

NEWS RELEASE



FOR IMMEDIATE RELEASE:

Three companies meet the ‘Vision for Mars’ Challenge with game-changing eye healthcare technologies for astronauts

(March 9, 2015)—HOUSTON – Many astronauts experience eye problems related to space travel. That’s why the National Space Biomedical Research Institute (NSBRI) Industry Forum launched the ‘Vision for Mars’ Challenge to identify and advance critical medical technologies for ocular health.

NSBRI today announced that it has selected and funded three companies to further develop unique technologies that address visual problems in space as well as on Earth. These companies are Annidis, Inc. of Grandville, MI which has developed the Annidis RHA™ ophthalmoscope; Equinox, LLC of Sioux Falls, SD, founded by Dr. John Berdahl, who is developing the Balance Goggles™; and Web Vision Centers Group, LLC of South Jordan, UT, led by Bob Main, who will work with several vision lens companies to customize adjustable prescription glasses for spaceflight.

The Annidis RHA™ is a multispectral ophthalmoscope with multi-image software processing that quickly and non-invasively images the retina with such fine detail as to rival invasive and more complicated procedures. "Annidis’ Multi-Spectral Imaging is a revolutionary technology for early detection of outer retinal and choroidal disorders, which can potentially affect astronauts during long duration space travel. This device is complementary to the diagnostic capabilities that are already on board the International Space Station as it creates a series of discrete ‘spectral images’ throughout the entire thickness of the retina and choroid," said Dr. Gene de Juan, the Jean Kelly Stock Distinguished Professor of Ophthalmology at University of California, San Francisco, and a member of the Vision for Mars Advisory Team.

Equinox, LLC will develop Balance Goggles™, a simple and comfortable pair of eye wear that will help regulate the pressure inside the eye. “We believe that astronauts may be experiencing reverse glaucoma, which means they experience moderate pressure in the brain that pushes outward and onto the eye, causing some of the ocular pathologies”, said Dr. Dorit Donoviel, Deputy Chief Scientist for NSBRI and Industry Forum lead.

Dr. Donoviel added that because of this hypothesis, Equinox proposes to gently push on the exterior of the eye to stabilize the internal pressure within the eye by building mild pressure-regulating goggles.

The goggles will need to be worn for a specific amount a time in order to alleviate the pressure differential that may be causing the visual problems observed in some astronauts.

This technology also has the potential to benefit millions of glaucoma patients around the world who do not respond to, or cannot take, currently approved medications. By using these goggles to decrease the pressure within the eye, patients may avoid surgery or the side effects of medication.

“The Equinox device has the potential to provide a non-invasive method to treat eye problems affecting astronauts on prolonged space missions. But the spin-off of this technology is even more exciting: it could represent a therapeutic option for patients suffering from glaucoma,” said ophthalmologist Steven Schallhorn M.D., retired U.S. Navy Captain who created and directed the Department of Defense refractive surgery program, and was a member of the Vision for Mars Advisory Team.

Web Vision Centers Group will work with companies that can manufacture glasses with lenses that are easily changed in order to fit a person’s prescription. Donoviel said astronauts’ eyes change shape in space due to reduced gravity which causes their prescriptions to vary frequently.

“These glasses will meet one of NASA’s immediate operational needs”, Donoviel said. Web Vision Centers Group intends to offer prescription adjustable glasses. One possibility is electronic glasses. Astronauts will be able to plug their glasses into a computer that will allow them to change the prisms in the lenses, which will alter the prescription. The other option available today is magnetic lenses, which enables wearers to switch out lenses, required by different prescriptions, on an as-needed basis.

The Earth-based markets for these lenses includes eye surgery patients whose prescriptions change over time, diabetic patients who have the need for variable prescriptions, and children who require new glasses as their eyes and vision change.

These companies were selected by NSBRI’s Industry Forum Steering Council, and funding was provided through the Space Medical and Related Technologies Commercialization Program (SMARTCAP), administered by NSBRI’s Industry Forum. SMARTCAP offers grants that help companies broaden the reach of their products, open new market opportunities, and simultaneously address the significant challenges faced by humans living and working in space. To be considered for funding in the upcoming open opportunity, concise online 2-page applications must be received no later than 5 p.m. central time, June 26, 2015. Submission guidelines and additional information regarding SMARTCAP are located at www.smartcap.org.

Established in 1997 through a NASA competition, NSBRI is a consortium of leading biomedical institutions including Baylor College of Medicine, Brookhaven National Laboratory, Harvard Medical School, The Johns Hopkins University, Massachusetts Institute of Technology, Morehouse School of Medicine, Mount Sinai School of Medicine, Rice University, Texas A&M University, University of Arkansas for Medical Sciences, University of Pennsylvania Health System and University of Washington. NSBRI, a 501(c)(3) organization partnered with NASA, is studying the health risks related to long-duration spaceflight and developing the technologies and countermeasures needed for human space

exploration missions. The Institute's science, technology and education projects take place at approximately 60 institutions across the United States. For more information, please visit www.nsbri.org.

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