how it overcomes a significant/longstanding technical challenge.

3. Preliminary data

Applicants should provide preliminary data if available, to support the technology's potential to achieve analytical and clinical sensitivity and specificity comparable to current technologies used in senescence research. Do not include links to websites.

4. Approach

The Approach section should be subdivided in two sections, describing activities to be completed during the UG3 Phase and the UH3 Phase. It is recognized that applications in response to this NOFO may propose SenTecs at various stages of development. Therefore, the research plan and approaches in the application should be consistent with the technology development stage and stated program goals. All applications, regardless of stage category, should address plans for assessing potential utility and feasibility in identifying and functionally characterizing senescent cells in human health, and lifespan at single cell resolution.

The UG3 section should address the following areas, if applicable:

- Plans to develop new or adapt/improve existing tools/technologies and analytics to enhance the identification, functional characterization, and provide mechanistic and translational insight into senescent cells.
- Statistical justification for study design and approach.
- Plans to evaluate the specificity, sensitivity, selectivity, and other key functional parameters for the SenTec's intended use and address how the SenTec developed will be more rigorously refined for potentially subtle parameters and analytical validity.
- Plan to evaluate the feasibility and utility of the SenTec in tissues or models during the UG3 phase for human tissue/cell types and to tissue/cell types identified by the consortium.
- Plans for replication/small scale validation studies to ensure quality of data and consistency of the experimental techniques for scale up for high throughput data generation if applicable, and for use in human systems if feasibility studies will be conducted in non-human model systems.
- Strategies, pitfalls and alternative approaches.
- Specific performance milestones to be achieved during the UG3 phase, e.g., analytical specificity, selectivity, and sensitivity, and timelines for these milestones.
- Applications focused on the discovery of novel SenTecs should focus on the early and conceptual stages of project development, and proof-of-concept tests.

The UH3 section should address the following areas, if applicable:

- Plans for optimizing the SenTec for operability in a scaled-up experimental high throughput setting.
- Plans to assess the validity of SenTec with more than one tissue, and flexibility to collaborate with the DVDCs to select SenNet's high priority tissues, the choice of which could be in collaboration with the other SenNet members.
- Statistical justification for study design and approach.
- Modification of approaches to scale up or accommodate the larger number of cells and tissue samples and data to be managed. Developing data generation pipeline optimization strategies for the SenTec that can be ramped up if necessary to generate production level data which can be integrated into other emerging data from the SenNet.
- Specific performance specifications and milestones to be achieved during the UH3 phase and timelines for these milestones. Include in the milestones/timeline preparations for the demonstration project to be conducted in the UH3 final year.

5. Integration with the SenNet DVCs, SenNet DCIC and Future Directions Statement

Applicants should discuss a plan to interface with SenNet's Discovery and Validation Centers (DVCs), and the Data Coordination and Integration Center (DCIC). Describe how the proposed SenTec can be used by the DVCs, and vision for these collaborations. Applicants should discuss a plan to interface with the DVCs. Describe how the research data generated by the SenTec project will be shared with the DVCs and the Data Coordination and Integration Center (DCIC). It is recognized that applicants will NOT know in advance with whom they will be collaborating because the SenNet DVCs will not be known before awards are issued. It is anticipated that here, applicants will make reasonable assumptions about the types of collaborations that will be available in SenNet and build flexibility into their research plans. Also, applicants should prepare a future directions statement to address the potential of the proposed SenTecs for senescence research beyond the UH3 phase.

6. Milestones and Timeline

A timeline (Gantt chart) including milestones is required. Milestones are goals that create go/no-go decision points in the project and must include clear and quantitative objective criteria for success. Yearly quantitative milestones are required to provide clear indicators of a project's continued progress or emergent difficulties and will be used to evaluate the application not only in peer review but also in consideration of the awarded project for funding of non-competing award years. The application must include well-defined milestones: e.g., appropriate objective performance targets, quantitative for go/no-go decision points such as an appropriate level of detection and coefficient of variation, or sensitivity and specificity; and timelines for assessing progress in both the UG3 and UH3 phases, including 6-month milestones for progression through the UG3 phase to the UH3 phase. Milestones and timelines for each stage must be provided in a separate heading at the end of the Approach section for each UG3 and UH3 subsection, and should:

- Provide appropriately detailed (quantitative) criteria by which milestone achievement will be assessed.
- Provide a detailed timeline for the anticipated attainment of each milestone and the overall goal.
- Identify any impediments that could require an addendum to the research plan, milestones, or timeline with a discussion of alternative approaches.

Resource Sharing Plan: Individuals are required to comply with the instructions for the Resource Sharing Plans as provided in the [How to Apply - Application Guide](https://grants.nih.gov/grants/guide/uri_redirect.htm?id=82400) (https://grants.nih.gov/grants/guide/uri_redirect.htm?id=82400).

The following modifications also apply:

- All applications, regardless of the amount of direct costs requested for any one year, should address a Data Sharing Plan. The plan should describe the types of data, software, and models that are expected to be generated and shared.
- Data, software, and models from this NOFO should be shared in an easily accessible format with the scientific community to increase the value of the significant public investment. Note that NIH Program staff may negotiate modifications to these plans prior to funding (see Section VI: Terms and Conditions of Cooperative Agreement).
- Applicants should consider pre-existing intellectual property rights associated with the use of existing technologies/models. If proprietary tools/devices are used in building the data coordinating center and/or atlas(es), applicants should clearly state the licensing agreement and are advised to contact NIH and seek assistance as needed from the [NIH Office of Technology Transfer](https://www.ott.nih.gov/) (<https://www.ott.nih.gov/>) in determining whether such arrangements are appropriate and/or adequate.

Other Plan(s):

All instructions in the [How to Apply - Application Guide](https://grants.nih.gov/grants/guide/uri_redirect.htm?id=82400) (https://grants.nih.gov/grants/guide/uri_redirect.htm?id=82400) must be followed, with the following additional instructions:

- All applicants planning research (funded or conducted in whole or in part by NIH) that results in the generation of scientific data are required to comply with the instructions for the Data Management and Sharing Plan. All applications, regardless of the amount of direct costs requested for any one year, must address a Data Management and Sharing Plan.

Appendix: Only limited Appendix materials are allowed. Follow all instructions for the Appendix as described in the [How to Apply - Application Guide](https://grants.nih.gov/grants/guide/uri_redirect.htm?id=82400) (https://grants.nih.gov/grants/guide/uri_redirect.htm?id=82400).

- No publications or other material, with the exception of blank questionnaires or blank surveys, may be included in the Appendix.

