Microbiologist teams with NASA research panel to find life on Mars

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Dr. Hazel Barton, who serves on a Mars research team, examines the work of her student Maggie Hamilton, a biology major. Credit: Lauren Collins

Are we alone in the universe? It's one of the most fundamental of questions, says Hazel Barton, an associate professor of biology at The University of Akron who joined to a panel of experts, convened by NASA, to help answer that very question.

Mars once had an atmosphere like the Earth's, with water flowing on its surface, and an environment that may have been, and still might be, hospitable to microscopic life. This discovery renders the question "Is there life beyond Earth?" more pressing than ever. Robots scouring the Martian surface lack the precise instrumentation needed to detect evidence of life and to answer the question conclusively.

That's why NASA announced the Mars 2020 Rover Mission, with its unprecedented goal of transporting Martian samples to Earth for more thorough analyses. "One of the many challenges will be to ensure that the samples are not contaminated; even the tiniest amount of contamination from Earth-based life could undermine the entire mission," says Barton, whose primary role on the research team involves providing specific information about the role of microorganisms in potential contamination.

NASA's expert panel, the Organic Contamination Panel (OCP), devised recommendations for minimizing contamination prior to launch and during collection, return and analysis. Their report, "Planning Considerations Related to the Organic Contamination of Martian Samples and Implications for the Mars 2020 Rover," appeared as the cover story in the December 2014 issue of the journal *Astrobiology*, the leading peer-reviewed journal on life's origin, evolution and distribution in the universe.

Doctoral student Olivia Hershey (right) examines a specimen with Hazel Barton, associate professor of biology, who was selected to serve on a NASA team studying life on Mars.

Chemistry major Quinten Denman conducts lab experiments under the guidance of Hazel Barton, associate professor of biology.

More information: "Planning considerations related to the organic contamination of Martian samples and implications for the Mars 2020 Rover." *Astrobiology*. 2014 Dec;14(12):969-1027. DOI: 10.1089/ast.2014.1244.

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