

Memorandum Of Understanding
Between
The National Institutes of Health
and
The National Aeronautics and Space Administration
for
Cooperation in Space-Related Health Research

I. PURPOSE AND SCOPE

This Memorandum of Understanding (MOU) sets forth a framework of cooperation between the National Institutes of Health (NIH) and the National Aeronautics and Space Administration (NASA) to encourage:

- Communication and interaction between the NIH and NASA research communities to facilitate space-related research and to integrate results from that research into an improved understanding of human physiology and human health.
- Exchange ideas, information, and data arising from their respective research efforts.
- Development of biomedical research approaches and clinical technologies for use on Earth and in space.
- Research in Earth- and space-based facilities that could improve human health on Earth and in space.

Of particular interest is the application of the United States (U.S.) portion of the International Space Station (ISS) as a national laboratory, as established by P.L. 109-155. The designation as a National Laboratory underscores the significance and importance that the U.S. places on the scientific potential of the ISS for research in areas including, but not limited to:

- Basic biological and behavioral mechanisms in the absence of gravity.
- Human physiology and metabolism.
- Spatial orientation and cognition.
- Cell repair processes and tissue regeneration.
- Pathogen infectivity and host immunity.
- Medical countermeasures.
- Health care delivery and health monitoring technologies.

Each agency has existing programs and resources for facilitating health research and technology development. Research facilitated by this MOU will be complementary to studies supported by the NIH, its Institutes and Centers, and NASA, at the agencies' intramural or extramural laboratories.

In pursuing objectives through this MOU, the NIH and NASA shall handle their own activities and use their own resources, including the expenditure of their own funds unless otherwise agreed in specific implementing agreements.

II. AUTHORITY

The NIH enters into this MOU in accordance with section 301 of the Public Health Service Act, which authorizes NIH to cooperate with public authorities and scientific institutions.

The NASA enters into this MOU, pursuant to section 203(c) of the National Aeronautics and Space Act of 1958, as amended [42 U.S.C. 2473 (c)].

The NIH and NASA may be individually referred to as a "Party" and collectively referred to as the "Parties." Nothing in this MOU alters the statutory authorities of the NIH or NASA. It is intended to facilitate cooperative efforts for mutual provision of services and support, as well as technical assistance by both agencies in the conduct of research and development of technologies in the area of space-related health research. It does not supersede or void existing agreements between NASA and the NIH or any of its Institutes or Centers.

III. BACKGROUND

The programmatic strengths of the NIH and NASA offer opportunities for synergy that can accelerate basic knowledge and technology development that can be applied to humans in space and on Earth. For example, NASA enables research in reduced gravity by facilitating access to the unique environment of space and has created systems that are analogous to the space environment. NASA also supports technologies that are not yet available to Earth-based researchers that could contribute greatly to biomedical advances pursued by NIH-funded investigators. Likewise, the NIH, with its 27 Institutes and Centers, is capable of reaching a broad range of basic and clinical biomedical researchers whose involvement in space-related projects would create an intellectual environment where unanticipated breakthroughs could occur.

In a report accompanying the NASA Authorization Act of 2005 (P.L. 109-155), the Senate Committee on Commerce, Science, and Transportation repeatedly emphasized that a primary justification for support of the ISS is its scientific and research potential (Senate Report 109-108). Recognizing that the ISS will be capable of hosting a wide range of scientific research that can only be undertaken in a microgravity environment, the authors of P.L. 109-155 specifically noted that the NASA portfolio should include

microgravity research that is not related directly to its human exploration efforts (e.g., growth of molecular crystals, development of cell-based technologies).

When complete, the ISS will provide a unique life sciences laboratory and will be able to facilitate testing of new biosensors and telemedicine technologies. It also may promote development of international research collaborations that would improve the lives of people around the world or accelerate fundamental discoveries. The U.S. segment of the ISS will have laboratory space, data processing capabilities, and crew time for experiments conducted on the ISS once it is fully operational in 2011. Because commitment of ISS resources is likely to be made on a first come, first serve basis through strategic alliances that will advance research in biomedicine and biotechnology, now is an appropriate time for researchers supported by the NIH to begin proposing studies, conducting preliminary experiments on Earth, and arranging with NASA to have their hypotheses tested on the ISS after its assembly has been completed.

IV. RESPONSIBILITIES

This MOU is intended to provide an enabling mechanism for coordination and cooperation whenever appropriate and mutually beneficial, subject to program priorities and budget constraints.

Within the context of the Purpose and Scope above, the NIH agrees to use reasonable efforts to:

- Publicize, to the intramural and extramural communities, the availability of the ISS as a research environment that can accommodate a variety of experimental approaches and can address a vast range of research questions. In the course of its communications with the scientific community, NIH will note that, with respect to the placement of any article on the ISS, liability is governed by Article 16 of the 1998 ISS Intergovernmental Agreement requiring cross waivers of liability, as implemented by 14 CFR Part 1266. Separate launch services or payload integration agreements, as appropriate, may be required prior to flight.
- Give careful consideration to well-developed, investigator-initiated extramural applications and potential intramural activities related to space-related health research that are developed in response to the publicity noted above.

Within the context of the purpose and scope above, NASA agrees to use reasonable efforts to:

- Advise investigators on implementation of NIH-funded projects that would use the ISS.

Within the context of the purpose and scope above, the NIH and NASA agree to use reasonable efforts to:

- Encourage space-related health research through the exchange of expertise, scientific and technical information, data, and publications.
- Provide technical expertise for performance, planning, review, or consultation in areas of mutual interest, subject to program priorities and budget constraints.
- Facilitate and enhance research and development activities by either Agency.
- Coordinate publicity of mutually reinforcing activities, publications, and research results.
- Include representatives from each Agency in workshops, working groups, seminars, and other related activities.

V. RESPONSIBLE OFFICERS /AGENCY CONTACTS

For the National Institutes of Health:

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VI. FINANCIAL OBLIGATIONS

There will be no transfer of funds or other financial obligations between NASA and NIH under this Agreement. Each Party will fund its own participation. All activities under or pursuant to this agreement are subject to the availability of appropriated funds, and no provision herein shall be interpreted to require obligations or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. § 1341.

VII. DATA RIGHTS

The Parties agree that the information and data exchanged in furtherance of the activities under this MOU will be exchanged without use and disclosure restrictions unless required by national security regulations or otherwise agreed to by the Parties for specifically identified information or data (e.g., information or data specifically marked with a restrictive notice).

VIII. AMENDMENT AND TERMINATION

The MOU may be amended at any time by the mutual written consent of the Agencies. On an annual basis, the Parties will conduct a review of this MOU to evaluate progress and achievement of mutual goals and objectives consistent with the purpose and scope.

Either Party may unilaterally terminate this MOU by providing 90 calendar days written notice to the other Party.

IX. TERM OF AGREEMENT

This MOU will be effective upon the date of the last signature below, and shall remain in effect for 5 years. At the conclusion of 5 years, the parties will consider the development of a new agreement.

X. ACCEPTANCE AND APPROVAL OF AUTHORIZING OFFICIALS

AGREED BY:

Elias A. Zerhouni, M.D.
Director, National Institute of Health

Date

Michael D. Griffin
NASA Administrator

Date