PHS Human Subjects and Clinical Trials Information

When involving human subjects research, clinical research, and/or NIH-defined clinical trials (and when applicable, clinical trials research experience) follow all instructions for the PHS Human Subjects and Clinical Trials Information form in the [How to Apply - Application Guide](https://grants.nih.gov/grants/guide/uri_redirect.htm?id=82400) (https://grants.nih.gov/grants/guide/uri_redirect.htm?id=82400), with the following additional

instructions:

If you answered "Yes" to the question "Are Human Subjects Involved?" on the R&R Other Project Information form, you must include at least one human subjects study record using the **Study Record: PHS Human Subjects and Clinical Trials Information** form or **Delayed Onset Study** record.

Study Record: PHS Human Subjects and Clinical Trials Information

All instructions in the [How to Apply - Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400) must be followed.

Delayed Onset Study

Note: [Delayed onset \(https://grants.nih.gov/grants/glossary.htm#DelayedOnsetStudy\)](https://grants.nih.gov/grants/glossary.htm#DelayedOnsetStudy) does NOT apply to a study that can be described but will not start immediately (i.e., delayed start).

All instructions in the [How to Apply- Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400) must be followed.

PHS Assignment Request Form

All instructions in the [How to Apply- Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400) must be followed.

3. Unique Entity Identifier and System for Award Management (SAM)

See Part 2. Section III.1 for information regarding the requirement for obtaining a unique entity identifier and for completing and maintaining active registrations in System for Award Management (SAM), NATO Commercial and Government Entity (NCAGE) Code (if applicable), eRA Commons, and Grants.gov

4. Submission Dates and Times

Part I. contains information about Key Dates and times. Applicants are encouraged to submit applications before the due date to ensure they have time to make any application corrections that might be necessary for successful submission. When a submission date falls on a weekend or [Federal holiday \(https://grants.nih.gov/grants/guide/url_redirect.html?id=82380\)](https://grants.nih.gov/grants/guide/url_redirect.html?id=82380), the application deadline is automatically extended to the next business day.

Organizations must submit applications to [Grants.gov \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=11128\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=11128) (the online portal to find and apply for grants across all Federal agencies). Applicants must then complete the submission process by tracking the status of the application in the [eRA Commons \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=11123\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=11123), NIH's electronic system for grants administration. NIH and Grants.gov systems check the application against many of the application instructions upon submission. Errors must be corrected and a changed/corrected application must be submitted to Grants.gov on or before the application due date and time. If a Changed/Corrected application is submitted after the deadline, the application will be considered late. Applications that miss the due date and time are subjected to the [NIH Grants Policy Statement Section 2.3.9.2 Electronically Submitted Applications \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=82423\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=82423).

Applicants are responsible for viewing their application before the due date in the eRA Commons to ensure accurate and successful submission.

Information on the submission process and a definition of on-time submission are provided in the [How to Apply-Application Guide \(https://grants.nih.gov/grants-process/write-application/how-to-apply-application-guide\)](https://grants.nih.gov/grants-process/write-application/how-to-apply-application-guide).

5. Intergovernmental Review (E.O. 12372)

This initiative is not subject to [intergovernmental review. \(https://grants.nih.gov/grants/policy/nihgps/html5/section_10/10.10.1_executive_orders.htm\)](https://grants.nih.gov/grants/policy/nihgps/html5/section_10/10.10.1_executive_orders.htm)

6. Funding Restrictions

All NIH awards are subject to the terms and conditions, cost principles, and other considerations described in the [NIH Grants Policy Statement \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=11120\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=11120).

Pre-award costs are allowable only as described in the [NIH Grants Policy Statement Section 7.9.1 Selected Items of Cost. \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=11143\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=11143)

7. Other Submission Requirements and Information

Applications must be submitted electronically following the instructions described in the [How to Apply - Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400). Paper applications will not be accepted.

Applicants must complete all required registrations before the application due date. Section III. Eligibility Information contains information about registration.

For assistance with your electronic application or for more information on the electronic submission process, visit [How to Apply - Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400). If you encounter a system issue beyond your control that threatens your ability to complete the submission process on-time, you must follow the [Dealing with System Issues \(https://grants.nih.gov/grants/how-to-apply-application-guide/due-dates-and-submission-policies/dealing-with-system-issues.htm\)](https://grants.nih.gov/grants/how-to-apply-application-guide/due-dates-and-submission-policies/dealing-with-system-issues.htm) guidance. For assistance with application submission, contact the Application Submission Contacts in Section VII.

Important reminders:

All PD(s)/PI(s) must include their eRA Commons ID in the Credential field of the Senior/Key Person Profile form. Failure to register in the Commons and to include a valid PD/PI Commons ID in the credential field will prevent the successful submission of an electronic application to NIH. See Section III of this NOFO for information on registration requirements.

The applicant organization must ensure that the unique entity identifier provided on the application is the same identifier used in the organization's profile in the eRA Commons and for the System for Award Management. Additional information may be found in the [How to Apply - Application Guide \(https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400\)](https://grants.nih.gov/grants/guide/url_redirect.htm?id=82400).

See [more tips \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=11146\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=11146) for avoiding common errors.

Upon receipt, applications will be evaluated for completeness and compliance with application instructions by the Center for Scientific Review and responsiveness by components of participating organizations, NIH. Applications that are incomplete, non-compliant and/or nonresponsive will not be reviewed.

Mandatory Disclosure

Recipients or subrecipients must submit any information related to violations of federal criminal law involving fraud, bribery, or gratuity violations potentially affecting the federal award. See Mandatory Disclosures, [2 CFR 200.113 \(https://www.ecfr.gov/current/title-2/subtitle-A/chapter-II/part-200/subpart-B/section-200.113\)](https://www.ecfr.gov/current/title-2/subtitle-A/chapter-II/part-200/subpart-B/section-200.113) and [NIH Grants Policy Statement Section 4.1.36 \(https://grants.nih.gov/grants/policy/nihgps/HTML5/section_4/4.1.36_mandatory_disclosures.htm\)](https://grants.nih.gov/grants/policy/nihgps/HTML5/section_4/4.1.36_mandatory_disclosures.htm).

Send written disclosures to the NIH Chief Grants Management Officer listed on the Notice of Award for the IC that funded the award and to the [HHS Office of Inspector Grant Self Disclosure Program \(https://oig.hhs.gov/compliance/self-disclosure-info/hhs-oig-grant-self-disclosure-program/\)](https://oig.hhs.gov/compliance/self-disclosure-info/hhs-oig-grant-self-disclosure-program/) at grantdisclosures@oig.hhs.gov (<mailto:grantdisclosures@oig.hhs.gov>).

Post Submission Materials

Applicants are required to follow the instructions for post-submission materials, as described in [the policy \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=82299\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=82299).

