



NSBRI Explorer

National Space Biomedical Research Institute • April 2007

NIH/NASA Inter-Agency Meeting

NSBRI participated in the National Institutes of Health (NIH) and NASA Meeting on Space-Related Health Issues held Dec. 8 on the NIH campus. The meeting was co-chaired by Stephen Katz, M.D., Ph.D., Director of the NIH's National Institute of Arthritis and Musculoskeletal and Skin Diseases, and David Longnecker, M.D., Chair of the Institute of Medicine's Committee on Aerospace Medicine and Medicine for Extreme Environments.

Key goals of the meeting included the sharing of information across federal agencies regarding space-related health research interests and activities and the identification of opportunities for collaborations to facilitate research. Presentations were given by representatives of multiple federal agencies, including Elias Zerhouni, M.D., NIH Director, and the Hon. Harrison Schmitt, Ph.D., Chair of the NASA Advisory Council and Apollo 17 Astronaut.

Jeffrey P. Sutton, M.D., Ph.D., NSBRI Director, gave a presentation covering current areas of space-related health research, promising areas for space-related health research collaborations and existing resources to facilitate this research. ♦

Education Team Wins Stellar Award

The Education and Outreach Team received a Stellar Award from the Rotary National Award for Space Achievement Foundation on April 20. William A. Thomson, Ph.D., Education Program Leader (Baylor College of Medicine), accepted the award on behalf of the team. The award recognized the team's "performance as a nationally recognized, top-tier program that is pioneering new models for exemplary teaching, training and public outreach in support of the Vision for Space Exploration."

Six teams and 20 individuals were honored with a Stellar Award during the National Space Trophy Annual Gala. Winners were selected from a field of 44 team and 100 individual nominations. ([List of Winners](#)) Each year, the Stellar Award recognizes outstanding individuals and teams making significant contributions to the future of our nation's space program.

The highlight of the evening was the presentation of the 2007 National Space Trophy to Apollo "Failure is Not an Option" Flight Director, Eugene F. Kranz. ♦

Summer Programs Unite Broad Range of Students

Several of NSBRI's student programs converge in Houston this summer. Participants in three programs – the Summer Internship Program, the Graduate Education Program and the Postdoctoral Fellowship Program – will meet in June. The goal is to link the three programs and give the students a chance to interact with each other and learn about career paths from their peers.

The Summer Internship Program drew 75 applicants, the largest number to date. Eighteen students were selected to work for 10-15 weeks with mentors in NASA Johnson Space Center (JSC) laboratories. The interns range from undergraduates entering their senior year to master's, doctoral and medical students.

The Bioastronautics Graduate Education Summer Institute includes one week of seminars and workshops led by various NSBRI and NASA researchers and by faculty at Baylor College of Medicine followed by a three-week research internship at JSC. Two NSBRI graduate program students from Texas A&M University and two from Massachusetts Institute of Technology will attend. While at JSC, they will also participate in seminars with the NSBRI interns and postdocs.

The Postdoctoral Fellow Summer Institute is June 12-15. That week, NSBRI postdocs will give research presentations to NSBRI leadership, participate in a presentation skills training session, and meet with JSC scientists working in the same field. ♦

Doty to Lead External Advisory Council

Stephen Doty, Ph.D., a Senior Scientist at the Hospital for Special Surgery in New York, has been selected as Chairman of the Institute's External Advisory Council. The Council provides advice to Institute management concerning programmatic relevance and effectiveness. Doty has been a valuable Council member since 2003. He replaces Gregory Kovacs, M.D., Ph.D., of Stanford University School of Medicine, who is stepping down after four years of excellent service to NSBRI. Kovacs joined the Council in 2003 and became Chairman in November 2005. ♦

Microdosimeter Flies on MidSTAR-1

An NSBRI-sponsored radiation microdosimeter was launched from Cape Canaveral aboard an unmanned Atlas 5 rocket on March 8. The microdosimeter instrument (MIDN) was one of four experiments on the Midshipman Space Technology Applications Research Satellite 1, known as MidSTAR-1.

