NSF/CASIS Collaboration on Tissue Engineering on the International Space Station to Benefit Life on Earth

CASIS is requesting that PI submitting proposals to the NSF/CASIS Collaboration on Tissue Engineering read the following sections and provide inputs directly to CASIS in response to these areas. Please submit these inputs on or before January 5, 2018. The Requirements section gives us further details of your ISS NL experiment that are necessary for us to confirm feasibility.

Project Summary
Please describe the proposed project. An abstract is appropriate, as is a less technical and more generalized overview. It is essential that this section clearly calls out:
A. Clear statement of the hypothesis
B. A brief overview of expected International Space Station U.S. National Laboratory experiment operations.
C. Why is ISS National Laboratory a necessary platform (e.g. need for microgravity, extreme condition of space or vantage point)?
D. What is the relevance of the proposed space-based research to ground applications (e.g., healthcare advancements, commercial product development), in agreement with the CASIS mission to use the ISS National Laboratory for benefits to life on Earth?

Requirements
PIs must clearly identify all resources and services necessary to deliver and/or perform the requirements to complete the project:

- List hardware to be used (if known or to the extent known)
- List science requirements
- List design requirements
- List any material requirements
- List any size specifications
- List any specific stowage requirements
- List any investigation timing requirements (e.g. timing of addition of new media/fixation agents/etc.)
- List location and duration of Experiment Verification Test
- List requirements for Experiment Requirements Document
- List any specific late-load or early return requirements
- List any ground control requirements

- List safety support
- List design review support
- List any testing requirements (vib, acoustics, EMI, etc.)
- List PI support required
- List expected recurrence of meetings with PI and NASA
- List any unique travel requirements
- List remaining misc. Mission Integration and Operations (MI&O) support (document support, NASA reviews, crew training, payload implementation, facility coordination, etc.)
The language below includes standard MI&O language, but please reference the items above to ensure it includes all that is necessary and pertinent to your project.

- Provide full mission management and science support to the Principal Investigator
- Provide all necessary technical support to science team(s)
- Participate in production and submission of Payload Integration Agreement (PIA)
- Provide all flight and ground control hardware for actual experiment (including backups) per quantities required based on Science requirements
- Create payload design
- Maintain a payload development and integration schedule
- Training on proper loading and use of any hardware and kits (flight and nonflight)
- Advice on science mission execution plan
- Hardware Operational Procedures (e.g. User Manual, Functional Test, Storage/Shipping/Handling, etc.)
- Software Support (Software User Manual)
- Provide hardware to support biocompatibility testing and SVT
- Provide technical and operational support for execution of SVT, EVT, flight run, and ground control run
- Conduct FTR, EVT, TRR, FRR per contractor template
- Participate in regular meetings with PI and NASA science representative:
  - Provide full end-to-end mission preparation and implementation management, including all payload manifest tasks, payload integration, safety (including support of any required safety reviews), mission planning, flight operations (pre-flight, on-orbit [ground comm.], experiment recovery, ground control), logistics, payload verification, hardware provision and preparation, crew training, and flight certification.
- Support NASA product development (e.g. ERD)
- Support NASA reviews and meetings, as needed
- Support all appropriate payload integration, mission management, PSRP, and safety meetings
- Develop input for crew training as required
- Provide on-orbit support for duration of investigation
- Provide operations support for ground-controls
- Coordinate recovery and return of samples post-flight