Section V. Application Review Information

1. Criteria

Only the review criteria described below will be considered in the review process. Applications submitted to the NIH in support of the [NIH mission](http://grants.nih.gov/grants/guide/redirect.htm?id=11149) (<http://grants.nih.gov/grants/guide/redirect.htm?id=11149>) are evaluated for scientific and technical merit through the NIH peer review system.

For this particular announcement, note the following: The UG3/UH3 Phase Innovation Awards Cooperative Agreement supports investigation of novel scientific ideas or new model systems, tools, or technologies that have the potential for significant impact on biomedical or biobehavioral research. Accordingly, reviewers will focus their evaluation on the development, integration, validation and dissemination of single cell analysis tools and systems that significantly expand throughput, multiplexing and discrimination of biomolecules in human tissues at single-cell resolution to further identify cell types and tissue organization. Breakthrough in conceptual framework and/or the potential to significantly advance our knowledge or understanding of characteristics of senescent cells in mammalian tissues will be factored in.

Overall Impact

Reviewers will provide an overall impact score to reflect their assessment of the likelihood for the project to exert a sustained, powerful influence on the research field(s) involved, in consideration of the following scored review criteria and additional review criteria (as applicable for the project proposed). An application does not need to be strong in all categories to be judged likely to have a major scientific impact.

Scored Review Criteria

Reviewers will consider Factors 1, 2 and 3 in the determination of scientific merit, and in providing an overall impact score. In addition, Factors 1 and 2 will each receive a separate factor score.

Factor 1. Importance of the Research (Significance and Innovation)

Significance

- Evaluate the importance of the proposed research in the context of current scientific challenges and opportunities, either for advancing knowledge within the field, or more broadly. Assess whether the application addresses an important gap in knowledge in the field, would solve a critical problem, or create a valuable conceptual or technical advance.
- Evaluate the rationale for undertaking the study, the rigor of the scientific background for the work (e.g., prior literature and/or preliminary data) and whether the scientific background justifies the proposed study.

Innovation

- Evaluate the extent to which innovation influences the importance of undertaking the proposed research. Note that while technical or conceptual innovation can influence the importance of the proposed research, a project that is not applying novel concepts or approaches may be of critical importance for the field.
- Evaluate whether the proposed work applies novel concepts, methods or technologies or uses existing concepts, methods, technologies in novel ways, to enhance the overall impact of the project.
- **Specific to this NOFO:** Assess whether the SenTec appropriately addresses a clearly defined unmet need in senescence research and evaluate if the technology will advance current understanding of this need. If the development of the SenTec is successful, regardless of the inherent risks, evaluate if its availability will improve the overreaching goals of the SenNet consortium toward understanding the biological consequences of SnC heterogeneity and facilitating translational efforts to modulate SnC function in healthy aging and disease.
- **Specific to this NOFO:** Assess whether developing the tool(s)/technologies and practices provides a major change in approaches from current technologies used in senescence research. Evaluate to what extent they provide first-in-class, cross-cutting or significantly advanced capacity for high throughput generation and scale up. Assess whether these proposed tools, technologies and methods have been used before to identify and map senescent cells in human tissues and if they offer potential for clear and significant improvements over what is currently available. If the proposed SenTec is being optimized or adopted from an established technology, evaluate if it overcomes a significant/longstanding technical challenge in senescence research.

Factor 2. Rigor and Feasibility (Approach)

Approach

- Evaluate the scientific quality of the proposed work. Evaluate the likelihood that compelling, reproducible findings will result (rigor) and assess whether the proposed studies can be done well and within the timeframes proposed (feasibility).

Rigor:

- Evaluate the potential to produce unbiased, reproducible, robust data.
- Evaluate the rigor of experimental design and whether appropriate controls are in place.
- Evaluate whether the sample size is sufficient and well-justified.
- Assess the quality of the plans for analysis, interpretation, and reporting of results.
- Evaluate whether the investigators presented adequate plans to address relevant biological variables, such as sex or age, in the design, analysis, and reporting.
- For applications involving human subjects or vertebrate animals, also evaluate:
 - the rigor of the intervention or study manipulation (if applicable to the study design).
 - whether outcome variables are justified.
 - whether the results will be generalizable or, in the case of a rare disease/special group, relevant to the particular subgroup.
 - whether the study population appropriately models the target population.
- For applications involving human subjects, including clinical trials, assess the adequacy of inclusion plans as appropriate for the scientific goals of the research. Considerations of appropriateness may include disease/condition/behavior incidence, prevalence, or population burden, population representation, and/or current state of the science.

Feasibility:

- Evaluate whether the proposed approach is sound and achievable, including plans to address problems or new challenges that emerge in the work. For proposed studies in which feasibility may be less certain, evaluate whether the uncertainty is balanced by the potential for major advances.
- For applications involving human subjects, including clinical trials, evaluate the adequacy and feasibility of the plan to recruit and retain a study population that appropriately models the target population. Additionally, evaluate the likelihood of successfully achieving the proposed enrollment based on age, race, ethnicity, and sex.
- For clinical trial applications, evaluate whether the study timeline and milestones are feasible.

Specific to this NOFO:

For the UG3 phase: Evaluate whether the SenTec development has been made sufficiently sensitive, selective or appropriate for the intended use and determine if the methods employed will result in a more rigorous distinction between potentially subtle parameters to establish analytical validity. Evaluate how well a described benchmark technology has been used to assess the relative utility of the new tool(s) and how rigorous the proof-of-concept test of the tool(s) is when applied to human tissues proposed for study and others identified by the consortium. Evaluate if risks are clearly described and how rigorous the demonstration of the feasibility for scale up of the SenTec for high throughput data generation is.

For the UH3 phase: If applicable, evaluate how robust the SenTecs developed in the UG3 phase are so that they may be scaled up for application in the UH3 phase and if the number of subjects/samples needed are statistically justified. Assess if there is a clear scientific rationale for the range and types of subjects/samples to be used and if the data generation pipeline optimization strategies to generate consistent production level data are robust and if this data can be integrated into other emerging data emerging from the consortium. Evaluate if the application has provided a plan to interface with the DVCs and the likelihood that the described technology will interface with the SenNet consortium and have applicability to senescence research beyond the SenNet consortium. Evaluate the future directions statement provided in the application to appropriately address the potential of the proposed SenTec to be ready to conduct the collaborative demo project in the final UH3 year.

Factor 3. Expertise and Resources (Investigator(s) and Environment)

Investigator(s)

Evaluate whether the investigator(s) have demonstrated background, training, and expertise, as appropriate for their career stage, to conduct the proposed work. For Multiple Principal Investigator (MPI) applications, assess the quality of the leadership plan to facilitate coordination and collaboration.

