The NIH Common Fund
Cellular Senescence Network

Pre-Application Webinar

December 2, 2021, 12:30-2:00PM EST

To submit questions during the webinar please use the Q&A box. We will address questions at the end of the presentation.

Following webinar, additional questions can be sent to cs2@nih.gov
SenNet Vision

To identify and functionally characterize the heterogeneity of senescent cells across multiple tissues at single cell resolution.

The Current SenNet Initiatives (2021)

Initiative 1 RFA-RM-21-008/U54: Tissue Mapping Centers (TMC)
  • Total 8 Awards

Initiative 2 RFA-RM-21-009/UG3/UH3: Technology Development and Application Projects (TDA)
  • Total 7 Awards

Initiative 3 RFA-RM-21-010/U24: Consortium Organization and Data Coordination Center (CODCC)
  • 1 Award
# The Current SenNet Consortium

## TMCs

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<thead>
<tr>
<th>TMCs</th>
<th>TDAs</th>
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<tr>
<td>CAMPISI, JUDITH (contact)</td>
<td>DALDRUP-LINK, HEIKE E (Stanford Univ)</td>
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<td>SCHILLING, BIRGIT (Buck Institute)</td>
<td>MELOV, SIMON (Buck Institute)</td>
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<td>DING, LI (contact)</td>
<td>DOU, ZHIXUN (contact)</td>
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<td>CHEN, FENG</td>
<td>RAJAGOPAL, JAYARAJ</td>
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<td>FIELDS, RYAN C</td>
<td>SLAVOV, NIKOLAI (Mass General/Harvard)</td>
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<td>STEWART, SHEILA A (Univ of Washington)</td>
<td>GU, LIANGCAI (Univ of Washington)</td>
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<td>FAN, RONG (contact)</td>
<td>LEE, JUN HEE (Univ of Michigan)</td>
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<td>HALENE, STEPHANIE (Yale Univ)</td>
<td>NIEDERNOFFER, LAURA J (contact)</td>
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<td>FINKEL, TOREN (contact)</td>
<td>NERETTI, NICOLA (contact)</td>
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<td>KOENIGSHOFF, MELANIE</td>
<td>MA, JIAN</td>
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<td>MORA, ANA LUCIA</td>
<td>WANG, SIYUAN (Brown Univ)</td>
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<td>RAHMAN, IRFAN (Univ of Pittsburgh)</td>
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## TDAs

- KUCHEL, GEORGE A (contact)
- GAROVIC, YESNA D
- MUSI, NICOLAS
- ROBSON, PAUL (Univ of Connecticut)
- LEE, PATTY J (Duke Univ)
- NIEDERNOFFER, LAURA J (contact)
- ALIFERIS, CONSTANTIN F (Univ of Minnesota)
- PHATNANI, HEMALI (contact)
- CHRISTIANO, ANGELA M
- MENON, VILAS
- SUH, YOUSIN (Columbia Univ)
- SILVERSTEIN, JONATHAN C (contact)
- BAR-JOSEPH, ZIV
- BLOOD, PHILIP D (Univ of Pittsburgh)
- PASSOS, JOAO (Mayo Clinic)

## CODCC

- MELOV, SIMON (Buck Institute)
- RAJAGOPAL, JAYARAJ
- SLAVOV, NIKOLAI (Mass General/Harvard)
- GU, LIANGCAI (Univ of Washington)
- LEE, JUN HEE (Univ of Michigan)
- SILVERSTEIN, JONATHAN C (contact)
- BAR-JOSEPH, ZIV
- BLOOD, PHILIP D (Univ of Pittsburgh)
Tissue Coverage of Current SenNet

- 18 Tissues

- Skeletal
- Breast
- Skin
- Liver
- Perirenal fat
- Kidney
- Bone Marrow
- Placenta
- Cortex
- Hippocampus
- Spinal cord
- Heart
- Lymphoid nodes
- Lung
- Pancreas
- Fat
- Ovary
- Colon

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The ultimate goal of SenNet is to map cellular senescence in healthy **humans**, with the hope of using the information to improve human health.

