

**National Institutes of Health (NIH), DHHS - Funding Opportunity Announcement:
Biomedical Research on the International Space Station (BioMed-ISS) (UH2/UH3)**

Questions From / Answers To Potential Proposing Community

Most Current Update: [Tuesday, September 22, 2009](#).

Next Update Targeted (if necessary): TBD.

Question Number	Date Received	Date Posted	Question	Answer
1a	Tue, 10 Mar 2009	Wed, 25 Mar 2009	<p>The announcement indicates that a collaborative research between NASA and investigators (supported by NIH) will be available for competing. I am interested in writing one project to compete for the award. To select a proper project that can be translated from the lab to the ISS, my questions for you are:</p> <p>Do you allow the performance of (to perform alive) live mouse study in ISS to examine the tumor metastasis in mice?</p>	<p>ISS allows live mouse studies. The NIH BioMed-ISS FOA encourages innovative biomedical research on the molecular or cellular level. If you plan to submit live animal studies, you need to contact individual NIH institute's "Scientific/ Research Contact(s)" listed under Section VII. Agency Contacts directly for an answer.</p>

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1b	Tue, 10 Mar 2009	Wed, 25 Mar 2009	Do you allow stem cells and T cells onboard ISS, and do you have the incubator to culture cells?	ISS has no limitations on the type of cells brought on board provided they are properly contained per the ISS safety requirements. All cells have to be approved by the Biosafety Committee, be free of adventitious virus, and have the appropriate containment level. Cells with extreme hazard risk (e.g. HIV infected) probably will have to remain contained for the entire mission, if they are allowed at all. It is recommended to avoid these for safety as well as the impending controversy in the event of an accident or breach of containment. As far as stem cells are concerned, several types--human, animal, and plant--have been flown. A list of laboratory equipment (including incubators, refrigerators, freezers, and centrifuges) is available at http://www.nasa.gov/mission_pages/station/science/experiments/Discipline.html
1c	Tue, 10 Mar 2009	Wed, 25 Mar 2009	Is anyone in your space center interested in studying gene therapy and stem cell gene delivery in ISS?	Information on experiments that have been conducted on the ISS and the principle investigators involved in them can be found at http://www.nasa.gov/mission_pages/station/science/experiments/Expedition.html However, the NIH BioMed-ISS FOA encourages investigator-initiated biomedical research on the molecular or cellular level. It is not a requirement to team up with anyone in the space center to send in an application to this FOA.
1d	Tue, 10 Mar 2009	Wed, 25 Mar 2009	Do you allow the transport of <i>[to bring]</i> a portable, battery-operated, small device to the ISS for performing DNA injection in the animals?	ISS allows portable, battery-operated devices for numerous applications provided they meet the safety requirements relative to batteries.

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2a	Mon, 16 Mar 2009	Wed, 8 Apr 2009	<p>I've read the NIH FOA for Biomedical Research on the ISS and have the following questions. Can you answer any/all of them?</p> <p>Section 1A & 1B: Government institutions (1A) and Civil Servant scientists (1B) are not eligible to submit. Are civil servants eligible to be co-I's? If so, does NIH cover their costs or does NASA?</p>	<p>NIH has determined that the BioMed-ISS FOA excludes federal agencies to apply as a grantee institution and a NASA civil servant employee cannot apply as a PI. However, a NASA civil servant can apply as a Co-I or non-contacting PI in a multiple PI application or serve as a subcontractor to receive research related funds. In any case the civil servants may not draw salary from the grant.</p> <p>You should contact your management to determine if they support your application. The Advanced Capabilities Division, ESMD, has agreed to consider support for NASA scientists who wish to apply (i.e. salary support, not to exceed 20% of an FTE per proposal year) on a case by case basis. NASA scientists interested in applying to this FOA should contact David Tomko dtomko@nasa.gov for additional information.</p> <p>In the case that a NASA civil servant applies in any manner on a proposal, the agreement with their management or ESMD for payment of the civil service salary must be in place when the application is submitted to NIH.</p>
2b	Mon, 16 Mar 2009	Wed, 25 Mar 2009	<p>Mid-Pg 8 of 37: Space-related studies fitting the mission of NASA Sponsored research programs such as human adaptation or human health countermeasures...are not appropriate for this FOA. Are the more basic research studies of NASA's ISS Non-Exploration Research Program appropriate for proposing to NIH?</p>	<p>Applications to this FOA must be directly relevant to the NIH mission. If the Non-exploration research is relevant to the NIH mission and has the potential benefit of human health on Earth, then it is acceptable to propose.</p>

