

Martian 'blueberries' could be clues to presence of life

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(Phys.org)—A discovery at The University of Western Australia that microbes helped shape rare spheres of iron-oxide on Earth may aid the newly landed Curiosity Rover in its search for the first verifiable signs of extra-terrestrial life in similar rocks on Mars.

Spherical [iron-oxide](#) concretions - dubbed "blueberries" - were first found on the Red Planet in 2004 by an earlier NASA robotic probe - [Opportunity Rover](#) - providing some of the first evidence for liquid water on Mars.

Earth-based analogues for these "blueberries" are found in the Jurassic Navajo Sandstone near the Colorado River, Utah, where the concretions range in size from small marbles to cannonballs and consist of a hard shell of iron oxide surrounding a softer sandy interior.

Previous theories suggested these concretions were formed by simple chemical reactions without the help of [life](#). However, new UWA research shows clear evidence that microbes were essential in their formation.

This raises the possibility that Martian "blueberries" may not only reveal that water was present on Mars - but life too.

UWA scientists David Wacey and Matt Kilburn used high-resolution NanoSIMS technology at the University's Centre for Microscopy, Characterisation and Analysis to show clear relationships in the Utah concretions between microbe-like forms and concentrations of biological elements such as carbon and nitrogen.

Their findings - in collaboration with scientists from the University of Nebraska - feature on the front cover of the August issue of the journal *Geology*.

University of Nebraska Assistant Professor Karrie Weber said UWA's CMCA facility - which is used to study everything from early life on Earth to [cancer drugs](#), [plant biology](#), rocks and soils, and nanotechnology - was chosen because of its demonstrated success in identifying microbial fossils.

The latest six-wheeled Mars Rover - Curiosity - landed successfully on August 6 after a 570 million kilometre journey from Earth. The touch-down site at Gale Crater was chosen for its geological potential to reveal signs of water and past microbial life.

Dr Wacey said scientists hoped Curiosity Rover would find more "Martian blueberries" near the new landing site. Should this occur, the robot is equipped to identify mineralogy, detect organic material, capture high-resolution images and bring humans a step closer to answering the question "are we alone?"

Provided by University of Western Australia

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