NEWS BRIEFS

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CASIS Awards First Space Station Research Grants

In the first formal grant awarded in its short history, the Center for the Advancement of Science In Space (CASIS) — the Florida nonprofit that manages non-NASA science on the international space station — announced three scientists will share $1.2 million in federal funding for space-based protein crystallization research.

According to a Nov. 1 CASIS press release, the winning principal investigators and their experiments are:

■ Stephen Aller, the University of Alabama at Birmingham. Aller's proposal focuses on crystallizing human membrane proteins that could be used in drug research to treat AIDS-related dementia, high cholesterol, atherosclerosis, cystic fibrosis, and cancer-related multi-drug resistance.

■ Pamela Bjorkman, the California Institute of Technology. Bjorkman's research will focus on crystallization research related to Huntington's disease, a genetic condition that causes cognitive and neurological degeneration.

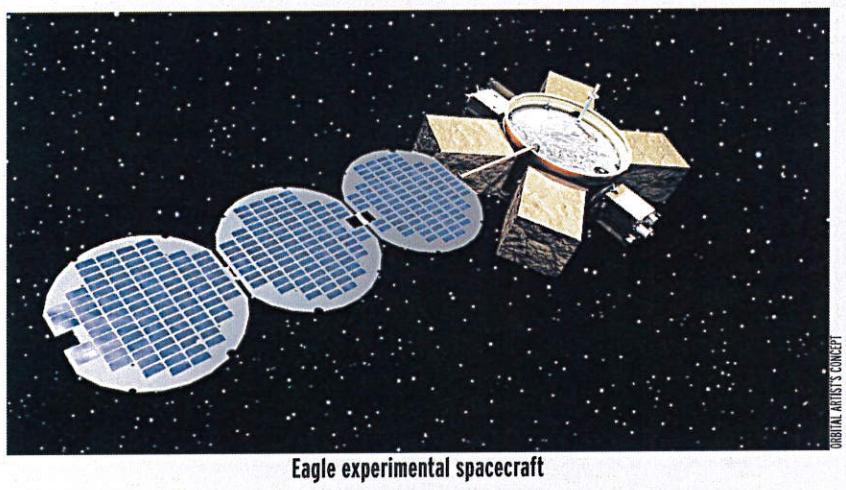
■ Joseph Ng, iXpressGenes Inc. Ng proposes growing large protein crystals aboard the space station for neutron diffraction studies. The only privately operated awardee on CASIS's list, iXpressGenes is affiliated with the Huntsville, Ala.-based HudsonAlpha Institute for Biotechnology, according to the company's website.

CASIS did not say how much funding each winner would get. The selected projects were chosen from among 16 competing proposals by a panel of space science experts pooled by CASIS earlier this year, the group said in its press release. CASIS solicited requests for these proposals in June.

Under a cooperative agreement awarded in 2011, CASIS gets $15 million a year in federal funding. Of that amount, about $3 million a year is reserved for grants, spokesman Bobby Block said in May. CASIS said then that it planned to give station-based protein crystallization experiments early priority for funding.

CASIS does not provide financing for space station-based research beyond the $3 million in federal grant money it administers. The organization was created to be an intermediary between researchers, launch providers, NASA's space station office and investors.

CASIS was created last year to fulfill a mandate in the 2005 NASA Authorization Act that designated half of the space station's U.S. operating segment a National Laboratory. The mandate, pushed by Sen. Kay Bailey Hutchison (R-Texas), also called for NASA to outsource management of the National Lab to a nonprofit.



ORBITAL ARTIST'S CONCEPT

Eagle experimental spacecraft

AFRL Targets 2015 Launch for Eagle Payload Platform

The U.S. Air Force Research Laboratory (AFRL) plans to conduct in 2015 or 2016 test flight of an experimental spacecraft, dubbed Eagle, that can hold multiple payloads in various orbits, according to a service official.

The initial test flight of an experimental spacecraft platform that Orbital Sciences Corp. is building for the U.S. Air Force Research Laboratory is targeted for launch aboard an Atlas 5 or Delta 4 sometime between late 2015 and late 2016, according to an Air Force official.

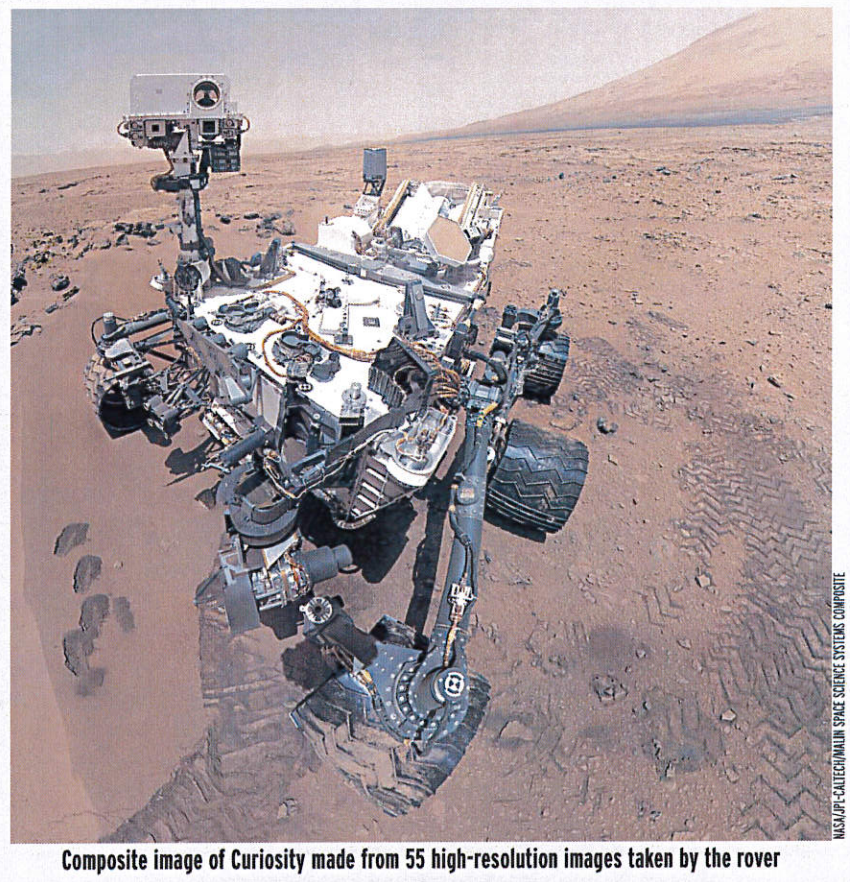
The Air Force awarded Dulles, Va.-based Orbital Sciences a $32 million contract Aug. 23 to develop a spacecraft platform capable of hosting multiple payloads in various orbits. The platform is based on the Air Force-developed Evolved Expendable Launch Vehicle Secondary Payload Adapter (ESPA) ring, which allows United Launch Alliance Atlas 5 and Delta 4 rockets to carry multiple piggyback payloads.