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2c	Mon, 16 Mar 2009	Wed, 8 Apr 2009	Implementation Partners, pg 9 of 37: Can NASA centers serve as an implementation partner? If so, implementing partners submit costs to PI for inclusion in the proposal. If selected, does NIH provide funding to and expect to receive funding from the PI's institution? Or, does NASA fund the NASA Center component of the PI's budget?	NASA Centers could serve as implementation partners provided the PI enters into a reimbursable agreement with the NASA center to act as the implementation partner.
2d	Mon, 16 Mar 2009	Wed, 25 Mar 2009	Section V., ISS feasibility: NIH is indicated as the agency to assess the feasibility of conducting the proposed research under the special conditions of the ISS. Will they be utilizing NAS Center expertise in this activity?	The ISS National Lab Office and the ISS Payloads Office will assist NIH in evaluation of feasibility of conducting the proposed research on ISS.
2e	Mon, 16 Mar 2009	Wed, 25 Mar 2009	A significant fraction of the equipment on the list of laboratory equipment is not readily available for ISS usage, i.e., either not completely developed and flight qualified or no longer operational. Is there any NASA intent to provide funding to complete, upgrade, and flight qualify the equipment?	No, NASA funding is not available to complete, upgrade or flight qualify additional equipment for this FOA. Upgrade, certification or recertification costs for equipment must be included in the proposals as part of the implementation partners' costs.
2f	Mon, 16 Mar 2009	Wed, 25 Mar 2009	How are the resources of the ISS going to be divided up among existing programs like Life and Microgravity, HRP, Internationals, and the NIH and USDA?	ISS resources for the utilization of the space station are divided up by the ISS Chief Scientist through a defined prioritization process that reflects Congressional direction on the use of ISS, including National Laboratory.

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3a	Tue, 17 Mar 2009	Wed, 25 Mar 2009	I have two questions on the Biomedical Research on the International Space Station (BioMed-ISS) (UH2/UH3) program announcement: How does a payload implementer get on the list to participate in the Pre-application meeting referred to in the solicitation?	Information defining how a payload implementation partner requests to participate in the pre-application meeting will be provided in the notification for the pre-application meeting which will be posted at http://grants.nih.gov/grants/guide/index.html in the next few weeks.
3b	Tue, 17 Mar 2009	Wed, 25 Mar 2009	How does a payload implementer provide information to be included on the website (http://www.nasa.gov/mission_pages/station/science/nlab/nlab_proposal.html) referred to in the Identification of Implementation Partners paragraph of Section I of the announcement?	All payload implementation partners will be requested to provide information on their capabilities (hardware, software and services) for the pre-application meeting. This data will all be posted to the identified website before the pre-application meeting under the NIH Biomedical Research on the International Space Station (BioMed-ISS) header.
4	Thu, 19 Mar 2009	Fri, 27 Mar 2009	How many grants will the NIH award?	Awards issued under this FOA are contingent upon the availability of funds and the submission of meritorious applications” as stated in the FOA.
5	Fri, 20 Mar 2009	Fri, 27 Mar 2009	Will NASA pull the plug on these grants? The research community is skeptical about the role of NASA.	This is an NIH solicitation. All scientific merit assessments are done by NIH peer review process. NASA will closely work with the NIH and advise the NIH with ISS feasibility assessment, and provide NIH with the number of payloads they can guarantee to fly to ISS.
6a	Tue, 31 Mar 2009	Wed, 1 Apr 2009	Can you tell me if the link where these NIH FOA BioMed-ISS questions and answers are posted (http://www.nasa.gov/mission_pages/station/science/nlab/nlab_proposal.html) has been distributed to folks on NASA global?	No, the link has not been distributed to any NASA global email address list.

