

Chemistry is Out of This World:

Testing with Tardigrades

NASA researchers are studying tardigrades to understand what alien forms of life might be like elsewhere in our solar system and beyond.

Most of space is a lot like a vacuum chamber. Space is not empty, but all the atoms, molecules, and random particles floating around are very spread out, so there is little to no pressure. It's not easy for living things to survive in this kind of extreme environment. But space scientists, including chemists, biologists, and physicists, are working together to understand how living things react to the vacuum of space by studying one *extremely* interesting and tiny animal. Here on Earth, *tardigrades* (also known as water bears or moss piglets) thrive in a variety of extreme environments, including high mountains, rain forests, and deep seas. They can endure radical changes in air pressure, temperature, and humidity. As subjects in a space science research experiment, millions of tardigrades were exposed to the radiation and vacuum of space for ten days—and some survived!

Tardigrades are a group of microscopic water-dwelling animals specially adapted to extreme microclimates.