Vincent L. Pisacane, Ph.D., (United States Naval Academy), of the Technology Development Team, leads the NSBRI's MIDN project. MidSTAR-1 contained a preliminary version of MIDN. Observations from this flight will help further development of the microdosimeter. Early data transmissions indicate that two of the three sensors on the device are working.

The goal of the MIDN project is to develop a rugged, portable, lightweight radiation detection instrument that will measure the three forms of space radiation – solar flares, trapped particle radiation and galactic cosmic rays. When fully developed, the instrument will enable real-time measurement of radiation risk in space and risk of damage to body tissue. ♦

Recent Funding Announcements

On January 3, NSBRI released a request for applications, Research Opportunities Soliciting Ground-Based Studies for Human Health in Space, soliciting proposals in nine research emphases. In addition, NASA issued a joint solicitation with NSBRI, Ground-Based Studies in Space Radiation, on January 5. NASA and NSBRI research solicitations are now competed through a two-step proposal process to address high-priority work in counter-measures for NASA.

The Step-1 proposal deadline for both solicitations occurred in early February. Invited Step-2 proposals were due in early April.

Funding for successful proposals is expected to commence in late FY 2007. Additional information on the solicitations is available on the NSBRI website in the [Funding Announcements](#) section. ♦

Recent Publications

Arbogast S, Smith J, Matuszczak Y, Hardin B, Moylan J, Smith JD, Ware J, Kennedy AR, Reid MB. Bowman-Birk Inhibitor Concentrate prevents atrophy, weakness, and oxidative stress in soleus muscle of hindlimb-unloaded mice. *J Appl Physiol*. 2007 Mar;102(3):956-64. (Muscle Alterations and Atrophy Team) ♦

Dinges DF, Venkataraman S, McGlinchey EL, Metaxas DN. Monitoring of facial stress during space flight: Optical computer recognition combining discriminative and generative methods. *Acta Astronaut*. 2007 Feb-Apr;60(4-7):341-50. (Neuro-behavioral and Psychosocial Factors Team) ♦

Fitts RH, Romatowski JG, Peters JR, Paddon-Jones D, Wolfe RR, Ferrando AA. The deleterious effects of bed rest on human skeletal muscle fibers are exacerbated by hypercortisolemia and ameliorated by dietary supplementation. *Am J Physiol Cell Physiol*. 2007 Apr 4; [Epub ahead of print]. (Nutrition, Physical Fitness and Rehabilitation Team) ♦

Judge AR, Koncarevic A, Hunter RB, Liou HC, Jackman RW, Kandarian SC. A role for I {kappa} B {alpha}, but not c-Rel, in skeletal muscle atrophy. *Am J Physiol Cell Physiol*. 2007 Jan;292(1):C372-82. (Postdoctoral Fellow – Muscle Alterations and Atrophy Team) ♦

MacLeish MY, Thomson WA, Moreno N, Gannon PJ, Smith RB, Houston CW, Coulter G, Vogt GL. National Space Biomedical Research Institute Education and Public Outreach Program: Education for the next generation of space explorers. *Acta Astronaut*. 2007 Feb-Apr;60(4-7):599-606. (Education and Outreach Team) ♦

Midura RJ, Su X, Androjna C. A simulated weightlessness state diminishes cortical bone healing responses. *J Musculoskelet Neuronal Interact*. 2006 Oct-Dec;6(4):327-8. (Bone Loss Team) ♦

Xia Y, Lin W, Qin YX. Bone surface topology mapping and its role in trabecular bone quality assessment using scanning confocal ultrasound. *Osteoporos Int*. 2007 Mar 15; [Epub ahead of print]. (Technology Development Team) ♦

Calendar Update

NSBRI Board of Directors Meeting
May 3, Houston ♦

NSBRI External Advisory Council Meeting
June 20-21, Houston ♦