Environment

Evaluate whether the institutional resources are appropriate to ensure the successful execution of the proposed work.

Specific to this NOFO: Evaluate if the team expertise is appropriate for the significant components of the project and if the team will be able to effectively manage the sequence of events necessary to develop and test the technology in the proposed time frame and with the milestones proposed. For example, does the team include appropriate expertise for the disease or organ proposed for study and is there sufficient expertise present in the team to guide the day-to-day senescence-related work in human tissues proposed for study and at the resolution required to successful development of the SenTec?

Assess the likelihood that all the collaborators and partners will work as a cohesive team to effectively complete the work needed to move the SenTec from the UG3 phase through transition to the UH3 phase and eventually toward development of the demo project required for the final UH3 year.

Additional Review Criteria

As applicable for the project proposed, reviewers will consider the following additional items while determining scientific and technical merit, but will not give criterion scores for these items, and should consider them in providing an overall impact score.

Protections for Human Subjects

For research that involves human subjects but does not involve one of the categories of research that are exempt under 45 CFR Part 46, evaluate the justification for involvement of human subjects and the proposed protections from research risk relating to their participation according to the following five review criteria: 1) risk to subjects; 2) adequacy of protection against risks; 3) potential benefits to the subjects and others; 4) importance of the knowledge to be gained; and 5) data and safety monitoring for clinical trials.

For research that involves human subjects and meets the criteria for one or more of the categories of research that are exempt under 45 CFR Part 46, evaluate: 1) the justification for the exemption; 2) human subjects involvement and characteristics; and 3) sources of materials. For additional information on review of the Human Subjects section, please refer to the [Guidelines for the Review of Human Subjects](https://grants.nih.gov/grants/guide/url_redirect.htm?id=11175) (https://grants.nih.gov/grants/guide/url_redirect.htm?id=11175).

This NOFO only accepts applications that do not propose clinical trials. Note: Applications may propose activities involving human subjects that are not deemed clinical trials.

Vertebrate Animals

When the proposed research includes Vertebrate Animals, evaluate the involvement of live vertebrate animals according to the following criteria: (1) description of proposed procedures involving animals, including species, strains, ages, sex, and total number to be used; (2) justifications for the use of animals versus alternative models and for the appropriateness of the species proposed; (3) interventions to minimize discomfort, distress, pain and injury; and (4) justification for euthanasia method if NOT consistent with the AVMA Guidelines for the Euthanasia of Animals. For additional information on review of the Vertebrate Animals section, please refer to the [Worksheet for Review of the Vertebrate Animals Section](http://grants.nih.gov/grants/guide/url_redirect.htm?id=11150) (http://grants.nih.gov/grants/guide/url_redirect.htm?id=11150).

Biohazards

When the proposed research includes Biohazards, evaluate whether specific materials or procedures that will be used are significantly hazardous to research personnel and/or the environment, and whether adequate protection is proposed.

Resubmissions

As applicable, evaluate the full application as now presented.

Not Applicable.

Renewals

As applicable, evaluate the progress made in the last funding period.

Not Applicable.

Revisions

As applicable, evaluate the appropriateness of the proposed expansion of the scope of the project.

Not Applicable.

Additional Review Considerations

As applicable for the project proposed, reviewers will consider each of the following items, but will not give scores for these items, and should not consider them in providing an overall impact score.

Authentication of Key Biological and/or Chemical Resources

For projects involving key biological and/or chemical resources, evaluate the brief plans proposed for identifying and ensuring the validity of those resources.

Budget and Period of Support

Evaluate whether the budget and the requested period of support are fully justified and reasonable in relation to the proposed research.

2. Review and Selection Process

Applications will be evaluated for scientific and technical merit by (an) appropriate Scientific Review Group(s), convened by CSR, in accordance with [NIH peer review policies and practices \(https://grants.nih.gov/policy-and-compliance/policy-topics/peer-review\)](https://grants.nih.gov/policy-and-compliance/policy-topics/peer-review), using the stated review criteria. Assignment to a Scientific Review Group will be shown in the eRA Commons.

As part of the scientific peer review, all applications will receive a written critique.

Applications may undergo a selection process in which only those applications deemed to have the highest scientific and technical merit (generally the top half of applications under review) will be discussed and assigned an overall impact score.

[Requests for reconsideration of initial peer review \(https://grants.nih.gov/grants/policy/nihgps/html5/section_2/2.4.2_appeals_of_initial_scientific_review.htm\)](https://grants.nih.gov/grants/policy/nihgps/html5/section_2/2.4.2_appeals_of_initial_scientific_review.htm) will not be accepted for applications submitted in response to this NOFO.

Applications will be assigned to the appropriate NIH Institute or Center. Applications will compete for available funds with all other recommended applications submitted in response to this NOFO. Following initial peer review, recommended applications will receive a second level of review by the National Cancer Advisory Board. The following will be considered in making funding decisions:

- Scientific and technical merit of the proposed project as determined by scientific peer review.
- Availability of funds.
- Relevance of the proposed project to program priorities.

If the application is under consideration for funding, NIH will request "just-in-time" information from the applicant as described in the [NIH Grants Policy Statement Section 2.5.1. Just-in-Time Procedures \(http://grants.nih.gov/grants/guide/uri_redirect.htm?id=82418\)](http://grants.nih.gov/grants/guide/uri_redirect.htm?id=82418). This request is not a Notice of Award nor should it be construed to be an indicator of possible funding.

Prior to making an award, NIH reviews an applicant's federal award history in SAM.gov to ensure sound business practices. An applicant can review and comment on any information in the Responsibility/Qualification records available in SAM.gov. NIH will consider any comments by the applicant in the Responsibility/Qualification records in SAM.gov to ascertain the applicant's integrity, business ethics, and performance record of managing Federal awards per 2 CFR Part 200.206 "Federal awarding agency review of risk posed by applicants." This provision will apply to all NIH grants and cooperative agreements except fellowships.

3. Anticipated Announcement and Award Dates

After the peer review of the application is completed, the PD/PI will be able to access his or her Summary Statement (written critique) via the [eRA Commons \(http://grants.nih.gov/grants/guide/uri_redirect.htm?id=11123\)](http://grants.nih.gov/grants/guide/uri_redirect.htm?id=11123). Refer to Part 1 for dates for peer review, advisory council review, and earliest start date.

Information regarding the disposition of applications is available in the [NIH Grants Policy Statement Section 2.4.4 Disposition of Applications \(http://grants.nih.gov/grants/guide/uri_redirect.htm?id=82416\)](http://grants.nih.gov/grants/guide/uri_redirect.htm?id=82416).