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6b	Tue, 31 Mar 2009	Wed, 1 Apr 2009	Also, am I at liberty to send this link to external scientists to whom I had notified regarding this NIH FOA?	Yes, you are free to distribute to people who are interested. These are all public information.
7a	Tue, 28 Apr 2009	Mon, 18 May 2009	Regarding the FOA for the NIH Biomedical Research on the International Space Station (BioMedISS): Besides on-orbit facilities, what can we assume about the availability of power for incubating cultures during transport to ISS?	Power during launch is available. Incubators that currently exist will be made available, if requested.
7b	Tue, 28 Apr 2009	Mon, 18 May 2009	What constraints will there be for sample return/hardware return?	The cargo resupply service vehicles that are planned for the 2011 timeframe do provide sample return capability.
8	Fri, 15 May 2009	Mon, 18 May 2009	I am interested in getting a little more information on the recent announcement for biological research aboard ISS. I would like to conduct an experiment using the Animal Enclosure Module (AEM) for mice. The experiment would last from 1-to-2 weeks and ideally would require handling of the mice by the crew. Is this possible?	Please refer to question and answer number 1 in this matrix. Additionally, the NIH FOA encourages molecular and cellular based experiments but does not exclude those using animals. Due to the potentially high cost for animal experiments, you will need to contact specific participating NIH institute listed in the FOA. In addition, several of the NIH staff will attend the BioMed-ISS Pre-Application Meeting on June 16 at NASA/JSC. You will have the opportunity to meet them in person and discuss this issue further at the meeting.
9	Fri, 15 May 2009	Mon, 18 May 2009	Is the meeting also to enable me apply for the grant?	The BioMed-ISS Pre-Application Meeting on June 16 will go through all the information and guidance a Prospective Applicant needs to apply for a grant. We will discuss the NIH process for applying for grants but most of the information is referenced in the funding announcement as well and can be found on the NIH websites referenced in the announcement.

Question Number	Date Received	Date Posted	Question	Answer
10	Wed, 20 May 2009	Fri, 22 May 2009	Can international (non-U.S.) organizations participate in responding to the NIH announcement either as implementers or as members of proposal teams (PIs and Co-Is)?	The only requirement that NIH has is that an application should come from a US domestic institution other than a federal agency. Therefore, international organizations should be able to send in applications as co-I or subcontractors with their US collaborators. On the implementation partner aspect, if NASA has no restriction (would you allow them to have access to your Shuttle, for example?), NIH doesn't have any limitation.
11	Tue 9 June 2009	Tue 9 June 2009	I will not be attending the Pre-Application Meeting. Once I draft a research plan, how do I identify an implementation partner? It seems most of the necessary facilities may already be present on the ISS.	The implementation partner presentations (PDF files and a video recording of the same from the Pre-Application Meeting) will be posted on the web at http://www.nasa.gov/mission_pages/station/science/nlab/nlab_proposal.html. Once you have drafted your research plan, you can review the presentations and videos and identify which implementation partners might work best for your experiment. Some of the implementation partners only provide integration services, so for an experiment where all the hardware is on ISS, they would also be an option.
12a	Fri 26 June 2009	Tue 30 June 2009	At the pre-proposal meeting in Houston there was a discussion on the need to obtain pre-approval from NIH before submitting a proposal with a budget exceeding \$500,000 in any year. However the FOA states that the UH2 phase may not exceed \$150,000 direct costs per year, and that the UH3 phase is anticipated to require up to \$300,000 in direct costs per year (section II.2). This is at odds with the discussion. Please provide clarification on yearly budget limits for both phases above which proposals would be considered non-responsive.	The budgets in the FOA are cost estimates for molecular- or cellular-based studies. It is not at odds with the discussion at the Pre-Application Meeting (June 16) in Houston because the cost may exceed these estimates if one proposes something different such as animal experiments.

