

# Students looking into bioengineering bacteria to help humans survive on Mars

August 9 2012, by Bob Yirka

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(Phys.org) -- If after a lot of study, scientists decide that there just isn't anything living on Mars, would it be wrong to introduce life there, engineered from organisms here on Earth? That may be a question in search of an answer soon, as right now, researchers are looking into creating bacteria that would be able to survive the harsh Martian environment and that could be used for such things as creating building materials or helping to grow food. More specifically, a team of students from Brown and Stanford Universities, as part of an international competition among college students, is working on ways to create microorganisms that could be useful to people, should we ever send them to colonize the red planet.

*Wired* magazine has done a [profile](#) on the team and reports that they are finding some success by building what they've dubbed a Hell Cell, using something else called BioBricks. The idea is to create a cell that allows the DNA of other organisms to be inserted that have desired traits, like a kind of beetle that has natural cold resistance, for example, because it's really cold on Mars, averaging something like eighty degrees (Fahrenheit) below zero. Mars is also subjected to a lot of radiation, so any bacteria with hopes of surviving would need something like certain types of bacteria that harbor a lot of manganese. The BioBricks are in essence genetic modules that can be plugged into the Hell Cell to help in creating bacteria that possess the desired traits.

The overall idea is to see if bacteria can be created that would be helpful to people living or working on Mars. Tiny organisms that can separate silica and metals, for example, would be useful to help in recycling equipment used to reach the planet, into other equipment more useful for surviving once there. Also helpful would be bacteria that could make medicines, or produce materials that could be used to build structures. Last year the team did just that, engineering a BioBrick that allowed [bacteria](#) to produce a hard material similar to cement.

The results found by the team and others in the challenge, which has as a goal the manipulation of cells to allow them to perform new tasks, would also help if people ever visit other planets or moons, as each has its own unique environment. Lessons learned from one [bioengineering](#) project can be applied to others.

None of this answers the question of whether intentionally bringing life to [Mars](#) would be ethical of course, but it does show that at least in theory, it's probably possible.

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