Section VI. Award Administration Information

1. Award Notices

A Notice of Award (NoA) is the official authorizing document notifying the applicant that an award has been made and that funds may be requested from the designated HHS payment system or office. The NoA is signed by the Grants Management Officer and emailed to the recipient's business official.

In accepting the award, the recipient agrees that any activities under the award are subject to all provisions currently in effect or implemented during the period of the award, other Department regulations and policies in effect at the time of the award, and applicable statutory provisions.

Recipients must comply with any funding restrictions described in Section IV.6, Funding Restrictions. Any pre-award costs incurred before receipt of the NoA are at the applicant's own risk. For more information on the Notice of Award, please refer to the [NIH Grants Policy Statement Section 5. The Notice of Award \(https://grants.nih.gov/grants/policy/nihgps/HTML5/section_5/5_the_notice_of_award.htm\)](https://grants.nih.gov/grants/policy/nihgps/HTML5/section_5/5_the_notice_of_award.htm) and NIH Grants & Funding website, see [Award Process. \(https://grants.nih.gov/grants/pre-award-process.htm#award\)](https://grants.nih.gov/grants/pre-award-process.htm#award)

Institutional Review Board or Independent Ethics Committee Approval: Recipient institutions must ensure that protocols are reviewed by their IRB or IEC. To help ensure the safety of participants enrolled in NIH-funded studies, the recipient must provide NIH copies of documents related to all major changes in the status of ongoing protocols.

2. Administrative and National Policy Requirements

The following Federal wide and HHS-specific policy requirements apply to awards funded through NIH:

- The rules listed at [2 CFR Part 200 \(https://www.ecfr.gov/current/title-2/subtitle-A/chapter-II/part-200\)](https://www.ecfr.gov/current/title-2/subtitle-A/chapter-II/part-200), Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards.
- All NIH grant and cooperative agreement awards include the [NIH Grants Policy Statement \(http://grants.nih.gov/grants/guide/uri_redirect.htm?id=11120\)](http://grants.nih.gov/grants/guide/uri_redirect.htm?id=11120) as part of the terms and conditions in the Notice of Award (NoA). The NoA includes the requirements of this NOFO. For these terms of award, see the [NIH Grants Policy Statement Part II: Terms and Conditions of NIH Grant Awards, Subpart A: General \(https://grants.nih.gov/grants/policy/nihgps/HTML5/part_ii_terms_and_conditions_of_nih_grant_awards.htm\)](https://grants.nih.gov/grants/policy/nihgps/HTML5/part_ii_terms_and_conditions_of_nih_grant_awards.htm) and [Part II: Terms and Conditions of NIH Grant Awards, Subpart B: Terms and Conditions for Specific Types of Grants, Recipients, and Activities \(http://grants.nih.gov/grants/guide/uri_redirect.htm?id=11159\)](http://grants.nih.gov/grants/guide/uri_redirect.htm?id=11159).

All federal statutes and regulations relevant to federal financial assistance, including those highlighted in [NIH Grants Policy Statement Section 4 Public Policy Requirements, Objectives and Other Appropriation Mandates. \(https://grants.nih.gov/grants/policy/nihgps/HTML5/section_4/4_public_policy_requirements_objectives_and_other_appropriation_mandates.htm\)](https://grants.nih.gov/grants/policy/nihgps/HTML5/section_4/4_public_policy_requirements_objectives_and_other_appropriation_mandates.htm)

By applying for or accepting federal funds from HHS, recipients certify compliance with all federal antidiscrimination laws and these requirements and that complying with those laws is a material condition of receiving federal funding streams. Recipients are responsible for ensuring subrecipients, contractors, and partners also comply.

Applicants and recipients are strongly encouraged to refer to the [NIH Director's Statement of Priorities \(https://www.nih.gov/about-nih/nih-director/statements/advancing-nih-mission-through-unified-strategy\)](https://www.nih.gov/about-nih/nih-director/statements/advancing-nih-mission-through-unified-strategy), entitled "Advancing NIH's Mission Through a Unified Strategy."

Recipients are responsible for ensuring that their activities comply with all applicable federal regulations. Pursuant to 2 CFR 200.340, by accepting an NIH award, the recipient agrees that continued funding for the award is contingent upon the availability of appropriated funds, recipient satisfactory performance, compliance with the Terms and Conditions of the award, and may also otherwise be terminated, to the extent authorized by law, if the agency determines that the award no longer effectuates the program goals or agency priorities, in line with 2 CFR 200.340(a)(4).

Pursuant to the Cybersecurity Act of 2015, Div. N, § 405, Pub. Law 114-113, 6 USC § 1533(d), the HHS Secretary has established a common set of voluntary, consensus-based, and industry-led guidelines, best practices, methodologies, procedures, and processes.

Successful recipients under this NOFO agree that:

When recipients, subrecipients, or third-party entities have:

- ongoing and consistent access to HHS owned or operated information or operational technology systems; and
- receive, maintain, transmit, store, access, exchange, process, or utilize personal identifiable information (PII) or personal health information (PHI) obtained from the awarding HHS agency for the purposes of executing the award.

Cybersecurity plans and procedures **must** at minimum include the following:

- Develop cybersecurity plans and procedures, modeled after the [NIST Cybersecurity framework \(https://www.nist.gov/cyberframework\)](https://www.nist.gov/cyberframework), to protect HHS systems and data:
 - **Identify:**
 - Develop an inventory of all assets and accounts with access to HHS owned and operated information or operational technology systems or which obtain PII or PHI for the purposes of the award.
 - **Protect:**
 - Limit access to HHS owned and operated systems to only those in need of access to complete reward activities.
 - Require all staff to complete annual cybersecurity and privacy awareness training. Visit [405\(d\): Knowledge on Demand \(hhs.gov\) \(https://405d.hhs.gov/kod/five-threats\)](https://405d.hhs.gov/kod/five-threats) to obtain free trainings, if needed.
 - Enable multifactor authentication for all employees, subrecipients, and third-party entities to access HHS owned and operated information or operational technology systems.
 - Regularly backup sensitive data and test backups.
 - **Detect:**
 - Install anti-virus or anti-malware software on all devices, servers, and accounts used to connect to HHS owned and operated systems.
 - **Respond:**
 - Develop an incident response plan. See [Incident-Response-Plan-Basics_508c.pdf \(cisa.gov\) \(https://www.cisa.gov/sites/default/files/publications/Incident-Response-Plan-Basics_508c.pdf\)](https://www.cisa.gov/sites/default/files/publications/Incident-Response-Plan-Basics_508c.pdf) to learn about developing incident response plans.
 - Have cybersecurity incident reporting procedures that ensure the relevant HHS awarding agencies are notified of a cybersecurity incident within 48 hours of discovery. A cybersecurity incident is defined as an unplanned interruption to a technology service or reduction in the quality of a technology service, or an occurrence that actually or potentially jeopardizes the confidentiality, integrity, or availability of an information system or the information the system processes, stores, or transmits.
 - **Recover:**
 - Investigate incidents and plug any security gaps identified.