The so-called ESPA Augmented Geostationary Laboratory Experiment Platform — Eagle for short — will accommodate a maximum payload mass of 1,086 kilograms, Harold Baker, the research laboratory's Eagle program manager, said Nov. 5 via email. He said Eagle's first flight is slated for the U.S. government's 2016 fiscal year, which runs from Oct. 1, 2015 through Sept. 30, 2016.

Orbital's contract runs through August 2017. It was awarded about a week after the U.S. Government Accountability Office denied a bid protest by Millennium Space Systems of Torrance, Calif.

The maneuverable Eagle platform will be able to host payloads in multiple orbits but officials will initially develop the program with a focus on geostationary orbit, Baker said.

The Eagle platform will be able to operate in geosynchronous, geostationary transfer or low Earth orbit. It is designed to hold six payloads for at least one year in geosynchronous orbit.



NASA/JPL-CALTECH/MALIN SPACE SCIENCE SYSTEMS COMPOSITE

Composite image of Curiosity made from 55 high-resolution images taken by the rover

Curiosity Rover Finds No Methane on Mars — Yet

NASA's Mars rover Curiosity has detected no methane in its first analyses of the martian atmosphere — news that will doubtless disappoint those who hope to find life on the red planet.

Living organisms produce more than 90 percent of the methane found in Earth's atmosphere, so scientists are keen to see if Curiosity picks up any of the gas in Mars' air. But the 1-ton rover has come up empty in the first atmospheric measurements taken with its Sample Analysis at Mars instrument, or SAM, researchers announced Nov. 2.

"The bottom line is that we have no detection of methane so far," Chris Webster of NASA's Jet Propulsion Laboratory in Pasadena, Calif., told reporters.

"But we're going to keep looking in the months ahead since Mars, as we all know, may yet hold surprises for us," added Webster, who is instrument lead for SAM's Tunable Laser Spectrometer.

Scientists have detected methane in Mars' atmosphere before, using a variety of instruments on the ground and in space. But measured concentrations of the gas have been quite low, ranging from 10 to 50 parts per billion or so.

The lack of detection by SAM does not necessarily mean these previous observations are wrong, researchers said. Methane concentrations may vary somewhat by region and over time.

"At this time, we don't have a positive detection of methane on Mars," said Sushil Atreya of the University of Michigan, a SAM co-investigator. "But that could change over time, depending on how methane is produced and how it is destroyed on Mars."

Possible nonbiological sources of methane include comet strikes, degradation of interplanetary dust motes by ultraviolet light and water-rock interactions, researchers said. And the gas can be destroyed by photochemical reactions in the atmosphere or absorbed by the martian surface.

Scientists believe that Mars' methane "sinks" are quite efficient, removing the gas from the atmosphere every few hundred years. That means any methane present in the red planet's air was likely generated recently.

"Stay tuned," Atreya said. "The story of methane has just begun."

The new atmospheric measurements — based primarily on a few sniffs Curiosity took at a site called Rocknest — could also help scientists better understand how the red planet may have lost much of its original atmosphere, researchers said. Mars' air is currently just 1 percent as thick as that of Earth.

In measurements of atmospheric carbon dioxide, SAM detected a roughly 5 percent increase in heavy carbon isotopes, compared with estimated isotopic compositions at the time Mars formed. (Isotopes are versions of an element that have different numbers of neutrons in their atomic nuclei.) This suggests that the top of Mars' atmosphere was likely lost to interplanetary space at some point, researchers said.

Curiosity landed inside Mars' huge Gale Crater Aug. 5, kicking off a two-year mission to determine if the red planet could ever have supported microbial life. The rover carries 10 different instruments, but SAM is Curiosity's heart, taking up more than half of its science payload by weight.

SAM is designed to detect organic compounds, the carbon-containing building blocks of life as we know it. The mission team hopes to feed the first soil samples into the instrument in the coming weeks.

We should expect to hear much more from Curiosity, and from SAM, as time goes on, scientists said.

"Let me emphasize — these are the first measurements," said Michael Meyer, Curiosity program scientist and lead scientist for NASA's Mars Exploration Program. "We can look forward to more discoveries as the instruments are tweaked, the measurements refined and as we move through time and the seasons of Mars."