

International Space Station Congressional Briefing: NIH BioMed-ISS

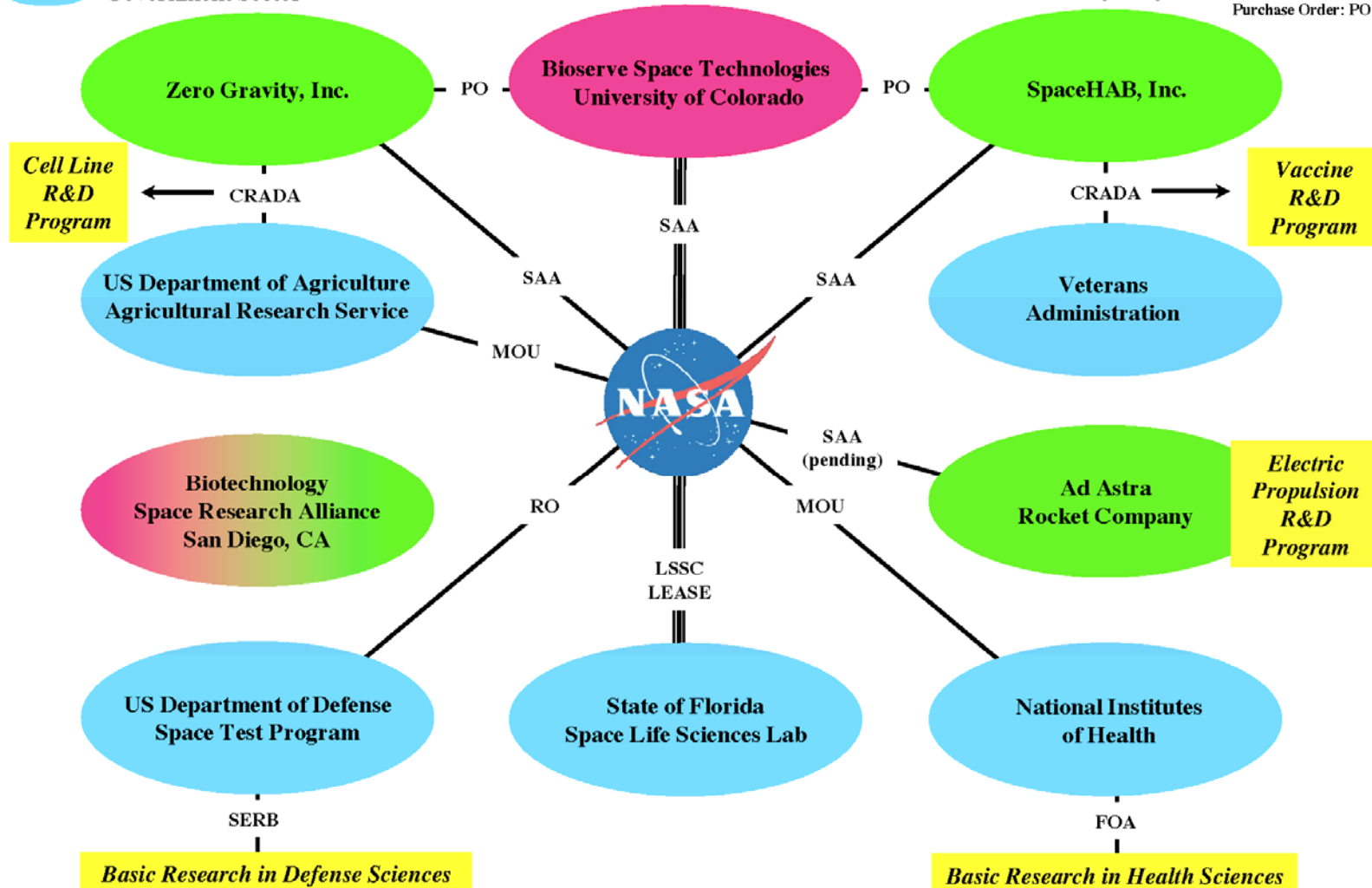
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- Academic Sector
- Industrial Sector
- Government Sector