All activities proposed in your application and budget narrative must align with applicable law, including but not limited to statutes, executive orders, federal regulations and applicable judicial holdings. Accordingly, discretionary awards shall not be used to fund, promote, encourage, subsidize, or facilitate; racial preferences or other forms of racial discrimination by the recipient, including activities where race or intentional proxies for race will be used as a selection criterion for employment or program participation; denial by the recipient of the sex binary in humans, or the belief that sex is a chosen or mutable characteristic; illegal immigration; or any other initiatives that compromise public safety. If an application does not align, the application will not receive funding to the extent permitted by law and applicable court orders.

For applications involving substance abuse, the application must not support harm reduction. Please see [Updated Funding Guidance for Recipients on Supplies and Services \(https://www.samhsa.gov/sites/default/files/dear-colleague-letter-updated-hr-funding-guidance.pdf\)](https://www.samhsa.gov/sites/default/files/dear-colleague-letter-updated-hr-funding-guidance.pdf).

For applications involving funding Medication-Assisted Treatment (MAT) or medications for opioid use disorder (MOUD), this funding should be used to provide comprehensive treatment and recovery support services rather than medication-only models for opioid use disorder. Services should include medications, where clinically indicated, in conjunction with psychosocial and other treatment and recovery support services. Funding can also be used to support individualized tapering and discontinuation of medications when clinically indicated. Please see [Updated Funding Guidance for Recipients on MAT/MOUD \(https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.samhsa.gov%2Fsites%2Fdefault%2Ffiles%2Fdear-colleague-letter-mat-moud-guidance.pdf&data=05%7C02%7Cchelsey.hughes%40nih.gov%7C725bb62d21f94a2b9ff908dec0bc5a25%7C14b77578977342d58507251ca2dc2b06%7C0%7C0%7C63916011238415](https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.samhsa.gov%2Fsites%2Fdefault%2Ffiles%2Fdear-colleague-letter-mat-moud-guidance.pdf&data=05%7C02%7Cchelsey.hughes%40nih.gov%7C725bb62d21f94a2b9ff908dec0bc5a25%7C14b77578977342d58507251ca2dc2b06%7C0%7C0%7C63916011238415)

As of October 1, 2025, HHS has adopted [2 CFR Part 200 \(https://www.ecfr.gov/current/title-2/subtitle-A/chapter-II/part-200\)](https://www.ecfr.gov/current/title-2/subtitle-A/chapter-II/part-200), with some modifications included in 2 CFR Part 300. These regulations replace those in 45 CFR Part 75. However, for NIH, under the Consolidated Appropriations Act for FY 2026, [P.L. 119-75 \(https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.congress.gov%2Fbills%2F119th-congress%2Fhouse-bill%2F7148&data=05%7C02%7Cantoine.caliman%40nih.gov%7C68a8e1e3db804c61b38f08deb0e88127%7C14b77578977342d58507251ca2dc2b06%7C0%7C0%7C63914270982](https://gcc02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.congress.gov%2Fbills%2F119th-congress%2Fhouse-bill%2F7148&data=05%7C02%7Cantoine.caliman%40nih.gov%7C68a8e1e3db804c61b38f08deb0e88127%7C14b77578977342d58507251ca2dc2b06%7C0%7C0%7C63914270982) Division B, Title II, Sec. 224), the provisions relating to indirect costs in 45 CFR 75 continue to apply to NIH awards. Consistent with the statute, NIH will not apply updated thresholds outlined within 2 CFR Part 200, at this time.

In administering programs under this and all funding announcements, NIH prioritizes:

- Research involving rigorous scientific methods, including for studies related to children and adolescents, where NIH is committed to approaches that reflect the highest standards of clinical care and child safety.
- Biological and physiological integrity: Recognizing the relevance of biological sex to health outcomes, NIH encourages applicants to account for sex-based health factors in program design, data collection, and service delivery where scientifically appropriate.
- NIH will implement these priorities consistent with applicable laws, regulations, court orders, and all required administrative procedures. Applicants are encouraged to describe how their proposed programs align with these priorities in their project narratives. Funded activities must advance NIH's vision of protecting and improving the health and well-being of Americans. The particular focus is on those who are medically vulnerable, or live in areas with limited access to care. NIH's duty is to serve wisely, effectively, and with measurable results that justify every taxpayer dollar invested.

Cooperative Agreement Terms and Conditions of Award

The following special terms of award are in addition to, and not in lieu of, otherwise applicable U.S. Office of Management and Budget (OMB) administrative guidelines, U.S. Department of Health and Human Services (HHS) grant administration regulations at 2 CFR Part 200, and other HHS, PHS, and NIH grant administration policies.

The administrative and funding instrument used for this program will be the cooperative agreement, an "assistance" mechanism (rather than an "acquisition" mechanism), in which substantial NIH programmatic involvement with the recipients is anticipated during the performance of the activities. Under the cooperative agreement, the NIH purpose is to support and stimulate the recipients' activities by involvement in and otherwise working jointly with the recipients in a partnership role; it is not to assume direction, prime responsibility, or a dominant role in the activities. Consistent with this concept, the dominant role and prime responsibility resides with the recipients for the project as a whole, although specific tasks and activities may be shared among the recipients and NIH as defined below.

