

Scientists searching for alien life—on earth (w/ Video)

February 13 2013, by Carrie Antlfinger

(AP)—Scientists at the University of Wisconsin-Madison are helping search for evidence of alien life not by looking into outer space, but by studying some rocks right here on Earth.

Some of the rocks are up to 3.5 billion years old. The scientists are looking for crucial information to understand how life might have arisen elsewhere in the universe and guide the search for life on Mars one day.

"There's a story always hidden in rocks," said geoscientist Clark Johnson, the lead investigator for the Wisconsin Astrobiology Research Consortium. "... It's up to (geologists) to be clever enough to find the tools that we need to interrogate those rocks to find what story they preserve."

The project is funded through NASA, which provided a \$7 million, five-year grant that started in January. It was the group's second five-year, \$7 million grant.

The consortium includes about 50 staff, students and post-doctoral fellows from 24 institutions in five countries. About 25 of the participants are at UW-Madison.

The consortium has been tasked with finding footprints of biological activity, or biosignatures, which are substances such as elements or isotopes that show evidence of ancient life. The scientists are looking for microscopic signs of life, including microbes, which are bacteria, and

other tiny, one-celled organisms that are much more adaptable than more complex organisms.

The team is also sending microbes into Earth's orbit on the International Space Station to see how they react to radiation and a space environment.

In the process, they are learning more about Earth's history. They've found new details of microbial life that dates back 2 billion to 3 billion years, before the planet's atmosphere contained oxygen. They've found that microbes then relied more on iron than sunlight for energy.

Eventually their work will be used to interpret data brought back from Mars by the six-wheel spacecraft Curiosity, which landed in August on a two-year mission to determine whether the environment was ever favorable for microbial life. Their work will also be used to prepare for future Mars missions.

"It may be that planets spent a long time in a microbial life condition and then only rarely evolved to advanced multicellular complex life," Johnson said. "That's one of the hypothesis we would test."

Edward Goolish, acting director at the NASA Astrobiology Institute, said the project supports one of NASA's major goals to find life or the potential for life elsewhere.

The project's results will provide a quantitative understanding of how life is preserved, he said.

"At the same time (Johnson's team is) contributing an immense amount to the understanding of life on Earth, which is equally important to astrobiology and science in general," he said.

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Citation: Scientists searching for alien life—on earth (w/ Video) (2013, February 13) retrieved 11 May 2024 from <https://phys.org/news/2013-02-wisconsin-scientists-alien-life.html>

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