ISS National Lab Network

Cooperative Research & Development Agreement: CRADA
 Funding Opportunity Announcement: FOA
 Memorandum of Understanding: MOU
 Resident Office, JSC: RO
 Space Act Agreement: SAA
 Space Experiments Review Board: SERB
 Purchase Order: PO



BioMed-ISS

- New solicitation from NIH
- Supports research on ISS in NIH BioMed-ISS program
- Applicants “will use the unique microgravity and radiation environment and resources of the ISS to test innovative hypotheses for the potential benefit of human health on Earth”
- UH2 ground feasibility phase – meet milestones
- UH3 ISS experimental phase
- Cooperative Agreement

Examples of Research Solicited for NIH BioMed-ISS

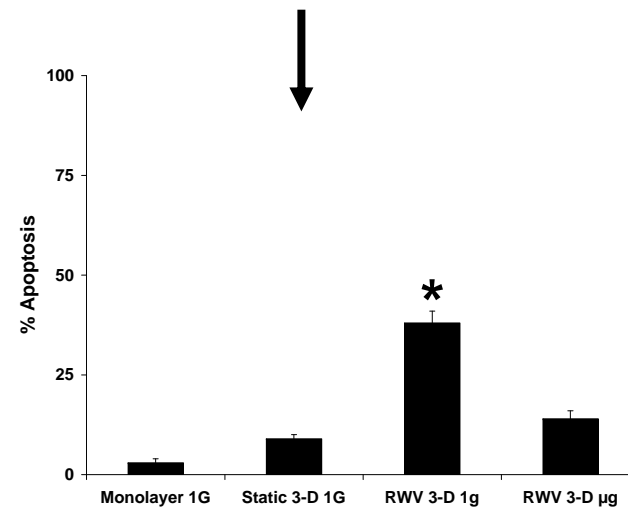
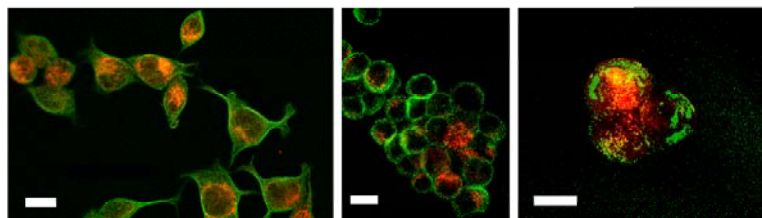
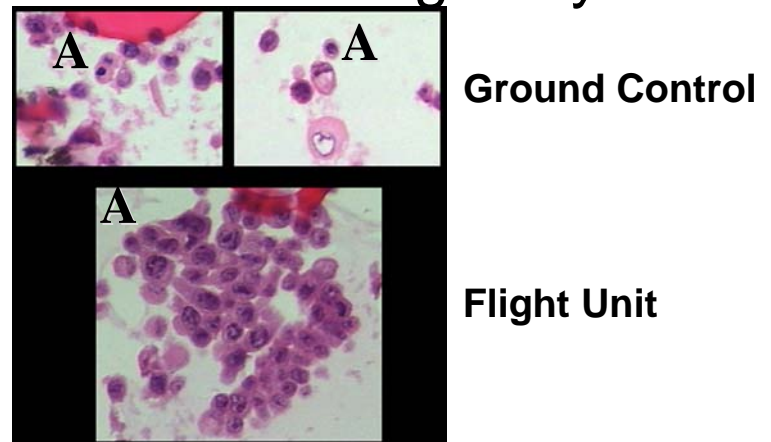
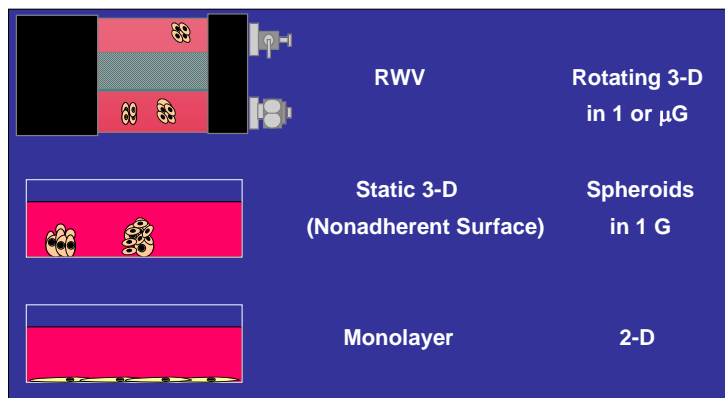
- Role of gravity on transport of molecules into and out of 3-D masses of cells.
- Role of gravity on cellular and humoral immune effector cells targeting cancer cells.
- Factors in the space environment and aging that cause immunological change and altered cytokine production.
- Effect of radiation and gravity reduction on normal and malignant stem cell function.
- Synthesis of novel therapeutic compounds including nanotechnology structures.
- Pathogen infectivity and host immunity.
- Effects of aging on physiological parameters known to be affected by microgravity (losses in bone density, muscle mass, etc.).
- Cellular senescence in space environment compared to on earth.
- Alterations in neuronal plasticity in model systems in space.
- Exploitation of environmental extremes to improve processing of biomaterials or biologically-derived scaffolding materials
- Improvement of telehealth technologies that incorporate telemetry and remote access in the acquisition, analysis and monitoring of biomedical data.