The PD(s)/PI(s) will have the primary responsibility for:

- Recipients will retain custody of and have primary rights to the data and software developed under these awards, subject to Government rights of access consistent with current HHS, PHS, and NIH policies.
- Planning and conducting the operations as described in the proposal and defined by the terms and conditions of the cooperative agreement award.
- Reporting results to the scientific community, and disseminating approaches, methods, models, software, tools, and tissue maps, senotypes, preclinical validation of the biomarkers and any maps or atlases broadly.
- Agreeing to be an active participant in the SenNet, including attending the semi-annual Steering Committee Meetings, participating in other network sponsored meetings and workshops, and participating in collaborative activities.
- Serving on the SenNet Steering Committee. The SenNet recipient PD/PI (contact PD/PI for applications with multiple PD(s)/PI(s)) is required to serve as members of the Steering Committee.
- Abiding by the governance of the SenNet and all program policies agreed upon by the SenNet Steering Committee and approved by NIH Program Officials to the extent consistent with the applicable rules and regulations.
- Maintaining the confidentiality of the information developed or handled by the SenNet, including, but not limited to: unpublished data, informatics tools, protocols, data analysis, confidential exchanges between members of the SenNet, etc. Refer to the Confidentiality Disclosure Agreement section below.
- Working closely with SenNet collaborators to ensure that data, metadata, models, software, and completed atlases developed through inter-SenNet collaborations are deposited in the SenNet Data Portal in a timely manner consistent with SenNet policies.
- Leveraging, where feasible, technology from related NIH-sponsored informatics initiatives, for example the [Human Tumor Atlas Network \(https://humantumoratlas.org/\)](https://humantumoratlas.org/), Human Biomolecular Atlas Program ([HuBMAP \(https://commonfund.nih.gov/hubmap\)](https://commonfund.nih.gov/hubmap)) and [Human Cell Atlas \(HCA\) \(https://www.humancellatlas.org/\)](https://www.humancellatlas.org/), which supports the development of informatics algorithms, tools, and resources across the continuum of tissue atlas mapping research at single cell resolution.
- Coordinating with and leveraging, where feasible, the technology of the [Common Fund Data Ecosystem \(https://grants.nih.gov/wolfreyec/CommonFundDataEcosystem\)](https://grants.nih.gov/wolfreyec/CommonFundDataEcosystem) (<https://grants.nih.gov/wolfreyec/CommonFundDataEcosystem>) (<https://grants.nih.gov/wolfreyec/CommonFundDataEcosystem>) program that will provide infrastructure to make diverse research data broadly available and to maximize their reuse and impact.
- Facilitating the public release and dissemination of results, data, reagents, technologies, completed tissue maps and Atlas, and other products generated by SenNet Investigators in a timely manner, consistent with achieving the goals of this program. The release and dissemination will be consistent with sharing policies and recommendations developed and approved by the SenNet Steering Committee and NIH sharing policies.
- Organizing scientific working groups to facilitate collaborative projects and cross-testing of experimental and analytical concepts.
- Reporting progress to the NIH Program Officials on all SenNet activities biannually. The PD(s)/PI(s) may be expected to provide additional information, outside the scope of the standard reporting requirement, as needed and requested by program staff members as requested.
- Being prepared for in-person or virtual annual site visits of NIH Program staff members and participation in the NIH-coordinated evaluation of the SenNet program.
- Meeting annually with other coordinating centers, as determined by NIH Program staff to help coordinate the sharing of data, research resources, tools/platforms, and access to newly established biorepositories.
- Establishing evaluation metrics that can be used to monitor the progress and impact of the program with guidance and input from NIH.
- Collaborating with all SenNet members to gather necessary metrics and share findings with the Consortium and NIH.

NIH staff have substantial programmatic involvement that is above and beyond the normal stewardship role in awards, as described below:

- One or more designated NIH Program staff members will have substantial involvement as Project Scientist(s) for the SenNet. Additionally, an NIH Program Director (serving as the NIH Program Official) will be responsible for the normal scientific and programmatic stewardship of the award and will be named in the award notice.
- The specific roles of the substantially involved NIH staff members include the following activities:
- One NIH Project Scientist will serve as a voting member of the SenNet Steering Committee.
- Assisting the Steering Committee, the SenNet DCIC, and individual recipients in avoiding unwarranted duplications of effort across the SenNet.
- Assisting the recipients as a resource in facilitating their broader interactions with other NIH programs to disseminate results, tools, and models from the SenNet and take advantage of existing NIH resources and infrastructures. This will specifically include acting as a liaison between the SenNet and other atlas-building programs.
- Ensuring that the SenNet DCIC data- and tool-sharing infrastructure is provided to SenNet members in a reasonable and expeditious way.
- Evaluating the effectiveness and facilitating consortium-wide adoption of data- and tool-sharing and interoperability practices.
- Reviewing the progress of the SenNet recipients, conducting periodic site visits, and taking other actions as needed.
- Participating in organizing semi-annual SenNet meetings, specialized workshops, and webinars of the network.
- Additionally, an agency program official or IC program director will be responsible for the normal scientific and programmatic stewardship of the award and will be named in the award notice.

Progress Reviews. The annual evaluation by the Program Officer will be based on the non-competing application and progress report, recipient records, and assessments by the Project Scientist(s). The NIH staff will review the management, performance, and utilization of the project. If concerns are identified by the Program Officer, the Project Scientist(s) will work with the PD(s)/PI(s) to develop plans to address them in the next year of support. In addition, NIH staff may conduct interim reviews of scientific progress beyond the normal yearly non-competing progress review to determine progress and may use information from progress reviews to inform future funding for the project.

Special Reviews. Funds may be restricted pending completion of key award or consortium milestones independently of prior performance concerns. However, if concerns are identified about the performance or the management of the project, the Program Officer may conduct special reviews of the project as he/she deems necessary. NIH may engage outside experts to assist in these reviews. If concerns about the project arise and are not resolved, NIH may reduce or restrict the budget or reduce the term of support to phase out the project. In the event of long-term incapacitation of resource facilities, NIH may reduce the budget or term of support to phase out the project. Before any modifications are made, the Program Officer will engage with the recipients to resolve performance issues in a timely manner where possible.

Areas of Joint Responsibility include:

- Steering Committee: The Steering Committee will be the main governing body for the SenNet. The Steering Committee will be composed of one representative (contact PD/PI or other senior level investigator) from each SenNet recipient, from this and other (including potentially future) NOFOs published as part of the SenNet Consortium who will have one vote each.
- One NIH Project Scientist will participate in the SenNet Steering Committee as the NIH voting member. Additional NIH Project Scientists and Program Officers will participate in SenNet Steering Committee meetings as non-voting members. All NIH participants will together share one vote in support of the project.
- If needed, other government staff members may also participate in SenNet Steering Committee meetings as non-voting members.
- Two PD(s)/PI(s), representing two different SenNet awards, will be selected to serve as chairpersons of the Steering Committee starting at the first meeting of the Steering Committee following award issuance. Steering Committee co-chairs will be established on a rotating basis annually. All SenNet Steering Committee decisions and recommendations that require voting will be based on a majority vote.
- The SenNet Steering Committee will meet monthly by videoconference and in-person at the SenNet semi-annual Steering Committee Meeting and as needed.

The SenNet Steering Committee will:

- Identify scientific and policy issues that need to be, or can benefit by being, addressed at the Network level and develop recommendations to NIH Program Officials for addressing such issues.
- Review progress of the SenNet toward meeting the overall Network goals.
- Ensure that all SenNet members utilize the resources developed by the SenNet DVC-DCIC and SenTecs.

