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Survival of Shewanella Oneidensis MR-1 to GPa pressures[1]
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Most life on Earth is thought to occupy near-surface environments under relatively mild conditions of temperature, pressure, pH, salinity etc. That view is changing following discovery of extremophile organisms that prefer environments based on high or low T, extreme chemistries, or very high pressures. Over the past three decades, geomicrobiologists have discovered an extensive subsurface biosphere, that may account for between 1/10 to 1/3 of Earth's living biomass. We subjected samples of Shewanella oneidensis to several pressure cycles to examine its survival to static high pressures to above 1.5 GPa. Shewanella forms part of a genus that contains several piezophile species like S. violacea and S. benthica. We have obtained growth curves for populations recovered from high P conditions and cultured in the laboratory, before being subjected to even higher pressures. We have also carried out dynamic shock experiments using a specially designed cell to maintain high-P, low-T conditions during shock-recovery experiments and observe colony formation among the survivors. Colony counts, shape and growth curves allow us to compare the static vs dynamic pressure resistance of wild type vs pressure-adapted strains.

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