NIH BioMed-ISS PAR-09-120

- Annual Solicitation ending in 2011
- LOI Required and due each August 31
- Contact & Consultation with Program Staff in one of 9 participating Institutes (NCI, NCRR, NHLBI, NIA, NIAAA, NIAMS, NIBIB, NICHD, NINDS)
- Solicitations due each September 30
- Start date following July 1

Current Areas of Space-Related Health Research

Conundrum: Why is there more apoptosis (programmed cell death) in simulated microgravity than actual microgravity?



Jessup et al. *In Vitro Cell Dev Biol-Animal* 36:367-373, 2000.

Presenter: J. M. Jessup

Agency/Organization: NCI

Summary: NIH BioMed-ISS

- NIH very pleased to participate and support research on ISS.
- NIH looks forward to working with NASA and its partners to optimize utilization of the National Laboratory.
- NIH is focused on testing hypotheses that will benefit human health on earth.

Back-Up Material - 1

- Program Announcement (PA) Number: PAR- 09-120: Biomedical Research on the International Space Station (BioMed-ISS) (UH2/UH3): <http://grants.nih.gov/grants/guide/pa-files/PAR-09-120.html>
- NIH and NASA Activities Website: http://www.niams.nih.gov/News_and_Events/NIH_NASA_Activities/default.asp
- NASA ISS National Laboratory Website: http://www.nasa.gov/mission_pages/station/science/nlab/

Back-Up Material - 2

Program Contacts - A

- 1) **National Cancer Institute:** J. Milburn Jessup, M.D. Tel: 301-435-9010; E-mail: jessupj@mail.nih.gov
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- 3) **National Heart, Lung, and Blood Institute:** Andrea L Harabin, Ph.D. Tel: 301-435-0222; E-mail: harabin@nih.gov; George J. Papanicalaou, Ph.D. Tel: 301-435-0453; E-mail: gjp@nhlbi.nih.gov
- 4) **National Institute on Aging:** Bradley Wise, Ph.D. Tel: 301-496-9350; E-mail: wiseb@nia.nih.gov
- 5) **National Institute on Alcohol Abuse and Alcoholism:** Sam Zakhari, Ph.D. Tel: 301-443-0799; E-mail: szakhari@mail.nih.gov

Back-Up Material - 3

Program Contacts - B

- 6) **National Institute of Arthritis and Musculoskeletal and Skin Diseases:** Fei Wang, PhD Tel: 301-594-5055; E-mail: wangf@mail.nih.gov
- 7) **National Institute of Biomedical Imaging and Bioengineering:** Rosemarie Hunziker, Ph.D. Tel: 301-451-1629; E-mail: hunzikerr@mail.nih.gov
- 8) **National Institute of Child Health and Human Development:** Florence Haseltine, Ph.D., M.D. Tel: 301-496-1101; E-mail: fhaseltine@nih.gov
- 9) **National Institute of Neurological Disorders and Stroke:** Merrill M. Mitler, Ph.D. Tel: 301-496-9964; E-mail: mitlerm@ninds.nih.gov