- Coordinate dissemination of Network output to the broader senescence research community.
- Ensure that the Network takes advantage of existing NIH resources and programs.
- Establish, as necessary, subcommittees to ensure progress of the individual Centers and the Network.

In order for recipients to fully comply with NIH and consortium data sharing policies as detailed above, all recipients will be expected to agree to a Confidentiality Disclosure Agreement (CDA) containing the following Statement of Confidentiality: The parties fully understand the potential confidential nature of discussions and presentations, and acknowledge that materials provided and discussions held prior to and during meetings may reveal confidential information. The Parties agree to respect and maintain confidentiality of any non-public information that is received or become aware of through participation in workshops, meetings, and teleconferences associated with the NIH Common Fund sponsored grants in this program: Cellular Senescence Network Program. Public information is classified as (a) is within the public domain prior to the time of the disclosure by the Disclosing Party/ies to the Receiving Party/ies or thereafter becomes within the public domain other than as a result of disclosure by the Receiving Party/ies or any of its representatives in violation of this Agreement; (b) was, on or before the date of disclosure in the possession of the Receiving Party/ies; (c) is acquired by the Receiving Party/ies from a third party not under an obligation of confidentiality; or (d) is hereafter independently developed by the Receiving Party/ies, without reference to the information received from the Disclosing Party/ies. The Parties will maintain this confidentiality for a period of 7 years from the disclosure date or until the Confidential Information is classified as Public information based on a-d listed herein, whichever is earlier. The parties will not use such information for their personal benefit or for the benefit of their family, or associates of organizations to which they are connected or with which they have a financial involvement. Any breach of this agreement may be referred to the HHS Office of General Counsel. As to the parties participation in the development and conduct of these programs, the parties opinions and decisions will be based on their scientific judgment and medical or specialty expertise and will not knowingly be related to any other interest in organizations that may provide equipment, products or services to the studies.

Dispute Resolution:

Any disagreements that may arise in scientific or programmatic matters (within the scope of the award) between recipients and NIH may be brought to Dispute Resolution. A Dispute Resolution Panel composed of three members will be convened: a designee of the Steering Committee chosen without NIH staff voting, one NIH designee, and a third designee with expertise in the relevant area who is chosen by the other two; in the case of individual disagreement, the first member may be chosen by the individual recipient. This special dispute resolution procedure does not alter the recipient's right to appeal an adverse action that is otherwise appealable in accordance with PHS regulation 42 CFR Part 50, Subpart D and HHS regulation 45 CFR Part 16.

3. Data Management and Sharing

A Data Management and Sharing Plan (DMS Plan) is required for any NIH-funded or conducted research that will generate scientific data. Applicants must submit the DMS Plan at the time of application using the [NIH DMS Plan Format Page \(https://grants.nih.gov/grants-process/write-application/forms-directory/data-management-and-sharing-plan-format-page\)](https://grants.nih.gov/grants-process/write-application/forms-directory/data-management-and-sharing-plan-format-page). The DMS Plan must address the elements in the structured format. Where the DMS Plan Format Page requires a "Yes or No" response, no additional narrative is allowed.

4. Reporting

When multiple years are involved, recipients will be required to submit the [Research Performance Progress Report \(RPPR\) \(http://grants.nih.gov/grants/rppr/index.htm\)](http://grants.nih.gov/grants/rppr/index.htm) annually and financial statements as required in the [NIH Grants Policy Statement Section 8.4.1 Reporting. \(https://grants.nih.gov/grants/policy/nihgps/HTML5/section_8/8.4.1_reporting.htm\)](https://grants.nih.gov/grants/policy/nihgps/HTML5/section_8/8.4.1_reporting.htm). To learn more about post-award monitoring and reporting, see the NIH Grants & Funding website, see [Post-Award Monitoring and Reporting \(https://grants.nih.gov/grants/guide/url_redirect.php?id=82428\)](https://grants.nih.gov/grants/guide/url_redirect.php?id=82428).

A final RPPR, invention statement, and the expenditure data portion of the Federal Financial Report are required for closeout of an award, as described in the [NIH Grants Policy Statement Section 8.6 Closeout \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=82420\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=82420). NIH NOFOs outline intended research goals and objectives. Post award, NIH will review and measure performance based on the details and outcomes that are shared within the RPPR, as described at 2 CFR Part 200.301.

Section VII. Agency Contacts

We encourage inquiries concerning this funding opportunity and welcome the opportunity to answer questions from potential applicants.

Application Submission Contacts

[eRA Service Desk \(https://www.era.nih.gov/need-help\)](https://www.era.nih.gov/need-help) - Questions regarding ASSIST, eRA Commons, application errors and warnings, documenting system problems that threaten submission by the due date, and post-submission issues.

[Grants.gov Support Center \(https://gcc02.safelinks.protection.outlook.com?url=https%3A%2F%2Fgrants.gov%2Fsupport&data=05%7C02%7Cantoinette.caliman%40nih.gov%7Caf6dde64d644478d4e8b08dde6700581%7C14b77578977342d58507251ca2dc2b\)](https://gcc02.safelinks.protection.outlook.com?url=https%3A%2F%2Fgrants.gov%2Fsupport&data=05%7C02%7Cantoinette.caliman%40nih.gov%7Caf6dde64d644478d4e8b08dde6700581%7C14b77578977342d58507251ca2dc2b) - Questions regarding Grants.gov registration and services (e.g., Workspace, subscriptions).

Scientific/Research Contact(s)

Common Fund Cellular Senescence Program
Email: CS2@nih.gov (<mailto:CS2@nih.gov>).

Peer Review Contact(s)

Examine your eRA Commons account for review assignment and contact information (information appears two weeks after the submission due date).

Financial/Grants Management Contact(s)

Office of Grants Administration National Cancer Institute (NCI)
Telephone: 240-276-6291
Email: NCIFinancialContact@nih.gov (<mailto:NCIFinancialContact@nih.gov>).

Section VIII. Other Information

Recently issued trans-NIH [policy notices \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=11163\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=11163) may affect your application submission. A full list of policy notices published by NIH is provided in the [NIH Guide for Grants and Contracts \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=11164\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=11164). All awards are subject to the terms and conditions, cost principles, and other considerations described in the [NIH Grants Policy Statement \(http://grants.nih.gov/grants/guide/url_redirect.htm?id=11120\)](http://grants.nih.gov/grants/guide/url_redirect.htm?id=11120).

Authority and Regulations

Awards are made under the authorization of Sections 301 and 405 of the Public Health Service Act as amended (42 USC 241 and 284) and under Federal Regulations 42 CFR Part 52 and 2 CFR Part 200.