To aid in this effort, SenNet aims to expand mapping studies and technology development in **mice**.
The New SenNet Initiatives (2022)

Initiative 1 RFA-RM-22-003: **Murine** Tissue Mapping Centers (TMC)

Initiative 2 RFA-RM-22-005: **Murine** Technology Development and Application Projects (TDA)

Initiative 3 RFA-RM-22-004: **Human** Technology Development and Application Projects (TDA)—Reissue

The funded Consortium Organization and Data Coordination Center (CODCC) will serve to coordinate all initiatives
The Structure of SenNet will Remain Same

Mouse TISSUE MAPPING CENTER COMPONENTS

- Data Analysis Core
- Administrative Core
- Biomarkers
- Perturbations
- Imaging
- Computation
RFA-RM-22-003: Murine Tissue Mapping Centers (mTMCs)

TMCs will integrate and optimize all parts of the data generation pipeline. They will generate extensive data from high-content, high-throughput imaging, omics, and other technologies as appropriate, to build, benchmark, standardize, and validate senescent cell maps at high resolution.

Successful applicants are expected to set aside funds for collaborative work with other members of the Consortium.

Each Tissue Mapping Center will be comprised of the following components:

- Administrative Core
- Biological Analysis Core
- Data Analysis Core
mTMCs

Administrative Core – Will coordinate all activities, both within the Center, the Consortium as a whole, and with NIH staff. In conjunction with CODCC, the core will establish SOPs.

Biological Analysis Core – Will generate high resolution, high content, high-throughput biomolecular data to generate maps of cellular senescence in murine tissues, organs and organ systems.

Data Analysis Core – Will be responsible for data annotation, curation, and analysis. It will utilize the biomarker and map datasets produced by the Biological Analysis Core to produce maps of the tissues of interest, to be delivered to the CODCC.
mTMCs

- Funds Available and Anticipated Number of Awards
  The NIH Common Fund intends to commit $9M in Total Costs in FY2022 to fund up to 3-4 awards.

- Award Budget
  Application budgets are not limited but must reflect the actual needs of the proposed project.

- Award Project Period
  The scope of the project should determine the project period. The maximum project period is 4 years.
RFA-RM-22-004 (Human) and RFA-RM-22-005 (Murine)

- The purpose of these Funding Opportunity Announcements is to solicit novel analytics and technologies to identify senescent cells in human tissues.
- These FOAs will support the accelerated proof-of-principle demonstration and validation of promising tools, techniques and methods that can be integrated, scaled and applied to multiple murine and human tissues.
- The initial two-year UG3 phase will support the development and demonstration of feasibility of these emerging technologies in the identification and mapping of senescent cells in mammalian tissues.
- The subsequent UH3 phase is to support initial validation in multiple murine and human tissues, optimization and scale-up, and generation of production level data.
- Investigators responding to this FOA must submit both UG3 and UH3 projects as part of a single application.
- UG3 projects that have met their quantifiable milestones will be administratively considered by NIH staff and prioritized for transition to the UH3 phase, depending on the availability of funds.
TDAs

- **Funds Available and Anticipated Number of Awards for RFA-RM-22-004 (Human)**
The NIH Common Fund intends to commit $3.5M Total Costs in FY2022 to fund 5-6 awards contingent upon NIH appropriations and the submission of sufficiently meritorious applications.

- **Award Budget**
Applications should not exceed $400,000 in direct costs per year during the UG3 phase & $550,000 in direct costs/year during the UH3 phase.

- **Funds Available and Anticipated Number of Awards for RFA-RM-22-005 (Murine)**
The NIH Common Fund intends to commit $1.5M Total Costs in FY2022 to fund 2-3 awards contingent upon NIH appropriations and the submission of sufficiently meritorious applications.

- **Award Budget**
Applications should not exceed $350,000 in direct costs per year during the UG3 phase & $500,000 in direct costs/year during the UH3 phase.

- **Award Project Period**
The proposed project period for the UG3 phase may not exceed 2 years and the UH3 phase may not exceed 3 years. The total duration of UG3 and UH3 phases may not exceed 4 years.
SenNet Consortium Deliverables

- Omics Tools
- Biomarkers
- Perturbation Tools
- Imaging Tools
- Computational Models
- Experimental Models

Senescent Atlas
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