Question Number	Date Received	Date Posted	Question	Answer
12b	Fri 26 June 2009	Tue 30 June 2009	<p>Please provide clarification on the Research Methods section of the proposal with respect to the level of technical detail expected for the UH3 phase.</p> <p>While it is likely that most proposers are well-equipped to provide adequate technical details of the studies proposed for the UH2 phase, it is much more difficult to write such detail for the UH3 phase when so much depends on specific aspects of the hardware and it's configuration, much of which will depend on UH2 outcomes and milestones.</p> <p>Will reviewers be instructed to permit a reasonable degree of uncertainty in the form of TBD's for various aspects in the UH3 phase at this point in time?</p>	<p>All of the applicants will face the same issue. It is applicant's job to write convincing application.</p>

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13	Fri 28 Aug 2009	Tue 1 Sep 2009	<p>Our experiment requires a relatively short period of exposure (possibly a few days) to microgravity. Consequently, we were exploring ways to get the specimens back to Earth sooner so as not to risk their deterioration before analysis.</p> <p>Is it acceptable to assume that if a piece of hardware that has already been approved to fly on the Shuttle (like the Avian Development Facility (ADF), which we are proposing to use) that it is also approved to fly on the ISS? If not, what kind of activity and budget do we need to incorporate into the UH2 phase to cover the ISS approval of the flight hardware?</p> <p>Also, is it acceptable to propose flying the experiment on one of the space craft that will go to the ISS for a week or two (Shuttle, Orion, etc), then return to Earth rather than having the experiment reside on the ISS for several months before returning to Earth?</p>	<p>There will be a vehicle being built by Space Exploration Technologies (SpaceX) that has return capability. In December 2008, NASA announced the selection of SpaceX's Falcon 9 launch vehicle and Dragon Spacecraft to resupply the International Space Station (ISS) when the Space Shuttle retires</p> <p>If the requirements for a particular payload are for a short exposure and fast return, that will limit the flight opportunities but they can still be accommodated. As opposed to proposing a specific vehicle, your implementation partner (IP) needs to include these types of requirements in their proposal and NASA can evaluate feasibility after NIH has done the scientific review of the proposal.</p> <p>As far as certification for other vehicles goes, that is not automatic and your implementation partner needs to plan on doing that work as part of its role as the IP.</p>

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14	Fri 11 Sep 2009	Tue 15 Sep 2009	In preparing a budget, must the indirect costs of the Implementation Partner be included in the direct costs of the applicant organization, or should the Implementation Partner's indirect costs be listed in the indirect cost category on the applicant's SF-424 budget sheet? If the latter, how is this spelled out on the SF-424 R&R budget form?	<p>We would expect the Implementation Partner to be a sub-awardee of the parent project. The direct costs of the sub-award are included in the total direct costs, however, the F&A costs associated with the sub-award do not count toward the limitation.</p> <p>Research & Related Budget pages from the SF-424 must be completed for each sub-award budget, for each year requested. Direct costs amounts are entered in Sections A-F. The Total Direct Costs for the sub-award are entered in Section G, the F&A in Section H, and the Total Direct and F&A in Section I.</p> <p>The cumulative total for all sub-awards must be entered on the budget page for the parent budget, in Section F, #5.</p> <p>This is the procedure for all non-modular grant applications that require use of the SF-424. If an applicant has trouble completing the form, they should contact the Help Desk through Grants.gov.</p>
15a	Mon 21 Sep 2009	Tue 22 Sep 2009	How many launches can an investigator expect?	<p>Assuming NIH peer review will validate the statistical need for a certain sample size and that sample size dictates more than 1 flight opportunity of the available hardware, then more than one flight opportunity should be proposed. From a NASA historical point of view, multiple flight opportunities have been provided for other life sciences research over several years, so this is not outside the agency's expectations.</p>

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15b	Mon 21 Sep 2009	Tue 22 Sep 2009	Will NASA release flight hardware for ground-based protocol development in UH2?	<p>Yes, providing it is available (i.e., not in use by someone else or on orbit during that time). If the proposal is selected, NASA would work with the implementation partner to develop a non-reimbursable Space Act Agreement to allow the implementation partner to borrow the hardware from NASA at no cost. If modifications were required of the hardware, NASA would either request that the hardware be returned in the configuration in which it was loaned (if there was another planned user), or, if there were no known users, NASA would likely allow the modifications be made as long as the agency got documentation of the hardware configuration when it was returned. NASA considers the UH2 portion of the proposal all part of getting to use the ISS for NIH science and would enable that any way NASA could, including allowing flight hardware to be used for UH3 investigations.</p>